S. HRG. 107–683

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

ON

H.R. 2311/S. 1171

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2002, AND FOR OTHER PURPOSES

Department of Defense
Department of Energy
Department of the Interior
Nondepartmental witnesses

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

TUESDAY, FEBRUARY 27, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met, at 11 a.m., in room SD–138, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Hollings, and Reid.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF LT. GENERAL ROBERT B. FLOWERS, COMMANDER AND CHIEF OF ENGINEERS

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The subcommittee will come to order. This is the first hearing this year of the Energy and Water Subcommittee. I would like to take a minute to welcome Senator Feinstein to our subcommittee, even though she is not here. She has changed subcommittees and will be a member of this subcommittee, and I look forward to working with the Senator from California. Senator Reid, we do a lot of things for the State of California, even without Senator Feinstein present, but just think what it probably will be now that she will be there advocating for that little State of California.

Senator REID. Dread the thought.

Senator DOMENICI. Dread the thought. Second, I am very pleased to welcome Lt. General Robert B. Flowers, Chief of Engineers and the Chief of the U.S. Army Corps of Engineers. This is your first appearance before this subcommittee. It is nice to have you here today, and I hope that we gain a lot of information so we can move ahead forthrightly with the Corps' businesses. Today's hearing is to provide the Corps with an opportunity to share with the committee its response to the Army Inspector General's investigation which concluded in November. I am also hopeful that this hearing will provide us with an opportunity to examine the controversy surrounding the specific allegations regarding the Upper Mississippi River study which had made a rather significant amount of news.

Eight years ago Congress appropriated, that's 8 years ago, appropriated $50 million for a navigation feasibility study of the Upper

Mississippi and Illinois River to examine improvements that might be needed to quicken navigation and relieve congestion, which apparently was rather rampant on the waterways.

This was the largest study, I understand, that the Corps had ever undertaken. For those of you who may not know, a project from development to completion can take from 15 to 20 years, a rather lengthy process, to say the least. A year ago the office of special counsel began investigating a whistle-blower case which alleged that the Upper Mississippi Feasibility Study was weighted toward the construction and that the—toward construction and that the study was manipulated to achieve a construction recommendation. As a result of this case, the Army Inspector General was directed by the office of special counsel to initiate a formal investigation into the claims of the whistleblower.

The IG issued its findings on November 13, 2000. The Corps was to officially respond on February 6, 2001. In the findings the Army IG concluded that there was improper command direction of the study, that preferential treatment was given to the barge industry, a major stakeholder in this process, and that the Corps had an institutional bias toward construction over other potential alternatives. I believe the IG raises serious questions regarding how the Corps carries out its mission and its responsibilities as well as the integrity of the overall process which clearly must be of the highest integrity.

I have the utmost respect for you, General, and the Corps of Engineers, and believe that those who work for the Corps carry out their jobs in an overwhelming majority of the cases in a very professional manner. In fact, they are mostly true professionals. I must say that the IG conclusions raise some questions. In fact, they may be better put as serious questions, with regard to how the Corps runs as an organization.

As a result of the whistle-blower suit the IG investigation and the news articles during the past year, I felt we needed to have the Corps here today to respond to these allegations. Let's hope you can respond in a manner that will move us forward. I yield to my Ranking Member, Senator Reid.

STATEMENT OF SENATOR HARRY REID

Senator REID. Mr. Chairman, I look forward to working with you this Congress, as we have the past several congresses on this subcommittee. I believe it's one of the most important subcommittees that we have. I feel so strongly about that that I didn't move to another subcommittee this year. I feel this subcommittee is important to the country and certainly to the State of Nevada.

I think that this is a perfect time to hear Lt. General Flowers this morning. I think this is—I have a long list of questions, and I'll submit these for the record and would hope, General, that you would answer these as quickly as you can. I'm also the chairman of the Environment and Public Works Committee, and we have Governor Whitman testifying there as we speak, so I have other things to do. That does not take away from the fact that I fully understand the importance of this meeting. I'm a supporter of the Corps of Engineers, understand its long record of accomplishment for our country, so there is no question about where I stand on the

Corps of Engineers. Most members of this subcommittee have heard me describe at great length the importance of infrastructure to our Nation's economy and our future. We have a tremendous backlog of infrastructure needs that the Corps is the best poised to meet. For over 200 years this Corps has done outstanding work for our Nation and continues to do so today.

I recognize, as Senator Domenici has indicated, that the Corps is not infallible. I am concerned when allegations of misconduct have arisen concerning the Upper Mississippi River team. The Corps has always, in my opinion, prided itself on first rate analytical work, and to read accounts of how your employees might have, in effect, cooked the books to move a multibillion dollar project forward has been disturbing to me. These allegations which could be described by some as fraud and misconduct resulted in a very critical report by the Inspector General last year. Couple all this with the remarkably negative series of stories in the Post, Washington Post, so I think there is every reason for us to conduct this hearing and probably some more.

I have an open mind about this I find it hard to believe that an organization which has done such good, credible work for such a long time has become the evil empire that we have been reading about. I have a unique position, as I have already indicated. I'm both ranking member of this subcommittee and the ranking Democrat on the full Environment and Public Works Committee. This is the first in a series of oversight hearings on the Upper Mississippi and Corps issues to be held by this subcommittee and the Environment and Public Works Committee.

I understand the National Academy of Sciences will be releasing a report this week that may shed some light on all of this. We're going to get started today with both the information and the witnesses we have. Today, however, is as close as you are going to come to getting your thoughts in the record. I think it is proper for the subcommittee to proceed in this manner. The chairman and I both heard about the Corps from a lot of people last year, one group that was almost strangely silent was the Corps itself. I think it is now time for that silence to evaporate.

My staff has told me that stakeholders will be invited to other oversight hearings upstairs on the fourth floor where we conduct our meetings. I look forward to my staff reporting to me on this hearing, and I apologize, General Flowers, for not being able to spend more time here.

First, we have read about these reports. Second, there have been allegations that the Corps allowed certain stakeholder groups to have inappropriate influence, and so as I said, I hope that you will cover in your testimony, perhaps in your opening statement, that you will describe the Corps' public involvement process for studies such as the Upper Mississippi. For example, where members of the public are included in this Upper Mississippi study.

I also want to hear from you your perspective for these individuals as these three Corps officers have been cited for inappropriate action, I would like to know what your office has done about this and what your opinion is about this.

Finally, General Flowers, during my service on this panel, I have heard a great deal of testimony about the water resources needs of

this country, requirements to improve our ports, waterways, provide protection from damaging floods and coastal storms, concern for degrading environments, providing for the water supply and water quality in rural America.

I want you today to cover in your oral testimony or in writing what the role of the Army is in addressing these water resource needs, does it make sense for the Army to be involved in civil work activities, does the Corps prepare to respond to water source requirements.

So these are difficult questions, and I would hope that you would take whatever time is necessary today or in writing to answer these questions. Thank you, Senator Domenici, for allowing me this inordinate amount of time to have an opening statement.

[The information follows:]

CORPS OFFICERS INVOLVED IN THE UPPER MISSISSIPPI AND ILLINOIS NAVIGATION STUDY

These three officers were doing their duty. They were attempting to bring to conclusion a most complex and difficult study. While, in hindsight, some of the actions that they took were misinterpreted by Corps team members, they were striving to complete the mission as they had throughout their careers.

FEDERAL ROLE IN ADDRESSING THE NATION'S WATER RESOURCES NEEDS

The development of water resources to serve the needs of the Nation do not follow state boundaries, and throughout our history interstate disputes have arisen over water. The Federal role is then quite clearly to provide the comprehensive planning and leadership to provide for the most efficient, effective and environmentally aware development and conservation.

The Army Corps of Engineers was assigned the mission of providing for the nation's water resources development early in the 19th century, initially providing for interstate navigation and later in the early 20th century in the prevention of flood damages. Throughout the century hydropower, water supply, recreation, shore protection, and environmental protection and restoration. As society's needs and values have changed, the Civil Works program has reflected changing national priorities for good water management.

Responsibilities for the development, management, and protection of the Nation's water resources, coupled with the reimbursable support that the Corps provides to other federal agencies, nonfederal governmental entities and foreign governments, constitute the current Army civil works mission. One of the great strengths of the Corps is the force multiplier effect between civil and military missions. For example, in addition to the direct contributions that the civil works missions make to our economic and environmental security and prosperity, the Corps also applies its civil works assets to support the Army in times of national need to enhance national security and to promote democracy abroad. The Civil Works Program also derives greater capability and effectiveness by being an integral part of the larger Army and Defense team.

The Corps of Engineers is prepared to respond to water resource requirements.

Senator DOMENICI. Senator, I am glad you stayed on the subcommittee. I think it is an exciting subcommittee. The fact that we are having the first hearings on this would indicate that there is a genuine concern, since we have to appropriate the money, and we have been trying very diligently, both of us, to get the water projects in the country up to the right level of funding, and we have worked very hard at that over the last 3 years, and so we want to make sure we're doing right as we raise the amount of—continue to raise the amount of money that's given to the Corps for major projects, major and minor projects across this land. Whenever you are ready to leave, I understand the situation.

Senator REID. Thank you.

Senator DOMENICI. General, would you please proceed. We've got your written statement, but I do think it very important that you make your case. So if you want to use the full statement, you use it. If you think you can do a good job in abbreviating in making the case that you want to make——

STATEMENT OF LIEUTENANT GENERAL ROBERT B. FLOWERS

General FLOWERS. Sir, I will abbreviate, and I will do my best to answer the Senator's questions in my statement.

First, sir, it is great to be able to be here and to tell a story on behalf of the Corps, its soldiers and its civilians. We've been working for the Nation for 225 years now, and I think we have become indispensable to the country and to its future. We've been involved in water resources planning for a very long time, and we are very proud of our discipline, planning process, our professionals who execute that process, and as you are aware, sir, we face significant challenges as we execute those responsibilities. But I believe we have served the public well through controversy and intense scrutiny, difficulties of our process are I'm sure known to you, sir.

Two years ago in 1999 we had the National Academy of Sciences review our study process. They found it to be sound, and we have been working at improving the process continuously since we have been executing it.

I would like to talk about the Upper Miss Navigation Study if I could.

Senator DOMENICI. What part of the National Academy of Sciences did the review?

General FLOWERS. Sir, it was the NRC, the National Research Council. It is an arm of the National Academy of Sciences.

Senator DOMENICI. Okay. Proceed on the Upper Mississippi.

General FLOWERS. Sir, the Upper Miss, as you've described, is the largest study that the Corps had undertaken. A regional study. Our expertise in doing studies was gleaned from doing a number of project studies using our process. In the economic arena, we had developed an expertise in microeconomics so that enabled us to do very good, I think, economic analyses of our projects.

On the Upper Miss Navigation Study, we worked into an area that I will describe as macroeconomics. For the very first time what we came into contact with dealing with national and international issues, such as worldwide markets for grain, agricultural policy, transportation policy, and I think in an attempt to deal in that arena, the officers who were conducting this study who were responsible for bringing this study in on time and on budget pressed to have just exactly that done.

While we were working in an arena that was asking us to predict 50 to 100 years in advance what would occur, the tenor of their communication, I think, to our teams that were studying it drove them—drove the people on the teams to believe that they were being forced to a certain decision.

I know all three officers who were cited in the IG study personally. Major General Russ Fuhrman, a Vietnam veteran, almost 34 years of service to his country, helped save part of Chicago when there was a flood there in the early 1990s, led the team that re-

stored Florida after the hurricane that devastated Miami and the area around it.

Major General Phil Anderson, 31 years of service, led all the soldiers, the engineer soldiers for the Army in Somalia in the early stages in helping to conduct Operation Restore Hope, was the deputy commander who left on 1-day notice to go to Haiti and served there as we did our best to make things right in Haiti.

And Colonel Jim Mudd, the district engineer from Rock Island District, 26 years of service to his country, gulf war vet.

Sir, it is not in the character of those officers to do anything for personal gain, and I think in partial answer to one of Senator Reid's questions, you know, why the Army, I think it is because of the Army Corps values that are imbued in soldiers and that I think transfer to our civilian employees. Loyalty, duty, respect, selfless service, integrity and personal courage are things that we embrace and we try to live every day, and I think those officers did as well.

I accept the IG report. I look at it as something that we have to accept, learn lessons from, and go on, and we are going to do that. I owe the Secretary of the Army a response, a 60-day response that was due in February, sir, we have deferred until there is a Secretary of the Army and a new Assistant Secretary of the Army for Civil Works. I think that is the right thing to do. And we will be prepared as that new team comes on board to work with them in implementing whatever changes are necessary to restore faith and to combat the perception that the Corps is not doing something right.

I believe, and I would just remind everyone on the Upper Miss Navigation Study, that no draft report had been issued, and so trying to derive a conclusion that the Corps was going in—driving toward one conclusion is a bit premature, since we had not even issued a draft report, but I do accept the criticism of the IG report and will be working to improve the process.

The—I have been working very hard to reestablish relation—reestablishing good relations with the administration and with the Congress. We have been evaluating our feasibility study process. I have cooperated with the National Academy of Sciences in their study, we are working now, sir, to restructure the management process of the Upper Miss and Illinois Navigation Study.

As I mentioned, some of the things that we ran into I think will require us to make use of the expertise of other Federal agencies, and so we are going to pause the Upper Miss study. We will take the months of March, April, and May to work with the Federal agencies in taking a look at the study and incorporating the results of the National Academy of Sciences. We will restart the study in June and work toward concluding the study in July 2002.

Senator Reid asked another question, I think, about why the Army and why is the Army involved in Civil Works. I talked about our values, and I think the country being comfortable with officers and what they stand for, but from a national security standpoint the roads that were built in the various theaters in World War II, the massive construction efforts that went on to support our Armed Forces, contingency operations in Somalia, Bosnia, Kosovo, and other places are enabled because we have officers who have gained experience in working large civil works projects and in their plan-

ning and execution, and I think that gives us an edge that no other country has, and whatever the Nation has needed, we've been there for—the space program, the harbors on both coasts, the inland waterway system, flood control.

When given a mission, sir, we've gotten it done. Our books have balanced and our structures have stood. So you are looking at an organization that I think is absolutely indispensable to our country, its Army, and our future.

Sir, I'm prepared to answer any questions.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL ROBERT B. FLOWERS

Thank you Mr. Chairman, I am Lieutenant General Robert B. Flowers, Commander of the U.S. Army Corps of Engineers and Chief of Engineers. I am pleased to appear before you today to discuss the service of the Army Corps of Engineers to this Nation.

INTRODUCTION

The state of the Army Corps of Engineers is sound. We are prepared for the challenge of public service. Since 1775 the Army Corps of Engineers has honorably served the Army and the Nation. During the 20th Century the Army Corps of Engineers experienced both resounding success and dramatic controversy. Today, at the dawn of the 21st Century, we are called to respond to the scrutiny of the public we serve. I welcome this challenge.

THE CIVIL WORKS PROGRAM

The Army Corps of Engineers traces its origins to the construction of fortifications at Bunker Hill in 1775. For more than 225 years, the Corps has responded to the needs of the Army and the Nation.

Throughout this period, the mission of the Corps has evolved from "Builder" to encompass "Developer/Manager" and "Protector" of water resources. What began as a military engineering mission for nation building in the 18th century expanded into a major peacetime mission in the 19th century. The Corps helped a young nation map the frontier and expand westward by surveying roads and canals. The Corps promoted economic development through a vast water resources infrastructure, initiated development of the first national parks, and tied an inland navigation system together to move commerce across states and keep ports and harbors open, a role critical for national defense. In the 20th century, Congress provided the Corps with additional water resources development and management authorities, including flood control, hydropower, water supply, and recreation. More recently shore protection, disaster relief, and environmental protection and restoration authorities were added. As society's needs and values have changed, the Civil Works program has reflected changing national priorities for good water management. The Corps abilities to facilitate, advise, develop, operate, manage, and evaluate on a broad range of water resource issues furnish a robust capability set for the Nation's benefit.

Mr. Chairman, within your oversight, the Corps Civil Works Program is primarily responsible for the development, management, protection, restoration and enhancement of our nation's water and related land resources for commercial navigation, flood damage reduction, and the environment. The program provides stewardship of America's water resources infrastructure and associated natural resources, and also provides emergency services for disaster relief. It is my job, in concert with the Assistant Secretary of the Army (Civil Works), to provide advice to the Executive Branch and Congress on these matters. The goal of our study process is to produce the best economic and scientific analysis available.

WATER RESOURCES PLANNING AND THE NATIONAL INTEREST

We are proud of our disciplined water resources planning and our planning professionals who face the daunting challenges of solving real problems, balancing competing interests and forging consensus around solutions. They serve the public well and very often in the midst of controversy and intense scrutiny. Their difficulties make the discipline of the process of paramount importance. Today, we continue to apply the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies supplemented by Corps guidance that

strives for inclusion of all interests in the management and investment in our water resources. When applied diligently, the Principles and Guidelines force all—the Corps and its stakeholders—to recognize the tradeoffs and balance competing interests.

Our vision of planning is to meet national needs within the framework of current law and policy. Our planners have operated responsibly over the last two decades as priorities and concerns have shifted. The Water Resources Development Act of 1986 emphasized the National expectation that project partners be more involved in the formulation and financing of solutions to water resources problems. Nearly everyone believed that we could develop better projects more efficiently and effectively by recognizing that projects must both meet national needs and work viably at the local level. We responded with vigor and enthusiasm. The attached map illustrates where cost shared feasibility studies have been conducted with non-Federal partners since 1986.

Four years ago, the Army commissioned a National Academy of Sciences study to determine whether Corps planning should be further streamlined. That study concluded that the process was about right in terms of length and resources. During the last decade, interagency policy discussions increasingly have emphasized broader scale studies of entire watersheds with interagency collaboration and comprehensive, systemic solutions. An unintended effect of cost sharing has been the narrowing of focus of studies, as cost sharing partners are reluctant to finance studies that are broader than their immediate concern. As a result, our planners are often caught between the forces seeking comprehensive planning at one end of the spectrum and those who voice concerns for addressing needs on an expedited basis and early screening of alternatives that have little chance of being implemented. We are pledged to this service.

UPPER MISSISSIPPI AND ILLINOIS NAVIGATION STUDY

Turning now to the Upper Mississippi and Illinois Navigation Study. This is a feasibility study of lock capacity and reliability. The study area extends from St. Louis to Minneapolis-St. Paul on the Mississippi River and from the mouth to Chicago on the Illinois River, a total of 1202 river miles encompassing 37 existing locks and dams. This reach, 10 percent of the inland waterway system, provides the origin or destination of 48 percent of the ton-miles of the total system. This study was started in fiscal year 1993 to address limited lock capacity and reliability. Limited lock capacity leads to commercial tow delays, while reduced reliability of aging locks contributes to outages and higher maintenance costs. Both delays and outages can add millions of dollars to the costs of transporting grain and other commodities carried on the system. These costs in turn reduce the real incomes of farmers, other producers and consumers. While the Upper Mississippi River system is a vital transportation corridor it is also a nationally significant environmental resource. It contains a system of Federal and state wildlife refuges and parks that provide habitat for migrating waterfowl and support fish and wildlife resources. Navigation development has had an adverse impact on these resources which must be carefully addressed and balanced in any study of improvements. This is a truly comprehensive study of an entire navigation system. The estimated study cost is currently approximately $60 million. Our current schedule provides for release of a draft report for public review in September of this year. In July 2002, I expect to make my final report to the Secretary of the Army.

The Upper Mississippi and Illinois Study is very complex, involving engineering, economic and environmental analyses of impacts and consequences of a wide variety of possible future conditions on these rivers. A sound investment plan for the navigation system must be based on reasonable projections of future volumes, types and destinations of commodities that will move on the waterway. Therefore, a key component of the study is a 50-year forecast of demand for water borne transportation on the Mississippi and Illinois system including the response of barge operators and shippers to congestion. The commodity movements on this system are largely agricultural. Volumes and destinations of these products are driven by world market conditions and therefore, fluctuate with world economic conditions. Another key component is forecasting the schedules for major rehabilitation activities. In view of these facts, projections are subject to significant uncertainty.

As part of the Study a group of Corps team members made economic projections and built an economic model to provide a basis for study conclusions. This proved to be a very difficult task. As you might expect, there were disagreements between the many stakeholders, as well as team members, over the model and its projections.

WHAT WE ARE DOING

First and foremost I take the issues surrounding the Army Corps of Engineers and the Upper Mississippi and Illinois Study seriously. I must ensure the integrity of the Corps of Engineers and its study process. In this regard there are several actions underway:

—While the National Academy of Sciences has completed a general review of the Corps studies process and found it to be a sound process, I am evaluating our review process for feasibility studies to determine whether improvements, including independent review, are needed.

—I have fully cooperated with the National Academy of Sciences on its specific review of the Upper Mississippi and Illinois Navigation Study. I am also fully supporting the National Academy of Science study directed by the Congress in the Water Resources Development Act of 2000 of the practicality and efficiency of independent peer review of feasibility studies and methods for project analysis.

—I am restructuring the management of the Upper Mississippi and Illinois Navigation Study.

—I am placing renewed emphasis on my Environmental Advisory Board to insure that I receive independent environmental advice.

—The Assistant Secretary of the Army for Civil Works and I, on November 28, 2000, submitted a joint memorandum to the Secretary of the Army on Civil Works Management and Communication Clarifications. In this memorandum, Dr. Westphal and I agreed upon the responsibilities of both parties and committed to sharing information, communicating effectively, and cooperating fully on all Civil Works matters. The Secretary of the Army provided copies of this memorandum to the Chairman and Ranking Member of this Committee in his final update regarding enhancement of the management procedures of the Civil Works program.

—I am rewriting the vision statement of the U.S. Army Corps of Engineers to focus on service to the Army and the Nation.

—I have conducted extensive outreach sessions with a broad variety of interests, including meeting with a substantial number of Members of the House and Senate.

OTHER OBSERVATIONS

There are many interested parties and many points of view in the Upper Mississippi and Illinois study area. The Corps team members have worked diligently to give all an equal opportunity to be heard.

At any one time we have many feasibility studies underway. The attached map illustrates where cost shared feasibility studies have been or are being conducted with non-Federal partners since 1986. In any study, our challenge is to balance competing values and interests, develop alternative solutions that solve recognized problems and establish a broad consensus for the best solution. I'm proud of our record on the many studies depicted on this map. We are especially proud that many of these studies are resulting in projects that go beyond simply avoiding or mitigating environmental impacts and make positive contributions to restoring the Nation's environmental resources. We strongly believe our leadership, engineering and water resources skills and disciplined planning are central to solving real problems and serving the American people. We've served the Nation well and will continue to do so.

CONCLUSION

Throughout my career I have been privileged to work with the outstanding men and women who make up the Army Corps of Engineers. They fostered in me a desire to be a consensus builder, someone who does not necessarily compromise but who seeks alternatives which uniquely combine individuals' input into a solution which is genuinely better than the sum of the parts. I view our current situation as an opportunity. This is an opportunity for us to see ourselves anew and rededicate ourselves to our principles.

I take the issues surrounding the Army Corps of Engineers seriously, and I am making the changes necessary to insure the continued integrity of the Civil Works planning process, so that the Corps of Engineers can continue to fulfill its role in addressing the many water resource needs of this great country. Mr. Chairman, this completes my statement. I am prepared to answer your questions as well as those of other members of the Committee.

Senator DOMENICI. Well, General, I'm impressed with the statements by you as to the background of the three officers, and that is—the record needs to have that on it. But I am kind of amazed that you're not really telling us anything about what you're going to do. You accept the report. That is a fairly good starting point. Could I just ask you some questions? It seems to me that you are waiting for another day to tell us what you are going to do and how those reports will affect and improve what you are doing.

So it is evident with the IG investigation, General, that some outsiders do not believe the Corps study process is open enough. The Corps, as a result of the investigation, asked the National Academy of Sciences to review the project development process. The process itself has evolved over the last 65 years, and I understand that, with many laws and many regulations, some say refining it, may be what you will find when you get around to changing things that maybe you need to refine it in some other directions. But how many opportunities are stakeholders and communities guaranteed input under the current practices of the Corps, and do you think you are going to change those rules to any significant degree?

General FLOWERS. Sir, our study process incorporates the public's and stakeholders' views at several points in the study process. On the Upper Miss study alone, there were 34 public meetings held, 2,400 people attended those public meetings. We received 2,500 comments from the public.

The governors' liaison council, made up of the Governors whose States touch the Upper Mississippi sent newsletters periodically out to individuals, and 9,200 individuals, agencies, and interest groups received that. We prided ourselves on incorporating stakeholders into our process. The barge industry, for example, on the Upper Miss, was one of those stakeholders. Should any construction be done as a result of the study, the barge industry would cost share about 50 percent in the construction of anything that is done, and so I think anyone, for example, who has to help pay for something probably wants to be involved in the process as it goes forward.

And I would characterize our process as a very open one. It's like working in a fish bowl in that as we proceed through the study process, at points we invite local governments, State governments, other agencies, the public and stakeholders to participate, to grade our paper, to give us comments as we proceed through the study process.

Senator DOMENICI. General, is not the contention, one of the contentions that certain stakeholders were not included sufficiently and others were included more so than they required and had more of an influence than they should have?

General FLOWERS. Sir, I think the——

Senator DOMENICI. Was not that one of the things that was reported?

General FLOWERS. One of the things that was reported was the fact that the barge industry seemed to have more of a say as a stakeholder than they should have, and I would kind of view that as a judgment call.

The barge industry, as I said, would be a cost share partner in anything that gets constructed in the future, and so they had, definitely had an interest in what was happening. But I do not believe that we have done anything to in any way prejudice an outcome just to make sure that we give the opportunity for everyone to have more of a say. That is why we are pausing the study as it is right now. We're going to work with the other Federal agencies to make use of their expertise as we proceed with the study, and we're taking into account the results of the National Academy of Sciences report which we will receive tomorrow.

Sir, my intent on any other reforms is to wait until I have an opportunity to submit my 60-day report, my 180-day report to the Secretary of the Army, and I intend to do that just as soon as we have a new Secretary of the Army and an Assistant Secretary of the Army for Civil Works, but just to give you an indication of some of the things we are looking at, we are looking at a form of peer review for the Corps study process, and I must caveat this by saying everything that what we are looking at is designed to not add any more time or expense to the study, so that is a difficult challenge, but we are looking at that.

I am reenergizing the Environmental Advisory Board for the Chief of Engineers to get more environmental input, and we will incorporate the results of the National Academy of Sciences report as we look to the future, but, sir, my response to the Army will be sent as soon as we have a new Secretary of the Army and assistant Secretary of the Army for civil works.

Senator DOMENICI. So when did you decide that this delay would occur until the new secretary had arrived? When was that decision made?

General FLOWERS. Sir, we have been taking a look at the Upper Miss Navigation study since receiving the results of the IG report in November, and we made a tentative decision to suspend the Upper Miss nav study and invite the involvement of the other Federal agencies in December. Since then we have been doing some coordination, looking at it, and really waiting until we had a better feel for what the National Academy of Sciences report was going to tell us before any announcements were made. But this is as good a time as any.

Senator DOMENICI. In your prepared remarks you said you're restructuring the management of the Upper Mississippi and Illinois navigation study. What does that mean?

General FLOWERS. Sir, what we intend to do is to bring the study up under the direct cognizance of the division engineer and manage it more centrally so there would be a regional team from the Federal agencies working the issues as well as an involvement from the Federal agencies here in Washington and the Washington principals group.

Senator DOMENICI. The IG's findings concluded that the Corps is naturally weighted toward construction as a study recommendation, given the fact that the majority of the Corps personnel and the costs are expected directly by construction efforts. It would therefore appear to an outsider that it is the best interests of the Corps to recommend construction.

How do you address the issue of institution bias toward construction and can you explain how the Corps is not dependent on a study recommending construction when the majority of its personnel costs are funded through an ongoing construction award?

General FLOWERS. Sir, I would stand on our record. We have a very rigorous study process that has to be accomplished before any recommendations are made. Of every 100 reconnaissance studies that are begun, 16 or less actually result in any construction.

What that means is five out of six studies that are accomplished do not result or have not resulted in construction. The process is a tough one to get through. It has a lot of public involvement and stakeholder involvement, as you proceed through the process. It has been determined to be sound by the National Academy of Sciences when they did their last review in 1999. Can it be improved? Yes, sir, I am sure it can be, and we will work to do that.

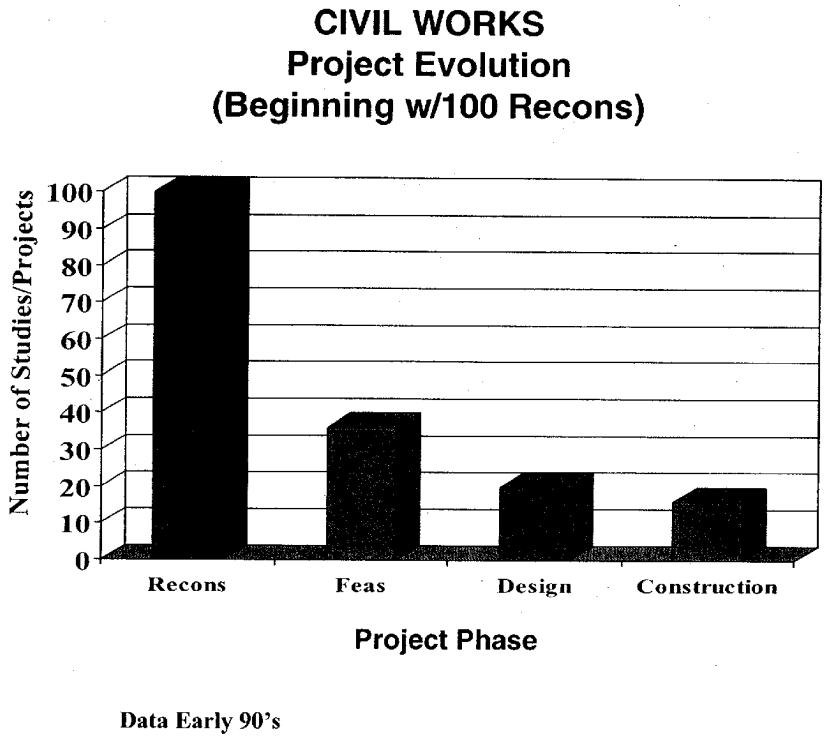
Senator DOMENICI. So are you saying that you could lay before the committee a number of projects that went through the process and were deemed not or recommended not, to not go, no construction, do not proceed?

General FLOWERS. Yes, sir.

Senator DOMENICI. Why do you not do that for the record and give us some list or some ratio or something that would give us evidence that that is actually—that that has happened.

General FLOWERS. Sir, we will do that for the record.

[The information follows:]



Senator DOMENICI. You indicated in your testimony that your restructuring—excuse me, that you are placing renewed emphasis on the Environmental Advisory Board with reference to independent environmental advice. Tell me—tell the Senate a little bit about that. What does that mean? Are you acknowledging that perhaps you did not have sufficient input from that group? Or how does this fit into the scheme of things?

General FLOWERS. Sir, the Environmental Advisory Board was begun in 1970 by the Chief of Engineers after the enactment of NEPA, the National Environmental Policy Act of 1969. What the board is made up of is up to 10 recognized environmental specialists from either academia, State agencies, and they would typically sit down about twice a year with the Chief of Engineers and be briefed on things that the Corps had going and provide some input, some perspective to the Chief of Engineers because we recognize—I think that we wanted to listen and get that perspective.

I think in the last couple of years it's fallen into some disuse, and my intent is to reenergize that, sir, to take advantage of that input.

Senator DOMENICI. General, we have put your statement in the record, and you have testified orally, and Senator Reid has indicated he has a number of specific questions. We would like you to answer them. I have about five or six more, but I guess what I am going to ask you has to do with your position here today, so we will have it right. Actually you are not prepared to tell this subcommittee how you are going to actually change things to comply with the IG's findings that you have said you accept. Now, when you said you accept them, I assume you mean that you are going to have to do something different so that you have a response to those contentions which you have now accepted.

When will all of that be completed? When will you be able to come before this subcommittee and say here is what we're going to do?

General FLOWERS. Sir, the 180-day response to the Secretary of the Army is due at the end of June. I would hope that we have, well before then, a new Secretary of the Army and an Assistant Secretary of the Army for Civil Works, and I really owe it to them an opportunity to sit down and go over this with them before I bring those recommendations to you, sir.

We are prepared to do that, and I will do it just as soon as those positions are filled.

Senator DOMENICI. Well, General, it seems to me that we called a meeting to hear what you're going to do, and you're telling us that you can't do anything because you have to work with the Secretary who is not yet there, and maybe a while longer before he gets there and has his deputy in charge of this kind of activity.

What do we do in the meantime? What do we do with reference to the budget that's submitted? We say there's no changes? Everything's going to continue? What do we do about the Mississippi?

General FLOWERS. Sir, I think we are going to proceed with the restructuring of the Upper Miss Navigation study. That decision has been made, and we are moving on that.

Senator DOMENICI. Well, you have told us in your written remarks how that is going to happen. Would you tell us now orally,

how is that remodeling of that structure changing it? How is that going to occur?

General FLOWERS. Sir, we will have a pause in the study, we will take the next 2½ months roughly working with the other agencies and incorporating the results of the National Academy of Sciences report. We will rescope the study and the intent is to restart the study, making—taking advantage of what we have already done, so we have not lost anything there, with an eye toward completing the study process in July 2002 so that—and why July 2002? I think if it can be done, it should be done by then so that if there is anything to be incorporated in WRDA 2002, it should be done, but I did not want to give you the impression, sir, that we are not doing anything until I an able to work any changes to the process. We are working changes to the process as we speak, but in terms of suggesting peer review, et cetera, I prefer to wait until I have had the opportunity to talk that over with my civilian leadership.

Senator DOMENICI. Well, how do we make dollar decisions in the meantime?

General FLOWERS. Sir, I think you can trust the results of the studies that we have completed. We will stand on all of them. Again, on the Upper Miss, there was no draft report even issued, but we do stand on the reports that we have issued, and if it has the Chief of Engineers' signature on it, sir, the integrity of this organization stands behind it.

Senator DOMENICI. Have you been asked to go through the process of recommending to OMB what you need for this year or how is that part of the last 6 weeks been handled?

General FLOWERS. Yes, sir, we have. We submitted through the Secretary to the Office of Management and Budget

Senator DOMENICI. And you have told them what you need in the same way you have been telling us heretofore?

General FLOWERS. Yes, sir.

Senator DOMENICI. I don't want to ask you if you know the results.

General FLOWERS. Sir, I think my Commander-in-Chief will be making some announcements tonight.

Senator DOMENICI. Well, I am not sure what he will have to say about the Corps, but we will see. Commanders-in-Chief sometimes have to be talked to. Maybe not by generals, but——

General FLOWERS. Yes, sir.

Senator DOMENICI. My last observation is intended for the record and intended for you as head of the Corps of Engineers.

I would ask the question Harry Reid, Senator Reid asked differently, and I already think I know what the Corps of—why the Corps of Engineers is involved in these projects, but I think what is happening is it is incumbent upon those who lead it not to let it, that is the Corps, get tarnished such that projects do not have the kind of credibility that we need to get support and to get them funded, and I think it is incumbent upon you and the new Secretary to quickly dispose of the serious contentions that were found in these studies of bias, of not understanding certain things or appearing to favor certain stakeholders because that could permeate everything.

That would not just be the Upper Mississippi, if those kind of shortcomings exist, they could permeate many projects, so I for one look forward to your getting us the detailed report on what you are going to do soon. In fact, as soon as we have a Secretary, we will confer with that Secretary and tell him what—how important it is that we get these things answered quickly, if we have got a big budget, a lot of projects to proceed with. With that, I will submit about 10 questions for the record, and Senator Reid's questions are submitted. I note Senator Hollings is coming. Senator, did you have any questions? We were close to finishing.

Senator HOLLINGS. No, you go right ahead. I just wanted to meet the General.

Senator DOMENICI. General, why do you not step up and meet the Senator. I have already met him.

Senator HOLLINGS. We have got a lot of things down in South Carolina I want to look at.

General FLOWERS. Hello, sir, it is my honor. Good to see you.

Senator HOLLINGS. Good to see you, too.

Senator DOMENICI. With that Senator Hollings, we had completed our questions and submitted some. Senator Reid had done likewise, and we were about to recess. You would note that the General has not been able to bring us the in-detail ways that he is going to reform the system to take care of the contentions that have been lodged by the Inspector General.

Senator HOLLINGS. Right.

Senator DOMENICI. He does not have that ready today except as to the Upper Mississippi, he is telling us he is changing that process substantially to eliminate some of our concerns. That is about where we are. When will you have further details that you submit to us?

General FLOWERS. Sir, I would say not later than June, but just as soon as we have a new sitting Secretary of the Army and a new Assistant Secretary for Civil Works, my intent is to carry this forward with them, sir.

Senator DOMENICI. Senator Hollings, did you have anything?

Senator HOLLINGS. Yes. General, on the proposed new port facility down at the mouth of the Savannah River, is the Corps of Engineers taking a position on that?

General FLOWERS. Sir, I will have to take that question for the record, if I might.

Senator HOLLINGS. Yes, all right. That is the kind of question to ask, see? I appreciate it, Mr. Chairman, thank you a lot.

[The information follows:]

PROPOSED SOUTH CAROLINA PORT ON SAVANNAH RIVER

Jasper County, South Carolina, has initiated condemnation proceedings to acquire land owned by Georgia and used by the Corps. in connection with Savannah Harbor's dredging needs. However, the condemnation action specifically states that the interests sought to be acquired by Jasper County are subject to the United States' outstanding dredged material disposal easements.

The Corps has received no specific proposals, plans, or permit applications concerning this project from either Jasper County, South Carolina, or South Atlantic International Terminal LLC, the proposed developer of the terminal. Until additional information pertaining to the port facility is, furnished and evaluated, the Corps is unable to state whether or not the proposed project would be economically and environmentally supportable.

Senator DOMENICI. Thank you, General.

General FLOWERS. Thank you, sir.

ADDITIONAL COMMITTEE QUESTIONS

Senator DOMENICI. Thank you very much. There will be some additional questions which will be submitted for your response in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

Question. How many opportunities are stakeholders and communities guaranteed input under the current practices by the Corps, and do you anticipate any changes in these rules?

Answer. It is part of the Corps of Engineers process to involve all stakeholders and the General public early and often. Public involvement is a central element in our study process. The public involvement on the Upper Mississippi Study commenced during the earlier study stage. Over the course of the study, until it was suspended earlier this year, there were 34 public meetings, with over 2,400 attendees and 2,500 comments. The Governor's Leadership Commission, and coordinating committees held over 70 forums, all opened to the public, with multiple interest participation. Public presentations were attended by citizens, and environmental, waterborne commerce, agricultural government/agency, business and industry, and recreation interests. Nineteen issues of a newsletter on the study were sent to more than 9,000 individuals, businesses, interest groups, and agencies. It is incumbent on us to provide stakeholders and communities access to the study and to use their comments, as well as the comments we receive from other interest groups and individuals in developing the analysis and subsequent alternatives. Changes in these rules would only take place where they are deemed necessary.

Question. Were certain stakeholders given more access and/or were included in the process more than others.

Answer. No, they were not. The Corps study process involves all stakeholders as well as the General public early in the study phase of a project. We conduct our process in a "fish bowl" environment, in other words, in view to everyone.

Question. How do you address the Inspector General's findings of an institutional bias toward construction?

Answer. The findings by the Inspector General of an institutional bias toward construction are unfounded. The Corps' planning process results in the culling out of many studies and projects. Approximately 84 of 100 studies, or 5 out of 6, do not result in constructed projects. The Corps is experiencing a construction backlog, $40 billion, at the current rate of appropriations. While this may seem vast, it is important to point out the benefits of a constructed Corps project, to date, outweigh the cost over 8 to 1.

Question. Can you explain how the Corps is not dependent on a study recommending construction when the majority of its personnel costs are funded through on-going construction work?

Answer. Nearly all of the Corps's construction work is contracted out. Less than one in six of our Civil Works employees are paid out of Construction, General funds. They are paid from General Investigation and Operation and Maintenance, General funds.

Question. Please tell us about the Corps' accuracy rate in forecasting usage rates or how the economic modeling of past projects stood the test of time?

Answer. A study on the Corps' forecasting was recently completed by our Institute for Water Resources (IWR). They examined 15 sets of projections for the inland waterway system. The report found in 11 cases, the actual traffic for those waterways was close to, or exceeded, the projections. Only in four cases was traffic significantly below projections. Given the myriad of factors that can affect economic forecasts, 11 of 15 is a significant success rate.

Question. How does the Corps ensure sufficient oversight and review by qualified individuals when it determines how to employ economic methods for a specific project?

Answer. The Corps hires well-qualified professional economists, and invests in furthering to develop their expertise. We utilize these experts under the supervision

of senior, supervisory economists. Where we lack the appropriate in-house economic expertise, we secure it from well-qualified professional consultants. The economic analyses, whether produced in-house or by contractors, is subjected to an independent technical review by professional economists.

Question. Does the Corps essentially follow the same procedure for all forecasts, and is this step in the process regulated in any fashion?

Answer. Forecasting procedures vary with each study depending on the missions, scope, availability of data, and the sensitivity of the results to the forecasts. We suggest generally accepted procedures to our field offices for some missions such as inland navigation, but we do not dictate applications. Deviations from the suggested procedures must be approved at our headquarters. We require our analysts to fully support the methods they use, including full descriptions of the methods, tools, assumptions and sources.

Question. How does the Corps ensure that it keeps up to date with the current economic forecasting methods?

Answer. The Institute of Water Resources, a field operating activity, keeps abreast of state-of-the-art procedures for forecasting, and thus maintains all statistical data on Corps maintained waterways. We provide training to our staff, to keep them informed and learned of new technologies. This helps us to maintain centers of expertise for many applications, such as hydropower, which demands forecasting in its development and maintenance.

Question. What efforts are you undertaking within the Corps to ensure that feasibility studies are more reliable and are not unduly influenced toward an intended outcome?

Answer. Our studies are conducted in full open view; and is a very rigorous procedure. Our study process is routed in the Planning and Guidelines, a thoroughly vetted process to be used by all Federal water resources agencies. We rely on several steps in our processes to insure the integrity of our studies:

—Independent technical review
—Headquarters policy compliance review
—Public and agency review of the draft report
—State and agency review of the final report All of these steps are taken before I issue my project recommendation.

Question. How do you address the issue that the Corps was providing an unfair access to the barge industry?

Answer. Contrary to this allegation, the barge industry, and other navigation groups, had complained to the Corps about a lack of access. Our study process incorporated numerous stakeholders, to include the barge industry, which in the case of the Upper Mississippi Feasibility was our biggest stakeholder. We take into consideration all the comments of all the stakeholders, and take their comments seriously.

Question. Was the involvement of the barge industry consistent with Corps practices?

Answer. Yes, the involvement of the barge industry was consistent with Corps practices. Our study process incorporated stakeholder involvement, including the barge industry, throughout the study phase.

Question. Does the Corps have any regulations or guidelines for the involvement of stakeholders in the study phase?

Answer. Our study process requires the involvement of the numerous stakeholders. The National Academy of Science, who conducted a study on our process, found it to be sound. Proof of significant stakeholders, individuals, agencies and interest groups involvement can be found in the study process of the Upper Mississippi River Navigation Study.

Question. What resource is available to these groups, should they feel left out of the process or if they believe that one group is provided an unfair advantage?

Answer. Our study process is lengthy, and there are many occasions, throughout this process, where stakeholder involvement is incorporated in the study phase. We do our best to ensure access to our study process to all interested parties, and we expect people to notify us if they do not believe they are being listened to, and reply to concerns in a timely fashion, when they do.

Question. Can you tell us what changes you plan to make in the Upper Mississippi Feasibility Study as a result of the Inspector General's investigation and the National Academy of Sciences work? Will this include any management changes?

Answer. I have paused the Upper Mississippi Feasibility Study for now until we can make a detailed assessment of the findings in the Inspector Generals and the National Academy of Sciences reports, and can refocus our study team. When the study is resumed, it will be with considerable oversight and due caring. I will put into place three management measures to assure myself, the Congress, the Administration, and the American people this study will be conducted with the utmost dili-

gence and attention to detail. There will be a Washington Level principals group, composed of senior people from other federal agencies, such as EPA, Departments of Interior, Agriculture, and Transportation. They will provide national level balance and guidance in scoping the study on important economic and environmental issues. They will insure our process continues to be methodical, well thought out, and unbiased. The Corps will continue to lead the study, but I feel we will benefit greatly from the additional input from the other Federal agencies this new structure will allow us to gather.

Question. Would these changes be specifically limited to the Upper Mississippi Feasibility Study, or instituted Corps-wide?

Answer. These changes will be consistent with agency policy for all Corps studies. I feel the Washington level involvement is more appropriate for similar large, complex studies.

Question. Are there any additional authorities you would need from Congress to make these changes?

Answer. Not at this time.

Question. How would any of the changes you are considering have led to a different outcome on the Upper Mississippi Feasibility Study?

Answer. Had other Federal agencies: Environmental Protection Agency, Departments of Interior, Agriculture, and Transportation, been involved in the oversight of the study, I believe they would have provided guidance on the proper scope of the study, revealed important issues, and addressed major concerns, early in the study process. They would have also assisted us with the larger issues of national economic policy.

Question. There has been much publicity that portrays the Corps as a rogue agency, which is not responsive to or ignores the guidance of civilian leadership. Can you address this issue and explain how the organization, under your leadership, carries out its mission?

Answer. As Chief of Engineers, I follow both a military and civilian chain of command in making decisions for the Corps. In the military chain of command, I respond to the Army Chief of Staff. In the civilian chain of command, I respond to the Secretary of the Army, through the Assistant Secretary of the Army (Civil Works). There are many checks and balances to ensure proper civilian control. An example of this is the memorandum I signed with the Assistant Secretary of the Army (Civil Works), November 28th, 2000 describing my responsibilities to the military and civilian leadership.

Question. Can you explain how others could see the Corps as a rogue agency?

Answer. The leadership role in Water Resources Development has traditionally been a very controversial subject, because there are many competing interests. These competing interests do not necessarily agree with the recommendations the Corps makes in Water Resources Development, and thus we are looked upon as being a rogue agency. We develop recommendations based on sound engineering and science, and a sound process. That is, process drives outcomes, and the outcomes often do not fit the preconceived outcomes of some groups.

Question. Can you describe how the Environmental Advisory Board will improve the project process?

Answer. The Environmental Advisory Board will provide me with sound insights on environmental issues related to our studies and projects, as well as recommendations on how to effectively balance economic development and environmental quality. It will also provide a voice for the environmental community to the Corps.

Question. What will the Environmental Advisory Board provide you that you do not already have?

Answer. We have substantial environmental expertise in the Corps of Engineers. However, the Board will provide an external source of prominent environmental experts with diverse views and backgrounds. The Board will provide us with a fresh perspective.

Question. Will the Environmental Advisory Board be responsible for rendering environmental opinions only, or will the Board also be responsible for involvement in all of the Corps' projects from beginning to end?

Answer. The Environmental Advisory Board will provide broad environmental advice, but will not typically be involved directly in projects or project review. However, I have considered establishing an independent project review board for this purpose.

Question. Does the Corps conduct an independent peer review process?

Answer. Currently, the Corps reviews all projects for compliance with the Principles and Guidelines and Corps planning and policy regulations. Although this is not an external "independent" review, it results in a very accurate and objective analysis of project feasibility.

In some cases, large studies have independent expert panels that provide peer review of study products. The Upper Miss study had several such expert review panels. I am also considering an independent peer review process. In addition, the Corps is currently working with the National Research Council in support of Section 226 of WRDA 2000. This will lead to a review by NRC of independent review of Corps projects.

Question. You stated in your testimony on February 27th that the National Academy of Sciences is examining your study process. What do you hope to learn from their analysis.

Answer. The National Academy of Sciences report, which found the Corps study process to be sound, will be of great value to us as we move forward on the large, complex Upper Mississippi River Feasibility Study. It recognized the technical complexities and uncertainties of projecting future grain exports and predicting the response of river transportation to additional traffic and congestion. It will assist us in evaluating our independent peer review.

Question. What role is the National Research Council providing to the Corps?

Answer. We are currently negotiating with the National Research Council to look specifically at independent peer review as called for in the WRDA 2000. Specifically, we'll ask them to look at the efficiency and practicability of independent review and, if appropriate, how such a review procedure should be structured.

Question. How does the work the National Research Council is doing for you relate to the work being done by the National Academy of Sciences?

Answer. The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the NAS's broader purposes. The NRC is, in essence, the working arm of the National Academy of Sciences. It performs similar work.

Question. Can you please tell the Committee where the Upper Mississippi Feasibility Study stands and how long of a delay do you now expect as a result of the Corps review.

Answer. I have paused the study to set up the national and regional oversight groups, and to restructure the study team. Resumption of the study should take place in June of this year, and be completed in July of 2002. I will have a better idea of the overall impact on the study schedule once the oversight group sets the direction for the continuation of the study.

Question. Does the Corps plan to make any significant changes to the Upper Mississippi Feasibility Study as it currently stands, or does the Corps plan to make any changes and implement them from this point forward?

Answer. During the next four months, we will convene a Washington-level principals group and a regional agency group that will continue through the remainder of the study. That Washington-level group will review the study scope, as a basis for determining how to continue through the remainder of the study. Therefore, we would make changes to the study and implement them from this point forward.

Question. How did you determine that there was a need for the Corps to re-write its vision statement?

Answer. Some perceived misinterpretations of LTG Ballard's vision statement with regard to new mission and program growth. Due to this misunderstanding, the Corps' senior leadership and I determined need to re-write, and clearly state, the vision statement. Internal and external stakeholders felt there was a need for rework of the vision as well. We will re-focus the statements on "program growth" to serve the Army and the nation.

Question. What kind of vetting process is the Corps going to undertake to ensure a thorough review?

Answer. I have pulled together a comprehensive transition team of Corps stakeholders, from outside the Corps, to assist the senior leadership and me in developing a thorough review. My senior leadership is vetting it with their contacts and counterparts in other agencies and with stakeholder organizations such as groups representing industry. The Office of the Assistant Secretary of the Army (Civil Works) is vetting it with the Army Secretariat.

Question. Once the Corps revises its vision statement, how do you expect to educate the internal and external stakeholders?

Answer. When the vision statement is revised, we will publish a new vision statement for distribution and discussion with both internal and external stakeholders. We will also post the statement on the Corps web site, making it available to everyone.

Question. What do you mean specifically when you state that you "accept the Inspector General's report" as you testified on February 27th?

Answer. The Inspector General has made his report and it has been accepted by the Secretary of Defense. I accept the findings and the criticisms contained therein.

I will take the necessary steps to rectify the things the Inspector General found wrong and we will move forward.

Question. If you cannot report any specific details of your response to the Inspector General's report until June, how does the Congress make budget decisions in the meantime?

Answer. The President will transmit his detailed budget recommendations to the Congress on April 3rd. I do not anticipate that he will be requesting any funds that are specifically related to the Inspector General's findings. As I stated in my testimony we are pausing on the Upper Mississippi and Illinois Navigation Study in order to produce the right recommendations. The process changes that I am considering implementing do not have immediate budgetary implications.

Question. You have stated that you are currently "pausing" the efforts of the Upper Mississippi Feasibility Study; will you continue to expend any project funds during this time?

Answer. During the pause in the study, feasibility study funds are being used to review and analyze the National Research Council's report, to complete initial coordination with the Federal Senior Principals Task Force and Regional Groups and to revise the project study plan. No Preconstruction Engineering and Design funds are being used for this or any other efforts associated with the Upper Mississippi River-Illinois Waterway Navigation Study.

Question. Why is Preconstruction Engineering and Design (PED) funding being obligated when the feasibility report findings are subject to re-evaluation with an overall "pause" in the study efforts?

Answer. Sir, no new obligations are being made and no work efforts are currently underway regarding PED efforts for which Congress appropriated funds in fiscal year 2000 and fiscal year 2001. Approximately $6,400 in expenditures occurred early in fiscal year 2001 associated with contract closeout and orderly conclusion of PED activities initiated in fiscal year 2000. These expenditures were against funds provided in fiscal year 2000. The funds appropriated by Congress in fiscal year 2001 for PED efforts have been made available for reprogramming from the Navigation Study to other Corps of Engineers efforts.

In fiscal year 2000, Congress appropriated an additional $6,300,000 ($5,418,000 after Savings & Slippage) for preliminary engineering and design associated with 1,200-foot lock chambers. In March 2000, the Mississippi Valley Division instructed Rock Island and St. Louis Districts to delay the award of any new private sector contracts for PED work on the Upper Mississippi River-Illinois Waterway System Navigation study pending the outcome of the ongoing HQUSACE policy review. MG Anderson, then Commander of the Mississippi Valley Division, notified HQUSACE on 2 June 2000 that he was bringing ongoing PED activities to an orderly and cost-effective conclusion. The Districts concluded ongoing PED activities in accordance with the plan approved by MG Anderson on 26 June 2000.

Question. Please provide the Committee a listing of all the current (PED) funded work and the amount being spent on each piece of work related to the Upper Mississippi Feasibility Study.

Answer. Sir, currently, there are no ongoing PED activities associated with the Upper Mississippi River-Illinois Waterway (UMR-IWW) System Navigation Study.

Question. Does the Corps anticipate continuing to obligate additional funds for Preconstruction Engineering & Design (PED)? If so, please provide, for the record, a listing of all PED planned activities and the justification of why these activities are necessary to proceed.

Answer. No, sir. No additional funds will be obligated for PED until the Feasibility Study is complete and a recommendation has been forwarded to HQUSACE for Washington-level processing.

Question. How long do you anticipate it will take for you to officially respond to the Inspector General's report now that the new Assistant Secretary of the Army has assumed official duties?

Answer. Once a new Assistant Secretary of the Army for Civil works is confirmed, I would expect that the Inspector general's report would be a very early matter for his/her attention.

Question. When did you ask for and receive a 180-day extension beyond Feb 6th to respond to the Inspector General's report?

Answer. I did not request an extension. However, I was informed by the Acting Secretary of the Army that since a new team was not yet on board, I should not submit my report. I am still obligated to make a final report after 180 days.

SUBCOMMITTEE RECESS

Senator DOMENICI. We will stand in recess until Tuesday, March 13, when we will hear from General John Gordon, Administrator, National Nuclear Safety Administration.

[Whereupon, at 10:47 a.m., Tuesday, February 27, the subcommittee was recessed, to reconvene at 9:30 a.m., Tuesday, March 13.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

TUESDAY, MARCH 13, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:34 a.m., in room SD–124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senator Domenici.

Also present. Senator Thompson.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF GENERAL JOHN GORDON, ADMINISTRATOR

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The committee will please come to order. This morning, the subcommittee will take testimony regarding the physical condition of facilities and infrastructure at our Nation's weapons complex.

We have two very distinguished witnesses today. We will first hear from General John Gordon, the Administrator of the National Nuclear Security Administration, and the individual who has taken on the task of addressing the infrastructure problem, along with other problems within the nuclear department of the United States at the Department of Energy.

Thereafter, we will hear from Jim Schlesinger. Dr. Schlesinger needs no introduction. He has had a very distinguished career, including appointments as Secretary of Defense and of Energy. He also serves on the independent panel to assess the reliability, the safety, and security of the U.S. nuclear stockpile which just released an annual report on February 1 of this year, and we are holding this hearing in advance of the traditional budget hearings that we are going to conduct later in the year.

The purpose of today's hearing is not to review the administration's budget, since it is not before us in its totality. Today, we intend to focus on the magnitude of the infrastructure problem within the weapons complex, and assess what will be required over the next several years to rebuild a nuclear weapons complex appropriate to the future, and appropriate to what goes on in the complex.

After the end of the cold war, and the last underground nuclear test in September of 1992, the United States began a significant new program to ensure the safety and reliability of our nuclear weapons without the benefit of new designs or nuclear testing. This formidable challenge is the purpose of the program called science-based stockpile stewardship. The success of this program is essential to maintain confidence in the safety and reliability of our stockpile future, regardless of whether we return to testing in the future, or remain as we are.

Over the last few years, I have become more and more concerned about the general deterioration of the nuclear weapons complex. As is the practice in this town, when a concern is raised or a problem identified, a parade of internal studies, blue ribbon commissions, and congressionally mandated reviews are generated and, too often, little else is done.

Each study over the last few years has drawn similar and striking conclusions on the need to refurbish the complex. In 1998, defense programs conducted an internal review. In 1999, the DOE's 30-day review identified the problem. In April of 2000, the Office of the Secretary of Defense conducted another review and made similar conclusions. The General Accounting Office and the DOE Inspector General have also studied the issue. Most recently, the NNSA administered a more detailed assessment, the so-called Scott program, Scott report, and the blue ribbon Foster panel made similar conclusions just last month.

The consensus of all these reports is as follows. The DOE has allowed its nuclear weapons facilities to degrade in recent years, and it will take billions of dollars to fix the problem and modernize the future. The reports identify the following specific conclusions.

First, the nuclear weapons complex has not been well-maintained over the last 8 years and conditions are now rapidly declining. Maintenance funding has been well below industry standards. An immediate maintenance backlog of approximately $800 million exists today. The average age of facilities where we do nuclear weapons work is over 30 years. We need to spend an additional $300 to $500 million a year over currently planned levels for the next 17 years, according to the best analysis, to refurbish the weapons complex to perform just its basic mission.

These expenditures will be required even if the nuclear stockpile is, over time, made smaller. If we do not take action on these infrastructure problems immediately, we will not be able to meet the Department of Defense schedules for refurbishing three weapons systems representing over 50 percent of the stockpile. We will not have sufficient facilities required to certify weapons, and our technicians and scientists will continue to work in unsafe facilities, increasing health risks, and a number of safety-related shutdowns.

The crisis is too great to put off, and I am going to do everything I can first to get other Senators to join in this cause, and then ultimately to attempt to start down the path that will remedy it.

We do not need any more studies. I believe we need a—there should be a call to action. The NNSA, under the leadership of General Gordon, is now developing the information and systems necessary to start addressing the years of neglect, and we must take the opportunity, with your leadership, to finally act, General.

Now I am pleased to have present the Senator from Tennessee, and I want to just share with the public right off what a staunch supporter you have been of DOE's work in your State, and I want to particularly call to everyone's attention that there is a major facility in the State of Tennessee that is part of the defense part of this budget, and that building, there is nothing going on in the building, Dr. Schlesinger, that would require hard hats, but people wear them because the roof falls in from time to time, pieces of it, and it creates a little bit of a hazard. Well, that is part of our nuclear weapons infrastructure, and Senator, I yield to you, and thank you again for coming.

STATEMENT OF SENATOR FRED THOMPSON

Senator THOMPSON. Well, thank you for inviting me to come, and thank you for what you are doing in this area.

This is one of the areas that have two distinguishing features about it. One, nobody pays much attention to it, and the other is, it is one of the things we do around here that is very important, and that is a tough combination, and my concern hopefully goes beyond the parochial, although we are concerned about the Wyatt well plan, but this shows us that we have got to do something and spend some money.

The most conservative of us have to acknowledge that we have got to spend some money in the discretionary account. Spending is not spending is not spending. Some spending is better than others, and some is worse than others, and we have got to figure in to what we are doing here some things that are vital to our national security. To me, we cannot keep letting our entitlement programs continue on their same glide path while squeezing the discretionary side more and more and more, and spending our time fighting and fussing over dwindling discretionary budget, while we refuse to reform the entitlement programs, and we cannot save enough or put enough aside, or put enough in a lock box that we have all got keys to, incidentally, to save social security and medicare, and we have got to reform all that, so this really highlights a much broader concern.

But Senator Domenici, your leadership in dealing with the future viability of our nuclear weapons complex I want to commend, and you know, you're right, Y–12, many of the buildings there are over 50 years old, and this is one of the core functions of our Federal Government. I am very concerned about it.

I was looking at the latest report, the so-called Hart-Rudman report, the U.S. Commission on National Security of the 21st Century. I just noticed that one of the things that they highlighted here is that the U.S. National Laboratory System is badly in need of redefinition and new investment, and the national laboratories, vestiges of the cold war, remain a national R&D treasure. Unfortunately, they are a treasure in danger of being squandered.

So you are absolutely right, we do not need new assessments and new reports. We can get the same thing over and over and over again, just like we did before the recent troubles. We had security problems with the national labs, and then eventually we decided that all these reports we get, there is something to them, we ought

to do something. Well, hopefully we will not have to wait so long that our national security is endangered because of it.

Thank you very much.

Senator DOMENICI. Thank you, Senator. General Gordon, we welcome you. It is good to have you here.

STATEMENT OF GENERAL JOHN GORDON

General GORDON. Thank you very much, Mr. Chairman. Senator Thompson, thank you.

Senator Domenici, let me really just start by thanking you again for your leadership, for establishing NNSA, and for the direct support for NNSA, and for the direct support that you give to the men and women who work so hard in all facilities to support the national security of this country, be they in Tennessee, or California, or New Mexico. There are a lot of people out there doing a lot of work, and we very much appreciate the direct support that you give them.

We are working hard within NNSA to meet the expectations for this new organization. Progress has been slow, admittedly, but it has been steady, and I am hopeful that the new administration will quickly nominate the new Assistant Administrator so that we can again accelerate our work.

INFRASTRUCTURE

Thank you again, Mr. Chairman, for the opportunity to be here today to discuss one of the greatest problems faced by NNSA, and one that, if not solved fairly quickly, will affect our ability to perform our mission in the short term and literally destroy the long-term viability of the nuclear weapons complex.

I am a little bit worried about how to proceed here, because you have kind of given my testimony, and I want to endorse everything you say in that area. We are in lock step on that point, but we are, of course speaking about this complex, and I have prepared a rather lengthy formal statement which I offer for the record.

Senator DOMENICI. It will be made a part of the record.

General GORDON. It gives considerable detail about the state of our complex, the numbers of studies over the last several years that you have catalogued, and the problems, recommendations upon recommendations, to begin to invest in our facilities, and my main message is the same as yours, Mr. Chairman, it is time to get on with the work. We do not need any more studies. We know what to do, and we are ready to go.

Mr. Chairman, if I might also offer for the record statements by each of our plant managers, and each of our laboratory directors, who make very similar points. The statements are all pointed, and all of it is sobering. We submit those for the record.

INFRASTRUCTURE SIZE/COMPOSITION

Senator DOMENICI. Those will be made part of the record.

General GORDON. Mr. Chairman, this committee is well aware of the size of the complex. Others may not be, but just a few figures to start. We operate about 1,800 square miles of land, 6,350 buildings, 34 million square feet in those buildings, 2,500 miles of roads,

1,650 miles of utility distribution line, and the replacement value is something like $20 billion.

As large as these numbers are, I know the committee knows that this is not your Cold War enterprise. Personnel numbers have been drastically reduced over the years. For example, Kansas City runs at half the size it used to run during the peak, and we have closed entire facilities in the post Cold War environment, at least as far as nuclear weapons are concerned, at Hanford and Mound and Pinellas, in Rocky Flats, and much of Savannah River.

I offer this only to make the point that we are not operating Cold War facilities or a Cold War complex, and we are not trying to maintain a Cold War footprint or Cold War capacity. Far from it. We have a complex of a size that is just barely large enough to support the stockpile we envisage, and almost all duplication is already out of the system. We rely on a system where there is little more to harvest in cost savings, although there are a number of buildings in the individual facilities that need to go away, and we operate a complex that cannot become appreciably smaller, even if we were to decide to significantly downsize our deployed nuclear arsenals.

STATUS OF COMPLEX

Mr. Chairman, my account to the committee is first-hand. I have traveled widely throughout the complex, and have seen most of the problems first-hand. The structures, many of them are 50 years old, and when a key structure exceeds 50 years old, it is really old in almost every term, certainly in the terms of safety and security, reliability, mission-effectiveness.

These facilities often do not meet modern health, environmental, or energy efficiency standards. They are costly to maintain, difficult to keep in regulatory compliance, and yet they are where we ask some of the most brilliant scientific and technical minds in this country to work on an enterprise that underpins our national security.

During my visits I was struck by what appeared on the surface, a reasonably well-functioning set of operations performed by highly skilled men and women of NNSA. However, one quickly notices that something is not right and that both the scientific and engineering and production operations, one frequently finds that the work, that should be very closely connected in time and space, is dispersed, and operating all around the facility in different buildings.

At Y–12 I think sometimes material moves 6 or 7 miles within that facility, yet the engineers and the scientists, when you talk to them about it, are actually very proud of what they are able to accomplish in that environment, because they are able to work their work-arounds, and they take great pride, both the Federal employees and the contractors, in being able to make it work. The ingenuity employed by these people has overcome the burdens of the facilities that we have given to them to work in. It is time to act to reduce these impediments.

How did we get here? A very fair question. For too long, the facilities, the infrastructure, their maintenance and recapitalization have been underfunded and, in the recent past, the priority has

been given to the science side of the Stockpile Stewardship program, and attention to infrastructure was, and I would suggest rightly, put on hold while the Science-based stewardship program was formulated, funded, implemented, and now is beginning to work.

I would offer, Mr. Chairman, a few examples, and we passed out some charts, and the first one just simply talks about the age of the facilities. I hope we have these in front of you.

Senator DOMENICI. We do.

General GORDON. Good—about the age of the facilities, and the main point is that the age of the facility, the condition of the facilities is rapidly accelerating. In 1995, roughly 55, 56 percent of the complex was in good or excellent condition. 5 years later, an assessment by many of the same people found the facility conditions in the excellent-good range were down to only 25 percent.

LANL INFRASTRUCTURE

What does the complex look like? You alluded to that, Mr. Chairman. The next chart, next photograph shows the Chemical and Metallurgical Research Facility at Los Alamos. Here, the activities where we do actinide physics, actinide chemistry, on almost all the weapons in the stockpile by the very brightest. I would tell you that when I go and visit that facility, it looks to me like an old, outdated Russian laboratory, cinder block walls inside, cubby holes, and when we bring in new potential employees to look at it, they will comment that they have seen better facilities in their laboratories in their universities.

The system is inadequate. Inside, pipes that carry radioactive waste leak and, as we show here, are literally bagged to prevent spills and contamination.

The next photograph shows, also in Los Alamos, a photo of the folks at X Division in the laboratory. These are some of the typical offices in which we ask really the core of our nuclear design individuals to work. These are our designers, the people who come to us and are trained for many, many years, and this is the environment in which we ask them to work.

SANDIA INFRASTRUCTURE

At Sandia, a building that is only 15 years old, but it desperately needs structural repairs. The roof-to-wall connections are cracked, needing significant repair. The original crane and support structure needs to be replaced, even though it was operating at the structural limit.

NEVADA TEST SITE INFRASTRUCTURE

The Nevada Test Site, the next chart we show what we call the air building at the underground test facility, which was originally designed as a temporary structure to support the Ledoux test in 1990. We have been operating in this temporary facility since 1990, and at this location the workers there literally go off and patch this inflated building, with this kind of a material, on a regular basis to try to keep it running.

This, Mr. Chairman, is the key support facility for the underground subcritical test program there, and it really underpins our nuclear test readiness program. Everyone who works underground for us works in and out of this facility.

Y–12 INFRASTRUCTURE

I tend to say that the poster child of bad facilities is the Y–12 plant, and again, this is the facility that you are talking about, Mr. Chairman, where we literally ask people who work on lithium hydride to wear hard hats when they go into work to protect themselves from the concrete that is falling off the ceiling of this mid-forties building.

Now, again, we run a very aggressive program at NNSA called integrated safeguards, or integrated safety management, where we hold the contractor strictly accountable for the safety of how they operate their facilities. So what I do is tell the contractor that you basically make sure that guy wears his hard hat, or I am going to fine you, and by the way, do really quality work while you are in there, because this is about nuclear weapons.

PANTEX INFRASTRUCTURE

The situation at Pantex in Amarillo has its own story. It is the only site in the complex where we actually assemble and disassemble nuclear weapons. This is the roof of the assembly buildings. We call them Gravel Gerties. They leak. The grass grows up in the areas. They have been in operation since about 1953.

KANSAS CITY PLANT INFRASTRUCTURE

The next chart tells you not only the infrastructure in poor repair, but some of the tools that we use are in the same condition. At Kansas City Plant, this lathe is about 20 years old, or a little older, and it was designed to operate machine parts down to 1,000th of a inch. We are barely able to maintain 5,000th of an inch now, yet it is the key to support classified products on the W–87 life extension program. There are four other machines like this at Kansas City.

NEVADA OPERATIONS FACILITY

Now, I painted a fairly dark picture, a bleak picture. I want to tell you this obviously because of the support of this committee and others the whole complex is not in that exact standpoint, and I will just show you a photo of the operations office in Nevada, a facility that I would suggest meets the kinds of standards we would like for the rest of the complex to work on.

LIVERMORE LAB BUILDING 132

It is not gold-plated, but it is open, it is airy, it is professional. No one will not take a job there because of the facility, and I do not say that they will come there to work for you, but no one would say, I cannot work in that facility. It is a quality place, and the next one shows a building that has been built at Livermore, the same kind of a concept, and this is again where many of the people,

in contrast to the X Division people at Los Alamos, do their design work.

These are buildings that the people, I think, should be proud to work in, and it is a kind of a model that we would suggest for the future.

TRITIUM EXTRACTION FACILITY

The last one that I would show you is a building that is under construction, and it is the tritium extraction facility at Savannah River, and it again will be of a quality that we expect to be able to offer to our workers, and our goal is to make much of the facilities look like these last three photographs that I have shown you.

RECAPITALIZATION INITIATIVE

To start this, we have begun, and we have crafted a recapitalization initiative to allow NSA to rapidly respond to any budgetary support that may develop in the future. Sustained incremental and preventive and other maintenance and infrastructure investments above the current base are needed to extend lifetimes to reduce the risk of the systems and risks of failures, increase the operational efficiency and effectiveness, and allow for capitalization of these aging facilities.

The recapitalization will fund an integrated, prioritized list of maintenance and infrastructure activities that will significantly increase operational effectiveness and efficiency at all our sites. Mr. Chairman, we have today, ready to go, an integrated complex-wide priority list on how to proceed down this road. We are ready to start that right now. The work has been done. We know where we are going to spend the first dollar. We know where we are going to spend the last dollar. We know how to manage it for the next 5 or so years as we run through that.

What we need, and what we have created, is a long-term plan to allow us to create a weapons complex that is properly sized, using modern technologies to protect the safety of our workers in a national environment.

Senator DOMENICI. How much could we spend under your plan next year?

RECAPITALIZATION FUNDING

General GORDON. I think in the next year we could spend about $300 million. Mr. Chairman, the majority of that in the first year would go towards deferred maintenance, of which there is something, as you mentioned earlier, something on the order of $800 million deferred maintenance, and then begin to lay out, in concert with the defense reviews, the specific major construction programs that would follow.

Y–12 PLANT

Senator DOMENICI. What about Y–12, in fixing that?

General GORDON. I would be putting the first effort in there would be to really attack the deferred maintenance in that area.

Just to give you another story, Senator Thompson one I think you would particularly appreciate. We bought a sheet metal ma-

chine that the committee helped pay for a couple of years ago. The machine cost several million dollars and its to operate in a nuclear weapons area. It is under tarps, and the workers go by it every day and see this very efficient piece of new equipment sitting there. They have not had the money to install it because they have not got a clean facility to install it in yet.

We have sort of put it there in front of people, so that they know that we have not come up with the extra money to put it in a facility to operate. We just kind of got out of cycle.

MANAGEMENT

So what we really need to do, Mr. Chairman, is get into the facility management in a better way than we have done. We are not only asking for money, what I am trying to tell you is that we know how to run this program, we know how to manage this program. I do not think that is necessarily so deep in our history.

We are moving towards an organizational change that will allow me to focus on the facilities and on the facility management programs, and to focus on the long-term planning and establishment of processes that will do that.

You mentioned the Scott report, and what I would offer to any members that really want to get into the next level of detail is, Captain Scott come up and discuss the next level of detail and the management systems that we are putting in place to manage this program effectively. He has done an outstanding job to build up his assessment for the next several years, and he has captured the very nature and extent of the problems, and the price that will allow us to manage it in the future.

WEAPONS COMPLEX

Mr. Chairman, I will be direct and blunt. The facilities that underpin the American nuclear deterrent require immediate attention in the order of $800 million in deferred maintenance. For years, we have been using up our facilities as if they were consumable resource, not replacing outmoded buildings, not maintaining our facilities, instead spending our limited resources on missions.

Every report, every study defines a program that can readily spend something approaching $500 million a year for at least the next 10 years. The deterioration is inefficient, it is wasteful of taxpayers' dollars, it is an extremely difficult environment in which to operate, it sends exactly the wrong signal to the professionals who want to recruit for our future.

Why would they come to work in this laboratory at Los Alamos with 1950's equipment, and I ask rhetorically, Mr. Chairman, what do the state of our facilities tell our current employees about how we value them and how we see the future of the mission that we ask them to continue to commit to?

PREPARED STATEMENT

Mr. Chairman, we want our weapons to be safe, we want our weapons to be reliable and secure. I believe we want the same of our facilities, that they are safe, they are secure, they are reliable, and mission confident. There is no quick fix. It will take a min-

imum of 10 years to get this back in shape. We are ready to start. We know how to do it, and we appreciate your support and the time to allow me to come up here and chat with you, sir.

Thank you.

[The statement follows:]

PREPARED STATEMENT OF JOHN A. GORDON

Mr. Chairman, Members of the Committee, thank you for the opportunity to come before you to discuss the condition of the facilities and infrastructure of our vital nuclear weapons complex.

INTRODUCTION

During my confirmation hearing before the Senate Armed Services Committee last May, I posed the question, "Are we under invested in facilities?"—to which I replied, "I am rather certain of that answer, by the way." Mr. Chairman, today I am positive of the answer: we are under invested, and by a lot.

In July 2000, I had the opportunity to testify at the Hearing of the Special Oversight Panel on Department of Energy Reorganization, House Armed Services Committee. I made several points then which I would like to reiterate today. Mr. Chairman, Members of the Committee, I am the full-time advocate for the mission of the NNSA. As such, I understand that my responsibility is to be balanced and report the condition of my organization to the Congress. I appreciate that I have this opportunity today to provide you with my understanding of the conditions of the nuclear weapons complex.

This is not a new story, nor is it a new issue. Brigadier General Gioconda has testified before this committee last year regarding our deteriorating facilities and infrastructure. As I will present in this testimony, the complex has been studied extensively, both inside the Department of Energy as well as outside. All have reached similar findings and the case is clear: the physical complex requires attention and we must act soon, because it is unprofessional, it's inefficient, it's wasteful of resources, it's potentially dangerous, and it sends exactly the wrong message to the professionals we want to attract and keep in this endeavor.

Mr. Chairman, since assuming the challenging responsibilities as Administrator of the NNSA, I have traveled throughout the complex. My purpose was to reacquaint myself with the places where I had served earlier in my career, and, more importantly, to visit the entire complex—to learn first hand of the missions now executed by our intelligent, thoughtful and dedicated workforce.

What I found, I must confess, was remarkable. Almost half of our structures are over 50 years old. Now, when I crossed the 50-year barrier, I knew that I was mature, but not old. But our 50-year-old structures are old—old in the sense of safety, security, reliability, and mission effectiveness. Many facilities do not meet modern health, environmental, or energy conservation standards. They are costly to maintain, and difficult to keep in regulatory compliance. It is in such facilities we ask some of the most brilliant scientific and technical minds and some of the most productive people in the country to work. I brought along some pictures to share with you which I believe graphically portray these issues. During my visits I was struck by what appeared on the surface to be a reasonably well functioning set of operations performed by the women and men of the Department of Energy's NNSA. However, it takes little to soon notice that something is amiss. In both scientific and production operations, one frequently finds activities that should be closely connected by time and space, but are separated by space and, in some cases, buildings. When questioned, the answers begin to describe "work-arounds." There is great pride among the teams of Federal and contract workforce that execute the national security missions assigned. The ingenuity employed by these people to overcome antiquated facilities astounds. But frankly, we must help reduce these impediments. At some point, a failure directly attributable to the condition and age of these facilities will result in a costly, embarrassing, and possibly fatal incident that will harm our national security. While I cannot predict exactly when—it will almost certainly be sooner rather than later.

I have documented age. Let me now discuss the condition of our facilities and infrastructure. It should be unremarkable that if one combines the lack of attention with the considerable age of the complex, the result is a deteriorating physical infrastructure. Studies show that the rate of deterioration of our nuclear weapons complex is accelerating. Recently, Defense Programs conducted an assessment of the condition of the complex. During the time period centered about 1995, roughly 56 percent of the complex was found to be in an either excellent or good condition. Five

years later, a comparable assessment was conducted by many of the same people who had performed the first one. Their finding: facility conditions in the excellent to good range had declined to 26 percent, while those in the adequate to fail categories had soared to over 70 percent. Here then is another benchmark that describes the nuclear weapons complex, acceleration is added to the calculus of the deteriorating nuclear weapons complex.

A fair question at this point is "How did we get this way?" The question is correct, simple, and beguiling. The answer, however, is complex. For too long a time, as a result of other priorities, we have underinvested in our facilities, infrastructure, and their maintenance and recapitalization. In the recent past, the priority has been properly given to ensuring the success of the Stockpile Stewardship Program. Attention to the infrastructure was put on hold while the science based stewardship program was formulated, funded, took hold, and is now working. It is now time to refocus on the physical complex which houses the Stockpile Stewardship Program.

Our facilities require attention. Others have found, as we have, concerns regarding the condition of the complex. I will share some of these observations and also provide greater depth from our own study. Today, improving the facilities and infrastructure of the NNSA is a high priority, but we need your help. The Secretary and I are prepared to work with you to this end. On my end, I have a detailed plan of how to proceed, which unfolds throughout this testimony. Dollars alone, while vital, are only one part of the solution. As significant, possibly more, is my plan to bring focus, process, rigor and accountability to our work of recovering our facilities and infrastructure. Facility management is a standard business practice of most major organizations. It is being reengineered within the NNSA. We are establishing an office to manage the facilities and infrastructure of the nuclear weapons complex. We are refocusing on long term planning, establishing the processes—absent too long—that will institutionalize the procedures, standards and expectations for the complex.

Mr. Chairman, I have included an appendix to this portion of my testimony. I ask that you carefully read through it. I believe that the information provided in the appendix is important because I make the case concerning the condition of our facilities and infrastructure. As you know, the Department of Energy's nuclear weapons complex has been analyzed and studied by a number of qualified, interested, and independent forums. I have summarized the key studies for you. As you will see, the terms may be somewhat different, but the conclusions they draw about the condition of our facilities and infrastructure are strikingly similar.

I start by introducing two seminal studies from the recent past: our Defense Programs Facilities and Maintenance Study, Phases I & II, of May 1998, and the externally conducted Office of the Secretary of Defense (OSD), Program Analysis and Evaluation (PA&E) Review of April 2000. I then cover in some detail our own internal analysis, the Defense Programs Facilities and Infrastructure Assessment 2000—Phase I. I continue with an explanation of how we are building process—facility management—as Phase II of this Assessment 2000. In addition, I present evidence of the continuing interest in the status of the complex by some very impressive outside entities. Once you have gone through the appendix, I believe that you will have a comprehensive picture of the status of the nuclear weapons complex as seen by the NNSA and the interested stakeholders outside the NNSA. One thing is clear to me based on my understanding of the evidence at hand—the facilities and infrastructure need attention now. I believe that this committee can help. I have crafted a Recapitalization Initiative that begins the turnaround. And finally, I submit my conclusion.

FACILITIES AND INFRASTRUCTURE RECAPITALIZATION INITIATIVE

In the aforementioned appendix, I have discussed the condition and resource needs of the nuclear weapons complex in some detail. To start the financial recovery, NNSA has crafted a Recapitalization Initiative. This will allow the NNSA to be able to rapidly respond to any budgetary support which may develop in the future. As you know, the base maintenance and infrastructure efforts at our sites are primarily funded within the budget for Readiness in Technical Base and Facilities and through site overhead allocations. These efforts focus on ensuring that facilities necessary for immediate programmatic workload activities are maintained sufficiently to support that workload.

Sustained, incremental preventive and other maintenance, and infrastructure investments above this base are needed to extend facility lifetimes, reduce the risk of unplanned system and equipment failures, increase operational efficiency and effectiveness, and allow for recapitalization of aging facility systems. The Recapitalization Initiative will address such issues. The initiative as proposed will address

an integrated, prioritized list of maintenance and infrastructure activities that will significantly increase the operational efficiency and effectiveness of our sites. This complex-wide integrated priority list of over target requirements, the Prioritized Project Listing, is a first ever for the NNSA and Defense Programs. It will ensure accountable execution of near term improvements across the complex, based on overall mission requirements. The Recapitalization Initiative projects are updated semi-annually. All sites generate a prioritized listing of Recapitalization projects as part of their Ten-Year Comprehensive Site Plans. NNSA evaluates descriptions of scope, justification, and estimated costs for proposed recapitalization projects, and integrates them into a single prioritized list that becomes the basis for program planning, budget requests and program execution. Once funding is appropriated, the priority list will again be checked to assure that no higher or more urgent priorities have surfaced. During budget execution, funded Recapitalization projects will be authorized, managed and tracked through the work authorization process. The visibility afforded by this dynamic process will provide responsible budget estimates, assure that the most urgent Recapitalization needs are met in each year, and focus accountability for each project undertaken.

The current plan for this initiative continues through a five year period, and is a modular approach. Specifically, whatever the funding level, the most urgent non-line item projects are worked off the Prioritized Project List. The program is designed to stabilize the infrastructure, and then shift the facilities and infrastructure funding and business practices back to the base programs at the end of the Recapitalization Initiative.

The goals of the Recapitalization Initiative are:

—To increase the operational readiness of facilities;

—Reduce non-productive facility downtime and high costs associated with unplanned and/or corrective maintenance;

—To arrest the continuing deterioration of facilities by reducing maintenance backlogs;

—To extend the useful life of current facilities,

—To reduce the excess facility and structure inventory by removal of non-radioactively contaminated structures.

CONCLUSION

Mr. Chairman, Members of the Committee, I believe that this is a fair statement of where we are today. In my view, I am building the correct organization within the Department of Energy's NNSA to grapple with these tough problems. To underscore my testimony, I have brought along copies of our study and of the pictures mentioned herein. In sum, we have a complex that is old and that is deteriorating as we speak. The condition of the complex is known to many of you, discovered on your frequent trips to the sites. I believe that we are forging, for the first time, a facility management process that will husband economically the resources entrusted to us by the Congress. At the same time business as usual will eventually threaten this vital national defense program.

Thank you for the opportunity to tell you our facilities and infrastructure story. I will now take any questions you may have.

APPENDIX

The following contains information derived from previous studies, which have looked into the condition of the state of the facilities and infrastructure of the National Nuclear Security Agency's nuclear weapons complex. Recently, Defense Programs concluded their seminal baseline assessment and it is also included here. This study is the basis for the current actions within NNSA that are dedicated, for the first time, to creating a facilities management process designed to efficiently manage the resources entrusted to the NNSA for improving the condition of the complex. Finally, two studies that were underway at the same time by outside panels are provided. This demonstrates that the concern for the nuclear weapons complex continues to exist within influential segments of the national security community.

DP FACILITIES AND MAINTENANCE STUDY PHASES I & II, MAY 1998 EXECUTIVE SUMMARY

Ninety seven percent of the facility area needed to support the assigned mission is being maintained in the full-up Operational category. The remaining three percent of the facilities are in the Operational Standby, Reserve, and New Construction categories. This full-up readiness does not appear to be consistent with the current capacity requirements reported in the mission assignment studies and reflects a lack of DOE guidance to use a graded degree of operational readiness.

The 1997 reported maintenance costs for the laboratories and the production sites total $267.5 M. The overall ratio of maintenance funding to Replacement Plant Value (RPV) averages 1.5 percent which is lower than the 2–4 percent range recommended in the commercial sector, the General Accounting Office (GAO), and the Building Research Board of the National Research Council. Programmatic equipment maintenance is, for the most part, not addressed.

Maintenance budgets have declined 25 percent over the past four years. This combined with the increase in square footage from new construction and the lack of guidance to move facilities into a lesser degree of readiness category is severely affecting the abilities of the respective site maintenance organizations to provide an effective maintenance program.

Facilities have been declared excess to the DP assigned mission with dates starting in 1997 and continuing for the next ten years. While excess dates have been reported and some tentative disposition dates advanced, the costs associated with the disposition actions are largely unknown. The whole issue of disposal dates and costs will remain open until guidance is provided for disposal, establishment of disposition dates and disposition end states, timing and availability of funding.

Sixty-five percent of the excess facilities are currently in use. The date a facility has been declared excess and the date disposition actions are initiated is not necessarily the same and in fact may be separated by several years or even decades. There appears to be no relief in reduction of maintenance costs from the excess facility arena as the maintenance of excess space currently in use will continue for the foreseeable future.

The total backlog costs reported are $725 M.

The consensus of the M&Os operating the sites is that the RPV provided in the Facilities Information Management System (FIMS) database does not reflect a true replacement cost and only addresses facilities. The accuracy of the RPV should be of reasonably good quality if it is intended to be used as a measurement tool for replacement cost estimates.

The facility management program is not coordinated at the Headquarters level nor at the field office level to provide a consolidated and integrated approach of the facilities issues with line management. There are isolated pockets of information for the various functional areas but no coordinated effort.

The current condition assessment of the facilities in the operational footprint shows that 72 percent of the facilities range between excellent and adequate with the majority of the assets in the good category. The condition assessment of the infrastructure shows that the majority of the assets are in the adequate to fair category with a few exceptions in the good category. This difference in condition reflects a lack of priority in maintenance of the infrastructure supporting mission operations.

The average age of the facilities at the laboratories and production sites determined from construction history is: 1940s—25 percent, 1950s—17 percent, 1960s—24 percent, 1970s—9 percent, 1980s—13 percent, 1990s—12 percent. At least 66 percent of the facilities are 25 years or older. The design life for most government facilities is 25 years. The effect of the aging and deterioration of these facilities is reflected in the $725 M backlog of maintenance and repair.

Some "plus-up" funding has been provided but it has not provided a significant impact on the reduction of the backlog. The lack of funding for reduction of backlog was a primary concern expressed at all of the sites. The deferral of corrective maintenance and a lack of similar funding in the 1970s led to a $2.2 B facilities and equipment restoration program in the early 1980s.

OSD PROGRAM ANALYSIS AND EVALUATION REVIEW, APRIL 2000

A summary of observations on DP's manufacturing infrastructure indicate that:

—Anticipated workload will require an expansion of current capacity;

—Regardless of workload, indefinite maintenance of the nuclear stockpile will require an investment in the DP manufacturing infrastructure of some $7B over 18 years;

—If DP stays within a $4.5B annual budget, the above investment would require a reduction in the science budget;

—Tradeoff analyses between DP's science program and its manufacturing infrastructure, or within each of the two, are complicated by the lack of a DP multi-year plan.

DEFENSE PROGRAMS FACILITIES AND INFRASTRUCTURE ASSESSMENT REPORT 2000

SUMMARIZED

At the direction of the Secretary of Energy in October 1999, the Department concluded a 30-day review of the Stockpile Stewardship Program in November 1999. The Department developed a 15 point action plan as a result of the findings. One of the key points, "The Department will develop a plan for long-term recapitalization of the facilities in the nuclear weapons complex" prompted BG Thomas Gioconda, then acting Assistant Secretary for Defense Programs, to satisfy this requirement by directing that an assessment be conducted of the Defense Programs facilities and infrastructure. I am providing, in some depth, the findings of this study because it establishes the condition of the complex, determines the cost of DP's facilities and infrastructure business and speaks to the cost of recapitalization for the complex. What follows, I believe, is impressive.

OVERVIEW

The nuclear weapons complex, except for the newest experimental facilities, consists of production, testing, and laboratory facilities, which are very old and in need of intensive and ever escalating maintenance. During the previous 7 years, the DOE devoted the bulk of a flat budget to establishing the scientific backbone for the Stockpile Stewardship Program. The concentration of funding primarily on the science aspects of the Program has contributed to the neglect of aging facilities and infrastructure, the acceleration of their decline, and has resulted in an enormous maintenance backlog legacy.

A 1999 review of the Stockpile Stewardship Program, mandated by the Under Secretary of Energy, recommended that the DOE develop a plan for long-term recapitalization of the facilities in the nuclear weapons complex. As a first step in the planning process, Brigadier General Thomas Gioconda, Acting Deputy Administrator for Defense Programs, National Nuclear Security Administration, directed that a detailed Assessment be conducted of the facilities and infrastructure (F&I) supporting Defense Programs nuclear weapons complex. To fulfill the Deputy Administrator's direction, a team comprised of Defense Programs (DP) F&I subject matter experts, located at headquarters and at field sites, was assembled.

The approach adopted by the team was to divide this important effort into two phases. The objective of Phase I was to obtain an accurate snapshot of the current state of the complex infrastructure and the cost of doing business. This was accomplished by issuing a data call to the eight DP Sites: Kansas City Plant, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Sandia National Laboratory, the Nevada Test Site, Oak Ridge/Y–12, Pantex, and the Savannah River Site. The objective of Phase II, currently underway, is to develop a common approach to facility and infrastructure management, as well as, develop a Facilities Management Process Plan that integrates F&I requirements, management expectations, Headquarters and Field functions, and will provide safe, secure, reliable, and sustainable facilities.

Phase I of the Assessment provided several important results: an integrated baseline of the condition of the entire complex infrastructure; a clear picture of the cost of maintaining the F&I constellation; and a prioritized maintenance and modernization list, integrated across the complex, of the most pressing infrastructure needs.

PHASE I

The Phase I data call was developed to help determine the full cost of DP's F&I business. It was designed to accomplish two things: portray an integrated timeline of ongoing, planned, and required construction, modernization, and major maintenance projects; and profile current F&I funding requirements across the Complex. The funding requirements were to be reported as: actual expenditures for fiscal year 1998 and fiscal year 1999, funded and unfunded requirements for fiscal year 2000 through fiscal year 2002, and the expected requirements for fiscal year 2003 through fiscal year 2008. The framework for this data was the Stockpile Stewardship Program (SSP). Crucial to this effort was the requirement that the data tendered come from existing, accountable sources (e.g., DP 10-Year Site Plans, etc.). The information from Phase I provides a focused input to the fiscal year 2002 budget process when sizing the recapitalization of DP facilities and infrastructure. Since the methods of accounting differ between the laboratory and production programs, comparing the two is difficult. The production programs use direct funding methods, while the laboratory programs account for funding with both direct and indirect methods. (Direct funding is funding that is appropriated by Congress to conduct spe-

cific work. Indirect funding is funding that is derived by a tax or charge on direct funds and is normally allocated across multiple users.)

The data call's guidance utilized standardized definitions from existing DOE directives to help the respondents properly categorize their figures while accounting for both direct and indirect costs. This information and the architecture of the data call have a linkage to the budget and to the Stockpile Stewardship Program. The call requested facts about each of the site's facilities and infrastructure needs separated into categories for Maintenance, Capital Equipment, Line Items, General Plant Projects, Disposition of Excess Real Property, and Expense Funded Projects. Funding information from fiscal year 1998 through fiscal year 2008 was also requested for each included project.

RESULTS OF PHASE I

Overall, the studies determined that the deteriorating condition of the Complex is not a new problem. It has been recognized, studied, and documented many times over the last decade. The facilities in the production complex are old and are deteriorating, largely due to historical under-investment in recapitalization and maintenance.

Although maintenance funds are in short supply, DP is maintaining more production space than it requires and a large inventory of facilities that are no longer needed by the Stockpile Stewardship Program. Disposing of these excess facilities has proven to be problematic. Facility disposition includes the dismantlement and removal of deactivated facilities and infrastructure that are not radiologically contaminated and are excess to current and future mission requirements. These actions are taken at the end of the life of a facility to retire it from service, with adequate regard for the health and safety of workers and the public protection of the environment. These actions will improve our ability to manage the facilities portfolio and reduce long-term costs.

Numerous studies, reviews, and Site plans for the past 9 years have pointed out the problem of the deteriorating complex. Many reasons why the DOE did not act on the findings and recommendations are extant. Prime among them was the scarcity of F&I funds due to higher priority programmatic objectives (science over bricks and mortar). The costs of constructing and operating new science-oriented facilities compete for the funding available for deferred maintenance in the rest of the complex. The figure representing the cost of reducing the deferred maintenance backlog coupled with the substantial costs of decontamination and disposal grew to such an imposing number that it was easier to defer than to take action. Funds slated for attacking the maintenance problem were often redirected to respond to more urgent unfunded mandates (security, safety, environment, etc.).

AGE

The majority of the facilities reported in the Complex are 40 years and older. These facilities do not meet modern standards, especially in the area of energy conservation. The overall efficiency of the facilities is low because the facility was not originally designed for the mission/use currently being executed. In a number of instances where upgrades have been made to accommodate new or modified missions the function is consolidated in a portion of the facility and sits in the midst of surrounding empty and unused space.

CONDITION OF THE COMPLEX

A DP study, focused on the time period centered about 1995, reported that the complex was reasonably healthy. At that time, the Sites reported that 56 percent of the Complex was in either "excellent" or "good" condition. The 2000 F&I data call portrays significant deterioration in the Complex. These data now capture a Complex that is only 26 percent "excellent" to "good" with over 70 percent in an "adequate" to "fail" condition. The current Assessment indicates that the declining condition of the Complex is growing worse. Funding has not been sufficient to solve the backlog problem and stem the steady decline. A stagnant budget (in the past and anticipated for the future), a focus on science at the expense of infrastructure, an increasingly more stringent regulatory climate (with many unfunded mandates), and inflation have all contributed to a dramatic downturn in the condition of the Complex.

FACILITY AND INFRASTRUCTURE COSTS

During the period fiscal year 1998 through fiscal year 2002 the average annual funded level of spending on F&I will be $1.3 billion. However, requirements will av-

erage approximately $2.1 billion per year for the time period fiscal year 2003 through fiscal year 2008. To compound the problem, unfunded (priority) requirements are increasing at a rate of about $200 million per year.

EXCESS FACILITIES

A drain on F&I resources exists in the excess facilities category. These are facilities that are no longer in use because of mission change or reduction in the size of the Complex and are generally in poor condition. These facts describe the situation:

—A sizeable number of facilities are waiting to be disposed of.
—Most are in poor condition.
—The expense to maintain them in a holding pattern is relatively small but growing.
—The costs for large-scale facility disposal will be great, but are currently not estimated.
—Should a catastrophic environmental, safety, or health event occur, recovery will be expensive and the potential for unfavorable press will be unavoidable.
—Responsibility for disposing of these facilities resides with Environmental Management.
—Defense Program's current strategy of maintaining excess facilities with minimal maintenance and surveillance, at low cost, has run its course.

SUMMARY AND CONCLUSIONS OF PHASE I

This initial assessment is indisputable—the nuclear weapons complex is old, the infrastructure, a necessary part of the complex, has been neglected, and its maintenance is not funded adequately. In addition, facilities management is fragmented, is without uniform standards, and in difficult times has served as the bill payer for higher priority science and production programs across functional areas. For example:

—Over half the facilities entered the inventory prior to 1960.
—Fiscal year 2003—fiscal year 2008 requirements total $2.1 billion/year—under funded by some $800 million annually.
—Unfunded priority requirements are increasing by about $200 million/year; and over $500 million of urgently needed, yet unfunded, F&I projects are extant.
—F&I conditions continue to deteriorate—CY 1995, 57 percent of facilities were in either excellent or good condition, while in CY 2000, the same facilities fell to 27 percent in these condition categories.
—Annual maintenance is under funded—Comparable industrial facility managers fund from 2 percent to 4 percent, and in some cases 8 percent of replacement plant value (RPV) to maintain facilities. Defense Programs averaged below 1.5 percent RPV for over the past decade to maintain the complex.
—Preventive maintenance and recapitalization required to maintain DP's investment and support program requirements are significantly under funded.

The DP Phase I Facilities and Infrastructure Assessment indicated that the declining condition of the Complex is growing worse. Funding has not been sufficient to solve the backlog problem and stem the steady decline. A stagnant budget (in the past and anticipated for the future), a focus on science at the expense of infrastructure, and increasingly more restrictive regulatory climate (often with unfunded mandates), and inflation have all contributed to a dramatic downturn in the condition of the Complex.

PHASE II

Phase II of the Facilities and Infrastructure Assessment commenced August 2000, and set out to "develop a plan for long-term recapitalization for the facilities in the nuclear weapons complex." Using the database developed in Phase I, the approach for Phase II is to build on existing processes while identifying the central issues to be resolved, and develop appropriate metrics by which to measure progress.

To date, a dozen major tasks have been identified for action by using Six Sigma methods of analyses. These tasks include establishing and validating policy; developing consistent planning processes—both tactical and strategic; reengineering facility stewardship; implementing procedural improvements; and developing budget guidance that highlights F&I concerns and establishes accountability. I have here a briefing of our Facilities and Infrastructure Assessment which explains in more detail these tasks which bring focus, process, rigor and accountability to our work of recovering our facilities and infrastructure. I would request that one of my senior staff members brief you or your staffs at your convenience to provide a more comprehensive explanation of our efforts than I have time to do now.

RECENT REVIEWS SUMMARIZED

While Defense Programs was aggressively coming to grips with the actions necessary to improve the condition of the complex, others were independently studying the complex and not too surprisingly drawing similar conclusions. Dr. John S. Foster chaired a "Panel to Assess the Reliability, Safety, and Security of the United States Nuclear Stockpile". The findings of this panel echo those put forth by Defense Programs. In addition, General John M. Shalikashvili, serving in his role of Special Advisor to the Secretary of State, issued findings and recommendations related to the Comprehensive Test Ban Treaty. His pointed recommendations also warn of the impact of existing conditions at the manufacturing plants and the consequences should nothing be done. Key findings of both panels are provided below.

THE FOSTER PANEL

The 1999 Strom Thurmond Defense Authorization Act created the Panel to review and assess (1) the annual process for certifying stockpile reliability and safety, (2) the long-term adequacy of that process, and (3) the adequacy of criteria to be provided by the Department of Energy for evaluating its science-based Stockpile Stewardship Program.

Recommendations:

Production complex

Restore missing production capabilities and refurbish the production complex. The decline of the nuclear weapons production complex must be reversed with a 10-year program to eliminate critical maintenance backlogs and gaps in stockpile repair and replacement capabilities, requiring investment on the scale of $300 to $500 million per year. In addition, ongoing work on small-scale pit production capabilities and the certification of newly manufactured pits must be pursued with urgency. Work also must begin on the conceptual design of adequate nuclear facilities for the long-term support of the stockpile.

Plans, programs, and budgets

Implement a realistic plan, schedule, and multi-year budget for the Stockpile Stewardship Program, agreed to by the Nuclear Weapons Council. The new NNSA Future Years Plan (FYP) should provide, with the Defense Department's agreement, a realistic multi-year program to sustain confidence. Congress should support realistic budgets and provide NNSA flexibility to manage to this program. The Defense and Energy Departments should partner in a revised Nuclear Posture Review addressing the makeup of the future nuclear stockpile, and assessing DOD's requirements on NNSA to support that stockpile, including infrastructure and hedge strategies.

The Panel also visited some of the forty- and fifty-year old production facilities at the Pantex, Oak Ridge Y–12, and Kansas City plants where weapons work is being done with aged equipment, employing health and safety practices that have been grafted onto the work flows of these outmoded facilities. Only a very small amount of design and production work is actually being performed. For at least a decade, these facilities have been permitted to spend only the minimal amounts needed to sustain operations for the tasks at hand. Consequently, independent DOE and DOD studies that find the production complex is incapable of meeting future stockpile requirements. In the coming decade, some $3 to $5 billion will be needed to remedy this situation. The DOE reports a maintenance backlog of $700 to $800 million. Additionally, there is a need for $300 to $500 million per year for up to ten years for recapitalization to restore the capability to meet workloads.

In summary, production managers across the complex describe their situation as an impending disaster. They warn that the current approach is pushing their facilities toward failure, and that the current program does not enable them to hire and train a new generation of workers. They hold the following:

Restore the capability to support needed weapons work

Managers within the complex are concerned that the deterioration of the physical facilities is accelerating. For some of these deteriorated 40 to 50 year-old facilities it may be more cost-effective to build replacement capabilities. Yet, there is no agreed upon plan or program in place for addressing the complex-wide backlog of critical maintenance requirements. The NNSA must take the lead in defining a long-term program for reversing these trends. NNSA must:

—Plan and execute a ten-year program to restore needed production capabilities. The DOE reports a maintenance backlog of some $700–$800M. Additionally, there is a need for $300–$500M/yr for some ten years for recapitalization to en-

sure that the production complex will be able to meet both current and future workloads.

Restore nuclear facilities adequate to long-term needs

The nation must be prepared to address problems that may arise in the nuclear components of stockpiled weapons. NNSA should begin a time-phased program to design and build the critical nuclear facilities needed to have a complete capability to produce and refurbish nuclear components. These include facilities for pit production, secondary production, and some upgrades at the nuclear laboratories.

THE SHALIKASHVILI REPORT—2001

Recommendations:

Working with the Department of Defense, other Executive Branch agencies, and the Congress, the Administrator of the NNSA should complete as soon as possible his comprehensive review of the Stockpile Stewardship Program. The review will clarify objectives and requirements, set priorities, assess progress, identify needs, and develop an overarching program plan with broad-based support.

A dedicated infrastructure revitalization fund should be established after the NNSA has completed a revitalization plan for its production facilities and laboratories.

Senator DOMENICI. Thank you very much, General.

Senator Thompson, if you would like to proceed. You are doing us a favor by coming here, and I appreciate it.

MORALE ISSUES

Senator THOMPSON. Not at all. You are doing the whole Nation a favor by highlighting these problems. You just touched on something in the end there that I have wondered about, and that is the growing concern over our personnel, our stewards of the stewardship program and what is happening to that. We are not testing. We are having to become more and more dependent on other things, and it probably makes our personnel even more important. We are losing personnel, and what is your overall assessment of that, and to what extent do these working conditions impact on that problem?

General GORDON. It is hard to get a metric on that, Senator, but it is very clear that the new employees that come around and look at this facility have to wonder why they would want to come work in this environment.

We have done a lot in the last 6 or so months to change the tone within the facilities, both the plants and the laboratories. I use the rather graphic analogy that when I took over the NNSA, the morale issues, were kind of a sucking chest wound. It may not be quite that bad now. We have held out some promise. We have held out some hope for the folks that are there.

The young folks that I meet with at the laboratories and other places seem to actually be really charged up about what they are doing. They are doing great science. They see some future for themselves. Older folks really worry and wonder about what they are doing, and I have got to tell you that the new folks coming in just have to look around and say, the commitment is not there to this mission, the commitment is not there to me, why should I come to this organization.

I cannot put numbers on it, but Sandia, for example, they would tell you that the number of people that accept their first offer is declining significantly.

Senator THOMPSON We deal a lot in the Governmental Affairs Committee with the GAL high risk list, and they recently stated in their report, the GAL high risk report stated, quote, human capital issues may be the single largest problem challenging the nuclear weapons program. The experienced designers and engineers who built the weapons and the stockpile and understand how they work are reaching or past retirement age.

DOE is also faced with shortages of technicians skilled in the techniques associated with weapons production, and it kind of reminds me of what a lot of knowledgeable people say about our military, and our losses there. It is not just about pay, it is how you live your life every day, and what your surroundings are like, and what kind of commitment you feel that your Nation is making to what you are doing, so it is important in that respect, too.

I noticed in Mr. Mitchell's testimony, as far as Y–12 was concerned, he had the maintenance backlog $10 million first year, $5 million next 5 years, $1 to $2 million thereafter, excess unused buildings, $25–$30 million a year, technology and security improvements, $100 million a year, new construction $300 million. Does that comport with your own——

Y–12 PLANT INFRASTRUCTURE

General GORDON. As I suggested Senator, Y–12 is really the poster child for this effort. It has been neglected longer than anything else. It is where the most horror stories are. If we were to get the $300 million or so that we suggested this year, we have estimated $40 million of that would go to Y–12 as the up-front to start.

You have been there, Senator. The last time I walked through there there was an old portal that I used 20 years ago when I visited the place, a security entrance way, and it is wooden, and it has grown up with weeds, and there are weeds coming up through the windows.

I said, why don't we tear it down? They said, well, we cannot, because all the power comes in through that facility, and communications comes in through that facility, and they need to maintain it. It is not as simple as even taking old buildings down. We cannot just go bulldoze the things. There are other requirements that lead into those.

RECRUITMENT

But you are spot on in the importance of bringing new people in, giving them a quality life, as we would think about in the military, at least a quality in their work environment that lets them feel proud about what they are doing. It lets us send a signal to them that, this is a real mission that is going to be around for a while, and we are not doing that yet. I would propose that Y–12 again is the worst of the particular facilities, although every one of the places has individual facilities that needs significant work.

Senator THOMPSON. Of course, every weapon in our current stockpile includes components manufactured at Y–12.

General GORDON. Every weapon goes through there in both directions, coming into the stockpile, coming out of the stockpile, and refurbishing the stockpile and, as the chairman mentioned in his

opening statement, we now are in the position ready to begin the refurbishment of some 60 percent of the Nation's stockpile we are going to be running through the kinds of facilities that we are talking about today.

Y–12 PLANT CHAIN OF COMMAND

Senator THOMPSON. By the way, some are concerned that the NNSA reorganization plan will result in Y–12 not reporting directly to NNSA headquarters, and report elsewhere, and add another layer of bureaucracy. Can you tell me if that is in the works?

General GORDON. That is a rumor without merit.

Senator THOMPSON. I am glad to hear that.

HEADQUARTERS REORGANIZATION

General GORDON. The work that we are doing now on suggesting a reorganization is limited to headquarters planning. We are under obligation, and will submit a report on field operations in the future, we will address that at the time, but that is not an active consideration on my book.

Senator THOMPSON. Thank you very much. Thank you, Mr. Chairman.

INFRASTRUCTURE INITIATIVE

Senator DOMENICI. Senator and fellow chairman, I want to just suggest that I am going to do everything I can to get a program started and I will need your help. Obviously for a few years a substantial portion of money has got to go to Y–12, because obviously we just let it absolutely deteriorate right around us, but I can tell you at other laboratories there is a desperate need for new facilities that fit scientists, and scientific work of our day. We have got scientists at the other major laboratories that are working related to our nuclear weapons, but it is science—you know, it is nanoscience. It is microengines.

You have got to have facilities for those people. I mean, these are the cutting edge people of the whole country in terms of the next technology of significance, and frankly, we could have put—the General could have put in this packet of pictures, he could have put the Sandia National Laboratory facility in which the whole nanoscience engineers and experts are working.

They are in the process of developing the world's leading center on microengines, engines that are so tiny that they are microscopic, and essentially they are energized much in the same way that you put things on a microchip for computers, and then they buzz around doing their own thing, these little tiny engines, and pretty soon we are going to tack them all together and do something with them.

There is one thought that they might be good for a heart condition somewhere, that you might literally put these little micro machines that function at such a weak level it does not hurt anything, put them in your system, and if you can direct them, they may be the way to fix various accumulations around the heart without having to do what we are doing today.

Now, that may never happen, but that is pretty exciting, and all the other things that might happen. These scientists cannot be living in a barrack room that was put up there on a temporary basis that had doors on it like you are going to go into an old warehouse. You know, I used to work in a store when I was a little guy. Those are the same kind of doors we had back 50 years ago, so they are all over the place. Los Alamos, built up there, is a city on its own. It has its share of them, and so does Livermore.

So we are going to have to work together up here, but I do think you have the most valid claim on the first money in. We have to look at the President's budget in terms of where he would distribute the money, and I think in this regard we are going to have to push them very hard, because this is military expenditures. This is DOD expenditures, and we need to make sure that more resources are put in, not less.

This is not a place to save money over the next 4 years of this President's—I mean, actually, if he tries, it will be harmful in the end, because what we are going to get is a very inferior condition to what we have today.

Senator THOMPSON. Mr. Chairman, if I may, I appreciate first of all everything you have said, but going back here to this distinguished group of people who formed a commission, National Security for the 21st Century, just right along the lines of what you said, they recommend, of course, that we double the U.S. Government's investment in science and technology research and development by 2010, but they have a very interesting paragraph here that I think kind of summarizes it.

It says, if the United States does not invest significantly in more public research and development, it will be eclipsed by others. Recent failures in this regard may return to haunt us. The decision not to invest in the large nuclear accelerator, the superconducting supercollider, already means that most significant breakthroughs in theoretical physics, at least, over the next decade, will occur in Europe and not the United States.

The reduction of the U.S. research and development in basic electronics engineering has ensured that the next generation of chip processors and manufacturing technology will come from an international consortium, rather than the United States alone.

So we cannot say we are not being warned.

Senator DOMENICI. Well, General, I have a number of questions. I am going to submit most of them. You will have, by the time you are finished here this morning, will have put in the record how the 10-year plan would be—how we would spend the money more or less, and where will it go in a 10-year plan. That is part of what you have told us in your testimony, is it not?

General GORDON. We will do that and we can expand that for the record.

COSTS OF INFRASTRUCTURE REPAIR

Senator DOMENICI. I think that is pretty important, but could you give us the general numbers, the total extent that you are recommending expenditures in this area over the next 10 years? How much is that, an average of $500 million a year?

General GORDON. To me, we can readily, safely, and within our ability to manage it and oversee it, and stand up proud about the need and requirements, about $500 million a year for at least 10 years.

Senator DOMENICI. Okay. Thank you very much.

TA–55 AT LOS ALAMOS NATIONAL LAB

General GORDON. Mr. Chairman, could I just give you one more example? I mean, I know we have talked about examples here with you and Senator Thompson, but one of the ones that is really vexing to me is what we call TA, or Tech Area 55 at Los Alamos, the nuclear, the plutonium facility. For folks that have not visited there, that is probably the most modern plutonium facility in the world. We have done no work on it in 22 years.

At Los Alamos we have scattered throughout the landscape there a number of individual facilities that work on nuclear materials of one form or another. The so-called CMR building that we began with, an area down in a canyon called TA–18, where we do some special work, and there are several others.

The point is not to just fix old stuff. There are some really sensible things that need to be done to pull these operations together. I need to pull together in one location, for example, at Los Alamos, the nuclear operations, so that we can do the safety and the protection of those facilities in one place.

Instead of having guards and guns at five or six or seven different locations at Los Alamos, and then moving material back and forth between these buildings, the plan will be to encompass it into a single nuclear campus. That will save us significant funds on the security, adds greatly to safety, and to the ease of operation, and consolidate those operations in one place.

Senator DOMENICI. Well, I am going to change the subject a little bit just for a minute. The military has certain requirements they make of DOE's nuclear capacity, that semiautonomous agency now that you run. In some respects, aren't the commitments that have been made in the area of the B–61, the W–76, aren't some of those commitments dependent upon whether we get some improved facilities to be able to live up to our military commitments?

STOCKPILE REQUIREMENTS

General GORDON. Yes, Mr. Chairman. What we have done over the last several months, and spearheaded in our organization by Brigadier General Tom Gioconda, is revitalized the relationship with the Department of Defense, the military, and the Nuclear Weapons Council. We have agreed with them on a specific proposal and a specific plan to put nominally 60 percent of the weapons through a refurbishment program.

We have agreed on what needs to be done, how it needs to be done, and I say that we cannot fully support that schedule and plan with the existing infrastructure.

Senator DOMENICI. Well, I am pleased that you mentioned General Gioconda. I have found that prior to your coming into this leadership post he had done an excellent job working with the military, and I am going to end up this part, and then we will go to Dr. Schlesinger.

First, I want to thank you again, General, for what you are trying to do. I understand it is a most difficult task to pull another organization together, as you have been asked. It is very hard to get personnel cleared, so you still do not have those people under you that you want to do very important work, because they are being cleared by the administration.

Even some of those you need desperately that are not going to come through the Senate, it is difficult to get them cleared on time, and I understand the administration's log jam and difficulties, but we will be doing whatever you ask in order to be helpful to you with reference to your efforts, and I urge that the relationship with the Defense Department in terms of your problems that you need to solve to be able to be their good supplier, that they be open, and that they be put right on the table, and that the Defense Department clearly understand the situation we have got.

I hope in your statement about the liaison that General Gioconda is doing, it fits that statement. Is that where we are?

General GORDON. It is actually even better than that, sir. I think that at the end of the previous administration, after many years, we were able to put things back on a keel and really go forward and look at the very specifics of what needs to be done on specific weapons, and on what schedules.

My impression over the last month or so in the dealings with the new Department of Defense, the new leadership over there, is they are extremely open to the kinds of discussion we are having, that the individuals, the advisors, the new Secretary can give this speech about as well as I can, sir.

Senator DOMENICI. Now all we have got to do is make sure they put their budget where their discussion has ended, right?

General GORDON. Thank you, sir.

Senator DOMENICI. I know you would not say that, but my friends from Tennessee would support that, and we will work on that.

Thank you, and good luck in your work.

ADDITIONAL COMMITTEE QUESTIONS

General GORDON. Thank you very much, Mr. Chairman. Senator Thompson, thank you.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

BACKLOG OF MAINTENANCE

Question. What do you estimate to be the maintenance backlog today in the nuclear weapons complex? Isn't the maintenance backlog approaching $800 million today?

Answer. The Defense Programs Facilities and Infrastructure Assessment Phase I, Report 2000, identified more than $500 million of facilities and infrastructure backlog projects.

OVERALL COST TO REBUILD THE INFRASTRUCTURE OF THE COMPLEX

Question. A number of studies have assessed and catalogued the problems of the nuclear weapons complex. I mentioned many of them in my opening remarks.

Do you agree that the overall cost of rebuilding the infrastructure for the nuclear weapons complex is in the ballpark of $5–$10 billion over 10 years?

Answer. I believe that at least $500 million per year for ten years will be required to recapitalize the infrastructure if the current assumptions for the weapons program remain valid. For too long our facilities and infrastructure have been put on hold while the science based stewardship program was put into place. That program is now working and it is time to focus on the physical complex which houses the program. We have established an office to manage our facilities and infrastructure and we are establishing processes to institutionalize procedures, standards and expectations for the facilities and infrastructure of our complex. In the past we have been unable to accurately track infrastructure funding year to year. To correct that deficiency I intend to put into place a management system which monitors the condition of NNSA's infrastructure and evaluates the progress of the infrastructure investments.

Question. Could it be higher?

Answer. Yes, the costs to recapitalize the complex could be greater, if assumptions about stockpile size change, or an accident or incident attributable to the deteriorating state of the complex occurs.

Question. How confident are you in the cost?

Answer. I am reasonably confident in the facility and infrastructure costs required to meet current mission needs. As you know, the Administration is conducting a thorough analysis of the national military strategy. The outcome of this analysis may have an impact on the mission of the nuclear weapons complex. The NNSA will review all costs associated with mission execution if there is an impact on our mission.

RECAPITALIZATION INITIATIVE

Question. General Gordon, in your testimony you state that NNSA has crafted a Recapitalization Initiative containing a prioritized list of maintenance and infrastructure requirements across the nuclear weapons complex.

What is the total estimated cost for proposed recapitalization projects in the plan?

Answer. Our review indicates that we need an additional $500–$600 million annually to meet the requirements of our facilities and infrastructure. This tracks closely with recent outside reviews (e.g. the Office of the Secretary of Defense Program Analysis and Evaluation Review April 2000, the DOE Inspector General report, the Foster Panel 2000 Report, and the Shalikashvili Report 2001). The Recapitalization Initiative which NNSA has prepared would fund up to $300 million initially, building to $500 million for several years, potentially ten years. Our Prioritized Project List, which is now in its second revision, contains 228 urgent near term projects without funding support. These projects represent unfunded requirements spread across the entire complex and currently total an estimated $562 million.

Question. Is it your recommendation that this account be set up as a dedicated budget category in order to ensure the necessary reinvestment occurs?

Answer. I am open to any workable approach to funding and accountability. Whatever method is employed, assuming adequate funding, I am accountable for the recapitalization of the complex and therefore will ensure that the reinvestment will occur, regardless of the method chosen. For too long our facilities and infrastructure have been put on hold while the science based stewardship program was put into place. That program is now working and it is time to focus on the physical complex which houses the program. We have established an office to manage our facilities and infrastructure and we are establishing processes to institutionalize procedures, standards and expectations for the facilities and infrastructure of our complex. In the past we have been unable to accurately track infrastructure funding year to year. To correct that deficiency I intend to put into place a management system which monitors the condition of NNSA's infrastructure and evaluates the progress of the infrastructure investments.

Question. What is the maximum amount of work that could be done efficiently in the next year from a dollars standpoint?

Answer. To begin the long needed recapitalization program for the complex, $300 million can be executed efficiently to start our efforts in the first year.

FOSTER PANEL RECOMMENDATIONS

The Foster Panel has suggested a number of additional activities as a part of the stockpile stewardship program. Such as:

—exercising end-to-end design, production and certification capabilities not currently being used

—dual revalidation of all weapons designs
—developing new designs of robust, alternative warheads
—increasing enhanced surveillance
—possibly reducing the nuclear test readiness response time to less than one year

Question. What is your response and what would these items add to the Stockpile Stewardship Program baseline?

Answer. DOE and the NNSA have been supportive of the Foster Panel since its inception and there is agreement on many of the issues identified in the report. In some instances, however, the Foster Panel and NNSA have different views on the solutions to best address the issues and the trade-offs between cost, scope, schedule, and risk. The Foster Panel recommendations all act to reduce risk, but some do so at a significant cost or represent a significant change to current national policy. We are continuing to study the recommendations.

There is currently no military requirement to produce new weapons, and we have not received such a request from the DOD. We believe the life extension programs authorized by the Nuclear Weapons Council for the B61, W80, and W76 will sufficiently exercise the design, production and certification capabilities of the weapons complex. Successful completion of these programs represents a workload and workscope unmatched in the weapons complex in more than ten years. Success will tell us much about our own long-dormant abilities.

NNSA has developed an alternative approach to Dual Revalidation which achieves the same high-priority objectives, but takes less time and is less costly. Baselining, a first necessary step of any Dual Revalidation effort, will be applied to all of the warhead types during the next five years, while some designers that originally worked on the system are still available. The first Dual Revalidation on the W76 Trident was valuable, but was much more expensive than estimated, and took much longer than originally anticipated—five years instead of three. If we choose to perform Dual Revalidation studies in the future, their focus and scope can be based on the key points brought out by completed baselining studies.

Enhanced surveillance is systematically fielding diagnostic tools and conducting studies of components and materials in the stockpile to identify impacts from aging before there is impact to the stockpile. We agree that additional resources in this area could expand or accelerate capabilities to detect and respond to aging issues.

We reported in the Nuclear Test Readiness Posture Report to Congress, dated February 2001, that for anything other than an extremely simple demonstration of capability, a six-month nuclear test response time was not technically feasible, especially considering the safety, environmental, and the Threshold Test Ban Treaty reporting requirements associated with a nuclear test resumption. In addition, it is estimated that maintaining a six-month posture would cost and additional $65M/yr, precluding investment in other more urgent areas of stockpile stewardship.

FIVE YEAR BUDGETING PLAN

Question. Are there other programs critical to a successful stockpile stewardship program, that are not included in the current baseline?

Answer. The preliminary fiscal year 2002 five-year budget plan recently submitted to the Office of Management and Budget supports all programs critical to the success of the Stockpile Stewardship Program to support current policy and DOD requirements. The results of the Administration's ongoing review of national security strategy will provide additional guidance on the future scope and direction of the NNSA's Stockpile Stewardship Program.

Question. Are you aware that some credible experts that have looked at the Stockpile Stewardship Plan have suggested a fully funded program could grow from $6 billion to $7.5 billion a year over the next five years? How would you respond?

Answer. I am aware of those estimates. The dollar figures in the preliminary five-year budget plan, which support current policy and DOD requirements, are essentially consistent with them. The NNSA will amend the fiscal year 2002 future-years budget plan to reflect guidance derived from Administration's ongoing review of national security strategy. We support the President's stated belief that the Nation's defense strategy should drive decisions on defense resources, not the other way around.

DEFENSE PA&E REVIEW OF APRIL 2000

Question. The Office of the Secretary of Defense conducted a program analysis and evaluation review in April of last year. The review concluded that indefinite maintenance of the nuclear stockpile will require an investment in the Defense Programs manufacturing infrastructure of $7 billion over the next 18 years.

Do you agree with the conclusion of the Defense review?

Answer. I believe that the Defense review's estimated investment figures are on the correct order of magnitude. As I have testified, both the plants and the laboratories require attention immediately. If we don't arrest the deterioration soon, the cost to recapitalize will only increase.

Question. How much of the $7 billion in infrastructure investments are included in the NNSA's Recapitalization Initiative?

Answer. As the Office of the Secretary of Defense did not publish the details of its review, we cannot make this determination.

ACCELERATION OF DECLINE IN FACILITIES

Question. In your testimony you indicate that the deterioration of the physical infrastructure of the weapons complex is accelerating.

When will new facilities be required, and when should we begin a major rebuilding effort?

Answer. In order to arrest the deterioration of the physical infrastructure of the nuclear weapons complex, it is important that rebuilding begin as soon as possible. New facilities are coming on line as detailed in annual budget documents submitted to the Congress. The Recapitalization Initiative, which will plan for new facilities as well as the modernization of existing facilities, is a three phased approach. First, a prioritized list of non-line item maintenance and infrastructure projects has been developed and will be updated semi-annually. Whatever the funding level, the most urgent projects on this list will be worked off first. Next, the revised ten-year comprehensive site plans will be used to develop restoration plans for each site, prioritize efforts, and plan conceptual design activities for future line item construction projects. Last, the initiative will support a facility disposition effort. This includes the dismantlement and removal of deactivated facilities and infrastructure that are not radiologically contaminated and are excess to current and future mission requirements.

ABILITY TO MEET MILITARY REQUIREMENTS

Question. The 30-Day Review said "Failure to develop and mature these technologies [to make weapons safe, more reliable, and more secure] during the next 3–5 years could lead to the reuse of 20 to 30 year old technology in refurbished weapons."

Address the seriousness of this problem and describe what facilities are specifically needed to avoid the reuse of 20–30 year old technology in refurbished weapons.

Answer. The quote from the 30-Day Review refers specifically to the surety features in our stockpile weapons. However, in general, the technology used in designing, producing, and certifying the weapons in our current stockpile is several decades old. DOE and DOD have reached agreement on the refurbishment of the B61 and the first production unit is scheduled for fiscal year 2004. The Nuclear Weapons Council has recommended first production units for a refurbished W80 and W76 in fiscal year 2006 and fiscal year 2008 respectively.

Aware that we would need to extend the life of or refurbish weapons now in our stockpile, DOE has under development several facilities incorporating state-of-the art technologies for developing and producing advanced replacement components. These include MESA, the Microelectronics Development Laboratory, and the LIGA Technology Facility at the Sandia National laboratories and the LIGA Assembly and Polysilicon Packaging Facilities at Kansas City Plant. [LIGA is a German acronym for a process that uses x-ray lithographic techniques to fabricate miniature parts.]

We also have under development a number of other facilities to enhance our capabilities to certify refurbished weapons. Without underground nuclear tests, significantly different approaches to certification are required. Computational facilities must be available to simulate weapon performance with full-fidelity physics in three dimensions. This includes our Accelerated Strategic Computer Initiative systems and associated facilities such as the Terascale Simulation Facility at the Lawrence Livermore National Laboratory, the Strategic Computing Complex at the Los Alamos National Laboratory, and, at the Sandia National Laboratories, the Joint Computational Engineering Laboratory, the Model Validation & Systems Certification Test Center, and the Distributed Information Systems Laboratory.

Facilities are also required to conduct subcritical experiments to verify dynamic properties of nuclear weapons materials and to radiograph (x-ray and proton) assemblies. While some of these facilities exist today, such as the subcritical test facilities and JASPER at Nevada, others are still under construction, such as the Dual-Axis Radiographic Hydrotest Facility (DARHT) and the National Ignition Facility (NIF) and some are only in a planning stage such as an Advanced Hydrotest

Facility. It is absolutely essential to continue the development and construction of these facilities.

REINVESTMENT RATES COMPARED TO INDUSTRY AND DEPARTMENT OF DEFENSE

Question. Do you agree that DOE has consistently underfunded reinvestment?

Answer. Maintenance and recapitalization of the infrastructure has been underfunded to meet current mission requirements. For the period fiscal year 2002-fiscal year 2008, facilities and infrastructure requirements, excluding line items, appear fairly stable at $1.3 billion/year, whereas annual funding has recently been only $700 million—a significant under funding as our study of the issue points out.

Question. Based on the numerous reviews that have been conducted, what do you recommend is an appropriate reinvestment rate for the nuclear weapons complex?

Answer. As discussed during my testimony, the NNSA requirement for recapitalizing the nuclear weapons complex is about $500 million/year for at least a decade. The figure is arrived at by projecting current mission needs, recognizing that the aging complex is in need of immediate attention, and integrating the management standards and practices successfully employed by state-of-the-art facility managers in other Federal agencies, academic institutions, and private industry.

ABILITY TO MEET MILITARY REQUIREMENTS

Question. If we do not begin a substantial recapitalization initiative this year, will we still be able to meet the targets established by the Nuclear Weapons Council for refurbishment of the W76 and B61?

Answer. It would be prudent to immediately begin a recapitalization initiative in order to complete the refurbishments as recommended by DOD. However, I cannot say that such an initiative must be undertaken this year in order to meet the targets established by the Nuclear Weapons Council for refurbishment of the W76, B61, or the W80 warheads; but it must begin soon in order to provide confidence that the required end state and level of readiness can be achieved to support our important deterrent weapons.

INFRASTRUCTURE AS A MORALE AND RECRUITMENT ISSUE

Question. Morale throughout the weapons complex has become a very serious issue over the last few years. Much of the problems relate to security issues. But I believe the deteriorating facilities our workers are in, contribute to low morale. The Chiles Commission identified the need to "eliminate problems of maintenance of equipment and facilities, and modernization of equipment" in the context of enhancing recruitment and retention of a quality workforce. The U.S. Commission on National Security wrote in January 2001 that "the physical circumstances in which lab professional work have also deteriorated in many instances, to unacceptable levels."

Do you agree with these statements?

Answer. I agree fully with the statements of those Commissions. We engaged in a very active dialogue with them during their deliberations. The weapons complex is old, and in many cases utilizes obsolete technology. As the complex ages, maintenance and operating costs continue to rise. In addition, the complex has deferred maintenance, construction, and technology improvements in order to meet mission requirements. The NNSA is now faced with the realities of old and marginally maintained facilities, some of which are at unacceptable levels. This was confirmed by the Chiles Commission, the 30-Day Review of the Stockpile Stewardship Program and the U.S. Commission on National Security.

On May 12, 2000, a detailed assessment of the existing nuclear weapons complex's Facilities and Infrastructure (F&I) was initiated. The goals of the assessment are to develop an integrated plan to improve the condition of the complex, to analyze our organizational F&I management structure, and to propose changes to existing F&I management policy. The Department intends to recapitalize the facilities and infrastructure of the nuclear weapons complex and institutionalize facility management processes to ensure their continued availability, condition, operational worth, and attractiveness to our workforce and potential recruits. The detailed assessment indicated that an additional $500–$600 million per year for many years is necessary to address issues that are not addressed within current base efforts.

Question. How significant is the condition of the facilities to the ability to recruit and retain the best and brightest?

Answer. Very significant. There is no question that work environment contributes to worker morale and the ability to recruit and retain a quality workforce. In a highly competitive market for technical talent, we are competing with the private sector for the best and brightest from our colleges and universities. While we believe the

Stockpile Stewardship Program offers prospective recruits unique career opportunities, the work environment could very well be the deciding factor in their decision-making. We are very aware of this and believe that our Recapitalization Initiative is the correct path forward.

QUESTION SUBMITTED BY SENATOR ERNEST F. HOLLINGS

BUTLER-CUTLER REPORT

Question. On January 18th, 2001, a bipartisan task force selected by the Department of Energy released a report evaluating nonproliferation programs between the United States and Russia. Lloyd Cutler and Howard Baker chaired the group, and I have included an excerpt of their conclusions for the record:

"The most urgent unmet national security threat to the United States today is the danger that weapons of mass destruction or weapons-usable material in Russia could be stolen and sold to terrorist or hostile Nation States and used against American troops abroad or citizens at home."

Do you agree with their findings?

Answer. Overall, I agree that the threat of loose nukes and weapons-useable material represents a threat to U.S. national security. I believe that these cooperative nonproliferation programs with Russia will require greater funding, but I cannot say at this point the exact funding level that should be spent over the next 8–10 years. I support the Bush Administration's current effort to develop a government-wide strategy on how to address this crucial issue that threatens the American people. Today, in order to clarify what our goals and milestones are. I look forward to working with my counterparts at the Departments of Defense and State, as well as the National Security Council and Congress, to help develop such a strategy.

Question. The Committee's second major conclusion was that nonproliferation programs at the Department of Energy and the Department of Defense, while successful, are underfunded and have a limited mandate. Do you agree with this assessment?

Answer. The NNSA's nonproliferation mission is extremely important. Currently, these and other U.S. nonproliferation programs are being reviewed by this Administration to determine their future scope, direction, and funding. Additionally, the NNSA is taking the lead for the programs in which we have the resident expertise, and we are supporting other agencies with our technical work as appropriate.

Question. Which specific nonproliferation programs at DOE are in need of additional resources or an expanded mandate?

Answer. The Administration is presently conducting a review of Russian programs which will determine the future scope, direction, and funding of these activities to meet urgent national security challenges. Once this review is complete, I will be in a better position to describe to you the specific nonproliferation programs at the NNSA that are in need of additional resources or an expanded mandate.

ENVIRONMENTAL MANAGEMENT FUNDING

Question. As part of the Bush budget blueprint it was stated that overall DOE spending would be reduced 3.5 percent from the fiscal year 2001 level. When the President's new spending initiatives are taken into consideration, the reduction in funding for the remaining programs is more 5.5 percent or 6.0 percent. As you stated in your written testimony, infrastructure in the DOE laboratory complex is currently inadequate.

Do you believe that reductions in the Operations and Maintenance accounts are wise given the grave environmental challenges we face at many of the formerly-used nuclear weapons sites?

Answer. Protecting the health and safety of the workers and the public is the Department's highest priority. We will ensure that our facilities and sites are operated and maintained in a safe manner that protects human health and the environment and in compliance with environmental laws. We recognize the Department now faces significant environmental cleanup challenges throughout the nuclear weapons complex resulting from past practices. We will place a top priority on managing our facilities safely to ensure we do not create environmental problems for the future.

Question. Do you believe that reduced funding in environmental management accounts represent a national security risk?

Answer. Protecting the health and welfare of our workers and the public will continue to be our highest priority. Within the Environmental Management program, we will continue to work to mitigate high risks at our sites. This includes maintain-

ing the safety and security of nuclear materials and spent nuclear fuel at our sites that present potential national security risks and supporting critical non-proliferation efforts.

TRITIUM MODERNIZATION AND CONSOLIDATION

Question. How is that project working and is the facility meeting its expected goals?

Answer. The Tritium Modernization and Consolidation Project is currently on schedule to be complete and fully operational by September 2004. Project design is 100 percent complete, procurement is 85 percent complete, and construction is 37 percent complete as of 3/15/01. Fixed-price construction contracts for the building to support material testing (234–7H) will be awarded this year. This project is meeting expected goals and will, when complete, meet projected program needs.

MODERN PIT PRODUCTION FACILITY

Question. Does the NNSA believe that there is a need for a higher capacity pit-production facility?

Answer. The need and timing for a new pit production facility is predicated on completing several important studies. First, the Administration is conducting a thorough analysis of nuclear weapons and their role in national security. NNSA is conducting pit aging campaign studies which should be completed prior to a decision about a new pit production facility. This approach is supported by the Nuclear Weapons Council. In the event that a new facility is needed, NNSA is addressing pre-conceptual design issues required for a critical decision that will enable the start of a conceptual design for a Modern Pit Facility (MPF). This MPF would have sufficient pit manufacturing capacity to meet the needs of the Department of Defense. A prudent risk management strategy to address the need and timing for a MPF will be established after the numbers and types of warheads for the future nuclear stockpile and pit lifetimes are determined.

Question. Will SRS be chosen for this facility if there is a need for it?

Answer. Site selection for a MPF will proceed consistent with the normal acquisition process. Site selection would be expected to occur some three years after approval of conceptual design initiation, and following an environmental assessment of various site alternatives conducted under the National Environmental Policy Act.

NONDEPARTMENTAL WITNESS

STATEMENT OF DR. JAMES SCHLESINGER, ON BEHALF OF THE PANEL TO ASSESS THE RELIABILITY, SAFETY, AND SECURITY OF THE UNITED STATES NUCLEAR STOCKPILE

ACCOMPANIED BY DAVID GRAHAM, ON BEHALF OF THE INSTITUTE FOR DEFENSE ANALYSIS

Senator DOMENICI. Dr. Schlesinger, we would like to hear from you, if you are ready.

Dr. SCHLESINGER. Mr. Chairman, could I have you invite David Graham to come up?

Senator DOMENICI. David Graham, you are invited to join, please.

Dr. SCHLESINGER. He is the fount of wisdom.

Senator DOMENICI. He is welcome.

Dr. SCHLESINGER. I trust that members of the committee will call upon him whenever they have some erudite question that they themselves are unable to answer.

Senator DOMENICI. Well, we might start right off and ask you if you would testify and start off, then we will let Dr. Schlesinger do the balance—not at all.

I wanted to say, Dr. Schlesinger, before you arrived as part of the preliminaries, we did announce that you would be the second witness, and the crowd has not changed much, and I told them of all of your greatness, so I am not going to repeat it again. Is that all right with you?

Dr. SCHLESINGER. That is fine, Mr. Chairman.

Senator DOMENICI. Having said that, we are going to ask you to start.

This is a very serious subject, and I know there is no one around that is more concerned about it, and that spends more time at it, and I mean the general subject of nuclear weapons and the complexes, the Department of Energy's failures in the past. I am sure you are aware of our efforts to try to make that better in terms of the management. It is a very dysfunctional agency, because it is put together from so many sources, and all those sources brought their rules with them, and the rules and regulations do not run perpendicular in DOE, they run parallel, and so everybody gets spattered with the dysfunctional nature, but by pulling out the nuclear weapons in a semi-autonomous shield, we hope to do better. We hope that General Gordon will be the catalyst for that.

But now we are focusing today in advance of appropriation dollars, and we are talking about the infrastructure, and we know you would like to share your wisdom with us, so now it is your opportunity to do that.

Dr. SCHLESINGER. Well, thank you, Mr. Chairman. May I say about the DOE that we cannot blame the dysfunctional aspects of it on the predecessor agencies, that there is a lot of self-inflicted damage over the years, in which the accountability has been removed from various bodies and spread out in such a way that nobody is accountable. Some of those things were touched upon by the Rudman report of about a year ago.

Mr. Chairman, I am here to represent the views of the panel, assess the reliability and safety and security of the United States nuclear weapons stockpile. This panel was established by the Congress in 1999, the authorization act, and it is to assess the reliability, safety, and security. Last year we presented a report. Our second report has been sent to the Congress this year.

Senator DOMENICI. Dr. Schlesinger and Senator, would you mind, I have something urgent out there, can I just take a 4-minute leave? Would you rather proceed?

Senator THOMPSON. Let's recess for just a little bit.

Senator DOMENICI. The committee will proceed.

Dr. Schlesinger.

Dr. SCHLESINGER. Thank you, Mr. Chairman. Last year, as I say, we produced our first report. This is our second report. We have concentrated on infrastructure this year because of the various reasons that have been mentioned before. Over the years the priority has been to preserve the strength of the laboratories, and in that period, as the budgets were squeezed, infrastructure has been neglected.

Let me start by just making a few observations. The first observation is, repeatedly, the leaders of the executive branch and the Congress have stated that the preservation of our nuclear deterrent is critical to our national security. The problem is that those statements tend to be rhetoric, and have not been balanced by what we see in terms of the actual support for the program and for the weaponry.

Second, we talk about the infrastructure here. We are not in a position to make any recommendations with regard to the size of the nuclear weapons stockpile, but that is to a substantial degree independent of such judgments, because we do not know the breadth of any future program, and therefore we must be prepared with an infrastructure that is capable of producing a number of nuclear weapons should some of those in our present stockpile fail.

Third, even if nuclear weapons were continuing to be tested, we would have many of these problems, simply because of the aging of the infrastructure. It is not a question of the absence of nuclear testing. These facilities are old. They needed to be maintained better in the past, and they need to be replaced over time.

Mr. Chairman, there is no need for me to go over the report itself. It is available to all the Members of Congress. We make some recommendations after we have looked over this problem. First, we repeat—we repeat our recommendation of last year that we get to work on establishing a facility to produce primaries.

As you know, Mr. Chairman, we have a small facility that was supposed to be operational at Los Alamos. It is slipping. It has slipped, just as other elements of this program have slipped. The

absence of the capability to produce primaries for nuclear weapons is perhaps the most dramatic lack in our present nuclear program.

We mentioned this last year. We reiterate it this year. Little has been done in the intervening period. It is now 12 years since the last primary was produced. Rocky Flats has been shut down.

Second, we have serious problems at Y–12. Some of them have been already touched on by General Gordon. At Y–12, we continue to be able to produce secondaries for our nuclear weapons, but the production capability there is fragile, and we believe that it might be upgraded. You mentioned, Mr. Chairman, something that is in our report, that members have to go in with hard hats because of the crumbling of the ceilings.

We continue to operate these facilities, but these are under most unfavorable conditions, so the restoration of the production complex, and you have gone over some of those numbers. There is about $800 million estimated by the DOE itself in backlog on maintenance, and we probably need to spend $300 to $500 million on recapitalization of the facilities, additional beyond what we have been budgeting in the past.

We need to define and execute the work needed to restore and exercise integrated design, fabricate and certification capabilities. These are areas that we have talked about in a general way, but we have not defined them as yet. Certification is something that was declared by President Clinton in 1995, but that needs to be strengthened. Right now, it is a process that is on auto pilot to some extent.

Third, we recommend that we must ensure the continued vitality of the competition of ideas within the system of national laboratories. We believe that there should be dual validation by the two weapons laboratories of the existing stockpile weapons.

In the past, the tendency has been for each laboratory to say, this was my development, my weapon, stay out of it, to the other design laboratories. In view of the fact that we are now in a position that the weapons in the stockpile will be there year after year, decade after decade, we need to get critical commentaries as we go through the certification processes, the life extension processes, and the qualification of components.

PREPARED STATEMENT

Let me conclude. This panel is troubled to report that portions of the weapons complex infrastructure are defective, and that the production capabilities are fragile. There is an increasingly urgent need for a coherent vision, comprehensive plan, and programmatic commitment to reverse these adverse trends. General Gordon has started down that road. He needs support.

Thank you, Mr. Chairman. I will leave my statement for the record.

[The statement follows:]

PREPARED STATEMENT OF JAMES R. SCHLESINGER

Mr. Chairman, Members of the Committee. In 1999, Congress established the Panel to Assess the Reliability, Safety, and Security of the United States Nuclear Stockpile, chaired by Dr. John Foster. In my testimony today, I will summarize the analysis and recommendations provided in the Panel's second annual report to Congress.

To provide context for my statement, I shall begin with three observations:

First, the benchmark this Panel uses in assessing the weapons program is the national deterrence strategy. The nation's leaders—be they civilians in the executive branch or the Congress, or be they in the military—have stated repeatedly that sustaining a safe and reliable stockpile in support of deterrence is a supreme national interest. It is the Panel's view that programs for sustaining the stockpile should be managed accordingly.

Secondly, although the Panel was not tasked to develop recommendations on a desirable size for the stockpile, we would counsel that the debate on this topic must accurately incorporate the implications for the weapons complex. Cutting the stockpile will not save much on the size and cost of the weapons complex. So long as we keep more than a handful of weapons, there are threshold levels of capabilities in the plants and laboratories that will be needed to maintain the stockpile, regardless of its size.

Thirdly, the problems I shall be discussing today would exist even if nuclear testing had continued. Our aging stockpile will need to be assessed and maintained—and new tools and methods will be needed—regardless of whether we test. Thus, our principal recommendations are not altered by future decisions concerning continuation or termination of the current unilateral moratorium on underground nuclear testing.

FINDINGS

The Panel focused over the last year on the national capability to perform the high-priority, day-to-day work of stockpile stewardship—surveillance, assessments, refurbishments, annual certification, and production. Our review included visits to the major production facilities and the national labs, plus presentations from all of the DOE, plant, and laboratory organizations that play a significant role in stockpile stewardship.

We found the same major issues as have been reported by other reviewers, including DOD, the GAO, and DOE itself. In recent years, the weapons complex has been unable to complete even a very modest workload on schedule. In large part, this has been due to a lack of investment needed to prevent deterioration of the production facilities, some of which are forty-to-fifty years old.

Some specific examples illustrate our concerns:

—Almost a decade after the shutdown of the Rocky Flats plant, we still have no capability to fabricate the qualified plutonium pits needed in our nuclear weapon primaries.

—Some critical production facilities for weapons secondaries at the Oak Ridge Y–12 plant have not been brought back on line since they were shut down in 1994 for health and safety reasons. DOE has stored accumulated wastes since that time.

—We have a personnel situation in the nuclear weapon design laboratories that is quite alarming. Our technical staffs are frustrated as they see the milestones for stockpile stewardship continue to slip. Recent security incidents have had a major negative impact. The rate of departure is up significantly at all three laboratories this year; acceptance of job offers is down; and for the first time the labs are losing some of their most dedicated mid-career staff.

—Finally, to underscore the significance of these problems, we find that the time of need for these weapon complex capabilities is upon us. There is already evidence of worrisome deterioration in nuclear components.

RECOMMENDATIONS

Congress took an important step last year by increasing weapon program funding and establishing the National Nuclear Security Administration (NNSA). Our report recommends actions that NNSA, the Department of Energy, the Department of Defense, and the Congress should take to build on these initial steps. In my remarks today, I will concentrate on the three recommendations that most directly address problems in the weapons complex.

The first recommendation is to restore the production complex. A long-term program is needed to redress critical maintenance backlogs in weapons facilities. We have recommended a ten-year program. DOE estimates this backlog to be $700–$800 million. Additionally, DOE estimates indicate an further $300–$500 million per year will be needed over the next ten years to redress shortfalls in production capabilities, particularly at Oak Ridge.

Moreover, to meet long-term needs for nuclear components, the Panel has emphasized the need to begin the conceptual design of facilities needed for pit production, secondary production, and development work at the nuclear laboratories.

Secondly, the Panel finds it essential to define, fund, and execute the work needed to restore and exercise integrated design, fabricate, and certification capabilities. Maintaining a complete end-to-end capability is essential for sustaining confidence in the stockpile, and it is a national priority established in the first Nuclear Posture Review. The first step is to commit to and fund the weapons work that we know will be needed over the coming decade. This includes life extension work on the W76 Trident warhead, the W80 cruise missile warhead, and the B61 bomb.

Another essential step is to initiate programs for the design of robust, alternative warheads. These would provide training for new generations of stockpile stewards, and provide a hedge. Ten or twenty years from now, our confidence in robust designs based on previously tested weapons might exceed that in modified versions of today's weapons, which have been so highly optimized for weight, yield, and material usage that they have very thin performance margins.

Our third recommendation: Ensure the continued vitality of the competition of ideas within the system of National Laboratories. Continued confidence in the stockpile requires continued confidence in its stewards. We must sustain a strong system of laboratories and effective processes for engaging their talents in a constructive competition of ideas on stockpile matters. Each of the nuclear laboratories should provide a comprehensive review and assessment of each weapon type, irrespective of its laboratory origin. Rigorous inter-laboratory review must be employed for major design and certification issues. Inter-laboratory reviews also must be employed in preserving data bases and adapting them to new computer codes (through "dual revalidation"); we do not support DOE's current proposal to give each lab exclusive rights to individually baseline the data for the weapons on which it takes lead responsibility.

The labs' working environments also must be conducive to retaining world-class talent. We support the recommendations of Senator Baker and Representative Hamilton, which are intended to provide world-class security while minimizing unnecessary burdens. Some technical staffs are spending 30 percent of their time on administrative tasks—these burdens must be better managed by the NNSA.

While I have limited my remarks to our specific findings and recommendations in these three areas, the Panel has identified a number of steps NNSA needs to take to improve its management processes, especially in the area of planning, programming, and budgeting. As noted in our report, we believe Congress has a vital role to play this year in ensuring that the vision, programs, and budget for the weapons program are adequate to sustain deterrence capabilities.

CONCLUDING REMARKS

This Panel is troubled to report that portions of the weapons complex infrastructure are defective and that the production capabilities that remain are fragile. There is an increasingly urgent need for a coherent vision, comprehensive plan, and programmatic commitment to reverse these adverse trends.

We strongly support the efforts of this Committee to identify and implement the actions needed to restore the weapons complex to the condition necessary to sustain a safe and reliable weapons stockpile. Our national declaratory policy is that the nuclear stockpile is a supreme national interest in support of nuclear deterrence strategy. If we are committed to this policy, then priority action is needed to reverse these adverse trends.

Senator DOMENICI. Thank you very much. Your statement will be made a part of the record. Mr. Cummings, you were the staff editor?

Dr. SCHLESINGER. This is Mr. Graham.

Senator DOMENICI. Mr. Graham.

Mr. GRAHAM. Yes, sir, that is correct.

Senator DOMENICI. How did you come upon such a job? Do you do this all the time here, different reports?

Mr. GRAHAM. I have been working on nuclear weapons management complex issues for about the last 5 years. I work in an organization called the Institute for Defense Analysis. Our president, General Leary Welsh, has had a lifetime interest in nuclear matters, and so he has drawn some of the staff into these issues.

Senator DOMENICI. Well, I just wanted to compliment you. I notice every time we let the issues of significance boil up in the De-

partment of Energy, that underneath them, causing the pot to boil, are reports, and I have come to the conclusion that for some reason we have to have too many very good reports before we do anything up here.

What we did about the Department of Energy, trying to create some management in the future by creating the semiautonomous agency that General Gordon produces, that was preceded by at least five reports that said nuclear weaponry within the Department of Energy cannot work right because of the nature of the Department of Energy.

Until we had a big security risk, plus a group following it that was chaired by former Senator Rudman, which is a powerful group under statute law of the Nation, they then reported that—I did not invent the word that it was dysfunctional. They invented the word within that report, but that was the fourth report, and we finally did one thing, and it is in the germinating stage. The General cannot put that together in 4 or 5 months under the rules we have got.

You think we act as if this is a serious problem. He has got rules that some of the personnel issues will take 6 months to resolve, but we have to get on with it.

Now, in this regard, I have a question of both of you. With reference to starting a major maintenance and rebuilding plan, being brutally frank, the Department of Energy does not have success rate at building major projects. As they are indicated from the beginning, and as the specs are drawn and the commitments made, I do not think they really have a very good record of getting the job done that way. Overruns are rampant. We even had to stop some projects because we cannot get them done.

Should we make some changes of some type in how these projects are going to be managed, as we put in a revolving fund of $500 to $800 million, and have projects ongoing? The General, clearly, if he can do it in NNSA, that is wonderful, but what about the ability to do projects right?

Dr. SCHLESINGER. Well, I think that the record is much worse than is indicated in the Rudman report, Mr. Chairman. Years ago, back in the Reagan administration, the Department of Energy was cited in a report for being the model for the U.S Government, and reviews have gone up and down.

Much of the problem, of course, over the years has been due to the fact that they are start and stop. Look at the problems that we have had with regard to the production of nuclear fuel. We started a program of centrifuge at Portsmouth, back in the 1970's. We have a facility built there.

In the early eighties it was decided by the administration to abandon that and to move off to California to support laser isotope separation, so that that money was clearly wasted at that time, but that was not the problem of the Department of Energy, and similarly, the decision with regard to the supercollider I think reflects, what shall I say, political controversy more than the Department's managerial ability.

In any event, you have established, the Congress has established a mechanism to handle this. It has put it in the NNSA under General Gordon. We say in our report that there are a strong, substan-

tial challenges to the NNSA, but there are opportunities as well, and since the Congress has established this semiautonomous body, I think that it is appropriate to let it run for a while and see how well it does.

Let me say that in 1985, during the Reagan administration, when we delivered the blue ribbon task force which I was vice chairman of, we recommended the establishment of an autonomous body within the Department of Energy to handle nuclear weapons problems, so it takes a while, but we get there.

Senator DOMENICI. Did you want to comment?

Mr. GRAHAM. Well, I would add two points, I think. One is, you had commented earlier on the organizational problems of DOE as a whole. One of the reasons for that is that when new problems arise, there has been a tendency to create new stovepipe organizations to address those problems. That happened with the environmental safety and health back in the late eighties, early nineties. To some degree, it happened again with the security problems in recent years.

I think one principle that should be followed in this area for that reason is that the responsibility for managing these new programs I think ought to be within the line of responsibility of the NNSA, so I would not necessarily recommend creating some new activity to focus on these infrastructure problems.

I think secondly, as compared with the Department of Defense, the Department of Energy historically has not really focused on program management, but now there are a number of people in this organization, General Gordon, General Giaconda, on down, who have that background and bring that background to management of these programs.

Senator DOMENICI. Well, I think you have said it better than I, and to the extent that I correct my previous statement I will say I think program management is what I should have been saying instead of project by project, but program management is not one of the fortes of the Department of Energy.

In fact, I think it is quite fair to say that they do it very poorly, but I do think, in conferring with General Gordon, that they clearly intend, within their jurisdiction and their autonomous jurisdiction, they intend to be program managers, and to be much more skilled and dedicated to it, and I commend them for it, because it has not been easy, when you get big projects, to find out that they end up being on board in terms of the early estimates, how long it will take to construct them, are there any real problems that were discovered while you are building it.

Those are happening too much now, and you know, if we are going to do a major building program, they are all very precise buildings, and they are hard to get done, and they require a great deal of effort on clearing the environment, clearing the communities and all, so I know they will be tough, but they have got to do it.

I do not think we want to change that. It is just that I think somebody has to program capacity to manage a $500 million a year ongoing program, which we may end up with six, eight facilities being constructed.

Mr. GRAHAM. Sir, another thing that will be really helpful for this is the new focus on developing future year budgets and programs. You know, having in the past operated on a year-to-year budget basis, that might have underplayed the emphasis on some of the long-term problems.

Dr. SCHLESINGER. Well, it is part of the problem of the DOE-DOD relationship. The DOD has a future years fiscal program that goes over the next 6 years. The DOE has 1 year at a time, and these two programs are supposed to be aligned when there is no future years programs. It is one of the recommendations that the panel has made, that we move in that direction.

Senator DOMENICI. I have one last question, Dr. Schlesinger. You have been in a position where you had to experience the relationship of nuclear weaponry, which is not in the Department of Defense, and the Defense Department and how they treat and relate to the nuclear weaponry activity generally, all of those things that General Gordon has.

Is the apparatus, and is it currently effective? That is, an apparatus that makes sure that the Department of Energy, Defense knows the needs of the Department of Energy and supports their needs? Does that exist? Is there a way?

I sometimes wonder, as I work this appropriation bill, where every year I almost have to go ask for additional money, because nobody put it in the budget, and it does not seem like we have got the chairman of the Chief of Staff even knowledgeable about this problem, or at least not commenting—excuse me. Would you give me your thoughts on that?

Dr. SCHLESINGER. Well, that is a complicated matter, Mr. Chairman. As you know, all of this comes out of the 050 account, which is generally—for the Department of Defense the largest non-DOD element is the DOE defense program. That includes, incidentally, the cleanup operations of the Department of Energy.

That budget goes to the Office of Management and Budget for approval. It is separate from the DOD, and I think that it is no secret, and it has been the case this year that the OMB, in attempting to increase overall DOD expenditures, has been hard on certain other agencies, including the DOE, so that the program that had been put forward by the Clinton administration was cut back by the OMB.

Now, there is nothing that the Department of Defense itself can do about it. What we see is something that is out of alignment, and I think that it is the responsibility of the OMB to see that those are in alignment.

Senator DOMENICI. Dr. Schlesinger, I see it exactly the same way, and I see the very large growth now and in the future of the environmental cleanup account, which comes out of the Department of Energy's budget, big Department of Energy, and it goes over to the 150, the DOE function. I see that as something the Defense Department might very well be concerned about. They do not govern it, they do not guide it, they are not managing it, and yet whatever it is comes out of their budget, and it is a very big amount, and you have alluded to it as growing and growing.

In any event, I think we have to find some way to get OMB, the Defense Department, more in line with the problems we are talk-

ing about that are going to beset this program, and are now, and this year's budget does it again, and pretty tough, from what I have seen. We cannot stay at that level. We have to do something about it.

Dr. SCHLESINGER. Well, that is up to the administration and the Congress, but I repeat what I said at the outset. Every time we make a public statement we say that the preservation of the nuclear deterrent is fundamental to the national military posture and to the national interest, and those statements tend to hang out there. When there is a reduced threat, as there is today, with the collapse of the Soviet Union, we do not seem to see the same energy put into the preservation of that capability.

On that question of the cleanup, we discuss in here the problems at Y–12 in particular, and what has happened is that certain facilities were shut down at Y–12 in 1994. The result is that Y–12 has not been able to handle the nuclear byproducts of its production process, and they are just accumulating at Y–12.

That is the way you run into trouble. That is why we have problems at Hanford. That is why you have problems at Savannah River. If you just accumulate waste, that will have to be dealt with at some future date, and it adds immensely to the long-term cost of the program, because you need to have security officials there to handle the byproducts of the production process.

Senator DOMENICI. I will yield now to Senator Thompson. Do you have any questions?

Senator THOMPSON. Yes, Mr. Chairman. First of all, I appreciate what Dr. Schlesinger just said, and I note that General Gordon in his statement talk about the panel visiting Pantex, Oak Ridge, Y–12, Kansas City, and concluded that only a very small amount of design and production work is actually being performed, and Dr. Schlesinger's statement says there is evidence of worrisome deterioration and nuclear components. The cleanup problem all of its own, and a big one.

But what about elaborating a bit on what you describe as the fragile nature of the secondary situation down there, the actual work you are doing. I mean, you made a very convincing case, I think everyone has, that physical plant, what is going on there impacts the work that we are supposed to be doing. You described it as fragile. Could you elaborate on that a bit more?

Dr. SCHLESINGER. Well, in a way this is reiteration of what previously was said, Senator. We send people in hard hats into facilities in which the roof is crumbling. They are managing to do their tasks, but under arduous conditions. We have shut down, for safety and health reasons, some of the facilities at Y–12. As a result, they have not been able to handle the byproducts of the process, and they are just accumulating out there. I would regard that as fragile.

It is not as bad, of course, as the situation with regard to primaries, in which the United States, probably alone amongst nuclear powers, is unable to produce a nuclear weapon today. We have not been able to produce primaries for more than a decade, and of course the United States has taken on major international responsibilities, whether it wanted to or had them thrust upon it, for being the sheriff of the world, and so we must be certain that

our nuclear weapons work, and we are not investing sufficiently to be able to maintain the stockpile over the course of the decades ahead.

Senator THOMPSON. When we read the New York Times, where the Russians are apparently testing now, in ways that are giving off nuclear yields, arguably in violation of the principles of the test ban treaty, although the Russians would say not, but clearly they are doing something along those lines, I mean, what does that—to the average person, how should that impact their thinking in terms of what we are talking about here today?

Dr. SCHLESINGER. The first point to be made is that the decision to go to zero yield was a unilateral decision by the United States. It is not in the treaty. Nothing in the treaty defines what a nuclear explosion is, and so we decided that we would not have any kind of nuclear yield, no matter how small.

Our British and French allies during the negotiations kind of gulped at that, but they did not protest. The Russians and the Chinese, other nuclear powers, clearly are not prepared to accept a definition in which there is no zero nuclear yield, and if the Russians are experimenting, they may be operating within the gray area of the treaty.

This was one of the issues, of course, as you well recall, Senator, with regard to the Senate's vote on the comprehensive test ban treaty, whether or not we go to zero yield. In 1993, 1994, and 1995, the Department of Defense and the laboratories recommended that we continue to have low yield experimentations to see to it that nuclear initiation could take place. President Clinton decided otherwise, and so the U.S. position was different, but we are not bound by the treaty. At the moment, we are bound by the presidential statement.

Senator THOMPSON. So it seems that our ability to maintain our stockpile, any assurance is being compromised, because of all these things we are talking about, at the same time others are going on and moving at least into those gray areas. I mean, the world is not standing still because we have decided to neglect our stockpile responsibilities.

Thank you very much, Mr. Chairman.

Senator DOMENICI. Thank you.

Senator Reid, we welcome you. You had business, and had to be a bit late, but it is very good of you to come to the hearing this morning.

Senator REID. Mr. Chairman, thank you very much. I ask unanimous consent that my opening statement be made part of the record as if read.

Senator DOMENICI. It will be.

[The statement follows:]

PREPARED STATEMENT OF SENATOR HARRY REID

Thank you, Mr. Chairman.

General Gordon, it is always good to see you. Thank you for taking time out of your busy schedule to join us here today.

Mr. Schlesinger, I would also like to welcome you this morning. I have read the Foster Report and believe you and the other members or the panel did a fine job in assessing and compiling the infrastructure problems in the nuclear weapons complex. We sent you off to look at these issues for the better part of a year and I think you have assembled a fair and balanced report. I am grateful for it.

We have, for too long, allowed the physical infrastructure that supports our nuclear weapons stockpile to deteriorate. The end of the Cold War has allowed our nation to turn its attention to other areas and to address other needs. However, the maintenance of our nuclear stockpile in the absence of testing, must remain an important priority for our country.

We now live in an age of science-based stockpile stewardship. The weapon's complex will rely on computers and lasers and subcritical experiments as well as a pit production process that will eventually (we hope) deliver a certifiable nuclear pit.

None of this is easy and all of it will cost money. We did not stop underground nuclear testing in this country because it was cheaper to do so. We did it because it was the right thing to do.

For stockpile stewardship to work, we need to make sure that our nuclear workers have the tools, equipment, buildings, and other resources that will allow them to succeed.

As all of you know, I have been a steady critic of cost-overruns in the weapons complex.

I was highly critical of the National Ignition Facility last year. This year that project seems to have righted itself, so I will instead focus my attention on the even more severe cost-overruns that are now plaguing the pit production process.

However, those are criticisms of management, not the workers. I strongly believe that the thousands of employees that make up our nuclear workforce need to have the proper tools to do their jobs right.

Mr. Chairman, if you will indulge me for one moment, I would like to share an example of the sort of infrastructure shortcomings that I think we are both concerned about. It is a shining example of not giving our employees the proper tools, nor keeping them safe or even comfortable in their workplaces.

I would like to draw your attention to the photos I have provided. These are from the Nevada Test Site and they are of the surface support facilities at the U1a Sub-Critical experimental complex.

Mr. Chairman, this Committee has provided nearly half a BILLION dollars for subcritical nuclear tests in support of the Stockpile Stewardship Program.

This photo shows a building called the "Air Building" a "temporary" support structure that has been in service for nearly 15 years. Close up photos would reveal it's fabric skin to be patched like an old innertube.

In the distance you can see the "trailer camp" of diagnostic and measurement equipment. Millions of dollars worth of equipment that measure the instantaneous data bursts from a subcritical experiment.

Mr. Chairman, the vital information we obtain, to say nothing about the tens of millions of dollars of investment we make in a single subcritical experiment are dependent on these "temporary" flimsy structures that have outlived their planned usefulness. Diagnostic Cables and energized electrical lines are laid across the ground to support these facilities.

The sanitation facility that is adjacent to the Air Building is also temporary but is just a few years from being placed on the National Register of Historic Places. These kind of sanitation facilities are the only type available within miles of this complex.

Mr. Chairman, though this may seem humorous, this whole issue is deadly serious.

I must tell you that in mid-October of last year; because of the shorting-out of an aged "temporary" buried power cable, over a dozen miners, engineers and technicians were stranded for a number of hours underground at this complex with only battery lighting, no fresh air circulation and no power to the mine head elevator.

There was no back-up power, no generator back-up and only after hours of being stranded underground the miners were able to leave through emergency egress.

Though locally this emergency was handled expertly, and all in-place procedures worked as planned, an Agency that expends billions of dollars on physics machines in support of science and does not provide the operational funds to ensure the safety of underground miners is mismanaging its infrastructure priorities.

The opposite problem exists at the Device Assembly Facility, also located at the Nevada Test Site. It is quite possibly one of the nicest buildings in the entire complex, yet it stands virtually unused despite its $100 million price tag.

Given this strange situation, I think both of you can understand why I am going to emphasize the need for reams and reams of long-term planning throughout my remarks today.

Our infrastructure is in bad shape. All of us can agree on that. I have heard too many stories about leaking roofs, laboratories with no air conditioning, and offices with no heat, to stand idly by any longer.

It is time to find the resources and the will to upgrade our nuclear weapons complex.

There is no short-term fix available, so we are going to have to plan for a multi-year effort.

More importantly, we need to ensure that we do this the right way. It is too easy to throw a lot of money at a problem of this magnitude and come away with little of value. To be successful we must plan.

I have no interest in re-building the weapons infrastructure of the past. I am only willing to invest in the complex of the future.

Allow me to suggest a principle or two that I believe should govern our discussions of how to move forward:

As we are developing our infrastructure improvement plans, we need to constantly ask ourselves what the weapons complex is going to look like ten or more years from now and what our operating principles are going to be.

Just as important is how we maintain those critical parts of the complex that are needed today and tomorrow, as well as ten or more years from now.

During a period of more than 50 years, we built and operated our national weapons laboratories as essential elements of our national nuclear security.

These laboratories represent scientific and technological capabilities that are unmatched anywhere else in the world and their objective advice to the Federal Government has been a highly valued planning asset.

Their objectivity, however, is threatened by their fierce competition with each other.

These institutions are supposed to be on the same team, working to the same goals, with their differences reflecting alternative paths to the same goal.

Their competition used to be in the realm of ideas and concepts. They provided reality checks for one another, and they provided a necessary level of technical peer review of one another's ideas and approaches.

I think the laboratories are still providing technical peer review of project level activities, but I also think that the reality checks of the past have withered.

Their competition has left the realm of ideas and concepts and has moved into the world of dollars and cents.

It appears that if one lab must have something to do its job, the other labs must achieve equity through some other provision.

I say this because we have all heard the stories that the labs get together and decide what the spending priorities should be. We have all heard that an Advanced Hydrodynamics Facility should go to Los Alamos because the National Ignition Facility went to Lawrence Livermore. And, for these reasons, the X1 pulsed power facility should be funded for Sandia.

Instead of competing for the best idea, or for the next stockpile weapon assignment, as was the practice during the Cold War, the labs are competing for major construction line items in the budget; and the competition is much like "one for you, one for me."

It seems to be much less driven by what might be the best idea, or what might be the best way to proceed.

For example, because of noise pollution and contamination of the ground water with explosive residues at Lawrence Livermore's Site 300 high explosives test facility, a $100 million contained firing facility was built, even though this facility will never be permitted to test plutonium targets, one of the most important ingredients of the systems the facility was developed to test.

The contained firing facility was built to respond to civilian encroachment around an inherently hazardous activity, but the proximity of civilian activities, and the very nature of the site, would never permit the most important activities associated with the purpose of the facility.

Very similar arguments can be posed for the DAHRT hydrodynamics test facility at Los Alamos, thought by many to be the precursor to a necessary Advanced Hydrodynamics Facility.

DAHRT is beset with environmental concerns that will, sooner or later, prohibit plutonium experiments.

Plutonium experiments are critical to stockpile management, and it is quite likely that these sophisticated facilities, acquired through great effort and with great cost, will have to be duplicated at the Nevada Test Site, where plutonium experiments are permitted.

In another speculative example, if the National Ignition Facility should succeed beyond our expectations, the experiments that could be performed will be denied because the Livermore site is not permitted to conduct experiments that generate such high neutron yields.

I only point this out because the ignorance that causes many to question the potential success of the National Ignition Facility can cut both ways. NIF might work far better than we think, and then much of the investment will have to be duplicated elsewhere to take advantage of that success.

If X1 is ever built, I think it will be built at the Nevada Test Site, and I commend Sandia Lab for its foresight in this regard.

We want our national labs to compete, but we want the competition to be in the arena of ideas and concepts.

To allow the competition to continue along the dollars and cents path is to encourage the labs to continue their foray into the world of advertising and marketing.

The current path discourages objectivity by these most capable institutions, and loss of objectivity is only a short step away from complete loss of credibility.

The Federal Government must reassert its role as referee of this competition by removing the financial incentive for major facility development that today is driving the labs, to their own detriment.

It is time for the Federal Government to assure that these major investments are designed and sited to assure minimum cost, maximum effectiveness, and assured utility for their primary purpose.

For example, what health and safety principles are going to govern where activities are located geographically? As you know, many of the facilities in the complex were originally sited in remote areas for safety reasons.

A lot of these places are not so remote any more.

How likely is it that we are still going to be experimenting with uranium, plutonium, tritium, or other unsafe or hazardous materials in close proximity to human populations ten or twenty years from now.

I think we all know that the answer is "Not very likely."

If these activities will have to be moved to more remote areas, then we should plan for that now rather than having to build facilities twice.

We have a very real opportunity right now to build the nuclear weapon's stockpile infrastructure of the future, but I am not willing to write the first check if I cannot be convinced that the infrastructure plan is tightly wrapped to the long-term overall needs and requirements of the complex.

General Gordon, I have tremendous respect for you and I do not envy you the job we have asked you to undertake here. If you can show me that your infrastructure needs are directly related to your future missions, then I will do everything I can to help you.

Senator REID. I came here late, knowing I would be late, knowing we have a vote at 11:00, mainly to indicate how important I feel this hearing is, and to indicate to anyone within the sound of my voice the confidence I have in General Gordon. I think that he, since taking this job, has kept you and I abreast of what is going on. I have been totally impressed with his administrative skills, and I have no doubt that we as a country are better today as a result of his stewardship.

Of course, I am sorry I missed the Secretary's testimony. I always look forward to hearing and learning from you the great wisdom that you have about our Government.

Other than that, I will talk to my staffers. I look forward to our continued cooperation.

Dr. SCHLESINGER. May I comment in response to that?

Senator DOMENICI. Sure.

Dr. SCHLESINGER. Senator, as you know, this is the second of the three reports that we are assigned. Next year, we are going to turn to the question of the readiness of the nuclear test site which lies in your State to go to testing, and there are issues that must be decided by the policymakers of the Government. We probably could get off a test in a year's time, but it would be a very simple test, and the Congress and the administration working together will have to decide what degree of readiness they will want.

We will make a report on the conditions for the renewal of nuclear testing, but the issue of how ready we must be is something that must be decided at the policy level.

Senator DOMENICI. If there is nothing further, I want to also thank you again for appearing, and for what you did in preparing the report. Thank you, Dr. Schlesinger.

Dr. SCHLESINGER. Thank you, Mr. Chairman.

ADDITIONAL SUBMITTED STATEMENTS

[CLERK'S NOTE.—The subcommittee received several statements which we will include in the record at this point.]

PREPARED STATEMENT OF C. PAUL ROBINSON, DIRECTOR, SANDIA NATIONAL LABORATORIES

INTRODUCTION

Mr. Chairman and distinguished members of the committee, thank you for the opportunity to submit this written statement for the record of the hearing held today. I am Paul Robinson, director of Sandia National Laboratories. Sandia is managed and operated for the U.S. Department of Energy (DOE) by Sandia Corporation, a subsidiary of the Lockheed Martin Corporation.

Sandia National Laboratories is a multiprogram laboratory of DOE and is one of the three National Nuclear Security Administration (NNSA) laboratories with research and development responsibility for nuclear weapons. Sandia's job is the design, development, and certification of nearly all of the non-nuclear subsystems of nuclear weapons. Our responsibilities include arming, fuzing, and firing systems; safety, security, and use-control systems; engineering support for production and dismantlement of nuclear weapons; and surveillance and support of weapons in stockpile. We perform substantial work in programs closely related to nuclear weapons, such as nuclear intelligence, nonproliferation, and treaty verification technologies. As a multiprogram national laboratory, Sandia also performs research and development for DOE's energy offices, as well as work for other national security agencies when our unique capabilities can make significant contributions.

I am pleased to comment on infrastructure management and planning at Sandia National Laboratories and the nuclear weapons complex as a whole. The infrastructure requirements for NNSA facilities are an important issue that must be properly managed for the benefit of all the vital elements of the NNSA complex. The infrastructure investment decisions we make today will determine whether the laboratories and plants can continue to conduct their stockpile stewardship responsibilities effectively in the years ahead.

INFRASTRUCTURE PLANNING

Sandia National Laboratories actively manages its infrastructure planning through a formal process that coordinates infrastructure initiatives to support mission requirements. Sandia's Corporate Sites Planning Process forms the basis for the actions proposed for a ten-year planning period. The key objective of the process is to integrate mission requirements with physical infrastructure capabilities in order to develop plans for our sites that are aligned with future mission requirements. This planning process is managed by an Infrastructure Council of senior executives through its subcommittee, the Corporate Sites Planning Council.

Annually, the Corporate Sites Planning Council solicits requirements for mission and support activities, integrates those requirements with existing physical infrastructure capabilities and capacities, and proposes a list of specific prioritized actions and construction projects, including associated funding strategies, to the Infrastructure Council for approval. The Infrastructure Council approves requested construction projects and associated funding strategies based on a ten-year strategic vision. Sandia's funding sponsors provide final funding approval. The approved list becomes the Investment Funding Profile, which is an essential part of Sandia's Sites Comprehensive Plan.

Overall infrastructure investment levels at Sandia have averaged $88 million annually. This investment includes maintenance, line-item and general plant projects, expense funded projects, seismic upgrades, demolition and decontamination of substandard facilities, major renovations, and restorations. Over the last five-year period, we invested an average of $10.5 million annually in infrastructure support sys-

tems (utilities, communications, roads, etc.). We pursue a goal of keeping our utility systems at 90 percent "good" condition and 100 percent of required capacity. Current and planned efforts will help us achieve those goals for most systems within our ten-year planning period, provided that the required funding is made available.

Sandia's Sites Comprehensive Plan represents our extensive yearly effort to develop and update both strategic and tactical plans for development and redevelopment of the physical infrastructure. Sandia's goal is to develop a five- to ten-year vision for infrastructure as a means of ensuring that the physical assets are adequate and responsive to Sandia's evolving mission requirements. Sandia's vision for the physical infrastructure system sets a common direction for which detailed tactical action plans and project activities are developed in line with near-term budget realities. Our Sites Comprehensive Planning Process helps ensure that the most critical elements of the plan, and ultimately the corporate vision for the physical infrastructure, remain intact within a constrained budget environment. The plan shows Sandia's progress toward the planning targets and the positive trend in moving toward established, long-term goals.

Sandia has enhanced and expanded its physical infrastructure program and master planning activities in recent years. Sandia currently produces program plans supporting integration of line-item, general plant project, decontamination and demolition, major renovation, and restoration activities. This "city planning" perspective deconflicts the process of locating major facilities and enables optimization of all our limited resources—land, time, and funding. The integrated program plans also utilize information gained from master plans such as our recently completed Telecommunications Infrastructure Master Plan and our Physical Security Infrastructure Master Plan, currently in development.

These master plans will be updated periodically and new ones identified as needs arise. Sandia's continuing efforts to expand and integrate program and master planning activities support the overall goal of developing and maintaining an agile, flexible, and responsive physical infrastructure system in support of mission needs.

MAJOR INFRASTRUCTURE INITIATIVES

Sandia continues to plan for and invest in its infrastructure to meet the evolving mission requirements of DOE/NNSA. Several key line-item initiatives supporting the programmatic needs of the Stockpile Stewardship Program are at the forefront of our infrastructure planning and execution.

Microsystems and Engineering Sciences Application (MESA) Complex

The Microsystems and Engineering Sciences Application (MESA) complex is the cornerstone of Sandia's initiative to address the need for microelectronic and integrated microsystems to support a certifiable stockpile for the future. MESA will provide essential facilities and equipment to enable teams of weapon system designers and microsystems specialists to design, integrate, and qualify components and subsystems for nuclear weapon system assemblies.

Microelectronic components have long been critical to almost every DOE Defense Programs mission, initiative, and program. Such components have largely determined the reliability of weapon systems, the precision of weapon delivery to the target, and the operability of weapons in the severe environments encountered during delivery. Satellites that monitor compliance with international arms control agreements also require the special durability offered by the radiation-hardened microelectronics for which Sandia has responsibility.

Components in deployed nuclear weapons are aging, and we will need to begin replacing some key components within the decade. In many cases, components cannot be replaced with replicas of the original designs because they are technologically obsolete and the supplier base, materials, and design tools to support them no longer exist. Sandia has no choice but to meet component replacement needs using new microsystem technology. In addition, Sandia must preserve critical capabilities in radiation-hardened microelectronics for defense and space hardware. In 1998 Congress authorized the National Defense Electronics Partnership which mandates that Sandia retain the institutional memory for radiation-hardening technology and sustain the supporting infrastructure for developing radiation-hardened microelectronics. MESA will provide the required infrastructure to meet this mandate for future decades.

Facilities Supporting DOE's Accelerated Strategic Computing Initiative

Sandia plays a major role in DOE's Accelerated Strategic Computing Initiative (ASCI), which is the enabling technology supporting NNSA Defense Programs' Defense Applications and Modeling campaign. ASCI is developing the advances in com-

putational science and technology that will enable the shift from test-based methods to computational methods for stockpile certification.

Sandia will support ASCI with construction of two key facilities at its major laboratory sites: The Distributed Information Systems Laboratory (DISL) at Sandia's site in California will develop a distributed information systems infrastructure required for NNSA Defense Programs' Virtual Enterprise for Stockpile Stewardship and Stockpile Management. The Joint Computational Engineering Laboratory (JCEL) at Sandia's site in New Mexico will be a state-of-the-art facility for research, development, and application of high-performance computational and communications technologies.

Test Capabilities Revitalization

This construction line item will modernize Sandia's environmental testing and experimental infrastructure and associated diagnostic capabilities to perform tasks for weapons qualification, development, investigation, surveillance, and model validation. The project will renovate existing facilities or provide new facilities, subject to cost-benefit studies. It will provide NNSA with the experimental and test capabilities required to yield confidence in Accelerated Strategic Computing Initiative codes and maintain the enduring stockpile as part of the Stockpile Life Extension Program.

Weapons Evaluation Testing Laboratory

The Weapons Evaluation Testing Laboratory will replace a forty-year-old facility at NNSA's Pantex Plant. This new construction will provide a state-of-the-art facility for testing weapon component devices and implementing advanced diagnostic techniques developed by the enhanced surveillance campaign. This project is important for maintaining confidence in the safety, reliability, and performance of the stockpile without nuclear testing.

Other Infrastructure Line Items

In addition to these major programmatic initiatives, there are two other line-item projects that are necessary for Sandia's institutional infrastructure. The first is the Storm Drain, Sanitary Sewer, and Domestic Water System Modernization, which is intended to rebuild or revitalize elements of the fundamental infrastructure at the laboratory. This project is half complete, but funding was withheld in fiscal year 2001 and allocated to other initiatives. The other project is the Exterior Communication Infrastructure Modernization (ECIM), which will replace communication systems in the oldest part of the laboratory to support modern computing and communications requirements.

Z Accelerator Refurbishment

DOE's Z Accelerator at Sandia National Laboratories provides critical experimental data to the Stockpile Stewardship Program. Z produces over fifty times the x-ray energy and a factor of five more x-ray power than any existing, non-explosively driven, laboratory facility. It is a major resource for ensuring the safety, security, and reliability of the nation's stockpile. Sandia has an unfunded need to refurbish Z to extend its lifetime and improve its performance, reliability, and shot rate. Planned as a refurbishment rather than a new construction line item, the project will replace and upgrade fifteen-year-old hardware and will be accomplished within the existing Z building and facilities.

In May 2000 an independent review committee chaired by Dr. Richard Garwin (Fellow Emeritus of IBM's Thomas J. Watson Research Center and a recipient of DOE's Fermi Award) and composed of experts from the nuclear weapons laboratories, Department of Defense (DOD), academia, and industry overwhelmingly endorsed both the programs and the refurbishment of Z: "The Committee was unanimous in its belief that an incremental, cost-effective upgrade of Z . . . is worth pursuing."

The hardware outside the center module of the accelerator is a remnant of an older machine and is not sufficiently robust or optimized electrically for today's configuration. The demand for experimental time on Z greatly exceeds what we can provide. When the refurbishment is completed, Z will support significantly more experiments per year. The refurbishment will also yield higher quality experimental data from increased precision and reproducibility at even higher energies than the world-record levels that have already been attained by Z alone.

With full support beginning in fiscal year 2002, refurbishment of this national asset can be completed by fiscal year 2005 at the comparatively modest cost of $60 million for design, procurement, and fabrication of hardware and equipment. DOE, DOD, Sandia's partners at Lawrence Livermore and Los Alamos, and scientists else-

where will benefit from this investment. In particular, the refurbished Z will provide the following benefits to the Stockpile Stewardship Program:

—Accurate material property data at higher pressures for weapon-relevant materials for four of the Stockpile Stewardship Program campaigns: Dynamic Materials Properties, Advanced Simulation and Computing, Secondary Certification, and Inertial Confinement Fusion;

—An enhanced environment to evaluate radiation flow for the Secondary Certification Campaign;

—More energetic radiation sources to test non-nuclear components for the Nuclear Survivability Campaign;

—Insight and confidence in scaling parameters to a next-generation facility for the Inertial Confinement Fusion Campaign.

Sandia National Laboratories will shortly submit a request to NNSA to commence the Z refurbishment project in fiscal year 2002.

FACILITIES AND INFRASTRUCTURE REVITALIZATION INITIATIVE

Like other sites across the NNSA complex, Sandia suffers from the effects of aging infrastructures in need of refurbishment, repair, or replacement that fall below the level of line-item construction and are insufficiently supported by general plant projects (GPP) or other infrastructure funding programs. Infrastructure problems at this level are chronically understated and deferred, and they accumulate with the passage of years. Ultimately, this can lead to capability limitations that can affect the mission.

NNSA recognized that this problem area must be addressed, rather than be allowed to worsen. NNSA's Facilities and Infrastructure Revitalization Initiative is an effort to inventory and prioritize unaddressed infrastructure repair and improvement projects across the complex. The initiative was intended to support an appropriation request of $300 million in fiscal year 2002 to help bridge the gap for essential infrastructure repairs that are unfunded. The multi-year effort would require a continuous infusion of funds on the order of $400–$600 million annually for the following five years.

We identified approximately $300 million in items at Sandia National Laboratories that can benefit from Facilities and Infrastructure Revitalization Initiative funding during the course of the next few years. We submitted a list of thirty candidate projects for a recent inventory conducted by NNSA that can be effectively addressed in fiscal year 2002. The aggregate estimated cost of those items is $114 million. These projects would normally be funded through standard infrastructure programs such as GPP, maintenance, capital equipment, decontamination and demolition, and infrastructure planning, but they are perennially deferred for lack of sufficient funding. Some of these items were aggregated with line-item projects, but construction line items are subject to long lead times and are often delayed.

Top priority items on our inventory for NNSA's Facilities and Infrastructure Revitalization Initiative are sufficiently urgent that failure to fund them soon will impact weapon program deliverables. For example, we have an urgent need to refurbish Building 983 which houses Sandia's Z Accelerator. The building's air handling system must be upgraded to provide control of airborne debris and consistent temperature control to maintain acceptable test conditions. Energy dissipation from accelerator shots has resulted in long-term structural damage that jeopardizes the operation of an overhead crane. The building's communications infrastructure and uninterrupted power supply system, as well as other building systems, must also be replaced. Certification of weapon component programs for the W76, B61, and W88 could be affected by failure to address the Building 983 issues in a timely manner.

Another priority item for the Facilities and Infrastructure Revitalization Initiative is Sandia's Electromagnetic Test Facility. The existing facility is deteriorating; its twenty-year-old diagnostic equipment has limited or no capability to support data acquisition for the development and validation of simulation codes. This modernization project will improve our capability to perform electromagnetic tests to qualify the W76, W78, and W80 in accordance with the Stockpile Life Extension Program (SLEP).

NNSA's Facilities and Infrastructure Revitalization Initiative will perform a very important service to the Defense Programs mission if it succeeds in restoring the appropriate balance in funding for infrastructure improvements that are critical to sustaining mission capabilities. A carefully constructed Facilities and Infrastructure Initiative will help Sandia, and the rest of the Defense Programs complex, deal with longstanding infrastructure challenges. We must have a more viable Decontamination and Demolition Program to dispose of obsolete facilities; we must make a stronger commitment to major renovations and deferred maintenance; we must ac-

tively use General Plant Projects to maintain and revitalize our sites; and development planning must be enhanced and improved. Typically, a great deal of this kind of work is deferred to the out-years, although there is no guarantee that adequate funding will be available then. It is essential that additional infrastructure revitalization funding be made available if we are to maintain the laboratories at the level of capability necessary to support the Stockpile Stewardship Program and attract top technical staff.

INFRASTRUCTURE CHALLENGES AND ISSUES

Sandia faces several challenges and issues related to infrastructure and infrastructure investment planning: lack of continuity in investment planning at the Defense Programs level; limited flexibility in investment funding strategies (including funding sources, amounts, allocations, and scheduling; aging facilities and site infrastructure; shortage of space both in quantity and type; and external events that affect infrastructure. The following paragraphs will give some perspective into each of these challenges.

Lack of Continuity in Investment Planning at the Defense Programs Level

In fiscal year 1999, DOE Defense Programs, its three laboratories, and the Nevada Test Site negotiated a phased investment plan for line-item construction projects. This "Tri-Lab Agreement" was intended to permit a logical implementation of the laboratories' projects over several years to the overall benefit of the program. (Major systems with total estimated cost exceeding $100 million were not covered by the agreement). Unfortunately, the Tri-Lab Agreement has not resulted in a predictable and consistent implementation of line-item investments.

In the initial agreement, allocations for Sandia's Joint Computational Engineering Laboratory (JCEL) in New Mexico and Distributed Information Systems Laboratory (DISL) in California were deferred for a year to enable Los Alamos National Laboratory to move forward with its Strategic Computing Center. Those deferrals created challenges in the execution of Sandia's projects, requiring significant shuffling of planned scope, sub-optimum contracting arrangements, increased costs, and undesirable delays. Then, in the planning cycle of the following year, DOE again deferred the construction starts for JCEL and DISL.

We have a concern that the next budget may contain insufficient funds to permit new construction starts in fiscal year 2002. If that happens, Sandia's JCEL and DISL projects will be deferred yet again to subsequent years. Insufficient funding would also jeopardize the construction start for Sandia's major system project, the Microsystems and Engineering Sciences Application (MESA) complex, which is the cornerstone of our initiative to address the need for microelectronic and integrated microsystems to support a certifiable stockpile for the future. The Weapons Evaluation Testing Lab modernization at NNSA's Pantex Plant, which is of great importance to Defense Programs' Enhanced Surveillance Campaign, could also be affected, as well as NNSA's Facilities and Infrastructure Revitalization Initiative. If construction starts are not adequately funded in fiscal year 2002, the magnitude of the line-item funding delays affecting Sandia would be such that we would lose another year in the construction schedule, incur unplanned costs to hold projects in idle status, and suffer reduced purchasing power due to cost escalation.

Experience demonstrates that if fiscal year 2002 is underfunded, there would be no assurance that adequate funds would be supplied in fiscal year 2003 to permit deferred construction projects to start. When this uncertainty is considered in conjunction with needs of other projects, such as the funding requirements of large systems like the National Ignition Facility, a loss of funding for construction starts in fiscal year 2002 would very likely cause project delays well beyond one year.

Sandia National Laboratories, having previously agreed to postpone line-item funding with the. expectation of a return to a normal allocation in fiscal year 2002, may again be in a position of deferring its construction program for the benefit of other major facility projects. The result is not only the delay of start-ups for needed mission capabilities at Sandia, but also a net reduction of NNSA's capital investment purchasing power attributable to the delays, ultimately resulting in reductions of scope for crucial investments in the stockpile management and production sectors of the complex.

As I have indicated previously in other forums, I am not sure whether the problem is too little budget or too much program. I am concerned that the allocations within the Defense Programs infrastructure budget may not be balanced with respect to urgent needs in stockpile design, management, and production. The investment program for line-item construction must be prudently managed to provide for the needs of all sectors of the NNSA Defense Programs complex. We must find a way to fund our strategic infrastructure investments at a pace that will bring them

into useful service without impacting our ability to perform needed stockpile work, such as weapons engineering, stockpile surveillance and support, maintenance, dismantlement, production support, and especially stockpile life extension programs.

Limited and Inflexible Funding Strategies

Limited investment funding strategies constrain our ability to meet our infrastructure challenges. The three nuclear weapon laboratories are about fifty years old, and there is not enough funding to meet all their infrastructure needs at once. Thoughtful planning will be necessary to revitalize the current infrastructure while maintaining capability.

Limited flexibility in funding causes delays in revitalization and other unintended consequences, such as spending money on a renovation that would be better spent on building a new facility. We have been hampered by the lack of flexibility in the use of indirect funding for capital improvements. We have also been discouraged by the lack of funding and flexibility in maintaining a decontamination and demolition program robust enough to keep up with required demolition of obsolete facilities.

As a multiprogram laboratory, Sandia has many investment issues looming on the horizon, and as we become a more programmatically diversified lab, we will need to explore how new sponsors can assume some ownership for investments required to support emerging programs. Initiatives to increase flexibility for financing investments with multiple funding sources and types of funding would help us more quickly address the infrastructure issue.

Due to the volatility in construction budget planning, major infrastructure investments are not always made in the most cost-effective manner. Often, work must be sequenced inefficiently to conform to inflexible funding profiles. Funding for escalation is not generally provided when projects are delayed from a contracted baseline or when additional requirements are mandated as a result of independent reviews, security directives, and so forth. These factors reduce the buying power of funds, thereby exacerbating the problem of limited funding for infrastructure.

Aging Facilities

Like other sites across the nuclear weapons complex, Sandia suffers from the effects of aging infrastructure. This affects Sandia's ability to attract and retain personnel, increases operating costs, impacts our ability to meet security and ES&H requirements, and results in a lack of agility and flexibility to meet evolving mission needs. Approximately 45 percent of all our buildings are at least thirty years old, and many of the utilities serving them are beyond their useful life.

Many of these buildings and systems carry legacies that today's environmental, safety, and health regulations do not permit in new facilities. Fire protection systems and water lines are deteriorating, with potential risks for health, safety, and asset protection. Out-of-date communications systems in older buildings are costly to operate and cannot satisfy the capacity demands of the modern workplace. Operations and maintenance costs are increasing for outdated energy, building, and security system repairs because parts are often no longer available. Much new program equipment requires cleaner, better temperature-controlled, more modern environments that are not possible in older facilities.

Space Management Issues

Space at Sandia is currently a scarce commodity. In addition to growth in programs, some of our space challenges are the result of changes over the last decade in how people work. Technological advances in computing and simulation have moved much of the work out of laboratories into offices. Consequently, offices require more space per person to accommodate computers, printers, and other devices. New concepts in work environments such as informal hallway meeting areas, teleconferencing and multi-purpose conferencing centers, and open areas for working with industry and universities are becoming more important to the productivity and success of programs. Increased security requirements have also challenged our ability to provide appropriate work space.

Sandia is desperate for new space: 96 percent of our available work space is occupied (industry guidelines recommend a 92 percent occupancy rate to allow for needed flexibility). The vacant office space that is available for use is just 9,500 square feet scattered throughout the laboratory in 53 different temporary buildings. Some buildings are over 100 percent occupied, meaning that more employees are housed in the building than was intended by the design. There is not enough space outside our secure technical areas to house newly hired employees awaiting clearances. Turnaround space to support our renovation program is also insufficient.

Sandia's space dilemma makes it difficult to attract and retain personnel and to quickly respond to new or changing mission directions.

Effects of External Events

Many factors outside Sandia's control affect the cost and operation of infrastructure. Sandia's utility planning has been complicated by a number of events, including divestiture and privatization of portions of Kirtland Air Force Base and other local development issues. We share the capacity of a central steam plant with Kirtland at our New Mexico site, but the Air Force has indicated that it plans to construct a new heating system for its own use. When that occurs, Sandia will bear the total cost of the antiquated, fifty-year-old steam plant, which is inefficient and expensive to operate. A complete system replacement will be needed at some point in the next few years to replace the steam plant with a new heating system and replace deteriorated steam lines.

Commercial and residential developments adjacent to the California and New Mexico sites are jeopardizing buffer zones and impinging on the possible uses of DOE land for programs. We may be forced to relocate or limit some of our activities depending on their proximity to residential areas. Deregulation of electric utilities has already affected energy costs and availability at the California site and may become an issue in the future at the New Mexico site.

SUMMARY AND CONCLUSION

Sandia National Laboratories actively manages its infrastructure planning through a formal process that coordinates infrastructure initiatives to support mission requirements. We plan our requirements to meet the strategic mission needs of the National Nuclear Security Administration. Sandia's leading strategic mission requirement for the stockpile stewardship program is the Micro-systems and Engineering Sciences Application (MESA) complex, which will provide essential facilities and equipment to support the design, integration, and qualification of components and subsystems for nuclear weapon system assemblies.

The infrastructure requirements for NNSA facilities must be properly managed for the benefit of all the vital elements of the NNSA complex. In this regard, NNSA's Facilities and Infrastructure Revitalization Initiative can perform a very important service to the Defense Programs mission if it succeeds in restoring balance in addressing infrastructure needs across the complex. We face several challenges and issues related to infrastructure and infrastructure investment planning, but chief among them is the lack of continuity and predictability in investment planning at the line-item level. NNSA's infrastructure investments must be prudently managed to provide a balanced program supporting the needs of all the sectors of the Defense Programs complex.

PREPARED STATEMENT OF C. BRUCE TARTER, DIRECTOR, LAWRENCE LIVERMORE NATIONAL LABORATORY, UNIVERSITY OF CALIFORNIA

INTRODUCTION

Mr. Chairman and members of the committee, thank you for the opportunity to provide a statement on this very important issue. I am C. Bruce Tarter, Director of the Lawrence Livermore National Laboratory, one of the three National Nuclear Security Administration (NNSA) national laboratories. We carry out an integral part of the Stockpile Stewardship Program to maintain the safety and reliability of the U.S. nuclear stockpile in the absence of nuclear testing.

Stockpile stewardship is a very demanding program to meet a vital national interest. It is requiring major investments in new facilities and capabilities that make it possible for scientists and engineers to much more thoroughly understand the performance of nuclear weapons. At Livermore, these investments have led to delivery of Accelerated Strategic Computing Initiative supercomputers (Blue Pacific and ASCI White, as well as plans for a third-generation machine), upgrade of our hydrodynamic test facility to become the Contained Firing Facility, and construction of the National Ignition Facility, which is under way. The Stockpile Stewardship Program will not succeed without the new-facility investments that are being made at the NNSA laboratories. Scheduled programmatic work at the laboratories and the plants has also placed an exceedingly high demands on provided funding. The cumulative effect of necessary continuing attention to the highest and most immediate priorities over the course of the Stockpile Stewardship Program has been shortage of funds to recapitalize NNSA's underlying infrastructure.

A major increase in investments is needed to deal with aging NNSA facilities throughout the nuclear weapons complex—affecting workplace quality and, in cases, severely limiting productivity. Over the years, the Laboratory has depended on our having special facilities and equipment in an accommodating work environment to

attract and retain an exceptional staff. Sustaining the quality of our workforce is a particularly challenging task in view of the high demand in the private sector for skilled people. The task is made more difficult by the continued aging of our facilities without major reinvestment. The situation at our Laboratory and other NNSA sites cannot be rectified without substantial new funding to revitalize the NNSA nuclear weapons complex—the laboratories, the Nevada Test Site, and the production sites. My testimony focuses on three major points about recapitalization of the NNSA weapons complex:

—*Investments are needed complex wide.*—NNSA has assessed that funding requirements for facilities are about $1.3 billion per year, while the current funding averages about $650 million per year—a significant shortfall that is a consequence of the many competing high-priority demands on the Stockpile Stewardship Program. The necessary repair or replacement of antiquated NNSA facilities will require a sustained program of new investments.

—*Livermore is prepared to wisely and efficiently implement additional investments in its infrastructure.*—To effectively manage the Laboratory's aging infrastructure, we have in place a well-tested methodology for prioritizing recapitalization investments, and we have demonstrated cost-effective approaches for dealing with aging facilities. To make significant headway on reducing a backlog of deficiencies, we need more funding.

—*Complex-wide investment planning will be challenging.*—We are providing input and support to NNSA's Facilities and Infrastructure Recapitalization Plan. The planning efforts must balance priorities and take into account the long-term facility needs of all sites—a major challenge in view of dynamic future requirements for refurbishment and production.

THE NEED FOR NNSA INFRASTRUCTURE RECAPITALIZATION

The NNSA Weapon Complex's Aging Infrastructure.—To meet the demanding goals of the Stockpile Stewardship Program, the NNSA laboratories must thoroughly understand the physics and engineering performance of weapons based on non-nuclear experimentation and computer simulation. That, in turn, requires leading-edge research and development facilities at the laboratories and the Nevada Test Site. In parallel, NNSA's production facilities must support requirements to extend the lifetime of weapons currently in the stockpile and to meet any future needs for production of new weapons. Refurbishment and production activities need to be conducted safely, efficiently, and in an environmentally responsible manner.

Many mission-supporting facilities at the laboratories' sites are nearly fifty years old or older. Some need replacement immediately. The others are particularly demanding for maintenance to keep them adequate, and over time, all need rehabilitation or replacement. At Livermore, only 60 percent of our employees currently reside in permanent space, and 70 percent of the temporary office space (trailers and other temporary structures) is nearing or beyond end of service life. Such working conditions are not conducive to retaining and attracting the exceptional workforce that we need to accomplish our mission.

The situation is dire at the production sites. Many production facilities are outmoded with antiquated equipment. Activities have ceased in some areas because of safety and health concerns, and in other areas, such as the manufacture of weapon pits, there are no existing production-scale capabilities. The pace of work on the W87 Life Extension Program is being limited by conditions in the plants. The challenge will be even greater with the planned growth over the next decade in the amount of life-extension work.

Recognition of the Problem.—NNSA and Defense Programs within NNSA (NNSA/DP) clearly recognize the problem, and they are working to improve management of the NNSA infrastructure. A particularly noteworthy step was taken in 1999 with the development of a new management strategy that features "Readiness in Technical Base and Facilities" as one of the three major integrating elements in the Stockpile Stewardship Program ("Directed Stockpile Work" and "Campaigns" are the other two). The revised program strategy, implemented in response to evolving demands, recasts the Stockpile Stewardship Program into a set of activities that more clearly establish program goals and budget priorities and helps to identify program risks if there are budget shortfalls. Readiness in Technical Base and Facilities requires investments to be made in people, special facilities, and supporting infrastructure to conduct the program today and to have in place the needed capabilities as more challenging issues arise in the future.

In December 1999, "The 30-Day Review" of the Stockpile Stewardship Program, conducted for the Secretary of Energy, stated in its findings that "DP faces significant challenges in the next decade with regard to the facilities and infrastructure

needed to preserve the U.S. nuclear deterrent." In particular, the study cited findings by the Department of Defense (DOD) Comptroller's Office of Program Analysis and Evaluation that DOE's rate of reinvestment in facilities (0.8 percent of replacement value) is less than the norm of industry and the DOD (2 to 4 percent of replacement value). The 30-Day Review also reported that 70 percent of the facilities at Y–12, 80 percent of the facilities at the Kansas City Plant, 50 percent of the facilities at Los Alamos National Laboratory, 40 percent of the facilities at Pantex, and 40 percent of the Savannah River tritium facilities are more than 40 years old. At Livermore, about 30 percent of our space is more than 40 years old.

The aging of the NNSA weapons complex was also a focus of concern in the Foster Panel report of February 1, 2001 (Fiscal Year 2000 Report to Congress of the Panel to Assess the Reliability, Safety, and Security of the United States Nuclear Stockpile). One of the panel's major recommendations is to "restore missing production capabilities and refurbish the production complex." The report states that "NNSA must plan and execute a ten-year program to restore needed production capabilities" and cites a DOE estimate that the maintenance backlog is $700–$800 million. A recent General Accounting Office report (Nuclear Weapons: Improved Management Needed to Implement Stockpile Stewardship Program Effectively, December 2000) also provides many examples of antiquated facilities within the weapons complex.

The NNSA/DP Infrastructure Recapitalization Initiative.—Motivated by the findings of The 30-Day Review, NNSA/DP launched a concerted effort to improve facilities and infrastructure management by instituting better processes for strategic planning, budgeting, and execution. The goal was to develop an NNSA/DP Facilities and Infrastructure Management Plan through a corporate approach to the problem and to institutionalize the processes that were implemented. We are fully supportive of the effort, and our Laboratory and other sites in the complex are contributing to it.

During the first phase of the effort, planning activities focused on reviewing assessments of the condition of the complex and establishing an integrated baseline of costs for facilities and infrastructure upgrades. In short, NNSA/DP assessed that funding requirements are about $1.3 billion per year, while the current funding averages about $650 million per year—a significant shortfall. The shortfall means that current funding for the Stockpile Stewardship Program is not sufficient to restore the health of the weapons complex. New monies are needed to prevent further deterioration of the complex and over time, restoring it to better health. The NNSA/DP Infrastructure Recapitalization Initiative is intended to provide much needed funds for facility maintenance and restoration, general plant projects, capital equipment, and decontamination and demolition of legacy facilities.

THE SITUATION AT LAWRENCE LIVERMORE NATIONAL LABORATORY

The Needs for Recapitalization at Livermore.—We strive for a work environment at Livermore that attracts top-notch employees, enhances workforce productivity, and helps ensure programmatic success. This requires modern facilities at the Laboratory, designed and sized for current and future operations and well maintained at competitive costs. A core strength of Livermore is its unique, state-of-the-art research facilities, but we also have many aging facilities. A poignant example is provided by the delivery of Accelerated Strategic Computing Initiative (ASCI) Blue Pacific, at the time the world's most powerful supercomputer. We had to repair the leaky roof of the building in which the machine was to be housed.

Overall, 14 percent of Livermore's office and laboratory space is in need of major rehabilitation and nearly 30 percent of the space is in need of minor rehabilitation. Older facilities typically are more expensive to maintain and usually have higher costs associated with safe and healthy operations. Our overall maintenance backlog is about $330 million if funded with programmatic dollars. In addition, our requirements for space are changing. Livermore's mission increasingly demands greater computational capabilities and high-technology office buildings rather than experimental laboratory space. Other than funding for line-item construction of major new facilities, since the mid-1990s our infrastructure reinvestments have been in the range of $25 to 50 million per year in programmatic dollars for a site with a plant replacement value of $3.1 billion. We need additional funding to reduce the backlog and/or construct replacement facilities.

Reduction of the maintenance backlog is not the only issue we face. Obsolescent equipment needs to be replaced. For example, the Laboratory struggles to keep pace with rapid advances in telecommunications capabilities, which are critically needed to efficiently and securely use our supercomputers and to upgrade our business operations. In addition, the Laboratory has legacy facilities from long-discontinued programs as well as outdated and unusable or unsafe laboratory space that must

be decommissioned, decontaminated (where necessary), and demolished. Livermore's legacy facilities and other excess marginal space require considerable up-front investments to rectify. Finally, we also have to invest so that buildings at Livermore meet present-day codes and the latest, more demanding seismic safety criteria. Executive Order 12941 required a reassessment of Laboratory facilities. We found that 83 buildings (not exempt from the order) may be deficient with respect to the seismic safety evaluation criteria and require more detailed study. We have completed detailed evaluations of six (of eight identified) high-priority buildings, complete with conceptual design of upgrades and cost estimates to mitigate deficiencies.

Effective Processes for Prioritizing Investments and Managing Aging Facilities.—One of the findings of The 30-Day Review is that the Stockpile Stewardship Program is under considerable stress, and one of the consequences has been lower-than-historic levels of funding for infrastructure line items and general plant projects, particularly since the mid-1990s. The Laboratory has had to attend to our infrastructure needs through internal investments. We have pursued a strategy that balances maintenance of mission-critical aging facilities, rehabilitation of older facilities, consolidation of activities as mission priorities change, and efficient management of legacy facilities.

In the same time period, Livermore launched a Cost Cutting Initiative to lower indirect costs through identification and pursuit of opportunities to re-engineer many operations functions. Success in that initiative lowered our overhead and support expenses from about 33 percent of operating costs in fiscal year 1995 to less than 25 percent in fiscal year 1999. We have reinvested some of the cost savings in the Laboratory's infrastructure. To ensure effective investment of limited funds, I appointed an Institutional Facility Manager (IFM) in 1997. The IFM serves as the focal point for developing and implementing a long-term strategy for managing facility and infrastructure investments at Livermore.

The Laboratory has since become more effective in aligning infrastructure investments to mission priorities and in meeting essential institutional demands. In fact, a recent General Accounting Office study of facilities management in the Department of Defense (Military Infrastructure: Real Property Management Needs Improvement, September 1999) cited the approach used at Livermore for property management as a set of practices that should be used much more widely. Because of this external recognition, the Laboratory has hosted visits from several military organizations to assist their efforts in finding ways to improve their maintenance management. More recently, we have entered into a dialogue with Los Alamos to share mutually beneficial processes.

To better manage the maintenance backlog, we developed and continue to refine a planning process for work prioritization based on two important criteria. One, the importance of the backlog item to accomplishment of the programmatic mission is determined by programmatic input, while the second criteria, probability of failure of the backlog item is assessed by Laboratory maintenance personnel. Projects that rank highest in both criteria are "A list" items that require immediate attention. The top three categories, which comprise all items that should be addressed within three years, constitute the Laboratory's Essential Backlog, representing approximately 20 percent of the total backlog. The process assures that the most essential items are addressed with planned expenditures of Laboratory Facility Charges, which are levied on building "owners" to support maintenance costs.

We use our Facility Assessment and Ranking System (FAaRS) to select facility candidates for rehabilitation or removal. To meet the Laboratory's office space needs, we are rehabilitating older facilities identified through FAaRS as being fundamentally sound and possible to return to "good" condition cost effectively. In this connection, we are pursuing innovative methods for renovation. For example, a recent pilot project brought one of our World War II-era building complexes with over 100 offices up to good condition (an additional 15 years of life) at a very affordable cost.

Similarly, we completed in fiscal year 1999 a pilot project demonstrating a new approach for safe and cost-effective demolition of contaminated (chemistry) facilities. There were no incidents, injuries, or lost/restricted workdays in this project, which included a thorough implementation of Integrated Safety Management as part of the work plan. Through the use of state-of-the-art sampling, near-real-time chemical and radiological analysis, and highly precise removal of contaminants, we were able to minimize radioactive and conventional hazardous wastes and significantly reduce the cost of this decontamination and demolition (D&D) project.

Additional Funding Needed.—Through the use of the prioritization methods and innovative rehabilitation and D&D processes we have piloted, the Laboratory has in place effective means for managing its infrastructure—but we do not have enough funding to make headway at reducing accumulated problems. Accordingly, our input

into NNSA/DP's Infrastructure Recapitalization Initiative totals $65.8 million for fiscal year 2002, with $38.2 million for high priority items. Some of the 12 high-priority maintenance, general plant projects, capital equipment items include replacement of electrical power systems in aging facilities, a number of building renovation projects, and investments in High-Efficiency Particulate Air (HEPA) filters to more effectively ensure that our high environmental standards continue to be met. Two other high priority projects include a D&D project and a scoping and design study for rehabilitation of a major building complex at our site.

MEETING THE LONG-TERM NEEDS OF THE WEAPONS COMPLEX

The NNSA weapons complex will not be able to make headway on its deficiencies in facilities and infrastructure without adequate multi-year funding for the Infrastructure Recapitalization Initiative. An infusion of new dollars is vitally important, and processes have been developed at our Laboratory—and complex-wide through NNSA/DP's Infrastructure and Facilities Management Plan—to ensure that the funds are applied to meet the highest priority, integrated needs of NNSA. The immediate needs of each of the sites have been identified in the integrated plans for fiscal year 2002, and problems will only grow if funding is not forthcoming.

In developing the overall Infrastructure and Facilities Plan and the new initiative, NNSA/DP has accomplished three particularly important objectives. First, the effort substantiated assessments of the condition of the weapons complex and estimates of the size of the shortfall in funding for facilities and infrastructure. That work provides the basis for the proposed funding for the Infrastructure Recapitalization Initiative. Second, the plan provides a complex-wide integrated list of priority work that needs to begin immediately, together with projected costs. Finally, an effective planning process was developed and implemented that can be used and continually improved upon in future years. That is important because understanding the detailed needs for the production facilities and laboratories is a dynamic process.

The development of detailed plans on how to modernize facilities to most effectively support the research and production needs of the Stockpile Stewardship Program is a challenge. Plans for the laboratories and the Nevada Test Site are closely linked to the program's campaign strategy and are fairly well mapped out. The situation is far more dynamic for the production facilities, where requirements depend on the size of the stockpile, estimates of when weapon components have to be refurbished or replaced, and details about life-extension programs that have to be worked with the DOD. Hence, it is important that the laboratories be fully engaged in the planning process—contributing to the establishment of requirements, development of feasible work schedules, and consideration of new production processes. We are also contributing to the planning methodology by offering the lessons learned from our experiences.

SUMMARY REMARKS

Stockpile stewardship is a very demanding program to meet a vital national interest. It is requiring major investments in new facilities and capabilities that make it possible for experts to much more thoroughly understand the performance of nuclear weapons. Scheduled programmatic work has also placed an exceedingly high demands on provided funding. The cumulative effect has been shortage of funds to recapitalize NNSA's underlying infrastructure. Substantial new investments are needed to upgrade facilities and infrastructure throughout the NNSA nuclear weapons complex. The new funding for a multi-year Infrastructure Recapitalization Initiative will enable NNSA to deal with a significant shortfall of monies so that antiquated existing facilities can be repaired or replaced. At Livermore, we have pressing needs for recapitalization of facilities through investments, which are prioritized by a well-tested methodology. In addition, we have demonstrated cost-effective methods for dealing with aging facilities—whether appropriate action be rehabilitation or decontamination and demolition. We need these improvements to aid in attracting and retaining exceptional staff.

Through the development of a Facility and Infrastructure Management Plan, NNSA/DP has put into place a planning process to integrate and prioritize complex-wide needs. We support that planning process, and the Laboratory will help NNSA/DP to continually improve the process and to better understand the long-term needs of the complex, which will evolve as we better understand the needs of the stockpile.

PREPARED STATEMENT OF JOHN C. BROWNE, DIRECTOR, LOS ALAMOS NATIONAL LABORATORY

LABORATORY MISSION

Thank you for this opportunity to provide a statement on the infrastructure needs at Los Alamos National Laboratory. The Laboratory is one of three multi-program scientific institutions supported by the National Nuclear Security Administration (NNSA) in the Department of Energy. We are managed by the University of California and our mission is to

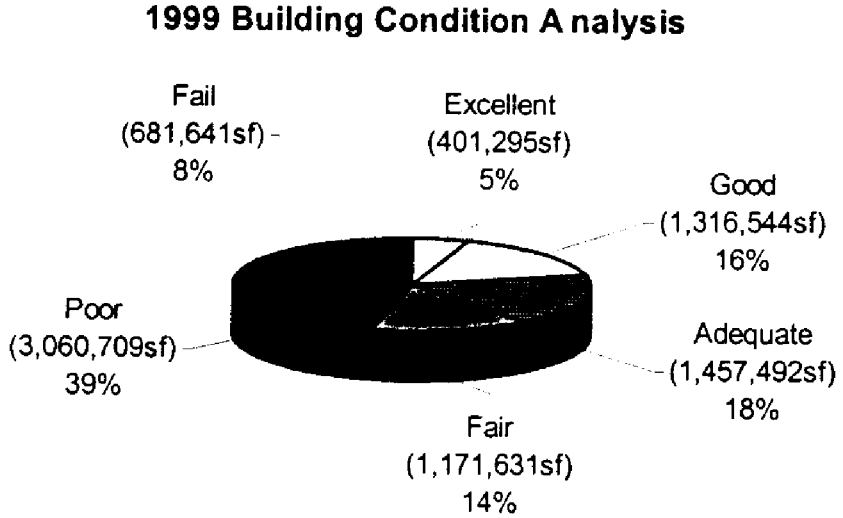
—Ensure the safety and reliability of the U.S. nuclear weapons stockpile
—Reduce threats to U.S. security with a focus on weapons of mass destruction
—Provide technical solutions to national security problems in energy, environment, infrastructure, and health.

STATEMENT OF THE PROBLEM

The entire nuclear weapons complex managed by the DOE/NNSA—the production plants and laboratories—is faced with serious aging problems that threaten our ability to carry out the stockpile stewardship mission. To continue to work effectively on these DOE/NNSA missions, our Laboratory needs outstanding scientists and engineers working in state-of-the art facilities. Unfortunately, our facilities have deteriorated badly. Buildings, roads, sewer systems, electrical power grid and other critical infrastructure are approaching fifty years old and are crumbling at an alarming rate. The ability to conduct our programmatic mission is clearly at stake. A dedicated revitalization effort is crucial for the long-term viability of this Laboratory.

BACKGROUND

Major segments of the Laboratory, and indeed the entire NNSA weapons complex, were constructed for Cold War missions in the 1950's and 1960's. Over half of Los Alamos National Laboratory's 2000-plus structures are greater than 40 years old and require significantly increased levels of funding for sustainability, including safety, maintenance and energy use. Many of the older facilities were built prior to the adoption of modern design and energy consumption codes and standards. Many of these aging facilities are becoming ineffective in serving ongoing mission needs. Approximately 40 percent of all Laboratory funding supports facilities, infrastructure, or construction. While the Laboratory is committed to safe and secure operation of all facilities, these costs are becoming disproportionate relative to program funding. These facilities have served the Laboratory well but now need significant rehabilitation or replacement to reverse this trend. The figure below shows a building condition analysis.



The result of not addressing these aging and failing facilities will be decreased reliability and effectiveness, undesirable conditions for staff recruiting and retention, increased maintenance and utility costs, and ultimately failure of the facilities and failure or delay to execute our assigned tasks. While the Laboratory will continue to operate facilities only if they are safe and secure, we are running many facilities to failure. At the present state of affairs, we cannot assure sustainability of our facilities to fulfill our mission.

STATEMENT OF SOLUTIONS

We believe that there are three distinct areas that must be addressed in order to ensure infrastructure sustainability to meet our mission. Those three areas include:

—1. Implementing formal facilities consolidation efforts and cost reduction initiatives to reduce facility footprints, which in turn reduces operating costs and improves safety, security, and scientific interactions;
—2. Addressing unfunded high-priority facility maintenance backlogs before these backlogs become expensive emergency repairs; and
—3. Investing in new construction projects, where appropriate and economically feasible, to ensure that the Laboratory can meet programmatic mission needs over the next twenty to forty years.

Each of the areas identified above requires commitments to achieve positive results. The return on investment can be realized through reduced operating costs (maintenance and energy) and increased technical productivity to achieve mission requirements. In addition, each area addresses safety and security needs and allows Laboratory facilities to be sustainable over the next 20 to 40 years. Our planning efforts in these three areas are in different phases of development. Some projects have validated costs while other projects are in conceptual development; their costs will be validated using the established NNSA procedures.

1. Formal Facilities Consolidation and Cost Reduction Initiatives

Our Cold War era facilities, while robust for the times, no longer effectively address today's mission. Present facilities are larger than now required, inefficient to operate, and in need of significant—often urgent—maintenance and repair. The best solution is a set of new facilities with a smaller footprint, and the rehabilitation and modernization of existing facilities where feasible, with attention to more energy efficient design and better operability for mission requirements. Consolidation plans at Los Alamos include:

—A $60M investment to consolidate our weapons engineering division, yielding a reduction of 30 percent space or 300,000 sq. ft. within its organization. Implementation of the plan would result in facility operations savings of $12M/year, in addition to improved safety, security, and scientific interactions. Other technical divisions at Los Alamos are completing similar plans, with comparable investments and savings.
—Weapons supporting science activities consolidation. This project purpose is to consolidate the majority of scientists and capabilities working on supporting research, in areas such as materials, computations, chemistry, and physics, into modern laboratory and high-tech office facilities. More efficient designs, smaller footprints, and consolidation of programmatic needs will result in better operability for mission requirements, decreased maintenance requirements, and improved space utilization, productivity, and energy-efficiency.

2. Addressing Unfunded High-Priority Facility Maintenance Backlogs

The current overall state of Los Alamos facilities is well below acceptable national standards. Close to half of current Los Alamos space is rated in the "poor" or "fail" condition. The costs associated with maintaining aging facilities is growing at a faster rate than budgets. A backlog of unfunded, urgent corrective maintenance continues to grow at Los Alamos. Maintenance efforts will be focused only on those facilities that will continue to operate after the consolidation is complete. However, even with the implementation of serious consolidation efforts identified above, the backlog of unfunded maintenance must be addressed. Within our existing budget guidance, we are not able to address this expanding list of unfunded maintenance on aging facilities. We have been able to complete only the most urgent and most serious emergency repairs. There are many top-priority maintenance projects that need to be completed, but we have not been successful in obtaining funding to address all of these needs.

A formal identification, planning, and prioritization effort has been implemented at LANL to identify the most urgent needs. While many of these identified concerns await funding, they become more costly as vulnerable situations turn into emer-

gency conditions. Los Alamos has identified needs of $100M annually of urgent maintenance funding that must be addressed over a 5–6 year period to address the bow-wave of backlog concerns. These requests have been included within the NNSA/DP Facilities and Infrastructure (F&I) Initiative. The nation needs to address critical F&I needs in the entire Nuclear Weapons Complex with a new, dedicated, multi-year, complex-wide revitalization program.

3. Investing in New Construction Projects

Over the past several years, Los Alamos has developed a long-range site plan to address many of the problems we face. We continue to update these efforts annually as facility condition assessments are reviewed, and as infrastructure needs are identified, addressed, or completed. Where appropriate and economically feasible, to ensure that LANL can meet programmatic mission needs over the next twenty to forty years, the NNSA should invest in new construction. Even with consolidation efforts and maintenance backlog work-off, it is clear that it is not economically feasible to extend the life of all facilities. Those facilities should be replaced that are becoming ineffective in serving ongoing missions, or no longer meet current standards for operations, safety, and/or security.

A formal, risk-based prioritization method developed by Los Alamos planners is used to determine the ranking of proposed projects. This prioritization looks at programmatic requirements, safety requirements, security requirements, overall institutional need, and links to existing plans, capabilities, and requirements within the DOE complex. This prioritization method was used to develop the scope of the rehabilitation effort needed in response to the Cerro Grande Fire in May 2000.

New construction projects would be managed utilizing formal project management tools such as baselining and change control. Our recent positive experience with new construction at LANL has established working relationships with industry that would be followed in any future projects. The new construction projects required to meet the stockpile stewardship mission at LANL are:

—*Central Laboratory Site Revitalization—Total $138M (validated).*—Our planning effort identified two new construction projects that address existing life safety issues, high operations costs, high maintenance costs, and security concerns at the most populated site at Los Alamos. The existing facilities that house nuclear weapon designers, supporting scientists, laboratory administration, environmental health and safety personnel, and the Laboratory health clinic are 50 years old and in poor condition. Due to the age of the facility infrastructure, there are electrical system risks, mechanical system failure, high energy costs, high maintenance costs, and limited system reliability. The estimate includes the construction of new facilities, in addition to the decommissioning and demolishing of vulnerable facilities within this core technical area at Los Alamos.

—*Integrated Nuclear Materials Complex—Total $550M (still in conceptual phase, cost not validated).*—This plan consolidates LANL nuclear materials facilities to meet existing mission requirements within a single security boundary at Technical Area 55 (Plutonium Facility) at Los Alamos. Two projects have been proposed to replace 50+ year old aging nuclear facilities, including the Chemistry and Metallurgical Research (CMR) Facility Replacement and the relocation of TA–18, which is the Los Alamos Criticality Experiments Facility. In addition to the two new construction projects, funding is required to address facility life-extension of the now 20-year old plutonium facility being utilized in plutonium pit production. Infrastructure upgrades would be completed over the next 8 to 10 years and extend the useful life of TA–55 through 2030.

—*Utilities Infrastructure Upgrades—Total $100M (cost reflects highest priority items).*—A series of five utility projects are needed to address the aging electrical infrastructure at Los Alamos. Examples of projects include a new high-voltage powerline into the Laboratory site to provide reliability improvements for the Laboratory power grid, and a new gas turbine generator to provide risk reduction of brownouts during peak electrical power demands and local power generation against power grid outages that put Lab facilities at risk.

—*Security and Safeguards Infrastructure Projects—Total $250M (validated).*—This set of projects for physical security upgrades to Los Alamos facilities includes security fences, perimeter access control, interior alarms, and control systems required to meet new DOE security standards.

CONCLUDING REMARKS

Ten or more years ago, the long-term outlook for the nuclear weapons complex and budget was uncertain, but the requirement to ensure the safety and reliability of the nation's nuclear deterrent remained. During this period, Los Alamos and much of the rest of the nuclear weapons complex sacrificed continual reinvestment

for the future in favor of short-term operational needs. After formulation of the Stockpile Stewardship Program, some new facility construction did occur. These items, such as the Dual-Axis Radiographic Hydrodynamic Testing facility and the Strategic Computing Complex at Los Alamos, are dedicated to new capabilities and provide for refurbishment of some existing facilities and infrastructure. These projects have also enabled the Laboratory to strengthen our construction management organization.

With existing operating funds, we have been able to complete some urgent maintenance at our aging facilities, but this only scratches the surface. Only the utmost top-priority issues are addressed, while the backlog of unfunded maintenance continues to grow as facilities age. The demands placed on the safety and security infrastructure from increased regulation and oversight has also stressed our resources. We are still running many buildings to failure.

The general run-down condition of facilities in the nuclear weapons complex has been noted recently in several reviews chartered by Congress and the Administration. For example, the Chiles Commission identified the need to "eliminate problems of maintenance of equipment and facilities, and modernization of equipment," in the context of enhancing recruitment and retention of a quality workforce. The U.S. Commission on National Security wrote in January 2001 that "the physical circumstances in which lab professionals work have also deteriorated, in many instances, to unacceptable levels."

Congress created the NNSA to deal with many of these problems, and now we must put in place the measures for success. One of these measures is a viable nuclear weapons complex for the future. The best way to ensure that the necessary reinvestment occurs in the facilities, infrastructure, and construction base is to provide the resources through a dedicated budget initiative. We strongly endorse the NNSA/DP Facilities and Infrastructure funding initiative. We believe the top priority construction projects must be completed in the next 10–15 years to ensure that the nuclear weapons complex has a safe, secure and reliable infrastructure to ensure that programmatic missions can be accomplished.

SUBCOMMITTEE RECESS

Senator DOMENICI. General Gordon, as you know, we all look forward to great accomplishments in your new Department, and thank you so much. We will be working with you. We will try to do a little better job of getting you some resources than is currently planned and what we think the budget is. We will work hard at that with you. Thank you so much.

We are recessed.

[Whereupon, at 10:53 a.m., Tuesday, March 13, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

TUESDAY, APRIL 24, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 9:50 a.m., in room SD–124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senator Domenici.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENTS OF:

J. WILLIAM McDONALD, REGIONAL DIRECTOR, PACIFIC NORTHWEST REGION

RONALD JOHNSTON, PROGRAM DIRECTOR, CUP COMPLETION ACT OFFICE

ACCOMPANIED BY ROBERT WOLF, DIRECTOR, PROGRAM BUDGET AND LIAISON

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order. I apologize for being late and in advance I apologize for having to leave early, but somehow or another we'll get today's hearings in on both the Bureau of Reclamation and Corps of Engineers.

Today we are going to begin the Energy and Water Subcommittee's 2002 budget hearings with the Bureau of Reclamation. I hope that the Bureau of Reclamation people would come on up and take their seats. There will be two panels, and as a subcommittee tradition dictates, this year we will begin with Bureau of Reclamation in the first panel, and the second one would be the Corps of Engineers. As we have told you already, the Corps will be this afternoon at 3 o'clock in a different hearing room than this.

The subcommittee that meets here today has jurisdiction over water resources as they pertain to the Federal Government's commitments and/or obligations. That is the Bureau of Reclamation and the Corps of Engineers, essentially. Both agencies are responsible for managing the natural resources in a cost effective manner while balancing the needs of diverse users. I believe that the mission of these two agencies will only become more increased over time and the Bureau of Reclamation will have bigger and tougher missions.

That being said, I am concerned about the Administration's 2002 request. I think the Bureau has been underfunded, and the Corps of Engineers, and both of them to such an extent that we will have to determine if those numbers are to hold up, whether the two agencies can effectively carry out their mandated missions for this coming year.

Even though budgets are tight, I am concerned that no one is working to address the longer term problems, that the aging infrastructure is one of the problems that we all can put some time into, and over the long run, these may be very serious problems.

The country has an aging water resource infrastructure. Approximately 50 percent of the Bureau of Reclamation's dams were built in 1900 and 150 before the current state of the art construction techniques were around.

So I want to move on, talk about the impact of the 2002 budget request on both the agencies. First, I would like to begin with the Bureau. The Bureau is responsible for 348 reservoirs, 58 hydroelectric power plants and more than 300 recreation sites.

The Bureau's request totals $783.5 million for 2002, which is a $13.3 million decrease from last year's enacted level. The Administration is proposing the appropriation of about $648 million for 2002, which is a $31 million cut from this year. This type of program, the types of program that falls under this account include construction, dam safety, site security, and I think we know the rest of them.

The bulk of the work that the Bureau does falls under this account, which is effectively, as I indicated here, being reduced by $31 million. Most items in the budget are getting a 4 percent increase, with certain priority items getting more than that. The question is whether this is the time to be reducing these two accounts, and we are going to now have Bill McDonald, the acting Commissioner of the Bureau. Glad to have you here, Mr. McDonald, and hopefully you will be able to go into some detail on these budgets for 2002 and to the extent that Mr. Johnston or—would you state your name?

Mr. WOLF. Bob Wolf.

Senator DOMENICI. Thank you.

STATEMENT OF J. WILLIAM MC DONALD

Mr. MCDONALD. I very much appreciate the opportunity to appear before the committee. My name is Bill McDonald. I am the acting Commissioner of Reclamation, and I am the regional director of the Pacific Northwest Region. Good to see you again.

Ron Johnston is representing the Central Utah Project Completion Act appropriation request, Office of Assistant Secretary for Water and Science. He has his own statement, and will speak for himself. Bob Wolf is Reclamation's Director of Program, Budget and Liaison and will assist me. We certainly appreciate the opportunity to present the President's budget request to you, Mr. Chairman. We have a written statement for the record, and I will ask that that be submitted for the record, and I will simply summarize.

We certainly thank the committee for your continuing support for the Reclamation program. In a drought like this, we are reminded of the importance of the West's water infrastructure. Snow packs

are generally only running 45 to 85 percent of average as of the April 1 snow course measurements, and forecasts across the West are ranging only around 30 to 70 percent of average. The shortage of water supplies would be far worse without the benefit of Reclamation projects, and stream flows would be substantially less in a year like this without releases from reservoirs.

CALIFORNIA POWER

The power problems being confronted in California remind us that Reclamation contributes nearly 15,000 megawatts of installed capacity from our hydropower system to the West's energy system. In California alone, the Central Valley Project accounts for a little less than 5 percent of the capacity in California. The Lower Colorado dams, Hoover, Parker and Davis, contribute a substantial additional amount of electricity to customers in California and indeed throughout the West.

TOTAL BUDGET REQUEST

Reclamation's hydropower system is critical to system reliability and a variety of other ancillary services and spinning reserves. The total President's request for fiscal year 2002 is $783.5 million in current authority, which is an increase of $6.7 million relative to fiscal year 2001. That consists, however, of two major components. $763.5 million is for Reclamation programs, if you will, and that is a decrease of $13.3 million from the fiscal year 2001 enacted level. And then secondly, there is in the President's budget a request of $20 million for the California Bay-Delta Restoration account for which there was no appropriation in fiscal year 2001.

Within the $763.5 million requested for Reclamation programs proper, there is $648 million in the Water and Related Resources account, which is a decrease, as you noted, of about $31 million from fiscal year 2001 levels.

CENTRAL VALLEY PROJECT RESTORATION FUND

Second, $55 million is requested for the Central Valley Project Restoration Fund, which equals our request for the full authorized amount of projected revenues to the fund; and that is a $16.7 million increase over fiscal year 2001. That request, however, is offset by discretionary receipts to the fund of $45 million, so that only $10 million scores against the subcommittee's allocation, and that is comparable to fiscal year 2001.

POLICY AND ADMINISTRATION AND LOAN PROGRAM

Third, our request for Policy and Administration is $53 million, and finally, the Loan Program request is $7.5 million, which would complete three loan projects in California in the next fiscal year.

WATER AND RELATED RESOURCES

The $31 million decrease in the Water and Related Resources account, I would like to speak to that briefly. That is relative to an enacted level in fiscal year 2001 of $679 million and reflects the net effect of the following overall changes compared to fiscal year 2001.

First, our resources management and development programs and activities decreased by $62 million from $439.1 million to $377.1 million. On the other hand, facilities operation, maintenance and rehabilitation increased by a little better than $17 million, from $287.6 million to $304.7 million. Included in that is the Dam Safety Program at $74.6 million, and it continues to reflect Reclamation's priority in maintaining our infrastructure and being able to operate our projects to deliver their intended benefits.

Finally, there is the $13.9 million decrease in undistributed underfinancing, which is something we would hope the Committee would be able to adhere to as you move forward with the budget.

RECLAMATION'S COMMITMENT

In summary, Mr. Chairman, as Reclamation approaches very proudly its 100th anniversary, we believe that our fiscal year 2002 budget request demonstrates our continuing commitment to meet the West's needs for water and power in a fiscally responsible manner. In cooperation with our contractors, with State, tribal and local governments, other stakeholders, and the public at large, Reclamation offers, we believe, workable solutions to water and power issues that are consistent with the ever-growing demands for power and water and with the need to pursue cost-effective environmentally sound approaches to meeting those demands.

Needless to say, Reclamation and the Reclamation program face many challenging opportunities. First, an aging infrastructure, as you noted, requires that we focus on the need for dam safety, facilities improvements, technological upgrades and preventive maintenance to ensure the reliability and improved safety of operation of our projects.

Second, meeting environmental requirements so that we continue to develop projects and supplies is a complex challenge. Third, innovative approaches to water conservation, power conservation, and programs for wastewater reuse and recycling are being explored by us, but within the budget limitations that we face.

And finally, our participation, ever expanding at the request of Congress, in Indian water rights settlements and the growth of rural water projects to serve Indian reservations and others, particularly where Congress has directed Reclamation to bear all or a portion of the operation and maintenance of those completed projects, is putting substantial pressure on our overall budget.

PREPARED STATEMENT

The projects and programs highlighted on page 4 and 5 of my written statement are illustrative of the challenges we face and with that, I invite the committee's attention to that as examples. Thank you for the continuing support of our program, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF J. WILLIAM MCDONALD

Thank you Mr. Chairman and members of the subcommittee. I welcome the opportunity to appear before you today to support the President's fiscal year 2002 budget request for the Bureau of Reclamation, which totals $783.5 million in current authority. The request includes $20.0 million in new funds for the California Bay-Delta Restoration account, and $763.5 million for Reclamation's traditional pro-

grams, a decrease of $13.3 million from the fiscal year 2001 enacted level of $776.8 million.

MISSION

As it approaches its 100th anniversary, the Bureau of Reclamation delivers 10 trillion gallons of water to over 31 million people in the 17 western states for municipal, rural, and industrial uses. Reclamation facilities store over 245 million acre-feet of water, servicing one of every five western farmers to irrigate about 10 million acres of land. These irrigated lands produce 60 percent of the nation's vegetables and 25 percent of its fruit and nuts. As the largest water resources management agency in the West, Reclamation administers or operates 348 reservoirs, 58 hydroelectric powerplants with an installed capacity of 14,744 megawatts. Reclamation manages approximately 8.6 million acres of Federal land, plus another 600,000 acres of land under easements. In addition, our facilities provide substantial flood control, recreation, and fish and wildlife benefits.

The economic viability, and in some cases the very survivability, of the citizens, ranchers, and farmers in the 17 western states depends on the effectiveness of Reclamation's stewardship of these valuable public resources. The Bureau of Reclamation, and its employees, take this responsibility and the mission of managing, developing and protecting water and related resources in an environmentally and economically sound manner in the interest of the American public very seriously.

The impact of Reclamation on the lives and livelihoods of our western citizens is highlighted by the following facts: Reclamation has emerged as the second largest producer of hydroelectric power and the 11th largest power producer in the United States with an average generation of more than 42 billion kilowatt hours of energy each year. Reclamation produces enough electricity to serve 14 million people, generating nearly a billion dollars in annual power revenues. In California, Reclamation's Central Valley Project generated more than 6.1 billion kilowatt hours of energy in 2000, enough power to serve approximately 1.9 million Californians.

FISCAL YEAR 2002 BUDGET REQUEST

The fiscal year 2002 budget request demonstrates Reclamation's commitment to meeting the West's needs for water and power in a fiscally responsible manner. This budget continues the Bureau's shift in emphasis from the construction of large water projects and toward the management of these valuable public resources. In cooperation with state, tribal, and local governments, along with other stakeholders and the public at large, Reclamation offers workable solutions regarding water and power resource issues that are consistent with the ever growing demands for power and water, and with the need to pursue cost effective, environmentally sound approaches to meeting those demands.

Nevertheless, the transition from a facilities builder to a water and power service management agency has resulted in a new set of challenges for Reclamation. Growing demands from an aging infrastructure have compounded the need for technological upgrades, new science and technologies, and preventative maintenance to ensure reliability, increase output, and improve safety of operation. The growth of rural water projects serving Indian reservations where Reclamation funds operation and maintenance has put substantial pressure on our overall budget. The demand for skills in such areas as negotiating agreements with Tribal Governments, negotiating title transfer agreements, mediating disputes among stakeholders, and renewing existing contracts represent a formidable challenge in the human resource arena. Balancing the demand for service delivery with environmental concerns is an equal challenge. Complementing supply-oriented solutions with innovative approaches to power and water conservation and programs for wastewater recycling are being explored. Finally, as Reclamation attempts to keep pace with the technological revolution, our dependence on sophisticated computer systems presents new challenges in the areas of information system development, maintenance, and security. All of the above challenges place additional pressure on Reclamation's financial and human resources.

One of Reclamation's strategies for meeting these new challenges is to target its planning program and science and technology program to search for contemporary solutions. Financial resource constraints facing the Nation require a commitment to the use of decision support tools, including risk analyses, to develop only the most efficient and cost-effective solutions to the complex challenges that we face.

Every day we see immediate water resource needs important to our state, local and tribal partners. Many states are developing state-wide water plans or drought contingency plans, for instance, to address resource utilization and stewardship against the backdrop of large population increases and the growing notion of sus-

tainable development. Reclamation, in partnership with other federal, state, local, tribal, and private entities, has consistently proven its ability to help assess the potential for optimum water use within a river basin or sub-basin. This technical capability is one of our most valuable resources.

Some of Reclamation's budget priorities as we continue into the new millennium are:

—ensure the safety and reliability of Reclamation dams;
—fund projects currently under construction;
—ensure environmental compliance;
—develop partnerships with customers, states and tribes;
—continue investments in science and technology to meet the growing water-related resources challenges facing the west in a more efficient and cost-effective manner; and
—optimize results-oriented business practices to provide the most effective and efficient service to customers, partners and employees.

WATER AND RELATED RESOURCES

The fiscal year 2002 request for the Water and Related Resources account is $648.0 million, a decrease of $31 million from the fiscal year 2001 enacted level. The request provides funding for five major program activities—Water and Energy Management and Development ($257.7 million), Land Management and Development ($33.9 million), Fish and Wildlife Management and Development ($85.5 million), Facility Operations ($158.1 million), and Facility Maintenance and Rehabilitation ($146.6 million). The request is partially offset by an undistributed reduction of $33.8 million, in anticipation of delays in construction schedules and other planned activities.

The request continues to emphasize the operation and maintenance of Reclamation facilities in a safe, efficient, economic, and reliable manner; sustaining the health and integrity of ecosystems while addressing the water needs of a growing population; and assisting states, tribes, and local entities in solving contemporary water resources issues.

Highlights of the fiscal year 2002 request include:

Safety of Dams ($74.6 million).—The safety and reliability of Reclamation dams is one of the Bureau's highest priorities. Dam safety corrective actions and site security improvements are among the activities funded by facility operation, maintenance, and rehabilitation. The fiscal year 2002 request of $74.6 million for the Safety of Dams Evaluation and Modification Program, including Horsetooth Dam in Colorado and Wickiup Dam in Oregon, provides for risk management activities throughout Reclamation's inventory of 358 dams and dikes, plus preconstruction and construction activities for up to 17 dams identified for funding through the Safety of Dams Program.

Approximately 50 percent of Reclamation's dams were built between 1900 and 1950, and 90 percent of the dams were built before current state-of-the-art foundation treatment and filter techniques were incorporated in embankment dams to control seepage. Continued safe performance becomes a greater concern with aging dams and requires a greater emphasis on the risk management activities provided by the program.

Animas-La Plata in Colorado and New Mexico ($12.0 million).—In December 2000, legislation was enacted to resolve the Colorado Ute Tribes' water rights claims and allow construction of a smaller Animas-La Plata Project to proceed. The reformulated Project limits depletions to an average of 57,100 acre-feet per year and provides only municipal and industrial water for the Tribes and local non-Indian entities. Work planned for 2002 includes design of project facilities, gas pipeline relocation, and related mitigation and cultural resources activities.

Central Arizona Project ($31.5 million).—The request continues construction of the Gila River Indian Community Distribution System and other Indian distribution systems; work on recreation development; and fulfillment of endangered species mitigation commitments for Roosevelt Dam and for the CAP Aqueduct on the Gila, Santa Cruz, and San Pedro River. Funding is also requested to continue working with Tucson area municipal entities on CAP reliability features.

Central Valley Project (CVP), which includes 15 projects, protects the Central Valley from water shortages and floods and provides water and power to match the continued growth in the State of California. Two of the components of this project include:

—*CVP, Replacements, Additions, and Extraordinary Maintenance Program ($11.0 million)*.—This provides funding for work on 34 replacement, addition, and extraordinary maintenance (RAX) items including refurbishing and painting of

transformers at the Shasta Powerplant, renovation of the drum gates on Shasta Dam, and rehabilitation of cranes at the Nimbus Powerplant and Folsom Dam. Items scheduled to begin include rewind of generating units 1 and 2 and station service units at the Shasta Powerplant, replacing the turbine runners at the New Melones Powerplant, and rehabilitation of motor rotors at the Tracy Pumping Plant.

—*Trinity River Division of the Central Valley Project in California ($13.1 million)*.—The Trinity River Division provides delivery of project water and power and for operation of the Trinity Fish Hatchery. Funds will also be used to continue to implement the December 2000 Record of Decision, which includes development and implementation of a comprehensive monitoring and adaptive management program for fishery restoration.

Columbia-Snake River Salmon Recovery in Idaho, Oregon, Montana, Washington and Wyoming ($11.0 million).—This program addresses Reclamation's legal requirements contained in the biological opinions issued in December 2000 by the National Marine Fisheries Service and the Fish and Wildlife Service. These requirements include actions to modify the daily, weekly, and seasonal operation of Reclamation dams; acquisition of water for flow augmentation; off-site mitigation of hydro system impacts in selected subbasins; significantly increased research, monitoring, and evaluation as well as significantly increased regional coordination efforts. These actions are intended to protect and aid in recovery of 12 species of anadromous fish.

Garrison Diversion Unit in North Dakota ($25.2 million).—Funds are requested for grants to the State of North Dakota for municipal, rural, and industrial water projects, for development of Indian irrigation facilities, for work at several wildlife refuges, and for operation and maintenance of completed project facilities.

Klamath Project in California and Oregon ($12.7 million).—The request continues funding for studies and initiatives related to improving water supply and quality to meet agriculture, tribal, wildlife refuge, and environmental needs in the Klamath River Basin; and for improvements in fish passage and habitat.

Lower Colorado River Operations Program in California, Arizona and Nevada ($13.1 million).—This program funds work necessary to carry out the Secretary's responsibilities as water master of the lower Colorado River. It also funds measures required by the interim biological opinion on Reclamation's lower Colorado River operations, and development of a multi-species conservation program to provide a basis for Endangered Species Act compliance on the lower Colorado River over the long term.

Mid-Dakota Project in South Dakota ($10.0 million).—This program provides for assistance for construction of water supply transmission lines and storage reservoirs.

Mni Wiconi Project in South Dakota ($28.0 million).—Funds are requested for design and construction activities on the Oglala Sioux, Rosebud Sioux, Lower Brule Sioux, and West River/Lyman-Jones Rural Water Systems; and for operation and maintenance of new and existing facilities on the three Indian reservations.

Water Reclamation and Reuse Projects Title XVI ($19.5 million).—This request continues funding for nine studies and projects to recycle and reuse water in the arid west. These projects over time will provide over 500,000 acre-feet of water annually to help the western states cope with drought and to meet the water needs of their rapidly growing population.

Yakima River Basin Water Enhancement Project ($10.6 million).—This request continues the implementation of water conservation, fish and wildlife improvements, and other measures authorized by the Yakima River Basin Water Enhancement Act.

CENTRAL VALLEY PROJECT RESTORATION FUND

The fiscal year 2002 Reclamation budget includes a request for $55.0 million for the Central Valley Project Restoration Fund established by the Central Valley Project Improvement Act of 1992. The proposal is expected to be offset by discretionary receipts totaling $44.9 million, which is the amount that can be collected from project beneficiaries under Sec. 3407(d) of the Act. These funds will be used for habitat restoration, improvement and acquisition, and other fish and wildlife restoration activities in the Central Valley Project area of California.

CALIFORNIA BAY-DELTA RESTORATION

Consistent with the commitment to find long-term solutions to improving water quality, habitat and ecological functions, and water supply reliability, while reducing the risk of catastrophic breaching of Delta levees, the fiscal year 2002 budget contains funds for Bay-Delta activities that can be undertaken within existing statutory authorities. The $20.0 million requested in this account will be used for the

Federal share of the Environmental Water Account and for costs associated with administrative support of the CALFED Program, which includes planning and management activities provided by Reclamation and through CALFED Program staff. In addition, the fiscal year 2002 budget includes $64.7 million in other BOR accounts for authorized activities that support Bay-Delta Program objectives and priorities.

OTHER ACCOUNTS

The request for Policy and Administration is $53.0 million, which will be used to develop and implement Reclamation-wide policy, rules, and regulations, including actions under the Government Performance and Results Act, and to perform functions which cannot be charged to specific project or program activities covered by separate funding authority. These funds support general administrative and management functions throughout the 17 western states in Reclamation's service area and in its Washington office.

The fiscal year 2002 request for the Loan Program is $7.5 million to complete work on three small loan projects—Castroville Irrigation Water Supply, Salinas Valley Water Reclamation, and San Sevaine Creek located in California.

FISCAL YEAR 2000 ACCOMPLISHMENTS HIGHLIGHTS

While we have set our priorities for the future, we are very proud of the part Reclamation has played in the past, and I would like to mention some recent accomplishments.

Safety of Dams.—In fiscal year 2000, Reclamation completed Safety of Dams modifications at Bradbury (California), Pueblo (Colorado), and Willow Creek (Montana) Dams to address identified risks. Studies were completed on Safety of Dam improvements to Horsetooth Dam in Colorado, which provides municipal and industrial water to some of the fastest growing communities in the West.

Power.—Reclamation met 100 percent of its project power commitments in fiscal year 2000. Reclamation is among the lowest cost providers in the hydropower industry. The dependability and service reliability of California's power system experienced significant stress beginning in the summer of 2000. Scheduled and emergency operations of Reclamation hydroelectric facilities in the West assisted in alleviating some threats of brownouts and rotating outages throughout California. As a partner with Western Area Power Administration and Bonneville Power Administration in the operation of the Federal hydroelectric generation and power transmission systems, the coordination and scheduling of outages is becoming increasingly more important. Reclamation developed processes to ensure that coordination between agencies is more formal while retaining the flexibility to respond to changing conditions that may impact outage schedules.

Drought.—Reclamation's Drought Emergency Assistance Program assists States and local entities throughout the West in coping with emergency water shortages. The Bureau provided emergency assistance through the acquisition of water to mitigate impacts to fish and wildlife resulting from prolonged drought conditions in New Mexico on the Rio Grande and to Bowdoin and Benton Lakes National Wildlife Refuges in Montana. Reclamation provided emergency assistance to the Hopi Tribe by procuring portable pumps and generators to pump water from existing wells when the water table dropped due to drought and provided emergency drought assistance to several tribes within New Mexico through actions such as well repair and drilling.

Water Conservation and Recycling.—Reclamation's Water Conservation Field Services Program has provided assistance to hundreds of local water districts in four key areas: planning, education, demonstration, and implementation. In specific instances, Reclamation assisted 209 water districts with water conservation planning. Reclamation formed a cooperative cost-sharing partnership with 11 southern California water and wastewater agencies under the Southern California Water Recycling Projects Initiative.

Endangered Species.—Reclamation worked to improve habitat and flows for endangered fish at its facilities throughout the West. In California Reclamation installed a temperature control device on Folsom Dam to help conserve cold water and lessen the impact to threatened salmon in the American River. Reclamation helped re-establish up to 42 miles of prime salmon and steelhead habitat on the mainstream Battle Creek and an additional 6 miles of its tributaries in California. We completed modifications of an automated fish-handling device at the Marble Bluff Dam in Nevada to enhance recovery of the endangered cui-ui fish species.

We developed flow recommendations for the Green, Gunnison, and Colorado Rivers to help recover a variety of endangered fish in the Upper Colorado and San Juan River Basins. Reclamation also began work on fish ladders and fish screens to be

installed on all major diversion dams/canals on the Colorado, Gunnison, Green, and San Juan Rivers. Reclamation collaborated with Federal, State, and local stakeholders in New Mexico to sustain instream flows for the endangered Rio Grande silvery minnow when severe drought conditions threatened the minnow, and helped provide stream flows for the endangered Pecos bluntnose shiner into the Pecos River, New Mexico.

Under the Columbia and Snake River Salmon Recovery Project Reclamation has continued to acquire water to increase streamflows in the lower Snake and Columbia Rivers to benefit salmon and steelhead migration.

Water Quality.—Reclamation has invested over $48 million since 1995 to control the salinity of the Colorado River. The total Reclamation program, including those projects constructed before 1995, is estimated to prevent about 550,000 tons of salt per year from entering the Colorado River. Reclamation also worked cooperatively with the Interagency Ecological Program for the Sacramento-San Joaquin Estuary in California, which identifies, and helps to avoid, impacts caused by State and Federal water diversion operations in the estuary.

Native Americans.—Reclamation helped the Navajo Department of Water Resources develop and complete a resource management plan addressing the Navajo Nation's projected water requirements and water resource infrastructure deficiencies. It provided 13 Native American Pueblos with technical or financial water management-related assistance through various programs including water needs assessments, new pumps and other infrastructure, water measurement structures, and automation of flow structures. Other Indian Rural Water projects, including Mni Wiconi in South Dakota, Rocky Boys in Montana, and Animas-La Plata in Colorado, will help meet the water needs of hundreds of thousands of Native Americans.

Recreation.—Reclamation joined with seven other Federal agencies to form the Federal Lakes Recreation Leadership Council co-chaired by Reclamation and the Corps of Engineers to develop procedures to enhance public recreation at Federal lakes. Reclamation formed a Recreation Policy Advisory Team and established a Bureauwide concessions and recreation management policy. Under the authority of the Reclamation Recreation Management Act, Reclamation cost shared with non-Federal partners the development, rehabilitation, and expansion of recreation and fish and wildlife areas and facilities on Reclamation projects in 12 states.

CONCLUSION

This completes my statement. Please allow me to express my sincere appreciation for the continued support that this Committee has provided Reclamation. I would be happy to answer any questions you may have at this time.

Senator DOMENICI. I am not sure with the shortage of time that I am going to be able to ask you questions, but if I can't, I will submit them and if you would answer them, please.

Mr. MCDONALD. We would be pleased to.

Senator DOMENICI. Why don't you not elaborate on it and just give it.

PREPARED STATEMENT

Mr. JOHNSTON. As you are aware, I serve as the program director for implementation of the Central Utah Project Completion Act, and I would simply like to submit our statement for the record, and I'll conclude with that.

[The statement follows:]

PREPARED STATEMENT OF RONALD JOHNSTON

My name is Ronald Johnston. I serve as the Program Director for implementation of the Central Utah Project Completion Act under the direction of the Assistant Secretary—Water and Science in the Department of the Interior. I am pleased to provide the following information about the President's fiscal year 2002 budget for implementation of the Central Utah Project Completion Act.

The Central Utah Project Completion Act, Titles II–VI of Public Law 102–575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District. The Act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; establishes an account in the Treasury for deposit of these funds and other contributions; establishes the Utah Reclamation

Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Water Rights Settlement.

The Act provides that the Secretary may not delegate his responsibilities under the Act to the Bureau of Reclamation. As a result, the Department has established an office in Provo, Utah, with a Program Director to provide oversight, review, and liaison with the District, the Commission, and the Ute Indian Tribe, and to assist in administering the responsibilities of the Secretary under the Act.

The fiscal year 2002 request for the Central Utah Project Completion Account provides $36.2 million for use by the District, the Commission, and the Department to implement Titles II–IV of the Act, a decrease of $3.6 million from the fiscal year 2001 enacted level. The request includes $23.8 million for the District to continue construction on the remaining segments of the Diamond Fork System; to implement approved water conservation and water management improvement projects; and to continue development of planning and NEPA documents on facilities to deliver water in the Utah Lake drainage basin.

The funds requested for transfer to the Mitigation Commission ($10.7 million) will be used in implementing the fish, wildlife, and recreation mitigation and conservation projects authorized in Title III ($9.6 million); and in completing mitigation measures committed to in pre-1992 Bureau of Reclamation planning documents ($1.1 million). Title III activities funded in fiscal year 2002 include the Provo River Restoration Project; acquisition of habitat, access, and water rights in other key watersheds; and fish hatchery improvements.

Finally, the request includes funds for mitigation and conservation projects outside the State of Utah ($0.3 million); participation in the operating and maintaining new and improved hatchery facilities ($0.1 million); and for program administration ($1.3 million).

In addition to the request described above, the Bureau of Indian Affairs' budget includes $24.7 million for the Ute Indian Rights Settlement.

Senator DOMENICI. All right. Fine. Appreciate it. I have seen the statement. Let me recognize Mike Gabaldon in the front row. Thank you so much for what you have been doing. I understand that you moved to Deputy Director of Operations.

NEW MEXICO PROBLEMS

And let me just say on the Bureau of Reclamation, it is most interesting that depending upon where you are, what state, what river, which basin, the Bureau of Reclamation is intimately involved, or in some places not involved at all, but I want to say for the record that New Mexico is one of those states that by a rare combination of history and other things, you are heavily involved in the Rio Grande River in terms of the continuing problem of how do we handle the endangered species. And I want to thank the Bureau, I am not sure where we go from here, but for the past actions that they took on behalf of trying to solve that problem at least on an interim basis. And we will be trying to put together an extended package of involvement by you all to see if we can't resolve it further.

ZERO GROWTH BUDGET

Let me ask just two or three questions and then we will close the meeting. Mr. McDonald, your 2002 request appears on the surface to be receiving an increase of $7 million, as you indicated, which with an appropriation of $784 million, even with that, that is not keeping pace with inflation. That is not the 4 percent increase that is being suggested as being the cornerstone of the President's budget. Can you tell the committee, Mr. McDonald, what this essentially zero growth budget means for the Bureau?

DAM SAFETY AND FACILITIES OPERATION

Mr. MCDONALD. As I think I indicated in my introductory remarks, Senator, we gave priority in the context of the President's budget to dam safety and facilities operation, maintenance and rehabilitation. Those for a number of years have been our central priorities. They continue to be so. As you can see, resource management and development within the Water and Related Resources account was cut by nearly $62 million. That is where the trade-off comes, and this reflects itself in the Title 16 program, reductions in rural water supply and similar kinds of activities and constraints on what we desire to do relative to moving forward with Indian water rights efforts.

RURAL WATER PROGRAMS

Senator DOMENICI. Let's just move to the rural water resources for a moment. I was going to move to it separately, but actually you raised it. Actually, that is a small account, but there aren't any programs of any significance for potable water for rural areas and domestic or otherwise, and this small amount of money, $33 million I think is what you used last year, is one source that is trying to solve that problem. Is that correct?

Mr. MCDONALD. Yes.

Senator DOMENICI. Why it would be reduced as much as it has been would probably be an indication that this Administration doesn't place a high priority on this activity. That is the only way I can read it. What do you read into a one-third reduction in that program?

Mr. MCDONALD. I don't know that I read anything into it, other than to balance the priority within the budget available to us. We focused very much on the maintenance of the existing infrastructure, continuing construction on existing projects, and not initiating new activities that would have major out-year impacts.

BUDGET PROCESS

Senator DOMENICI. You continue to use the word we. What does that mean? Is there a chain of command on this, that they gave you a number and you all on the Bureau of Reclamation went and fit the budget to the numbers? Did OMB's people do that? I don't really understand.

Mr. MCDONALD. Well, in the typical process, of course, we made an initial proposal, then the Office of Management and Budget provided guidance to all agencies as to the overall budget within which we needed to operate.

Senator DOMENICI. That is what you meant by the "we", that process you just described?

Mr. MCDONALD. Yes, sir.

Senator DOMENICI. I have about five more questions, and I am going to submit the ones on dam safety, which is important.

ADDITIONAL COMMITTEE QUESTIONS

We ought to get your answers on the record. I do appreciate——

Mr. MCDONALD. Be pleased to.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

SAFETY OF DAMS EVALUATION AND MODIFICATION PROGRAM

Question. The Bureau's fiscal year 2002 budget request includes $72.9 million for the Safety of Dams Evaluation and Modification Program. Can you tell this committee what the $72.9 million will be used for?

Answer. The requested funding is for continuing dam safety risk management and risk reduction activities throughout Reclamation's inventory of dams. It provides for ongoing safety of dams modification activities at Clear Lake Dam, California; Wickiup Dam, Oregon; and Horsetooth Dam, Colorado. Of the $72.9 million fiscal year 2002 request for the Safety of Dams Evaluation and Modification Program, $33,500,000 is for contractor payments to the three ongoing modification activities, another $5,000,000 is needed for related contract supervision and administration, $10,500,000 is needed for modification work scheduled to begin in fiscal year 2002 at Keechelus Dam, Washington, and $4,000,000 is needed for Pineview Dam, Utah. That leaves about $2,000,000 for preconstruction activities associated with 12 other dams listed in the fiscal year 2002 Budget Justifications as potentially needing risk reduction actions. Another $17,900,000 is for Safety Evaluation of Existing Dams activities on Reclamation's entire inventory of 358 dams and dikes which could result in loss of life if they were to fail.

Question. Is there a prioritized list that the Bureau is systematically taking care of the worst dams so they can be moved off this critical list, and what progress have you made to date on reducing this list?

Answer. Reclamation has a variety of management tools which it utilizes to set ongoing priorities as new information is developed through the dam safety program. Reclamation has an ongoing program of monitoring, inspection, and evaluation of issues which become identified during day-to-day operational activities. On an ongoing basis, the issues are prioritized and scheduled for further action based upon a risk analysis. If this risk analysis results in a finding of additional public risk, then Reclamation evaluates and implements interim actions while working toward actions to reduce the long-term risk. The fiscal year 2002 Budget Justifications narrative lists 12 dams where Reclamation may be pursuing risk reduction action. To date under the Safety of Dams program, Reclamation has completed modifications to 55 dams to reduce public risk.

Question. Is the $72.9 million (fiscal year 2002) budget sufficient to address the most critical needs in fiscal year 2002. And if not, what is a sufficient amount to address these needs?

Answer. The $72.9 million budget request is sufficient to meet all critical needs. The proposed budget allows for initiation of construction on all projects where the necessary preconstruction activities have been completed. Major construction contracts will be initiated on Wickiup Dam in June 2001 and on Horsetooth Dam in August 2001. These contracts will establish potential contractor earnings rates in fiscal year 2002 and fiscal year 2003. Additional capability at Horsetooth Dam has been made available by the anticipated receipt of funding from the power customers in fiscal year 2002. With the $72.9 budget request, there is no delay in the initiation of any safety of dams modifications due to funding limitations.

Question. What would this level of funding enable the Bureau to do, that under your current request you could not?

Answer. An additional $16.5 million for fiscal year 2002 could be effectively utilized. Of that amount, $13.5 million could be spent on construction contracts for corrective actions at a rate associated with the construction contractor's capability. At this time, we anticipate that contractors will have the capability at Wickiup and Horsetooth Dams to accelerate construction if additional federal appropriations were available. The additional funding would also reduce the overall cost of the project by allowing project benefits to be recovered sooner and it would reduce the costs associated with construction management. The additional $3 million could be effectively spent on preconstruction activities for a number of dams that are in various stages of developing modification reports.

TITLE XVI PROGRAM

Question. The Bureau's budget request for Title XVI projects, which is the water reclamation and reuse account, is for $19.5 million, down from last year's enacted level of over $33 million, or about a one-third cut.

Please tell this Committee why this program, which in many instances is providing the only potable water to homes, is being cut.

Answer. The Title XVI Water Reclamation and Reuse Program helps local water agencies plan for and construct water recycling projects that are designed to provide non-potable water to be used for such purposes as landscape and agricultural irrigation, industrial processes, environmental restoration, power generation, recreation, and groundwater recharge, among others. In no instance is the reclaimed water from a Title XVI project being used as a source of potable water for use in homes. The value in the recycling program is that it provides a locally controlled and reliable source of water for use in lieu of potable water, thereby stretching the existing potable supplies and reducing the need to develop traditional alternative water supply projects.

The enacted level of funding for fiscal year 2001 is approximately $30.6 million. However, after accounting for the rescission and underfinancing, $28.2 million was available for Title XVI activities. The President's fiscal year 2001 request was just under $21.2 million. The $19.5 million requested by the President for fiscal year 2002 is $1.7 million less than the request for fiscal year 2001. The fiscal year 2002 request has been reduced principally to reflect Reclamation's completion of funding participation in the Los Angeles Area Water Reclamation and Reuse Project, which received more than $69 million in Federal assistance. For the remaining seven project funding requests, two have been reduced slightly, one has remained the same, and four have actually increased over fiscal year 2001 requested levels.

Question. What is a more sufficient funding level for this account?

Answer. Based on currently available data, more than $80 million would be required in fiscal year 2002 to keep pace with the non-Federal projects sponsors' construction schedule. This represents more than 12 percent of Reclamation's entire budget for Water and Related Resources. However, the Department does not support the addition of funds for any project which would result in the reduction of funding for other projects included in the budget.

Question. Please provide for the record a list of projects which the Bureau considered but were not funded in the President's request?

Answer. All projects considered by Reclamation for funding in fiscal year 2002 were included in the President's budget request.

WATER AND RELATED RESOURCES—NEW FTE

Question. The budget request for the Water and Related Resources account is down $31 million from last year's level. Yet, the Bureau is requesting 13 additional Full Time Equivalents, or FTE. Please tell the committee why the Bureau is requesting the 13 additional FTE, when there is a budget reduction?

Answer. While FTE for Water and Related Resources reflects an increase, the total FTE level requested remains at 5,634 for both fiscal years 2001 and 2002. The level requested for Water and Related Resources FTE is based on projected workload. While dollars impact the amounts available on a project basis, the workload involved in each project can differ (i.e, some are more labor intensive than others). The additional FTE in the Water and Related Resources reflects a shift of FTE from the Trust Fund account.

BUDGET IMPACTS

Question. The fiscal year 2002 request for the Bureau appears on the surface to be receiving an increase of only $7 million, which with an appropriation of $784 million, does not even keep pace with inflation.

Please describe for the committee what this zero growth budget means for the Bureau.

Answer. Although the fiscal year 2002 budget is not a significant increase over fiscal year 2001, it is a significant increase over fiscal year 2000. This is consistent with the Administration's stated goal of moderate growth while halting the trend of unconstrained spending at an unsustainable rate. The budget also provides for an increase of $17.1 million for facility operation, maintenance, and rehabilitation to pay for costs of new facilities and to more adequately deal with the Bureau of Reclamation's aging infrastructure. The budget also provides an increase of $10 million to begin construction of the Animas-La Plata project to address Native American water rights issues.

Question. Please provide the committee with a list of the most critical items which were not included within your fiscal year 2002 budget?

Answer. The Bureau of Reclamation's fiscal year 2002 funds the most critical items to maintain and operate our facilities, address environmental and fish and wildlife impacts, complete ongoing projects, address safety of dams deficiencies, and provide water as part of Indian Water Rights settlements. There are no critical items that are not being funded.

Question. Can you explain the rationale behind why the Water and Related Resources account took a $30 million reduction, when the majority of the Bureau's work is done through this account?

Answer. It should be noted that the budget request submitted by Reclamation for Water and Related Resources for fiscal year 2002 actually is $4.9 million higher than the budget request submitted for fiscal year 2001. The fiscal year 2002 request funds Reclamation's highest priorities, and is consistent with the Administration's goal of halting the recent trend of spending growing at an unsustainable rate.

ANIMAS-LA PLATA

Question. In last year's omnibus appropriation, authorization was included which reflected the cooperative agreement brokered by all the interested parties regarding the Animas-La Plata Project. The Bureau's budget contains $12 million for this project. What progress on the project will be made this year with the funding requested?

Answer. The $12 million budget request will allow significant progress on the following critical elements of the project: Gas pipeline relocations; investigations, design, land acquisition, and contract award; Ridges Basin Dam design; cultural resources recovery contract award; fish and wildlife mitigation; wetland contract award; and Durango Pumping Plant design.

Question. Does the Bureau have all intentions of moving forward on this project, given this new agreement?

Answer. Reclamation is committed and supportive of completing the Animas-La Plata Project and fulfilling its obligations under the Colorado Ute Indian Water Rights Settlement.

Question. Will the $12 million be actually utilized toward the project's construction, or will any of the funds be used to purchase water as part of the required cash payment?

Answer. The $12 million will all be used toward the project's construction. Funding for the Tribal Resource Fund is being sought through the Bureau of Indian Affairs.

Question. The Bureau's budget includes $1.6 million for land management and cultural resources activities as it relates to the Animas-La Plata project. Please provide the committee a definition of what "cultural resources activities" are being funded this year.

Answer. A significant number of cultural resource sites are known to exist in the Ridges Basin area, and more specifically, in areas that will be disturbed by construction of the dam. Fiscal year 2002 cultural resource activities will concentrate on awarding a contract and initiating data recovery and mitigation on those sites that are in the vicinity of the dam foundation.

Question. Are there funds requested for "Tribal Development", and if so, can you tell the committee how much is being requested by the Bureau and for what purpose?

Answer. Reclamation is not seeking funding for the Tribal Development Funds. Such funds are being sought through the Bureau of Indian Affairs. We understand that the Bureau of Indian Affairs' request is $8 million for fiscal year 2002.

Question. Several New Mexico newspapers have published stories about the Animas-La Plata project. Several of them have indicated that non-Indian Colorado water users want to lease project water from the Ute tribes. What does the Bureau of Reclamation know about this and how does it view such a proposal?

Answer. The Colorado Indian Rights Settlement Act Amendments of 2000 provide an allocation of the project water storage to two Colorado non-Indian entities. No negotiations have begun with either entity regarding entering into an agreement with the United States to pay the reimbursable project costs allocated to the respective entity's water storage. These negotiations could begin in early summer. If agreements cannot be reached with the Colorado entities, the Amendments provide that those water storage allocations shall be reallocated equally to the Colorado Ute Tribes.

Question. Would this proposal effect the overall project and other water users, such as those in New Mexico?

Answer. The Amendments provide that project construction costs allocated to the water storage provided to the Colorado Ute Tribes is nonreimbursable to the United States. This includes any project costs allocated to water storage that is reallocated to the Tribes. The reallocation of project water storage to the Tribes will not affect the other water users.

MIDDLE RIO GRANDE PROJECT ENDANGERED SPECIES

Question. The Bureau's budget request includes $11.7 million for the Middle Rio Grande project. Within the projects tasks for the upcoming fiscal year, there is included a mention of the purchase of non-Federal water for Endangered Species Act compliance as it relates to the silvery minnow. Can you update us on the silvery minnow?

Answer. The Rio Grande silvery minnow was formerly one of the most widespread and abundant species in the Rio Grande basin of New Mexico, Texas, and Mexico. The silvery minnow is currently found only in the Rio Grande in central New Mexico between Cochiti Dam and the headwaters of Elephant Butte Reservoir (less than 10 percent of its historic range). Recent monitoring shows the majority of silvery minnow are concentrated below San Acacia Diversion Dam and populations in the Albuquerque and Isleta reaches are extremely reduced.

Supplemental water operations during drought conditions in 2000 were successful in providing water to the silvery minnow by exchange with natural flows, especially those fish below San Acacia Diversion Dam. The primary goal of these operations was to prevent the loss of the species in the wild during extremely dry conditions. This goal was achieved and population monitoring in early 2001 shows that silvery minnow still occur below San Acacia in reaches that would have substantially dried in 2000 without supplemental water management.

Question. How much does the Bureau plan on spending this year to purchase this additional water?

Answer. Reclamation committed this year to repay the Middle Rio Grande Conservancy District for 20,900 acre-feet of water that was used in 2000 for river management under the Agreed Order in *Minnow* v. *McDonald*. The cost of 20,900 acre-feet of water at up to $45 per acre-foot is approximately $940,500. In addition, to date, Reclamation has leased about 13,700 acre-feet for this year's use, at a cost of about $616,500.

Settlement negotiations with the State of New Mexico and other parties to the *Minnow* v. *McDonald* lawsuit, have suggested that the use of up to an additional 30,000 acre-feet of water in 2001 may be possible, although the cost has not yet been determined. Similar needs for water could also be required for 2002 and 2003 as a result of successful settlement negotiations.

Question. How much water does the Bureau anticipate purchasing in fiscal year 2002, and will that be enough to be in compliance with the Endangered Species Act?

Answer. It is anticipated that the Bureau would have available for lease a similar volume of water through the Bureau's supplemental water program in 2002, which was about 13,700 acre-feet.

The additional water, which might be provided in a settlement agreement in *Minnow* v. *McDonald* would be enough to fulfill compliance with the Endangered Species Act if the Fish and Wildlife Service issued a biological opinion to the Bureau of Reclamation and the U.S. Army Corps of Engineers approving or allowing the actions of those agencies and of non-federal parties covered in the consultation.

Question. Does the Bureau have increased water costs should there be a drought year, and in that case, can the Bureau actually find enough water to purchase?

Answer. The Bureau's 2001 and 2002 budgets do not include acquiring additional water that could be required in the case of a drought. The availability of leased water through the Bureau's supplemental water program is limited. However, additional water could be made available by the State of New Mexico through upstream storage water if settlement negotiations are successful. This is the only potentially identified source of additional water.

Question. Some of the non-Federal participants in this effort believe an additional $10 million for Endangered Species Act compliance is needed. Can you tell me what the Bureau's capability is related to this additional $10 million?

Answer. An additional $10 million for Endangered Species Act compliance is identified and described in the draft Middle Rio Grande Endangered Species Act Collaborative Program document. On January 3, 2000, Reclamation signed an MOU with other federal and non-federal partners to develop a Middle Rio Grande Endangered Species Act Collaborative Program which details short and long range planning in support of recovery of the silvery minnow and willow flycatcher while protecting existing and future water uses and ensuring compliance with all applicable

laws. The program includes activities addressing fish passage and river reconnectivity, non-native species management, habitat restoration, population management, water management, including leasing of water for endangered species purposes, and research and monitoring.

Additional capability does exist to utilize this funding for activities described in the July 1999 Rio Grande Silvery Minnow Recovery Plan and the Collaborative Program's draft Plan for fiscal year 2002, addressing the needs of both the silvery minnow and willow flycatcher. The additional capability shown was not included in the President's budget. The Department does not support the addition of funds for any project which would result in the reduction of funding for other projects included in the budget.

Question. Is the Bureau aware of this request, either formally or informally?

Answer. Yes, the Bureau is informally aware of this request from the non-federal participants of the Middle Rio Grande Collaborative Program. We provided technical input to the activities considered in the request through our involvement in the Collaborative Program ESA Work Group.

The State of New Mexico has recently proposed a three-year interim agreement in the *Minnow* v. *McDonald* lawsuit, which could potentially result in a settlement or lawsuit. Generally, the settlement proposal would allow water up to 100,000 acre feet to be stored in upstream reservoirs rather than in Elephant Butte and then released in an amount not to exceed 30,000 acre feet for the Rio Grande silvery minnow. The original $10 million did not include funding for this potential settlement.

Question. The New Mexico Interstate Stream Commission has recently proposed a three year settlement to the Minnow v. Martinez lawsuit. Generally, the settlement proposal would allow credit water to be stored in upstream reservoirs and then released each year to keep the river wet for the survival of the Rio Grande silvery Minnow. Is this possibility progressing, now that Texas and the Rio Grande Compact Commission have signed off on the credit water portion?

Answer. Yes, while court-ordered mediation has officially ended, negotiations remain active between the State of New Mexico and the federal agencies in the lawsuit, i.e., Reclamation, Corps of Engineers, and the Fish and Wildlife Service. The Corps of Engineers began to store water in its upstream reservoirs, Abiquiu and Jemez Canyon, soon after the Rio Grande Compact Commission approved the action, and the parties are working on other aspects of the agreement, including changes to the Biological Assessment and the permits requested by New Mexico.

Question. Does the Bureau think this idea may serve as a viable short term solution?

Answer. Yes, the Bureau does believe the use of this additional upstream storage to enhance river flows during critical dry periods is an important component of a short-term solution concerning Rio Grande silvery minnow endangered species issues. Other components of a short-term solution that may be required to meet the needs of the silvery minnow are discussed in the draft Collaborative Program document and include reconnecting the river or providing fish passage at San Acacia Diversion Dam, pumping supplemental water from the Bureau's Low Flow Conveyance Channel, and support of Fish and Wildlife Service's and State of New Mexico's silvery minnow propagation and relocation efforts. Ultimately, however, Reclamation will defer to the Service's Biological Opinion regarding the need of the species.

Question. How does this three-year plan tie into the Middle Rio Grande ESA WorkGroup draft ten-year program plan, and the funding requested in fiscal year 2002?

Answer. The Middle Rio Grande ESA Collaborative Program/ESA Work Group draft ten-year program plan currently focuses on long-term actions to meet the needs of the endangered species. The ESA Work Group has had difficulty working through the often contentious issues involved with short-term solutions, especially as litigation, and associated mediation and settlement in the*Minnow* v. *McDonald* lawsuit progressed. Thus, the ESA Work Group generally left the short-term solution to the endangered species issues on the Middle Rio Grande to be resolved through the mediation and settlement processes. Actions taken under the three-year agreement could result in a settlement of the litigation and could become the initial component of the Collaborative Program and allow the development, design and construction of the long-term components of the Program.

The goals of both the short-term agreement (3 years) and permanent (Collaborative Program) focus on ensuring that existing and future water uses in the Middle Rio Grande Valley are in compliance with the ESA.

SUBCOMMITTEE RECESS

Senator DOMENICI. I appreciate that you are giving a high priority to that, even in a budget that is very tight. We stand recessed until 3 o'clock in which meeting room? 138 Dirksen. Thank you all.

Mr. MCDONALD. Thank you, Senator.

[Whereupon, at 10:05 a.m., Tuesday, April 24, the subcommittee was recessed, to reconvene at 3:15 p.m., the same day.]

(AFTERNOON SESSION, 3:15 P.M., TUESDAY, APRIL 24, 2001)

The subcommittee reconvened at 3:15 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Cochran, Reid, Byrd, Murray, and Dorgan.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENTS OF:

CLAUDIA L. TORNBLOM, DEPUTY ASSISTANT SECRETARY OF THE ARMY (MANAGEMENT ON BUDGET)

LT. GEN. ROBERT S. FLOWERS, CHIEF OF ENGINEERS

ACCOMPANIED BY:

MAJOR GEN. HANS A. VAN WINKLE, DEPUTY COMMANDING GENERAL (CIVIL WORKS)

ROBERT VINING, CHIEF, PROGRAM MANAGEMENT DIVISION

MAJ. GEN. PHILLIP R. ANDERSON, DIVISION ENGINEER, SOUTH ATLANTIC DIVISION

BRIG. GEN. ROBERT H. GRIFFIN, DIVISION ENGINEER, GREAT LAKES AND OHIO RIVER DIVISION

BRIG. GEN. EDWIN J. ARNOLD, JR., DIVISION ENGINEER, MISSISSIPPI VALLEY DIVISION

BRIG. GEN. CAROL A. STROCK, DIVISION ENGINEER, NORTHWESTERN DIVISION

BRIG. GEN. M. STEPHEN RHOADES, DIVISION ENGINEER, NORTH ATLANTIC DIVISION

BRIG. GEN. RANDAL R. CASTRO, DIVISION ENGINEER, PACIFIC OCEAN DIVISION

BRIG. GEN. PETER T. MADSEN, DIVISION ENGINEER, SOUTH PACIFIC DIVISION

BRIG. GEN. DAVID F. MELCHER, DIVISION ENGINEER, SOUTHWESTERN DIVISION

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The committee will come to order. I am going to—since I am a little late, I am going to put my statement in the record and yield to your side.

Senator REID. Me, too.

Senator DOMENICI. You want to put yours in?

Senator REID. Yes.

Senator DOMENICI. Great. And I understand you include in yours some comments about this morning's portion, the Bureau of Reclamation part, in your statement.

Senator REID. Since I have not read my statement yet——

Senator DOMENICI. You did. You did. Your staff told me so.

And I understand you have a very early departure time. Would you like to do something now? I will yield to you.

Senator DORGAN. Mr. Chairman, let me just make a brief comment.

Senator DOMENICI. Sure.

Senator DORGAN. And then I am going to depart and then come back.

Senator DOMENICI. All right.

Senator DORGAN. As you know, all of us have so many committee hearings this week.

Senator DOMENICI. Too much, yes.

Senator DORGAN. I think mine are at 16 on this calendar this week alone.

STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. I want to just say a word about the Corps, especially, and indicate, as all of you know, my state has probably had more challenges that has required action by the Corps of Engineers than almost any state in the country. Devils Lake, an abiding flood that came and stayed, requires an enormous amount of attention. The Red River Valley flooding in Wahpeton and Breckenridge, Fargo, Moorhead, Grand Forks and East Grand Forks has required a substantial amount of attention.

And I think the Corps has done an extraordinary job. And I am not adverse to being critical of the Corps when criticism is warranted. But I must say that our citizens are full of deep gratitude for what the Corps has done.

We have a lot of challenges in this appropriations cycle. We have the permanent flood control project in Grand Forks. We need to adequately fund that. You know, we have this challenge of the outlet at Devils Lake and a series of other issues.

I did want to say that I am very concerned that the Corps of Engineers needs to be adequately funded, if we are going to make these investments. I fear that in this area the recommendations of budget cuts are not appropriate. We are going to have to find ways to provide adequate funding for the Corps.

General Flowers is here and General Van Winkle. Both of you know well what I speak of in North Dakota, because both of you have been there. And again, I just wanted to say at the start of the hearing how much we have appreciated that. I have, in the past, been critical of the Corps from time to time. But in recent years I have nothing but praise for the men and women that work in the Corps of Engineers and do the field work and are there every day and have done a terrific job for the citizens of North Dakota.

I do hope, as we put together the resources in this committee, that we will be able to fund the needs that we have in a whole range of areas, not just North Dakota. When we do what we need to do for North Dakota, it means I have an obligation to say, when others are hurting and need help, I want to extend my hand to them and say let us help there, as well.

So, Mr. Chairman, thank you for allowing me to say those words. I admire the work the Corps has done and am glad to be here today.

STATEMENT OF SENATOR HARRY REID

Senator REID. Mr. Chairman, if I could just say one word, based on what Senator Dorgan said. Senator Daschle has scheduled a 4 o'clock meeting. He asked me to attend, so I will have to be there by then. But I did want to say, elaborate on what Senator Dorgan has said.

The Corps of Engineers has received a lot of negative publicity, and I think much of it is unwarranted. And I know that there will be a few who disagree with me. But I can speak about Nevada, rural Nevada and urban Nevada. One of the ways we have been able to continue to grow the way we have in Las Vegas, is that we have been able to stop these devastating floods that have taken place.

It does not rain very often in Las Vegas. But when it rains, it is what we refer to as a cloudburst and creates very fast running water that is dangerous to life and limb. And we have spent a lot of money making that area safe.

In the late sixties we had a flood that washed away cars and peoples' lives were lost. In the approximately 30 years since then, we have been able to do a remarkable job, under the direction of the Corps, in taking care of those flood control projects. This area is the fastest growing place in the United States, we continually have need for additional flood control projects.

The same, Mr. Chairman, is true in rural Nevada. We have done some good jobs. Now I have been just as critical as anybody about the Corps. I get upset at them, because, you know, it takes too long to get something going. But overall, it does good work for our country. And I know that you and I have worked hard over these years. We have labored together on this committee, and we will do what we can this year to make sure that the funding is adequate for these very important projects.

Senator DOMENICI. Thank you very much.

Senator Cochran, would you like——

STATEMENT OF SENATOR THAD COCHRAN

Senator COCHRAN. Mr. Chairman, thank you. I would be happy to follow your example and put my statement in the record. I know we are a little late getting started today, and there are other competing activities around the Hill. Thank you very much for convening this hearing at this stage in our legislative year. I look forward to working with you and our witnesses to identify the projects that we need to support. Thank you very much.

Senator DOMENICI. Thank you.

I have another conflict at 4:00. So I want to proceed to the witnesses. It would be unfair, however, if we did not spread on the record a vote of thanks and congratulations to the Corps for the great work that they did at Los Alamos when we had the big fire, which caused, Senator Reid, a number of real public works fiascos, where culverts had to be replaced or the mud was going to be sliding down the mountains, which were now treeless, and would have

accumulated on city streets and in subdivisions. And the Corps came along and put in some very tough emergency measures that took care of the problem. And I know that many of your people were there, and I want to thank you.

With that, let us proceed with the witnesses. Ms. Claudia Tornblom, Deputy Assistant Secretary for the Army, will go first; Lieutenant General Flowers, Commander and Chief of the U.S. Army Corps of Engineers, and then Major Hans A. Van Winkle, Deputy Commanding General for Civil Works. And then if we have time, we will have Robert Vining, Chief, Program Management Division, testify.

Let us go in that order. And if you would please submit written statements and make your own remarks with reference to them, so we will get finished in time to have some questions.

Senator REID. I will submit my questions in writing and they may provide their responses to the committee?

Senator DOMENICI. We will do that.

Senator REID. Over what period of time?

Senator DOMENICI. Maybe ten days. Is that satisfactory for the answers? Okay.

Let us proceed.

STATEMENT OF CLAUDIA L. TORNBLOM

Ms. TORNBLOM. Mr. Chairman, Senators, it is a pleasure to be here today, and thank you for your kind words about the Army Corps of Engineers, in particular its Civil Works Program. Thank you, also, for the opportunity to testify today on the President's budget for the Civil Works Program for fiscal year 2002.

The 2002 budget reflects the President's overall goals to slow the growth of Federal spending, provide for a tax cut, and reduce the national debt, while still providing greater emphasis on education and protecting Social Security. Within those overall goals, the President's budget provides $3.9 billion appropriations for the Civil Works Program. Of that amount, about $765 million would be derived from the Harbor Maintenance Trust Fund, the Inland Waterways Trust Fund, and other sources besides general revenues.

In addition to the $3.9 billion in appropriations, about $514 million will be contributed by Bonneville Power Administration, non-Federal cost sharing sponsors, and additional sources. In combination, these resources will support a total Civil Works Program in 2002 of $4.4 billion.

The budget emphasizes the principal Civil Works missions of commercial navigation, flood damage reduction, and environmental restoration.

The program currently has an active construction backlog of about $40 billion, which includes $26 billion to complete ongoing regular construction projects, $6 billion to complete ongoing Mississippi River and Tributaries projects, and $8 billion for projects currently in Preconstruction Engineering and Design. In order to address this backlog, available funding in 2002 is directed toward construction of continuing projects. As a result, no project construction or study new starts are budgeted.

The budget proposes two new national studies, however, that will provide information needed by the Army and the Chief of Engi-

neers to assess potential changes in Civil Works policies and procedures. The first of these two studies was authorized by Section 223 of the Water Resources Development Act of 2000. The budget includes $100,000 to initiate a 12-year project monitoring program to monitor the economic and environmental results of up to five projects constructed by the Corps.

Second, the budget includes $300,000 to initiate a National Shoreline Study, which was authorized by Section 215 of the Water Resources Development Act of 1999. This study will assess the extent, causes and impacts of shoreline erosion on the coastal shores of the United States.

The 2002 budget presents new administration policy toward shore protection projects that involve placing sand on beaches and then restoring those beaches periodically, as natural coastal processes and storms erode the sand. For the initial sand placement of these projects, the Administration proposes no change in the current cost sharing, 65 percent Federal, 35 percent non-Federal. However, for the subsequent periodic renourishment of such projects, the Administration will seek a 65 percent non-Federal share, reducing the Federal share to 35 percent. This policy will apply to all renourishment work funded in 2002 and beyond.

Until this budget, beach nourishment projects started since 1995 have not received budgetary support. Now, due to this policy change, funding for projects with 2002 requirements is included in the budget regardless of when the projects were started. Altogether the budget includes $82 million for beach nourishment projects.

For the Mississippi River and Tributaries project, the budget targets funds to high-priority flood damage reduction projects, which are on the main stem of the Mississippi River and in the Atchafalaya River Basin of Louisiana.

In the Operation and Maintenance Program, the budget gives priority among port and harbor and inland waterway activities to those that support higher commercial navigation use. Funds for O&M of shallow draft harbors are limited to $47 million. Among shallow draft harbors, subsistence harbors for isolated communities and harbors that involve relatively greater use for commercial cargo are given higher priority, while the harbors that are essentially recreational in nature are de-emphasized.

Senator DOMENICI. I wonder if you could just quickly summarize?

Ms. TORNBLOM. Yes.

Senator DOMENICI. I would appreciate it. We would appreciate it.

Ms. TORNBLOM. Working closely with the Chief of Engineers to identify opportunities to strengthen the Civil Works planning process, we have already agreed to restore the past practice of concurrent vertical involvement of all organizations, including the Office of the Assistant Secretary, at critical steps in the formulation of civil works projects.

PREPARED STATEMENT

Mr. Chairman, the Corps of Engineers places great emphasis on technical and analytical approaches to its projects. The Civil Works Program is a wise investment in the Nation's future.

Thank you.

Senator DOMENICI. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF CLAUDIA L. TORNBLOM

Mr. Chairman and distinguished members of the Subcommittee: Thank you for the opportunity to testify before this subcommittee of the Appropriations Committee and to present the President's budget for the Civil Works program of the Army Corps of Engineers for fiscal year 2002.

Accompanying me this morning are Lieutenant General Robert B. Flowers, Chief of Engineers; Major General Hans A. Van Winkle, Director of Civil Works; and Mr. Robert F. Vining, Chief of the Programs Management Division, Directorate of Civil Works.

My statement provides an overview of the fiscal year 2002 Army Civil Works program and discusses highlights of the program.

FISCAL YEAR 2002 ARMY CIVIL WORKS PROGRAM

The Army Corps of Engineers is the premier Federal agency for managing water resources project planning, construction, and operation; protecting the Nation's waters and wetlands; and responding to emergencies. As a decentralized, watershed-based organization with strong engineering, environmental, and research capabilities, the Corps is very well positioned to continue developing integrated solutions to complex, modern water resources problems. To carry out the Civil Works program, the Corps works in partnerships with other Federal agencies, states, and local communities, including the non-Federal cost-sharing sponsors for studies and projects.

The President's fiscal year 2002 budget for the Army Civil Works program includes $3.9 billion in appropriations. Of the $3.9 billion, about $765 million will be derived from the Harbor Maintenance Trust Fund, the Inland Waterways Trust Fund, and other sources offsetting general revenues. In addition to the $3.9 billion, about $514 million will be contributed by the Bonneville Power Administration, non-Federal cost sharing partners, and other sources supplementing appropriated funds. Details are presented in Table A.

The budget reflects the President's overall goals to slow the growth of Federal spending, provide for a tax cut, and reduce the national debt, while providing greater emphasis on education and protecting social security. The President is committed to a collegial, bipartisan approach to working with Congress. We look forward to working with you throughout your deliberations on the President's fiscal year 2002 budget for the Army Civil Works program.

HIGHLIGHTS OF THE FISCAL YEAR 2002 ARMY CIVIL WORKS PROGRAM

The fiscal year 2002 Army Civil Works program includes a number of proposals and initiatives, such as targeting funds on continuing work with high priority outputs, increasing user fees for recreation services, and modifying the cost sharing for periodic renourishment at shore protection projects.

The budget emphasizes the principal Civil Works missions of commercial navigation, flood damage reduction, and environmental restoration. The budget also provides funds for storm damage reduction studies and projects and for multiple purpose studies and projects that include other outputs such as hydroelectric power, water supply, and recreation. No funds are provided to continue additional missions that, in the view of the Administration, should remain the responsibility of non-Federal interests. In addition, the budget does not fund individual studies and projects that are inconsistent with established policies governing the applicable missions.

Construction Backlog

There is a construction backlog of about $40 billion, including about $26 billion to complete ongoing regular construction projects, about $6 billion to complete ongoing Mississippi River and Tributaries construction projects, and about $8 billion for projects in Preconstruction Engineering and Design. Available funding is directed toward construction of the continuing projects, and no new project construction starts or project-specific study starts are budgeted.

Shore Protection Policy

The fiscal year 2002 budget presents a new Administration policy toward shore protection projects that involve periodic sand renourishment. Until now, beach nourishment projects started since fiscal year 1995 have not received budgetary support. However, ongoing shore protection projects that involve periodic renourishment and that are otherwise consistent with established policies are supported in the fiscal year 2002 budget, no matter when these projects were started, provided that non-

Federal interests agree to pay 65 percent of the costs of renourishment work funded in fiscal year 2002 or thereafter. This increased non-Federal cost share reflects the substantial economic benefits that these projects provide to state and local economies and ensures that the Federal Government's long-term nourishment obligations do not crowd out other important funding needs. The existing cost sharing for initial sand nourishment, which is 65 percent Federal and 35 percent non-Federal in most cases, is not affected by the new policy.

The new 65 percent non-Federal cost share would apply to all periodic renourishment costs for which the Federal share is financed with funds allocated to the project after fiscal year 2001. The Army Corps of Engineers will develop amendments to the project cooperation agreements to establish the new 65 percent non-Federal cost share for periodic renourishment.

In addition, beach nourishment study phases started since fiscal year 1995 have not received budgetary support until now. With the policy change, this restriction has been lifted. Project reports will recommend the same new cost sharing formula for the resulting projects.

Altogether, the budget provides $82 million for beach nourishment projects.

Recreation User Fees

Recreation user fees will be increased by $10 million, to an estimated $44 million per year. This is the first step of a four-year effort to increase recreation user fee receipts by a total of $25 million per year. All of the increase in fees will be made available to the Corps of Engineers, without further appropriation, for operation, maintenance, and improvement of Corps recreation facilities. A portion of these increases will be accomplished by increasing day use fees, camping fees, annual pass fees, and special use permit fees under existing authority. For the other portion of the increases, we plan to transmit proposed legislation to Congress to authorize certain changes in current fee collection authorities.

General Investigations

The budget for the Civil Works study program is $130 million. This funding level is intended to slow the growth of the ongoing construction backlog and avoid unrealistic funding expectations among non-Federal project sponsors. Cost-sharing sponsors, who are being asked to invest in these studies, expect timely construction, once studies and design are completed and the projects are authorized.

No project-specific new study starts are included in the budget. However, policy-consistent studies that are under way will continue to move seamlessly from the reconnaissance phase to the feasibility phase and from the feasibility phase to preconstruction engineering and design, as they receive the necessary levels of review and approval within the Corps and the Army.

The budget proposes two new national studies that will provide information needed by the Army and the Chief of Engineers to assess potential changes in Civil Works policies and procedures. The first of these new studies was authorized in Section 223 of the Water Resources Development Act of 2000 and involves a Project Monitoring Program to monitor the economic and environmental results of up to 5 projects constructed by the Corps. The budget includes $100,000 to initiate the monitoring program.

The second new national study, a National Shoreline Study, was authorized by Section 215 of the Water Resources Development Act of 1999 and will assess the extent, causes, and impacts of shoreline erosion on the coastal shores of the United States. The budget includes $300,000 to initiate this study.

A number of continuing studies focus on basin-wide solutions to interrelated water resources problems, where the Corps of Engineers can be especially effective as an integrator of multi-agency efforts. These studies include the comprehensive studies initiated in fiscal year 2001 for the Rio Grande River Basin, the White River Basin, and the Yellowstone River Basin.

Coordination, technical assistance, and research activities also will be continued. Ongoing coordination of Federal estuary management activities will include funds to enable Army participation in the National Estuaries Council.

Construction, General

The fiscal year 2002 budget for the Civil Works Construction, General program is $1.324 billion. Of the total, $61 million would be derived from the Inland Waterways Trust Fund and $9 million would be derived from the Harbor Maintenance Trust Fund.

Funds are included for continuing projects that are consistent with established policies, including Congressional adds that have completed Administration review and are policy consistent. No funds are included to initiate construction of new specifically authorized and funded projects, new projects funded in the Dredged Mate-

rial Disposal Facility Program, or new projects under the Continuing Authorities Program.

A number of projects added to the construction program in fiscal year 2001 have not completed Administration review and, thus, are not known to be policy-consistent. Where a project report is being prepared during fiscal year 2001 and additional funds are needed in fiscal year 2002 to complete the project report, the fiscal year 2002 budget includes the needed funds.

The budget emphasizes the continuing, multi-agency efforts to restore the South Florida and Everglades ecosystem and to mitigate the impacts of projects on the Columbia and Snake Rivers on threatened and endangered salmon species.

$139 million is budgeted for the South Florida and Everglades program, including $28 million for the Comprehensive Everglades Restoration program authorized in Title VI of the Water Resources Development Act of 2000, $65 million for other elements of the Central and South Florida project, $26 million for the Kissimmee River restoration, and $20 million for critical restoration projects.

$81 million is budgeted for the salmon impact mitigation program. These funds are needed to comply with Biological Opinions issued by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service under the Endangered Species Act, while continuing to operate the projects for authorized flood control, navigation, and hydroelectric power purposes. Potentially conflicting requirements of the Endangered Species Act and the Clean Water Act also must be reconciled.

The budget provides $88 million for planning, design, and construction of projects under the Continuing Authorities Program. These are small projects for flood damage reduction, navigation, beach erosion control, shore and streambank protection, navigation project impact mitigation, clearing and snagging, aquatic ecosystem restoration, beneficial uses of dredged material, and project modifications for improvement of the environment.

Flood Control, Mississippi River and Tributaries

The budget includes $280 million for the Mississippi River and Tributaries program. The budget targets funds to high priority flood damage reduction projects, which are on the mainstem of the Mississippi River and in the Atchafalaya River Basin, Louisiana.

Operation and Maintenance, General

The overall budget for the Operation and Maintenance, General, account is $1.745 billion. Of this amount, $666 million would be derived from the Harbor Maintenance Trust Fund and $29 million would be derived from Special Recreation User Fees.

In addition to these funds, operation and maintenance of hydropower facilities in the Pacific Northwest will be directly financed by a transfer of approximately $114 million from Bonneville Power Administration revenues, pursuant to an agreement signed four years ago.

Among port and harbor and inland waterway projects, recreational shallow-draft harbors and low commercial-use inland waterway segments are de-emphasized so that scarce resources can be available for navigation facilities with higher commercial use, as well as for other project purposes.

Operation and maintenance funds for shallow draft harbors are limited to $47 million. These are harbors that have authorized depths of 14 feet or less. Among shallow draft harbors, the subsistence harbors for isolated communities and the harbors that involve higher use for commercial cargo and commercial fishing are emphasized, while the harbors that are essentially recreational in nature are de-emphasized.

The budget includes $42 million for operation of low commercial-use inland waterways, that is, inland waterways with less than 1 billion ton-miles of traffic per year. Funds for maintenance of low commercial-use inland waterways are limited to $25 million for maintenance dredging, and the dredging funds are targeted at the waterway segments with relatively higher commercial use. No funds are requested for structural maintenance on the low-commercial use inland waterways.

As always, funds will be reprogrammed as necessary for emergencies, such as to protect human health and safety, to perform emergency repairs, or to perform emergency dredging of shoaled-in waterways.

Regulatory Program

The budget for the Regulatory Program is $128 million, an increase of $3 million over the fiscal year 2001 amount for labor cost increases. These funds are needed to help maintain program performance, protect important aquatic resources, and support partnerships with states and local communities through watershed planning efforts. These funds will be used for permit evaluation, enforcement, adminis-

trative appeals, and studies and environmental impact statements, in order to provide effective regulation of the Nation's waters and wetlands.

Formerly Utilized Sites Remedial Action Program (FUSRAP)

FUSRAP is an environmental cleanup program that was transferred by Congress from the Department of Energy to the Army in fiscal year 1998. We are continuing to implement needed clean-up at contaminated sites. This year's budget includes $140 million in new appropriations for this program.

Flood Control and Coastal Emergencies

Funding that remains available from prior year appropriations is sufficient to fund normal program activities during 2002. In order to finance responses to emergencies that may arise during the year, the Administration is proposing a government-wide emergency reserve fund. Civil Works is one of the programs that will be able to tap this proposed nation-wide emergency reserve fund, in the event that response costs for qualifying emergencies exceed available funds.

General Expenses

Funds budgeted for the General Expenses program are $153 million. These funds will be used for executive management and direction activities of the Corps of Engineers headquarters, the Corps Division headquarters, and related support organizations.

Among these funds, $1.8 million will be used to continue the management study authorized by section 216 of the Water Resources Development Act of 2000. This study, which is being initiated in fiscal year 2001, is examining Corps of Engineers planning and review procedures.

Harbor Maintenance Trust Fund

The President's fiscal year 2002 budget proposes that $675 million be derived from the Harbor Maintenance Trust Fund, including $666 million in the Operation and Maintenance, General program for harbor maintenance, and $9 million in the Construction, General program for the addition of dredged material disposal facilities at existing projects.

GOVERNMENT PERFORMANCE AND RESULTS ACT

A performance plan is in preparation for the Army Civil Works program, based on the fiscal year 2002 budget. After completion of Administration review, the plan will be submitted to the Congress, as required by the Government Performance and Results Act of 1993.

In fiscal year 2002, we plan to maintain high use commercial navigation facilities in a fully operational state at least 90 percent of the time, maintain flood damage reduction facilities in a fully operational state at least 95 percent of the time, and achieve "no net loss" of wetlands by creating, enhancing, and restoring wetlands functions and values that are comparable to those lost.

PROJECT PLANNING AND REVIEW

The Army is working closely with the Chief of Engineers and others to identify opportunities to strengthen the Civil Works planning process. In addition, as indicated in the President's Budget Blueprint, the Army is considering options for strengthening the ability of the Office of the Assistant Secretary for Civil Works to ensure policy oversight of project planning. Already, General Flowers and I have restored the past practice of concurrent, vertical involvement at all organizational levels—including the Office of the Assistant Secretary—at critical steps in the formulation of studies.

CONCLUSION

In summary, the President's fiscal year 2002 budget for the Army Civil Works program is a solid one. It continues support to ongoing work, emphasizes primary missions and applies resources to areas likely to have the greatest national economic benefit. The Army Civil Works program is a wise investment in the Nation's future.

Thank you.

Senator DOMENICI. General, would you proceed? We want to thank you for your testimony earlier in the year, when you appeared before the Environment and Public Works Committee. We know what went on there, and we thank you for your statement.

And would you proceed to summarize yours for today, please? We will make yours a part of the record, as if you read it.

STATEMENT OF LIEUTENANT GENERAL ROBERT B. FLOWERS

Lieutenant General FLOWERS. Yes, sir.

Mr. Chairman, members of the subcommittee, thanks for inviting me back to testify. I have a prepared statement, and I have furnished that and ask that it be made a part of the record.

Senator DOMENICI. Yes, sir.

Lieutenant General FLOWERS. Sir, as I speak, our Nation is witnessing yet another flood fight in the upper Midwest. Farmers, homeowners, small business owners, members of the National Guard, and others are filling sandbags, building and reinforcing levees, and taking other actions to protect life and property.

You have seen the state and local officials, if you have watched TV, who are responsible for public safety, as they direct those efforts to protect homes and livelihoods. What you have not seen so much of is another group of men and women who are supporting these citizens and their local leaders. They tend to wear red emergency operations jackets of the U.S. Army Corps of Engineers. And they have been working behind the scenes——

Senator REID. Mr. Chairman, if I could ask a question?

Senator DOMENICI. Sure.

Senator REID. I heard on the news today—I was very impressed with the fact that President Bush had sent somebody along the Mississippi, rather than with a bundle of money, saying, "Why do you let this happen all the time? This is the third flood. Should we not be doing something about that?"

What is your reaction to that?

Are you familiar with that, Senator Domenici?

Senator DOMENICI. No, I am not.

Senator REID. I heard that on the radio this morning, that he sent his director of Federal Emergency Management Agency, where they have had—I think this is the fourth flood in the last 15 years. And he is saying, "Why have you not done something about this?"

Lieutenant General FLOWERS. Yes, sir. The——

Senator REID. He is in Iowa. Are you familiar with it?

Lieutenant General FLOWERS. Sir, it was in Davenport, Iowa. I was there on——

Senator REID. That is right.

Lieutenant General FLOWERS. I was there on Sunday. It is always a local decision as to whether or not to cost share and to build flood control. And there was a conscious decision made on the part of the city fathers, because of the nature of their waterfront, to not construct flood control protection for their city.

Senator REID. But do you not think the President may have had a good idea?

Lieutenant General FLOWERS. Sir, I think—again, it is a very tough decision to make. When you decide not to have flood control, you end up in a flood fight the way the citizens there have. And it has been pretty courageous, where they have had to build temporary levees, working around the clock. And in fact, when I was there on Sunday, they lost their baseball stadium.

Senator REID. But my question is—and I am sorry to do this, Senator Domenici——

Senator DOMENICI. That is fine.

Senator REID. But should the people of Nevada, the taxpayers in Nevada, be paying for this because the people in Iowa decided not to build a——

Lieutenant General FLOWERS. Sir, that is pretty much a policy call. But you are right.

Senator DOMENICI. Oh, good.

Lieutenant General FLOWERS. Asking people to maybe pay for the same piece of property that has been flooded time and time again is not a wise use of the tax dollars.

Senator DOMENICI. Well, let me comment. You see, the Administration comes up here, and, you know, I am very supportive of the President. But I like, when I feel like it, to say what I think. Now here you have a community that probably thought the 65–35 was a little bit too expensive for them. Whether they are right or wrong, I do not know. It would seem like a good case has been made that you ought not suffer through it three times. You ought to vote for some money and eliminate the flood hazard.

But the Administration comes up here with these kinds of situations all over America, and they want to change the ratio and turn it around to 35–65. I just want to say that is a neat proposal. I am not sure how many times we have seen it here, but I look over and I see Senator Byrd, and I think this will be my third time in his presence where I have said that is not going to happen; why do you keep sending it up?

But I say that now, and I say it in all deference and with goodwill. But, you know, you are not going to get that change. And if anybody in the Administration would have been looking, you would find that those who do OMB's work here send this up all the time, Senator Cochran. And it never happens. So I do not know why they would have expected that we would do it.

And I want to comment on one other further item. The amount of money cut out of the Corps is $600 million. Now I have been looking from the previous year. I look at how did budgets come about in the past. And it is interesting. My mind locks in on a number.

On average, every President for the last eight or nine years has reduced the Corps of Engineers $700 million. And on average, before we are finished, we put all the $700 million back and perhaps $50 million or $60 million more.

Now I think it is good that you send up here and tell us how to save all this money. But I think when they ask me at the White House why is the budget unrealistic at four-percent growth, which I just went through, well, here is one I cite. What do you send us up, this $600 million decrease, and suggest that we are going to live with four-percent growth, which includes this decrease? And, you know, it is kind of unrealistic, also, to expect it.

So if I feel from time to time that we need to be more realistic, my friends up here will appreciate that I have been through it so many times. I do not know when we will stop getting it sent up here only to see us say, you know, it does not make too much sense.

So I am sorry. That is my principal comment on your testimony.

And, General, we interrupted you. Would you try to finish your statement? And I understand the two other gentlemen do not have statements. So we will get through and have question time. Go ahead, General.

I did not mean to make it so brief that there is no statement at all.

Senator REID. General, that is the best statement I have heard all day.

Lieutenant General FLOWERS. Sir, the only thing I would like to say to summarize the statement is that the Nation's infrastructure—is the Army Corps of Engineers has produced a 26 percent annual rate of return and has put $30 billion in tax revenues and savings into the Treasury. And I think that confirms my belief that the American people have invested wisely in our Nation's investment in water resources infrastructure.

We are working hard to respond to the call. Our population has increased. Our infrastructure is aged. Our investment in water resources has decreased. Today we have a $40 billion backlog of authorized but unfunded new capital investment that, when implemented, will provide benefits to the American people.

Our critical maintenance backlog amounts to over $800 million. And as this infrastructure ages, costs go up. The story continues to worsen with future projections. In a report card recently released by the American Society of Civil Engineers, the Nation's navigable waterway infrastructure received a D+.

Have we paid enough attention to the future? Our answer would be no. We have also heard that same answer from people across the country, concerned stakeholders from all walks of life that we went out and listened to and captured their concerns last year.

Finally, seeing our men and women in action on Sunday on the Upper Miss, I am more firmly convinced than ever that your Army Corps of Engineers has a critical contribution to make in solving our country's problems today and in the future. Ours is an organization that has built flexibility into structure to meet the changing demands of changing times and requirements.

PREPARED STATEMENT

We strive to bring synergy between development and the environment and seek out the best economic, environmental and social solutions. We will tackle the tough jobs. I am proud that our Nation looks to us when it needs the best.

And, sir, that concludes my statement.

[The statement follows:]

PREPARED STATEMENT OF LIEUTENANT GENERAL ROBERT B. FLOWERS

INTRODUCTION

I am honored to be testifying to your subcommittee today, along with the Deputy Assistant Secretary of the Army (Management and Budget), Ms. Claudia L. Tornblom, on the President's fiscal year 2002 Budget for the United States Army Corps of Engineers' Civil Works Program.

I am proud of my association with this program, first as a field engineer and research project manager for the Portland District, then as commander of the Mississippi River Valley Division, and, since October, as Chief of Engineers. I am especially honored to have the opportunity to lead the Corps through its current chal-

lenges to serve this great nation in meeting its many water and related land resources management needs.

Thanks to this subcommittee's support, the Civil Works Program remains strong, balanced, responsive, and highly productive. I look forward to working with you in furtherance of our partnership in prosecuting this fine program, so broadly beneficial to our nation.

In this statement, I will focus on significant challenges for the nation in water and related land resources management. I will say just a few words about the budget, then devote the balance of my testimony to an assessment of national water and related land resources management needs. Accordingly, my statement covers just these two topics:

—Summary of the Civil Works Program Budget, and

—Assessing the Nation's Needs for Water and Related Land Resources Management.

SUMMARY OF CIVIL WORKS PROGRAM BUDGET

INTRODUCTION

This is a good budget. New funding for the Civil Works Program, including the Direct and Reimbursed programs, is expected to approach $5.11 billion.

As shown in Table 1, Direct Program funding, including discretionary and mandatory amounts appropriated directly to the Corps, totals $4.41 billion. Discretionary amounts total $3.90 billion; additional amounts total $514 million.

Reimbursed Program funding is projected to be $700 million.

DIRECT PROGRAM

The proposed budget reflects the Administration's commitment to continued sound development and management of the nation's water and related land resources. It provides for continued efficient operation of the nation's navigation, flood protection, and other water resource management infrastructure, fair regulation of the nation=s wetlands, and restoration of the nation's important environmental resources, such as the Florida Everglades. It is consistent with the President's overall domestic priorities and continued commitment to a balanced budget.

The budget provides for continued funding of nearly all studies and projects underway, including many started in fiscal year 2001. It also provides for funding of two new starts under the General Investigations (GI) program.

REIMBURSED PROGRAM

Through the Interagency and Intergovernmental Support Program we help non-DOD federal agencies, States, and other countries with timely, cost-effective implementation of their programs, while maintaining and enhancing capabilities for execution of our Civil and Military Program missions. These customers rely on our extensive capabilities, experience, and successful track record. The work is principally technical oversight and management of engineering, environmental, and construction contracts performed by private sector firms, and is fully funded by the customers.

Currently, we provide reimbursable support for about 60 other federal agencies and several State and local governments. Total reimbursement for such work in fiscal year 2002 is projected to be $700 million. The largest share—nearly $270 million—is expected from the Environmental Protection Agency (EPA) for cleanup of wastes at numerous sites under its Superfund program. 90 percent of Reimbursed Program funding is provided by other federal agencies.

ASSESSING THE NATION'S NEEDS FOR WATER AND RELATED LAND RESOURCES MANAGEMENT

INTRODUCTION

Water and related land resources play major roles in how Americans live and work. There are many competing and conflicting demands on use of these limited resources. When, where, how, to what extent, by whom, and by what means should the demands be addressed? Over the years, the Corps has employed various means to gather information for use in defining and understanding national water and related land resource management issues. Recently, it has employed "Listening Sessions" to improve the accuracy, currency, and relevancy of its information.

INITIAL ASSESSMENT OF CIRCUMSTANCES

Last year, through assessment of trends and results of research, literature searches, and consultations with selected water and related land resource management experts, we concluded that the nation is facing important water and related land resources management challenges with serious implications. We made the following observations and interpretations:

—As the world's climate changes, changing hydrology and water distribution and, in turn, environmental and socioeconomic conditions, we must anticipate need for changes in and additions to the nation's water and related land resources management facilities, systems, and practices, and effect such changes as opportunely as feasible.

—As global markets expand, international commerce will demand more efficient domestic ports and harbors, and improved vessel and intermodal cargo handling facilities.

—With many properties and major populations located in the nation's floodplains, flooding will continue to threaten national welfare. Moreover, as pressures continue to develop, flood-prone lands and natural flood management systems will be compromised, and the threat of flood damage will increase.

—Ongoing migration of the nation's population to coastal plains and coasts, and attendant property development, will increase risks of loss from coastal erosion, floods, and hurricanes.

—The ongoing migration to coastal plains and coasts will put increasing pressure on coastal habitat, especially wetlands, and other fish and wildlife ecosystems.

—Through Water Resources Development Acts of 1996 and 1999 (WRDA 96 and WRDA 99), the American public placed national environmental health in the forefront of social priorities. These acts, providing additional authorities to the Corps for ecosystem and watershed protection and restoration, increase emphasis on national need for ecosystem restoration, wetlands management, and nonstructural floodplain management.

—As the nation's water and related land management infrastructure ages, it must be rehabilitated, modified, replaced, or removed.

—As the nation's population grows, there will be growing conflicts among multiple interests within watersheds wanting to use available water and related lands for diverse needs.

—The American public has a strong and growing interest in downsizing the Federal Government and, in turn, its workforce. In light of this, ongoing outsourcing and privatizing for accomplishment of government work, including engineering, will increase. An implication of this is that the nonfederal sector, comprising States and private interests will have to share greater responsibility in water and related land resources management.

CHALLENGES BASED ON LISTENING SESSIONS

In light of these observations, particularly, the last one, the Corps invited Americans to "Join the Dialogue" about management of the nation's water and related land resources.

The purpose of the dialogue was twofold, specifically, to provide opportunities for citizens to:

—identify and discuss water and related land resources management needs, opportunities, and problems impacting their lives and future sustainability of their communities and environments; and,

—express what they believe the federal role should be in addressing these issues.

This dialogue was carried on from June through November 2000 in 16 listening sessions—14 regional and two national—at locations across the country. A cross-section of stakeholders, totaling nearly 1,300, participated in the sessions. This included representatives from federal, State, and local agencies, tribes, environmental organizations, port authorities, private companies, legal professionals, farmers, navigators, journalists, and homeowners. The sessions were open to the public and comprised a combination of small group and plenary sessions. Corps participation generally was limited to note taking. Consensus on water resources issues was not sought.

Detailed reports on each session are available at the web site of our Institute for Water Resources. We invite you to read them, particularly our summary report: America's Water Resource Challenges for the 21st Century: Summary Report on Identified Water Resource Challenges and Water Challenge Areas. Views expressed in this document, although not reflecting official policies or positions of the Corps, nevertheless, and importantly, accurately reflect views of the participants. This information will be used in dialogue on water and related land resources challenges

in the future. Significantly, we have already used it in developing goals and strategies for our Civil Works Program Strategic Plan.

Participants in the listening sessions identified more than 3,400 water and related land resources management issues and grouped them into sets of challenges, forming 30 to 50 sets at each regional session, and 542 sets all told. We then distilled these sets into 18 for the above-cited report, and, ultimately, into 10.

Solutions to these challenge sets are complex and will require the concerted effort of many government organizations, at all levels, working for the collective good of the nation. Moreover, optimal solutions will require involvement and participation of all Americans. The more, the better.

CONCLUSION

The President's Budget for the Corps of Engineers is a good one. We must continue to find ways to reduce our costs and shift more of those remaining to direct beneficiaries of our services. Meanwhile, we will do our very best to execute the Civil Works Program for maximum benefit to the nation.

Thank you Mr. Chairman and Members of the Committee. This concludes my statement.

Senator DOMENICI. We will now start the questioning.

Senator, we will go to your side first. And then we will go to you, Senator, on our side, and back to Senator Byrd.

Senator REID. We are, General Flowers, familiar with power shortages being experienced in the country, particularly in the West. Are there investments we could be making in the Corps' projects that could contribute to solving the Nation's growing energy crisis?

Lieutenant General FLOWERS. Sir, yes, sir. We have locations around the country where additional units could be put into powerhouses that are already constructed.

Senator REID. Could you give us some examples?

[The information follows:]

We have conducted previous assessments that indicated a total potential increase in generating capacity of approximately 3,000 MW exists. This could be achieved through a combination of improvements to existing equipment and installation of power generating units at facilities that currently do not include hydropower. On our dams, some of our dams in the Columbia River system, we have consciously left bays empty that could contain turbines. Examples include the Dworshak Project in Idaho, the Libby Project in Montana, the John Day project in Oregon, and other projects located throughout the country such as Fort Gibson in Oklahoma. The assessments referred to above were completed in the 1980's and are in need of updating to reflect new environmental considerations work that is already underway or completed.

Lieutenant General FLOWERS. Yes, sir. On our dams, some of our dams in the Columbia River system, we have consciously left bays empty that could contain turbines. We also have some hydroelectric projects that are part of that critical maintenance backlog that I spoke of earlier, where hydro-power is not operating at its peak efficiency. And if those were fixed, we would be able to do that.

The name of the project that comes to mind, I believe, is the Clayton project—Carter. Sorry.

Senator REID. It started with a C.

Lieutenant General FLOWERS. Yes, sir.

Senator DOMENICI. Well, if you would like to have somebody answer with other examples, we do not hold you to this.

Senator REID. Yes.

Senator DOMENICI. And would it be all right, Senator, if they submit additional examples?

Senator REID. Yes. I would appreciate, General, if you would, in your 10 days that Senator Domenici has indicated, respond to these questions. Give us an indication of the places you could upgrade and approximately how much it would cost. Because we are really looking for new ways to produce electricity. And hydroelectric, as we all know, is really non-polluting. So we would appreciate you doing that.

[The information follows:]

The project referred to above is the Carters project in Georgia. This project has experienced major equipment failures that are in the process of being repaired using O&M funds. Repair of these units is a very high priority within the region.

The Corps also has a very effective major rehabilitation program for it's hydropower facilities. This program is a direct result of studies done by the Corps in the late 1980's in recognition of our aging infrastructure and growing backlog of maintenance. Two projects, Hartwell in Georgia and South Carolina, and Dardannelle in Arkansas have already been rehabilitated under this program.

Eight other projects, Bonneville and The Dalles in Oregon and Washington, J. Strom Thurmond in Georgia and South Carolina, Jim Woodruff in Florida, Walter F. George in Alabama and Georgia, Buford in Georgia, Garrison in North Dakota, and John H. Kerr in Virginia are in various stages of rehabilitation construction.

Two more projects, Allatoona in Georgia and Ozark in Arkansas have been technically approved for rehabilitation and are awaiting new start funding. The cost of these projects are completely reimbursed by the rate payer through the various power marketing administrations.

Major Rehabilitation reports on three hydropower projects, Webbers Falls in Oklahoma, Center Hill in Tennessee, and Whitney in Texas are currently being reviewed by our headquarters. Three additional projects are currently being evaluated for major rehabilitation. These projects are Wolf Creek in Tennessee, Fort Randall in South Dakota and Barkley in Kentucky.

Within the last year, the Corps' Southwestern Division formed a Process Action Team to look at rehabilitation of all of the Corps hydropower plants that are marketed by the Southwestern Power Administration. This team has made recommendations for prioritizing the work and streamlining the rehabilitation reporting, approval and funding process.

Finally, in the Pacific Northwest, all of the capital improvements are funded directly by the Bonneville Power Administration. BPA and the Corps have a joint operating committee that have prioritized these improvements over the next ten year period.

In summary, the Corps has been aggressively working for over a decade at improving the reliability of these aging hydropower facilities, taking advantage of opportunities to improve efficiency and output and reduce operating and maintenance costs.

Senator REID. General, I know that the Corps is currently responding to the flooding situation in the Midwest, as you have indicated already. Without a supplemental appropriation, how will your emergency response actions be impacted?

Lieutenant General FLOWERS. Sir, we had enough money in the account at the beginning of the year to, we thought, last us through the year. We have spent about $6 million, I believe, out of the FCCE account so far on the flooding in the upper Midwest. And I think we still have enough left in the account, if we have another event someplace in the country. But more than that, we will need to come back with a request for additional funds.

Senator REID. And you do not know the end of the present emergency, is that right?

Lieutenant General FLOWERS. Unfortunately not, sir, no.

Senator REID. Now, General, the Corps held listening sessions throughout the country last year in order to determine the views of the public on a number of issues that this committee is concerned about. What were the results of these listening sessions?

And how would you incorporate these views into your policies and procedures?

Lieutenant General FLOWERS. Sir, we heard a great deal from the listening sessions that we held around the country. They have been summarized in a document that is on our website. We have also provided a summary sheet, summary pamphlet, of the comments that we have received. And we did our best to incorporate everything we heard in a strategic plan that was developed by our civil works director, which is now being staffed through the department and to OMB.

Senator REID. Can you provide the committee with copies of the strategic plan?

Lieutenant General FLOWERS. Sir, we will work to do that.

Senator REID. It is completed.

Ms. TORNBLOM. No, Senator, it is not completed. We are in discussions with the Office of Management and Budget at this time. And just a few days ago——

Senator REID. It is completed. They just have not given you permission to release it, is that right?

Ms. TORNBLOM. It is a draft, sir. And I believe the new Army leadership, the Secretary and the Assistant Secretary for Civil Works, would want the opportunity to review it and make sure they are comfortable with it before it is publicly released.

Senator REID. One last question, Chairman Domenici.

What would be the impact to the cost and schedule of ongoing projects if the President's budget were enacted as proposed? It is over $600 million lower than what we have required. For these projects budgeted in the President's proposal, are they funded to the optimal level to begin with? Do you understand the question?

Lieutenant General FLOWERS. Yes, sir.

Senator REID. And I guess I would partially answer it myself. It is obvious if you do not fund them at present levels, the cost goes up in the out years. Is that true?

Lieutenant General FLOWERS. Sir, what happens, what we have estimated, based on the 2002 budget, is that we will have about $5.8 billion in benefits that are foregone and about another $0.5 billion in additional costs, mostly interest. And the average delay on a project would be about 10 months.

What you end up doing with ongoing work is funding at about 57 percent. That is across the board. Some are higher, some are lower. But a conscious decision was made to continue the work that is already ongoing. It is funded at about 57 percent. So yes, sir, it does stretch it out. The average delay is about 10 months, and it is a little over $600 million in cost.

Senator REID. Thank you, Mr. Chairman.

Senator DOMENICI. Senator Cochran.

Senator COCHRAN. Mr. Chairman, I have a statement and some questions I am going to submit for the record.

I do have one question I want to ask you, though. Is the Mississippi River and Tributaries project still one of the largest projects that you have in terms of dollar cost requirements each year in your budget?

Lieutenant General FLOWERS. Yes, sir.

Senator COCHRAN. In that connection, I have not looked at the details of the budget submission, but I assume that there are cuts in that program, as well as some of the others that you have submitted in your budget. Is that right?

Lieutenant General FLOWERS. Yes, sir.

Senator COCHRAN. Does this heighten the level of potential damage to people who live and work along the Mississippi River and the homes and the farms that lie along the river?

Lieutenant General FLOWERS. Sir, in the current budget, priority was placed on projects along the main stem of the Mississippi River. So there is probably some increased risk to those who are on the tributaries.

Senator COCHRAN. And is it not also a fact that the levee system on the main stem of the Mississippi River is subject to erosion, deterioration, and aging that heightens the risk of loss of life and property in case of flooding like you are having on the Upper Mississippi right now?

Lieutenant General FLOWERS. Yes, sir.

Senator COCHRAN. I have no further questions, Mr. Chairman.

Senator DOMENICI. Thank you very much, Senator.

Senator Byrd?

Senator Byrd, I am going to go back and take a picture with some constituents, but I will return before you are finished.

Senator BYRD. Very well. Thank you.

General Flowers, I believe our last discussion was about Hannibal. And he said, "If there isn't a way across the Alps, I'll make one. I'll make one."

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. He must have been the original army engineer, would you not say?

Lieutenant General FLOWERS. Sir, I would say so.

Senator BYRD. In short, I want to convey my strong disappointment in the Administration's disproportionate and severe proposed budget cuts to the Corps.

The water infrastructure investments and navigation and flood control by the Army Corps of Engineers produced an annual rate of return, as you have just pointed out, of approximately 26 percent. And yet, the Administration has decided to cut the Corps from between 15, 16 percent from last year's level.

The Administration has proposed a budget that is woefully inadequate to continue the progress made in fiscal year 2001. Projects important to the Congress were omitted from this budget proposal. And the projects that the Administration chose to fund are funded at much less than optimal levels. The Administration's budget proposal will cause serious increases to both the schedule and the cost of thousands of urgently needed projects due to inadequate funding.

The fact that no new studies or projects are proposed is incredibly short-sighted. In a time of budget surpluses, if we cannot afford to invest in our water resources, when can we ever afford to do it? The Nation has tremendous water resource needs. And this budget is a far cry from meeting those needs.

In West Virginia, there are numerous navigation and flood control needs. I want to ask you, General Flowers, about two in par-

ticular, the Marmet Locks Expansion project and the London Locks Rehabilitation project. And I have a series of questions that I will submit for the record.

But I will begin with this. With respect to the Marmet Locks and Dam located on the Kanawha River, ten miles upstream from Charleston, the project entails constructing a new lock chamber landward of the existing locks, which are too small to handle the increased traffic, part of which is attributed to the Clean Air Act amendments and the increased demand for low sulphur coal and an increase in barge size.

Which lock in the United States, General Flowers, is the most heavily used lock?

Lieutenant General FLOWERS. Sir, I would guess the Marmet Lock.

I know it to be the Marmet Lock, sir.

Senator BYRD. You guess that? Alexander, upon his return from India, was urged by the Chaldeans to delay his entrance into Babylon. And Alexander, in light of all the prophesies and the predictions that were being made, said, "The best prophet is he who can guess right."

You guessed right.

Lieutenant General FLOWERS. I am sure he was an engineer, yes, sir.

Senator BYRD. Does the Marmet Lock replacement have a strong benefit cost ratio?

Lieutenant General FLOWERS. Yes, sir, it does.

Senator BYRD. What is it?

Lieutenant General FLOWERS. Four to one, sir.

Senator BYRD. 4.1 to 1, right? The Marmet Locks and Dam are 67 years old. What impact does this have on transportation and the safety of those working at the locks in the barge industry and on area residents?

Lieutenant General FLOWERS. Sir, the impact by not replacing a structure that has outlived its life can be very severe. It is pretty tough to quantify. I would tell you that some tough calls have to be made when you are doing the budgeting process. And we are working hard to try and make the best possible use we can of the dollars that are available. Had we the dollars, we would have put more into the Marmet Lock. The amount that is being applied will stretch out the construction times.

Senator BYRD. When locks are deteriorating, and I assume they are at Marmet, could this result in a variety of disasters?

Lieutenant General FLOWERS. Yes, sir, there is that potential.

Senator BYRD. When are the lock chambers projected to meet maximum capacity?

Lieutenant General FLOWERS. I believe that year is 2005, sir.

Senator BYRD. Is there potential for the same type of delays which average 32 hours per transit and a number of accidents prevalent at the former Gallipolis Locks and Dam on the Ohio River prior to the replacement of the locks and the rehabilitation of the dam? Is there a potential for the same kinds of delays?

Lieutenant General FLOWERS. Yes, sir, there is.

Senator BYRD. What improvements will be realized with the completed new lock at Marmet?

Lieutenant General FLOWERS. Well, you will have improved public safety, greater potential for throughput through the lock and dam. I think those are probably the two major benefits. And time savings, no delays.

Senator BYRD. What would you estimate that the improvements at Marmet would bring about with respect to the average transit time of 4.7 hours to .8 hours?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Would you?

Lieutenant General FLOWERS. .8 hours.

Senator BYRD. From 4.7 to .8 hours. That would be the average transit time. And at current traffic levels, what does this mean in terms of hours of trip time savings?

Lieutenant General FLOWERS. 10.5 thousand hours I am told, sir. That is a significant amount—16.5 thousand, sir.

Senator BYRD. 16.5 thousand hours of trip time savings. And for more than 4,000 tows that use the project, is that correct?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Does the Corps have a capability to proceed with construction in fiscal year 2002?

Lieutenant General FLOWERS. Yes, sir, we do.

Senator BYRD. Then how could the Administration be so shortsighted as to not include construction funds in the budget, given all that has just been reported on the need to expand this critical navigation project? What level of funding would be needed to proceed with the construction?

Lieutenant General FLOWERS. Sir, the decision on the amount in the budget, I understand, was based, is based, on us trying to keep all the projects that are currently under construction going. Currently budgeted for $6.2 million is fiscal year 2002 for Marmet Lock, and we have a capability of $28.1 million.

[The information follows:]

Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Army-wide. In this context, the fiscal year 2002 capability amounts shown consider each project or study PY itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works Program in the President's budget for fiscal year 2001 is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments. In addition, the total amount proposed for the Army's Civil Works Program in the President's Budget is the maximum that can be efficiently and effectively used. Therefore, while we could utilize additional funds on individual projects and studies, offsetting reductions would be required in order to maintain our overall budgetary objectives.

Hereafter, this statement is referred to as "the usual qualifications."

Senator BYRD. Will the under-funding of the project cause an increase in the project cost to complete? And if so, by how much?

Lieutenant General FLOWERS. Yes, sir, it will. $260 million to $313 million.

Senator BYRD. Now what do you mean when you say that?

Lieutenant General FLOWERS. That will be the total amount of dollars that will have to be spent to complete the project with this current delay.

Senator BYRD. Are you saying that each year of under-funding creates an increase in the project cost by the delays in the construction schedule?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. And since the project was authorized in the 1996 WRDA, the fully funded cost of the project has increased from $260 million to the present estimate of $313 million? Is that what you are saying?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Does the budget provide sufficient funds to finish the real estate acquisition process?

Lieutenant General FLOWERS. Yes, sir. I am told—it does not. It does, but at a slower pace. Yes, sir.

Senator BYRD. It does, but at a slower pace.

Lieutenant General FLOWERS. Right.

Senator BYRD. Well, what would be the new time frame, then, for completing real estate acquisition?

Lieutenant General FLOWERS. Sir, March 2003 now.

Senator BYRD. That would be the new time frame, March 2003.

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Instead of?

Lieutenant General FLOWERS. The original schedule was to be completed in fiscal year 2002.

Senator BYRD. The owners of the 250 homes and businesses in Bell that will be acquired for the lock expansion project have had their social and economic lives severely impacted by the impending government acquisition of their property. Although the Corps has acquired about 150 of 250 properties needed for the project, the remaining residents will continue to feel the adverse effects of the project until completion of their acquisition.

So this means that decisions on schools for the children, repairs, maintenance on their homes and businesses, medical services and other livelihood issues will continue to be extremely difficult until the acquisition program is completed.

If the Corps' full capability of $28.1 million is secured, would the Corps be able to complete real estate acquisition and begin construction of the new lock then?

Lieutenant General FLOWERS. Yes sir.

Senator BYRD. Now if I may turn briefly to the London Locks Rehabilitation, Mr. Chairman, this will complete my questions.

What is the benefit cost ratio of the London Locks Rehabilitation project?

Lieutenant General FLOWERS. It is about 25.5 to 1, sir.

Senator BYRD. And coal is the primary commodity transiting the London Locks, I believe.

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Are there additional Corps capabilities for this project for fiscal year 2002 above those identified in the President's budget?

Lieutenant General FLOWERS. Yes, sir. The budget recommended $4.3 million, and we have a capability of $8.7 million on that project.

Senator BYRD. What is the urgency in the Corps' receiving full capability funding in fiscal year 2002, especially with respect to the lock closure and the condition of the lock wall?

Lieutenant General FLOWERS. Our greatest concern is with the lock wall failure there at London Lock and Dam. That is probably the biggest risk we face, if we extend the project.

Senator BYRD. There could be an unforeseen accident, would you say?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. The longer the construction is delayed, would you say that the more severe the temporary lock closure will be to the shipment of commerce?

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. Once the lock is closed, it is essential that adequate funding be available, both in fiscal year 2002 and fiscal year 2003 to allow for the most efficient construction sequence to be undertaken. How long will the river lock chamber that is to be rehabilitated be closed?

Lieutenant General FLOWERS. Two hundred six days, sir.

Senator BYRD. What impact will that lower capacity have on river traffic?

Lieutenant General FLOWERS. It will significantly decrease the amount of traffic that can transit the rivers.

Senator BYRD. How would you say, percentage-wise, that that would effectively cut on the lockage capacity at London while leaving only the land chamber open?

Lieutenant General FLOWERS. Sir, we believe that will be about 21 percent.

Senator BYRD. Twenty-one percent.

Lieutenant General FLOWERS. Yes, sir.

Senator BYRD. I thought it would be about half.

Lieutenant General FLOWERS. Sir, you are right. It is about 42 percent.

Senator BYRD. About 42 percent. Do not make that mistake often.

Lieutenant General FLOWERS. No, sir.

Senator BYRD. That means I have to do my homework better.

Lieutenant General FLOWERS. Got it, sir.

Senator BYRD. By what percentage will lock capacity increase once the rehabilitation is completed?

Lieutenant General FLOWERS. Twenty-one percent, sir.

Senator BYRD. Yes. Thank you, Mr. Chairman, and thank you, General, very much for your testimony.

Senator DOMENICI. Thank you very much, Senator Byrd.

Senator Murray, do you have a few moments that I might make a couple remarks and then let you close the meeting?

Senator MURRAY. That will be fine.

Senator DOMENICI. Is that all right with you, Senator?

Senator MURRAY. Absolutely.

Senator BYRD. Oh, absolutely, yes. Thank you.

Senator DOMENICI. Thank you.

First I want to put in the record, just for explanation purposes, the Wall Street Journal, Thursday, March 1 article called Distributing the Pain and the Gain. And what it shows is how all the departments have fared. And I must submit that I really did not think that the water projects of the country should get the most pain of all. But they get a 13.3 percent; that is, the Corps, which

is the largest percent decrease of any agency or department of government.

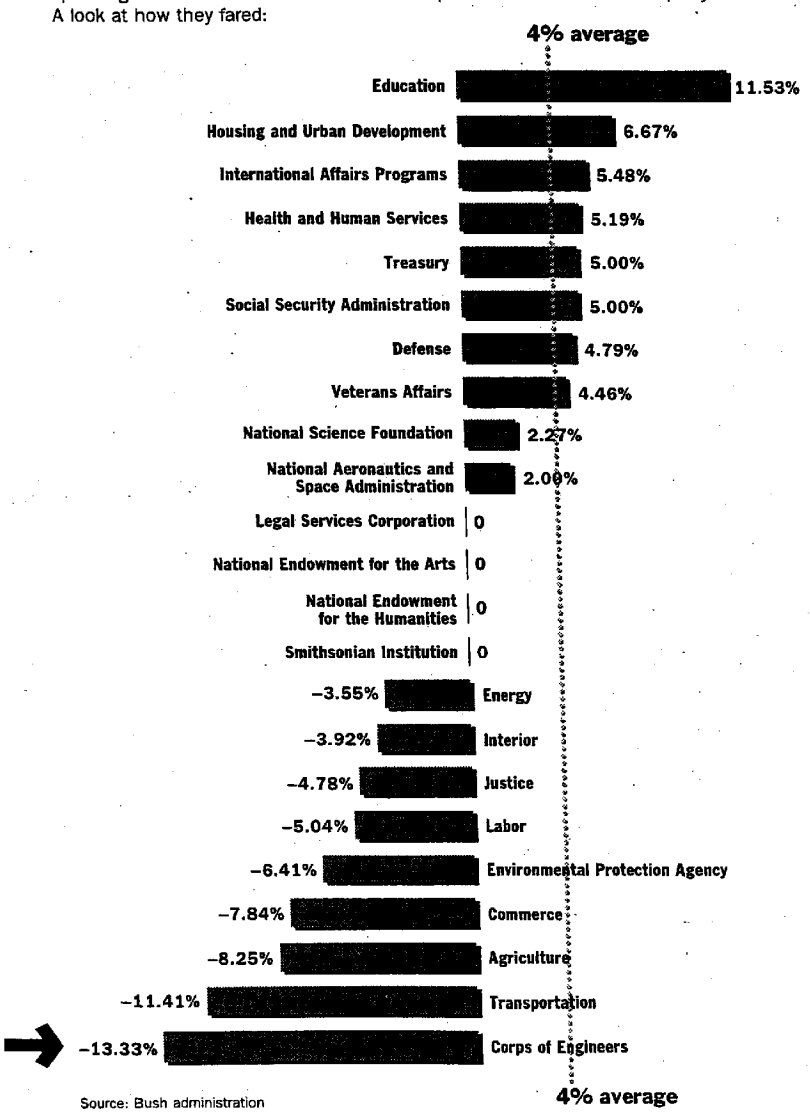
And I know this is a public document, but I would just like to put that in the hearing record at this point.

[The information follows:]

THE WALL STREET JOURNAL THURSDAY, MARCH 1, 2001

Distributing the Pain and Gain

President Bush proposes a 4% increase in total budget authority for discretionary spending in FY 2002 vs. FY 2001. But all departments aren't treated equally. A look at how they fared:



Source: Bush administration

Senator DOMENICI. And I wanted to make sure, with Senator Byrd talking about authorized projects that are not being funded,

that we make sure the record reflects, not in his case with reference to his two locks, but we have hundreds and hundreds of authorized projects that we have never paid for and, I must say publicly, that we never intend to.

In fact, we tried to clean that up once. I do not remember what my position around here was, but, Senator, I remember we found kind of a place where we said, well, now is about the time to start taking some projects out, because we found one old one that made Dallas a seaport. And we found, working with Senator Bentsen, that even he thought that was modern day rather preposterous. But we gave him two or three years to see if they could get it to be a seaport, and then we started some process of weeding out. And I do not know how many we took out.

But I think it is important that we know we are not doing justice by all this when we just continue to authorize with no idea when we are going to be paying for whatever it is we tell the public in our press releases that we are going to do.

And, General, I wanted to ask one last question. You know, years ago when I was a brand new senator, we did not have the luxury of passing a lot of legislation. Back 26 and 25 years ago, we sat around for the first term and maybe did a couple things. But I happened to be the lucky fellow that introduced and passed the Inland Waterway User Fees. You all recall that. Some of you were old enough. That was a real struggle, because the old guys out there who were working in those barges, they came to meetings and just challenged me, why do I not go out and do their job for a while.

And, of course, some of them wondered what a senator from New Mexico would be doing interfering with their locks. But it turned out that eventually they found out that I was a ranking member on a subcommittee, and it was my job. And believe it or not, we passed by an overwhelming margin one afternoon about 4:00 o'clock the ten cent diesel fuel. Everybody said it was too much, and it would pay for everything.

It turns out—I was just scanning here the sources of funding for the harbors for all of the Corps, inland, special—what is this whole category, this category 3.9? The sources of appropriation, General Fund, Harbor Maintenance Fund. The Inland Waterway Fund is just $61 million out of $3.9 billion. So it is doing a little bit.

Let me close by saying to the acting civilian chief, I certainly hope I have just been frank today and have not in any way offended you.

Ms. TORNBLOM. Not at all, Mr. Chairman.

Senator DOMENICI. I do worry that we consistently get these low requests, and then we have to find the money for them. And it makes it difficult for all of us. So I am sure the same thing is going to happen more or less this year. I do not want to get your hopes up too much, but I think eventually we will try to square this one away a little bit between the budget process and the appropriations.

With that, we have about ten questions. We will submit them to you. And I want to just close by asking you, Ms. Tornblom, none of these cuts were predicated upon an argument at any level that the Corps was not doing a good job, based upon last year's media exposure?

Ms. TORNBLOM. Mr. Chairman, no, they were not. I got a very clear response to that when I inquired with the Office of Management and Budget. This was totally a dollar-driven decision and, in part, reflected the fact that the new Administration did not feel comfortable going forward with an alternative harbor maintenance fee proposal, which made the bottom line more difficult for them. This was totally a dollar-driven decision.

Senator DOMENICI. Right.

Senator Murray, would you—I yield to you. And would you do your questioning and then feel comfortable closing the meeting?

Senator MURRAY. Absolutely.

Senator DOMENICI. Thank you very much.

Thank you, Corps people.

Senator MURRAY [presiding]. Thank you very much, Mr. Chairman. And I am sorry I was not able to make this morning's portion of the hearing on the Bureau of Reclamation's budget, because my question really involves both agencies.

General, as you know, the Pacific Northwest is under the Endangered Species Act obligation to recover several endangered species of salmon, trout, and sturgeon. In December of 2000, the National Marine Fisheries Service and the Fish and Wildlife Service issued biological opinions on the Columbia Snake River hydro-power operations. These biological opinions spell out the steps that we have to take to recover native fish populations.

If these reasonable and prudent alternative actions are not taken, there is going to be further debate on the removal of the Lower Snake River dams. With the energy crisis and the drought that is now impacting Washington State, this is a very tough time for agriculture and for fish recovery.

President Bush has voiced his support for fish recovery without removing the Snake River dams, and I appreciate that position. But his budget does not reflect a real commitment to recovering these native populations. Regional, Federal agencies and everyone involved with the biological opinions agree that it will take a spending increase to meet these actions. Estimates are between $50 million and $500 million. In fact, $50 million is the bare minimum, and that would require even larger increases in fiscal year 2003.

But between the $50 million and $500 million needed, President Bush has come far short. Unfortunately, the Interior budget, as well, appears to only offer an $8 million increase in funding for 2002 to implement the biological opinions. The budgets for the Corps of Engineers and the National Marine Fisheries Service do not reflect a significant investment in these biological opinions.

The main provision in the Corps budget for fish recovery is the Columbia River Fish Mitigation Program. The Corps' budget reflects $81 million for the program. That is the same amount that we appropriated last year. And so it does not reflect any of the needed increase.

It is my understanding that the Corps could use up to $116 million in 2002 for implementation of the biological opinions. And many believe it could be even higher. Unless President Bush improves his fish recovery budget, or unless Congress improves it for him, the issue is going to end up in the courts sooner, rather than

later. And I fear that we will fail to recover native species vital to the economy and the culture of the Pacific Northwest. We have got to do better, if we are going to recover these fish populations.

But, General, I would like to know how the Corps plans to meet biological opinion obligations with this budget without putting off increased funding to fiscal year 2003.

Lieutenant General FLOWERS. Yes, ma'am. I was able to visit the Northwest last week and visit several of the projects that are involved in recovering and will be vital as we work the implementation plan for the Bi Ops. And you are absolutely right. It is a very, very tough proposition that we are working there in the Northwest.

The $81 million reflected in the budget is short of our capability. Our capability is about $110 million in fiscal year 2002. And what it does is it puts some risk in our ability to implement the Bi Ops.

Senator MURRAY. Well, I appreciate that honest answer. And I am very worried this is going to put us into court, if we do not meet this biological opinion. Has the Federal caucus, the working group of all Federal agencies that are involved in the biological opinion, have they developed a coordinated budget for implementation of this Bi Op?

Lieutenant General FLOWERS. I met with the Federal caucus last week. And they have put together a coordinated budget, yes, ma'am.

Senator MURRAY. When will we see that?

Lieutenant General FLOWERS. I will check with the caucus and make sure that it is made available. As far as I know, it is available now.

[The information follows:]

The Federal agencies at the Washington level are, collectively, trying to tie that budget together. When it is available, it should be provided by the Office of Management and Budget.

Senator MURRAY. Okay. We need to get it very soon, because we cannot wait any longer to implement ground recovery projects. The Tribes, agriculture, irrigation, environmentalist, transportation industry have all really voiced support for this biological opinion, as you know, General. And I think it is critical that we move forward on implementing this Bi-Op.

ADDITIONAL COMMITTEE QUESTIONS

And I will work with the Corps, the Administration, here in Congress and the State and Tribes and everyone to make sure that we do everything we can to implement this biological opinion in fiscal year 2002.

Thank you.

Thank you, Mr. Chairman.

Senator DOMENICI. Thank you.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

BEACH RE-NOURISHMENT POLICY CHANGE

Included in this budget, is a proposal to change the cost-sharing percentages on the Corps' beach re-nourishment program. What the Administration is proposing is an increase of the non-Federal cost requirements from 35 percent to 65 percent.

Question. Ms. Tornblom, can you provide the Committee the background on how the Administration arrived at this policy change?

Ms. TORNBLOM. The fiscal year 2002 budget presents a new Administration policy toward projects that involve periodic beach re-nourishment. Until now, beach nourishment projects started since fiscal year 1995 have not received budgetary support. However, ongoing shore protection projects that involve periodic re-nourishment and that are otherwise consistent with established policies are supported in the fiscal year 2002 budget no matter when these projects were started, provided that non-Federal sponsors agree to pay 65 percent of the costs of re-nourishment work funded in fiscal year 2002 or thereafter. This increased non-Federal cost share reflects the substantial economic benefits that these projects provide to state and local economies and ensures that the Federal Government's long-term re-nourishment obligations do not crowd out other important funding needs. The existing cost sharing for initial sand nourishment, which is 65 percent Federal and 35 percent non-Federal in most cases, is not affected by the new policy.

Question. What kind of hearings or consultations did the Administration do with the affected parties or Congress regarding this change?

Ms. TORNBLOM. I am not aware whether the Administration might have had any hearings or consultations with affected parties or Congress the Administration might have had prior to announcing the change in cost sharing for periodic nourishment of shore protection projects. On April 9, 2001, the day the budget was made public, I sent letters to each of the affected non-Federal sponsors, informing them of the new cost sharing policy and explaining the rationale for the change.

Question. This change has been proposed as "voluntary" and if non-Federal sponsors of a project chose to change their cost-sharing they would likely be required to renegotiate their existing contract. Please provide the committee an estimate of the additional costs which will be incurred by the non-Federal parties?

Ms. TORNBLOM. The difference in the non-Federal cost share attributable to the change in cost sharing to periodic nourishment projects of funding included in the budget is about $21 million in fiscal year 2002.

Question. Are there any savings from this policy change assumed in your fiscal year 2002 budget? If so, how much and what is the Administration going to do to cover any shortfall created by this, should non-Federal sponsors choose not to increase their contribution?

Ms. TORNBLOM. Yes, there are savings to the Federal Government attributable to the change in cost sharing for periodic nourishment. The savings amount is about $21 million in fiscal year 2002, the same amount as the increased non-Federal share. No shortfall is expected because the budget is constructed on the basis that the Corps would only proceed with re-nourishment work financed with fiscal year 2002 funds after the non-Federal sponsor had voluntarily agreed to pay the additional share for the cost of such work.

UPPER MISSISSIPPI AND ILLINOIS NAVIGATION STUDY, ILLINOIS, IOWA, MINNESOTA, MISSOURI AND WISCONSIN

Question. General Flowers, can you please update this Committee on the status of the Upper Mississippi River Study?

General FLOWERS. The Corps and the Principals Group—which consists of Washington-level executives from Federal agencies with a vested interest in the study are reviewing the National Research Council's report on the subject study. The Corps will consider the Principals Group's input as we revise the Project Study Plan that will set the course to complete this complex system feasibility study. This revised Project Study Plan is scheduled for completion in July 2001. The Project Study Plan will establish a revised study schedule and cost estimate, which are not available at this time.

Question. What progress has the Corps made with regard to any outstanding issues or action items needed by the Corps with regard to recommendations for change?

General FLOWERS. I have taken several courses of action specific to the Upper Mississippi and Illinois Rivers Navigation Study. In regards to the management of the Navigation Study, the study team has been placed under the direct supervision of BG Edwin Arnold, Commanding General of the Mississippi Valley Division. This

action places the Navigation Study's Project Manager under the specific direction of BG Arnold, in light of the regional and controversial nature of the study. Secondly, we established a Principals Group consisting of Washington-level executives from Federal agencies with a vested interest in the study. Membership includes Department of Agriculture; Department of Interior, Fish and Wildlife Service; Department of Transportation, Maritime Administration; Environmental Protection Agency; and Corps of Engineers. A regional group has also been convened from staff of these agencies to provide multi-agency oversight and guidance to the study and provide input to the Principals Group process. The Corps and Principals Group are reviewing the National Research Council's report on the subject study.

Question. General, you testified recently that, by July 2002, you expected to send Congress a report on the Upper Mississippi navigation needs. Can you tell us if the Corps is still on schedule to release the report?

General FLOWERS. My goal is to provide a report to Congress by July 2002. However, the ongoing rescoping effort and revision of the Project Study Plan will define the actions that will be needed to produce a decision document and the time required to deliver a report to Congress. If it proves inadvisable to produce a comprehensive report in July 2002, I will consider submitting a report that addresses measures that could be implemented in the interim.

CORPS BACKLOG

Question. The Corps budget justification alludes to the fact that the reason there are no new starts requested in fiscal year 2002 is that the Corps wants to focus on its backlog.

Ms. Tornblom, I would like to know, how you expect the Corps to address its backlog, which some estimate it at $50 billion, in an effective manner with a 14 percent cut in its budget?

Ms. TORNBLOM. Funds are included in the fiscal year 2002 budget to achieve meaningful progress on continuing projects that are consistent with established policies. No funds are included for new construction starts since that would further slow the completion on ongoing work. The balance to complete budgeted construction projects is a large part of the construction backlog, so the budget focuses on completing these ongoing projects rather than starting new projects.

Question. Does the Corps backlog increase in any manner with this level of funding?

Ms. TORNBLOM. Assuming that fiscal year 2001 funds were appropriated and that no additional funds were available to continue design and construction, we projected when the President's fiscal year 2001 budget was presented to Congress that the design and construction backlog would be approximately $45.7 billion at the end of fiscal year 2001. Using the same assumptions, we now project that by the end of fiscal year 2002 the backlog will be $48.0 billion. This growth in the backlog is attributable to additional projects being authorized in the Water Resources Development Act of 2000 or completing the feasibility phase of planning, changes in estimates, and selected price level adjustments. The President's fiscal year 2002 budget proposes a total of approximately $1.5 billion for design and construction in three appropriation accounts. This is the appropriate funding level in light of alternative uses of Federal funds. Under the President's fiscal year 2002 budget, the backlog projected for the end of fiscal year 2002 will be reduced to approximately $46.5 billion.

Question. Ms. Tornblom, How will the Corps handle within this budget those projects which were authorized under WRDA 2000, which are ready to move forward? Aren't you effectively ignoring the backlog?

Ms. TORNBLOM. We are moving forward on PED on many of these projects. We believe that the best way to address the backlog under a constrained budget is to complete projects that have started construction before taking on additional projects that will force all construction to proceed more slowly. There are no new construction starts proposed in the fiscal year 2002 budget, whether authorized in the Water Resources Development Act of 2000 or earlier authorizing legislation. Both the unstarted projects and the balance to complete ongoing projects are part of the construction backlog. Available funding is directed toward construction of continuing projects that are consistent with established policies.

Question. General, how will the construction backlog be impacted by the fiscal year 2002 budget request?

General FLOWERS. Sir, as I indicated previously, the President's budget will reduce the backlog at the end of fiscal year 2002. Because funds are limited, the budget focuses on completing ongoing construction projects.

IMPACT OF THE PRESIDENT'S BUDGET REQUEST

Question. The fiscal year 2002 request by the Administration for the Corps is 14 percent less than last year, or down $600 million. Most Federal agencies are being held at a 4 percent growth rate, which is clearly not the case here. Ms. Tornblom, can you tell me what the rationale was behind this budget for the Corps?

Ms. TORNBLOM. This budget reflects the Administration's priorities. Funds for the Civil Works program are applied primarily to the Corps' principal mission areas of commercial navigation, flood damage reduction, and environmental restoration.

Question. Ms. Tornblom, given the recent controversies surrounding the Corps, do you believe the Corps was unfairly targeted for a budget reduction?

Ms. TORNBLOM. No, Sir, I do not. The budget decisions were unrelated to those matters.

Question. Can you please explain the 14 percent cut?

Ms. TORNBLOM. The President's budget for fiscal year 2002 approximates the appropriated amounts for the last few years, other than fiscal year 2001. The overall budget amount is in accordance with the President's government-wide budget priorities. Within the overall amount, emphasis is placed on the primary Civil Works missions of commercial navigation, flood damage reduction, and environmental restoration and on the completion of ongoing work rather than initiation of new work.

Question. Do you believe the Corps' budget was used as a means to yield savings within the Administration's overall budget because they felt certain Congress would add the necessary funds back for a more reasonable budget?

Ms. TORNBLOM. No, sir. The budget reflects the President's views of the amounts that should be allocated to discretionary spending in general and to the Army Civil Works program in particular.

Question. Did anyone within the Army's hierarchy fight on behalf of the Corps during the budget deliberations and passback?

Ms. TORNBLOM. Sir, once the Department of the Army received its initial allocation decision, or passback, for the Army Civil Works program, the Acting Secretary of the Army submitted a strong appeal to the passback.

Question. Please provide the committee the outcome of these deliberations and the specifics of additional funding which was provided as a result of the passback.

Ms. TORNBLOM. The advice and counsel leading up to the recommendations which form the basis of the President's Budget are part of the internal deliberative process. Similar to the pre-markup activities of any Congressional committee, the initial views and positions within the Executive Branch vary widely relative to the final outcome in the President's Budget. In order to assure the President the full benefit of advice from the agencies and departments, the Administration treats this as predecisional, internal information.

Question. General Flowers, can you tell the committee the impact this budget has on the Corps?

General FLOWERS. The emphasis that the budget places on ongoing construction activities and on our priority mission areas would have a positive impact on the Corps. On the other hand, to the extent that the budget provides less funding for justified projects than the maximum that the Corps would be able to spend efficiently, economic and environmental outputs would be deferred.

Question. General, please quantify for the committee the benefits foregone as a result of this budget.

General FLOWERS. Compared with project schedules that could be achieved with an unconstrained budget for the Army Civil Works program in the budget year, funding at the level in the President's budget would result in delayed schedules, and thus, delayed project benefits. Compared to benefits realized with unconstrained funding in the budget year, benefits totaling approximately $3.3 billion will be delayed under the President's budget. However, any delay in the benefits of Corps projects that results from funding constraints should be considered in the context of the benefits the Nation derives from alternative uses of these funds.

Question. What additional unanticipated costs would the Corps incur with this level of funding, which are not currently planned in the budget?

General FLOWERS. The inefficiencies associated with extended construction schedules, as compared with our schedules developed under the assumption of an unconstrained budget, are likely to result in some cost increases, although we have not quantified these costs.

Question. General, can you tell the Committee how this level of funding impacts the long-term projects?

General FLOWERS. The fiscal year 2002 budget funds ongoing projects at about 57 percent of their capability amounts, which are the amounts that would provide for completing projects on the most efficient construction schedules assuming an uncon-

strained budget for Corps construction projects. The constrained fiscal year 2002 budget level together with similar funding levels in future years would stretch out project completion dates. However, we are trying to manage our workload within tight budget constraints in order to maintain reasonable progress on all of our projects.

["Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Armywide. In this context, the fiscal year 2002 capability amounts shown consider each project or study PY itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works Program in the President's budget for fiscal year 2001 is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments. In addition, the total amount proposed for the Army's Civil Works Program in the President's Budget is the maximum that can be efficiently and effectively used. Therefore, while we could utilize additional funds on individual projects and studies, offsetting reductions would be required in order to maintain our overall budgetary objectives."

Hereafter, this statement is referred to as "the usual qualifications."]

Question. It is clear that the funds budgeted to address the growing water resources needs of this country falls way short of the known critical needs, what would you offer as suggestions of actions that can be taken in the future to close this gap?

Ms. TORNBLOM. At the Federal level, the relative priority of each water resources mission, program, and project should continue to be discussed in order to help focus available funds on the most critical and best justified needs, while reducing expenditures that are not as well justified or are more appropriately handled at the state, local, or private level. To the extent that additional funds are available at the Federal, state, and local levels, allocating those funds to high priority water resources needs also would help.

INFRASTRUCTURE

Question. This country has an aging water resources infrastructure. I do not believe that this budget request takes this into account, since the Operations and Maintenance account has a $153 million reduction. In addition, there are no new starts recommended in this budget. General Flowers, I understand you have spent some time traveling across the country holding listening sessions, is this approach to the budget consistent with what you're hearing in the field?

General FLOWERS. The budget is consistent with the President's overall investment priorities. In addition, the budget reflects reliance on local and state government and private sector initiatives in providing certain water resources services, while employing Civil Works leadership in providing other priority, authorized water resources services. In contrast, our regional and national listening sessions received a view from the American citizens about water resources infrastructure that did not take into account the current constrained Federal budget, or the mission of the Corps versus those of other Federal or non-Federal entities. The American citizens attending our listening sessions expressed concern about aging water resources infrastructure, growing backlogs in the maintenance requirements of that infrastructure, growing congestion and delays in our marine transportation system, declines in the capability of the existing infrastructure to meet future needs, and construction schedule delays resulting from funding constraints.

The budget request for fiscal year 2002 will not answer many of the investment and funding concerns raised in those listening sessions. We will not be able in fiscal year 2002 to reduce our critical maintenance backlog on existing water resource projects maintained by the Corps of Engineers. The budget request does not provide for any new construction starts. Moreover, the proposed funding is 57 percent of the amount needed for efficient construction of projects which are under construction as compared to construction under an unconstrained Corps budget. We will need to stretch out construction schedules compared to the optimum schedules.

Question. Do you believe that this budget's approach is reasonable, given our aging infrastructure?

General FLOWERS. I support the President's budget request. Although funds are constrained, they are targeted at investments that yield a high return to the Nation. We are doing the best we can with the resources available.

Question. Are there any emerging trends in terms of national water issues?

General FLOWERS. We found some emerging trends and a myriad of concerns over the future of water resources development during our regional and national listening sessions. Some of the salient trends are as follows. Foreign trade now accounts

for 29 percent of Gross Domestic Product. Ninety nine percent of U.S. overseas commerce by volume moves through Federally maintained waterways. The total volume of domestic and international marine trade is expected to double by 2020 to more than 4 billion tons of cargo per year. Tonnage that moves on our inland navigation system is projected to grow by as much as 37 percent. That commerce is moving through an infrastructure largely built in the 1930's. Equally troubling trends are evident in our Nation's flood plains and coastal areas. Urban development in flood plains continues to increase by 1.5 to 2.5 percent annually. The Federal Emergency Management Agency estimates that 94 million acres of the United States lies within the 100 year flood plain. Since 1980, the population migrating to the coast has outpaced the total United States population growth by 15 percent, growing to over 41 million. Along the East and Gulf coasts, about $3 trillion in infrastructure is in hazard-prone coastal areas. During this century, 23 hurricanes have caused damages in excess of $1 billion each when damage values are adjusted for inflation. The sessions also included discussion of trends in water resources in areas outside of the Corps of Engineers missions such as aging water supply and wastewater infrastructure.

Participants in the listening sessions expressed the need to approach water resource infrastructure problems and development on an integrated and holistic basis. Solutions must not come at the expense of the environment, but should be developed with ecosystem restoration and environmental sustainability as requirements in the complete solution. There was wide ranging recognition and advocacy for restoring degraded water resources, ecosystems and watersheds on an integrated basis. In fact, one of the ten challenges that clearly emerged was "Managing Watersheds Holistically."

I have only begun to touch on some of the notable trends and concerns. We will furnish the Committee with brochures that highlight the trends and concerns identified as part of listening sessions. The brochures are entitled "A National Dialogue About America's Water Resource Challenges For the 21st Century." We will also furnish the Subcommittee with copies of our national report on the findings of the 14 regional and 2 national listening sessions once it is published in May.

Question. What do you believe would be the necessary level of funding needed to begin to effectively deal with the infrastructure problem?

General FLOWERS. I can most accurately speak for the national water resource mission needs for which we have authority. The budget provides substantial resources for priority activities, although less than the optimum amount. Subject to the usual qualifications, I believe we have additional capability, assuming an unconstrained budget, capability to work on our critical maintenance backlog, which will grow to $835 million by the end of fiscal year 2002. This action would improve the efficiency, reliability, and levels of service of our existing projects while reducing the costs associated with deferral of maintenance and repairs. Furthermore, subject to the usual qualification, and assuming an unconstrained budget, we have a capability of $2.9 billion in fiscal year 2002 to complete authorized projects on efficient schedules. This capability breaks down into $2.7 billion for our Construction General account and $226 million for our Mississippi River and Tributaries account. These efficient and unconstrained budget schedules would not only realize construction efficiencies but also realize increased net economic benefits from the acceleration of project completions.

INFRASTRUCTURE

Question. General Flowers, your predecessor and Dr. Westphal reported to this Committee that efforts were underway to streamline the Project Cooperation Agreement process, leading ultimately to the delegation of signing authority of a number of agreements to the District Commander. Could you please update this Committee on progress to date and future actions you are planning to take to streamline project implementation.

General FLOWERS. Since that time the Assistant Secretary has delegated the execution of PCA's for the Sec 313, 531, and 552 programs when following the approved PCA models established for these programs. In addition, we have developed draft PCA models for design, construction, and design/construction (use only 1 model for a project instead of traditional method of using 2) for the Section 569, 571, 593, 594, 595 programs of WRDA 99, and the Section 219 program of WRDA 92. Later this fiscal year we will be forwarding these PCA models for approval to the Assistant Secretary and requesting delegation of approval and signature authority similar to that for the 313 program. We also have plans this calendar year to complete revisions to our navigation PCA models (for specifically authorized and Continuing Authority projects) and to submit them for approval and delegation of signature au-

thority. In order to streamline the PCA development process, we are incorporating optional language to try to accommodate as many variations as possible within each PCA model. We are also looking ahead to updating the flood control PCA models, including additional options and project purposes addressed in each, and developing a Continuing Authority Section 103 PCA model for approval and delegation to expedite this program, as well.

REDIRECTING CONGRESSIONAL PRIORITIES

Question. Contained in the budget preface for the Corps, Ms. Tornblom, there is a statement by you that, "The budget also redirects funds from projects added by Congress in fiscal year 2001 that are not consistent with established policies." It is up to Congress to determine what the mission of the Corps is, and if Congress decides to make a change to that mission, it has the prerogative to do so.

Ms. Tornblom, were all the projects added by the Congress and funded in the fiscal year 2001 appropriation authorized in recent WRDA legislation which was signed by the President?

Ms. TORNBLOM. All except one of the projects added by Congress in fiscal year 2001 have been authorized in law. Most were authorized in a Water Resources Development Act or in a comparable Rivers and Harbors Act or Flood Control Act, but a few were authorized in some other law. The exception is the Hillsboro Inlet project, which is not authorized.

Question. As such, these projects clearly fall within the mission of the Corps, as is defined by Congress. Therefore, how can the Corps state that these projects are not consistent with established policies?

Ms. TORNBLOM. For clarity, the statement should have been that these projects are inconsistent with Administration policies. Such projects may not have standard cost sharing, may lack economic justification, or may primarily address missions other than the principal missions of commercial navigation, flood damage reduction, and environmental restoration. By not budgeting for these projects, the Administration is asking Congress to reconsider its priorities.

Question. Can you share with the Committee how you determined which Congressional priorities were to be "redirected?"

Ms. TORNBLOM. Those projects that are not consistent with the Administration's policies or do not provide significant national benefits in the Corps' principal mission areas were targeted for redirection.

Question. Was there any thought given as to the need of these projects?

Ms. TORNBLOM. Yes, this information was considered during the formulation of the President's budget.

QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES CONSTRUCTION—YAZOO BASIN, MISSISSIPPI

Question. Mr. Secretary, does the fiscal year 2002 budget request for the Yazoo Basin projects provide the Corps of Engineers with the funding needed to complete construction as rapidly as possible?

Ms. TORNBLOM. No sir, the optimum fiscal year 2002 funding needed to meet current schedules and complete construction of the Yazoo Basin projects as rapidly as possible is $44,225,000 or $35,675,000 above the budget request.

PROJECT COST INCREASES

Question. It is my understanding that a project's total cost increases, rather than decreases, if the annual budget requests are less than the Corps' maximum capability. Are my assumptions correct?

Ms. TORNBLOM. Yes sir, you are correct. Capability estimates are the optimum funding amount needed to meet schedules. When the optimum funding level on a project is not received, the construction period must be extended which, in turn, increases the interest during construction. Additionally, the project's total cost is further increased due to the effect of inflation on the extended construction period. These factors can ultimately increase the total project cost significantly.

YAZOO BASIN, BACKWATER PUMP, MISSISSIPPI

Question. Will you please update the Subcommittee on the current status of the Yazoo Backwater project?

Ms. TORNBLOM. Sir, the final Project Report and Supplemental Environmental Impact Statement for the Yazoo Basin, Mississippi, Yazoo Backwater Project are scheduled for completion in early fiscal year 2002. Design of the project, including the pumping plant and other project features, will continue in fiscal year 2002. Completion of planning, engineering and design is scheduled for September 2004, with initiation of construction scheduled in fiscal year 2005.

Question. Is the funding level in fiscal year 2002 budget request sufficient to complete planning and design work for the Yazoo Backwater project?

Ms. TORNBLOM. No sir, the optimum fiscal year 2002 funding required to maintain a September fiscal year 2004 completion schedule for planning and design work for the Yazoo Backwater Pump is $6,000,000.

Question. If so, will the initial construction funding for the project commence in fiscal year 2003?

Ms. TORNBLOM. No sir, based on current schedules and assuming adequate funding, completion of planning, engineering and design is scheduled for September 2004 with construction of the project scheduled for initiation in fiscal year 2005.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

IMPACTS TO OPERATIONS AND MAINTENANCE BUDGET CUTS

Question. What are the impacts of the fiscal year 2002 O&M budget reductions on the Huntington, Pittsburgh, and Baltimore Corps Districts?

General FLOWERS. The Huntington District's backlog at the beginning of fiscal year 2002 is projected to be $111 million. Historical data indicates that new maintenance and repair needs are an estimated $15 million per year. The fiscal year 2002 O&M budget request of $57.4 million allows the district to apply $12.9 million towards the maintenance backlog, and results in a net increase in backlogged maintenance of approximately $2 million by the end of fiscal year 2002.

In the Pittsburgh District, The President's Budget will allow for continued operation of Locks and Dams 2 thru 9 on the Allegheny River at traditional levels. Some normal, daily routine maintenance, scheduled repair party maintenance, and prospective contract maintenance on the Allegheny River will not be performed. Emergency and unanticipated structural repairs will be accomplished, if needed, through reprogramming funds from other projects.

In the Baltimore District, the work packages that are highest ranked but for which funds are not available in the budget are mostly for maintenance of navigation projects, including a number of shallow draft harbors.

ROBERT C. BYRD LOCKS AND DAM, WV & OHIO

Question. Please provide an estimate of the increased capability and the reduction in navigation delays since operation of the new locks commenced in January 1993. Please also include an estimate of the navigation savings during this same time.

General FLOWERS. The capacity of the old Gallipolis locks was estimated to be 63.3 million tons. With the new locks, 15-barge tows typically can be processed in one operation rather than the two operations necessitated by the smaller Gallipolis locks. Transit times have been reduced from an average of 16 hours per tow to 1.5 hours per tow. The capacity of the new locks is estimated at 148.5 million tons.

Since the new locks opened in 1993, annual traffic has grown from 45 million tons to 58 million tons in 2000. In the first eight years of operation, the new locks have realized transportation savings of an estimated $261 million. The total project cost is $379 million. The incremental cost, over the without-project condition, is estimated at $263 million. Cumulative savings to date represent 99 percent of the incremental cost of the new locks. At present traffic levels, it is expected that the R.C. Byrd Locks and Dam project will pay for itself by the end of this year.

WINFIELD LOCKS AND DAM, WV

Question. Please provide an estimate of the increased capability and the reduction in navigation delays since operation of the new additional lock commenced in November 1997. Please also include an estimate of the navigation savings during this same time.

General FLOWERS. The capacity of the old Winfield project was estimated at 24 million tons. With the new lock, average tow size has increased from 5 to 9 barges per tow, and the entire tow locks through in one lockage, whereas before the 5-barge tows had to be processed into 5 lockages. Processing times were reduced from about 170 minutes per tow to 62 minutes. The capacity of the new lock is estimated at 69.5 million tons.

Since the new lock opened, transit time (processing time plus delay time) through Winfield has been reduced by approximately 8.6 hours per tow (from 10.11 hours in 1990–1997 to 1.51 hours in 1998–2000) and the total commercial lockages have reduced from over 22,000 to about 3,000. In the three years of operation, the new lock has realized an estimated $27 million in transportation savings. The cumulative savings represent 12 percent of the incremental cost of the new lock. The total cost of the project is estimated at $235.5 million. This total cost is also the incremental cost because there was no construction in the without project condition. At current traffic levels, it is expected that Winfield lock will pay for itself by 2015.

BLUESTONE DAM SAFETY PROJECT

Question. Bluestone is a fifty-year-old dam on the New River just above Hinton and the confluence of the New and Greenbrier Rivers. The Huntington Corps of Engineers reports that the dam does not meet today's safety criteria.

What risks are currently posed by the Bluestone Dam to the communities and businesses, and environments below the dam?

General FLOWERS. Under current design criteria, the probable maximum flood is estimated to overtop the existing dam. Dam failure, while very unlikely, would cause catastrophic flooding along the Greenbrier, New, Gauley, Kanawha, and Elk Rivers, including the metropolitan area and heavily industrialized capital city of Charleston, West Virginia. This would place more than 115,000 persons at risk, with potential property damages in excess of $6.5 billion.

Question. What level of flooding would cause the dam to fail catastrophically? How likely is it that such a level of flooding might occur? What is the likelihood that the dam will fail in the next 50 years? In the next 100?

General FLOWERS. The dam would be in danger of failing if pool levels approaching the top of the existing dam were to occur. This flood level, known as the 500 year flood event, has a 0.2 percent chance of occurring in any year, a 10 percent change of occurring at least once in the next 50 years, and an 18 percent chance of occurring at least once in the next 100 years.

Question. What is the current status of work completed on the dam safety project with available funds? What work will be completed with the fiscal year 2001 funds?

General FLOWERS. The first phase of construction is underway. In fiscal year 2001, this consists of a temporary bridge across the stilling basin, penstocks extension, and mass concrete thrust blocks. Plans and specifications will be started for the second phase, which consists of an 8-foot pre-cast concrete wall, State Route 20 gate closure, and anchors.

Question. Are there additional Corps capabilities for this project for fiscal year 2002 above those identified in the President's fiscal year 2002 budget?

General FLOWERS. Subject to the usual qualifications regarding capabilities, the Corps has an additional capability of $4 million above the President's Budget of $8 million, for a total of $12 million. The capability-level funds would be used to advance completion of phase 1 construction, and continue design for the selected plan.

Question. Contingent on adequate funding being provided, this project is not scheduled for completion until September 2008. In the meantime, what additional measures can be taken to minimize the risks to the public and to ensure that this project remains on track and a high priority?

General FLOWERS. There are no temporary structural measures, such as sandbagging the top of the dam, that could be implemented to minimize the risk to the public. Similarly, there are minimal, if any, temporary operational changes that could be implemented to minimize risk. For example, temporarily eliminating the permanent pool by draining the lake would not provide any noticeable effects, because the volume of inflow for the probable maximum flood is so much greater than the volume of the permanent pool. Until the project is completed, the Huntington District's Water Control Section will maintain a close vigil on any significant storm event in the region that could potentially move into or through the Bluestone Lake drainage basin, and will provide forecasts as early as possible in order to determine if and when a hazardous pool level could occur. In the event that such a pool level might occur, emergency management organizations and law enforcement agencies in the affected area downstream of the dam will be notified of that potential. If the hazard appears to be more imminent, evacuation of those downstream areas will be implemented in order to minimize the risk to the public.

GREENBRIER BASIN FLOOD CONTROL PROJECT

Question. The Greenbrier River Basin of West Virginia is one prone to extensive flooding. The Water Resources Development Act of 1996 authorized the Corps to implement local protection plans to help mitigate damage from future flooding.

Has the Corps reached an agreement with the local sponsor, the City of Marlinton, on a local flood protection plan? Have the details of the plan been worked out and agreed to among the participants?

General FLOWERS. The Town of Marlinton was recently presented with information on both structural and nonstructural alternatives, including costs, environmental concerns, and operation and maintenance requirements. Based on this information, the Town of Marlinton agrees with the least costly plan, which includes the construction of over 16,000 feet of levee/floodwall to be built on both sides of the Greenbrier River, protecting both downtown Marlinton and the Riverside areas.

Question. What is the projected federal and non-federal cost, factoring in ability-to-pay?

General FLOWERS. The total project cost is estimated to be $70 million fully funded, or $63 million at October 2000 price levels. The local sponsor would qualify for a reduction in its cost share, based on ability-to-pay provisions. The non-Federal share would be approximately $8.4 million; the Federal share would be $61.6 million. The final cost will be contained in the Detailed Project Report, scheduled for completion in September 2001.

Question. What activities are currently being conducted on the Marlinton local protection plan?

General FLOWERS. The Corps is finalizing the Detailed Project Report and accompanying volumes, including the Environmental Impact Statement, the Real Estate Plan, Engineering Technical Appendix, and the Baseline Cost Estimate that will serve as the decision document. The draft report will be completed in July 2001, the final report in September 2001. Design of the first construction element is also underway.

Question. What capabilities do the Corps anticipate for fiscal year 2002 for the Marlinton local protection plan?

General FLOWERS. Subject to the usual qualifications concerning capabilities, the fiscal year 2002 capability is $1.2 million. These funds would be used to continue detailed design, including plans and specifications for the first construction phase of the project, and to execute a Project Cooperation Agreement.

Question. When can construction on the Marlinton project begin?

General FLOWERS. Construction in a limited area could be initiated late in calendar year 2002, provided fiscal year 2002 capability funds of $1.2 million were provided and the Project Cooperation Agreement was executed.

Question. Have other localities, such as the cities of Ronceverte, Alderson, Durbin, Cass, Renick, which are authorized for flood damage reduction plans under the Water Resources Development Act of 1996, expressed interest in pursuing projects?

General FLOWERS. Citizens in the lower portion of the basin, as well as a member of the state legislature, have indicated interest in getting discussions moving relating to flood protection for the lower basin, including Ronceverte and Alderson.

Question. Is the current authorization sufficient to allow any of the above-mentioned local entities to initiate a flood control project?

General FLOWERS. The amount authorized to be appropriated, as amended in Sec 360 of WRDA 99, is $47 million and is not sufficient to complete all of the potential projects. The Federal share of the Marlinton project alone, including expected price level adjustments for inflation, is estimated to be $61.6 million. The Federal share of projects for other localities such as Ronceverte, Alderson, Cass, Durbin, and Renick would not be quantified until a definitive plan and schedule were established, but the total Federal share for the Greenbrier River Basin is likely to be well over $100 million.

WEST VIRGINIA TUG FORK FLOOD PROTECTION PROJECTS

Question. For fiscal year 2001, Congress provided $4.1 million to continue work on flood protection projects in southern West Virginia along the Tug Fork and its tributaries as part of the multi-state Section 202 project.

The President's request includes $16,738,000 for Levisa and Tug Fork projects for fiscal year 2002, however, none of these funds are slated for projects in West Virginia. Why are no monies budgeted for the West Virginia projects in lower Mingo, Upper Mingo, Wayne County, and McDowell County?

General FLOWERS. These projects were not budgeted because they are not economically justified.

Question. What activities will remain to be completed beyond fiscal year 2001 in McDowell County and what is the cost of the remaining effort? Does the Corps have capabilities in McDowell County in fiscal year 2002?

General FLOWERS. Remaining activities include acquisition, floodproofing, and construction of relocated schools, town halls, and fire stations. The remaining cost is $168 million. The capability for fiscal year 2002 is $3.2 million.

Question. What is the present approved plan for the McDowell County schools?

General FLOWERS. The approved plan consists of construction of ringwalls to protect three elementary schools, Panther, Iaeger, and Berwind, and relocation out of the floodplain with reconstruction elsewhere for two elementary schools, Bartley and War, and Iaeger High School.

Question. How was the determination made for how each school was to be protected?

General FLOWERS. Site reconnaissance was performed at each school. It was determined that three schools, Berwind, Iaeger, and Panther Elementary, have sufficient surrounding land on school board property that they could be protected in place by a ringwall. Even though a ringwall would be several feet high and hundreds of feet long with multiple gates, ringwall construction proved to be less costly than building replacement schools elsewhere. The other three schools, Iaeger High School, and Bartley and War Elementary Schools, are either in the floodway or are too close to the floodway and riverbank to build a ringwall, so the only flood protection option is to acquire those schools and build replacement schools.

Question. What is the locally preferred plan for the McDowell County schools?

General FLOWERS. The locally preferred plan is to consolidate the Berwind, Bartley, and War elementary schools, and Iaeger and Panther elementary schools, into two new schools. Both the approved and locally preferred plans call for construction of a new Iaeger High School out of the floodplain.

Question. How can my constituents' preferred plan be implemented instead of the present approved plan?

General FLOWERS. The district prepared a letter report which outlines the locally preferred plan and the extent of Federal participation, which is limited to the Federal share of the least cost plan. Once the report is approved, the Project Cooperation Agreement would be amended to reflect that type of flood protection remedy for the schools. After amendment of the agreement, relocations contracts will be negotiated with the McDowell County Board of Education, and design will be initiated for the two new consolidated elementary schools.

Question. In fiscal year 1999, I added funds to allow the Corps to initiate the McDowell County project, including the schools. Two years have elapsed, yet no progress appears to be achieved for the schools. It is my understanding that a letter report outlining my constituents' preferred plan has been pending at headquarters level since December 2000—over 4 months. A decision is way over due. When can I expect this letter report to be approved and the implementation of this long over due project to begin?

General FLOWERS. The letter report has been reviewed by HQUSACE and was forwarded for approval to the Assistant Secretary of the Army for Civil Works on April 23, 2001. Implementation will begin once the letter report is approved and the PCA amended.

Work is underway for the relocation of Iaeger High School. The preferred site identified by the McDowell County Board of Education contained contaminants, and the district is presently looking at other sites for construction.

Question. What activities will remain to be completed beyond fiscal year 2001 in Wayne County and what is the cost of the remaining effort? Does the Corps have capabilities in Wayne County in fiscal year 2002?

General FLOWERS. The acquisition or floodproofing of structures would continue beyond fiscal year 2001 if funds were provided. The remaining cost is $5.4 million. Subject to the usual qualifications concerning capabilities, the capability for fiscal year 2002 is $600,000.

Question. What activities will remain to be done beyond fiscal year 2001 in lower Mingo County and what is the cost of the remaining effort? Does the Corps have capabilities in lower Mingo County in fiscal year 2002?

General FLOWERS. The floodproofing or acquisition of structures would continue beyond fiscal year 2001 if funds were provided. The remaining cost is $2.5 million. Subject to the usual qualifications concerning capabilities, the capability for fiscal year 2002 is $1.5 million.

Question. What activities will remain to be completed beyond fiscal year 2001 in upper Mingo County along the Tug Fork and its tributaries and what is the cost of the remaining effort? Does the Corps have capabilities in upper Mingo County in fiscal year 2002?

General FLOWERS. The floodproofing or acquisition of structures would continue beyond fiscal year 2001 if funds were provided. The remaining cost is $1.8 million.

Subject to the usual qualifications concerning capabilities, the capability for fiscal year 2002 is $600,000.

WHEELING CREEK CHANNELIZATION PROJECT

Question. What work will be accomplished with the $500,000 appropriated for this project in fiscal year 2001?

General FLOWERS. The Pittsburgh District is completing surveying, mapping, sediment sampling, and real estate rights-of-way in preparation of development of plans and specifications to begin the dredging work. It is anticipated that the dredging contract will be awarded either 4th quarter fiscal year 2001 or 1st quarter fiscal year 2002.

Question. What is the Corps' capability for this project in fiscal year 2002?

General FLOWERS. Federal participation is limited to the $500,000 appropriated in law. However, if additional authorization or direction in law were provided, up to an additional $2,000,000 could be used, subject to the usual qualifications concerning capabilities. This amount would be used for the dredging contract and contract administration.

Question. Does the channelization project fit into the goals of the Wheeling National Heritage Area?

General FLOWERS. Wheeling city officials, working with the Wheeling National Heritage Area Corporation, are currently redeveloping a portion of the city around the Ohio River Waterfront and Wheeling Creek. This area is known as the Wheeling Heritage Port. This dredging project was conceptualized in the Wheeling Waterfront Development Special Project Report, completed by the Pittsburgh District in August 2000. The dredging work involves extending the navigable channel on the Ohio River upstream along Wheeling Creek 1.48 miles to provide boat access to Tunnel Green Park. Both the Wheeling National Heritage Area Corporation and the City of Wheeling support the dredging work as consistent with their plans for the Wheeling Heritage Port.

LOWER MUD RIVER

Question. The Lower Mud River project, authorized by Section 580 of the 1996 Water Resources Development Act, was originally a Department of Agriculture project. Its purpose is to mitigate the repeated flooding events that have caused extensive damage to the City of Milton, West Virginia.

What is the status of the re-evaluation report being conducted by the Corps and the options that are being examined.

General FLOWERS. The report was scheduled for completion in July 2000. Preliminary engineering data warranted the re-formulation of flood control alternatives for this project, resulting in an extension of report completion to May 2002.

Two alternatives are being examined. One is the channel alternative proposed by the NRCS, which consists of 2.5 miles of channel modifications along the Mud River, providing an average flood reduction of 2–4 feet. The other is a levee alternative, consisting of 6,000 feet of levee at an average height of 14.5 feet, 730 feet of I-wall, and 1–2 pump stations.

Question. What are the construction costs associated with each option and the anticipated maintenance costs that will be the responsibility of the local sponsor?

General FLOWERS. The channel alternative is estimated to cost $35 million, with a $385,000 annual O&M cost. The levee alternative is estimated to cost $27 million, with an $80,000 annual O&M cost.

Question. Has the local sponsor indicated an ability to cover the maintenance costs of the options being considered?

General FLOWERS. The City of Milton has indicated that the channel O&M costs are not affordable and that the levee O&M costs would be affordable.

Question. What activities will remain to be completed beyond fiscal year 2001 for the Lower Mud River project and what is the cost of the remaining effort? Does the Corps have capabilities for this project in fiscal year 2002?

General FLOWERS. Remaining efforts include completion of the re-evaluation report, completion of plans and specifications, execution of the construction Project Cooperation Agreement, and construction of the project. The Federal cost of the remaining effort, assuming the levee is the selected plan, would be $18.8 million. Subject to the usual qualifications concerning capabilities, the fiscal year 2002 capability is $750,000 to continue PED activities, including completion of the re-evaluation report and initiation of plans and specifications.

FEASIBILITY AND RECONNAISSANCE STUDIES

Question. Does the Corps have capabilities with respect to potential flood control projects in Cabin Creek, Fourpole Creek, and Mercer County, West Virginia, and port development at Longacre Point and in Wood County? Why does the budget not include funding for any of these initiatives? Is it not shortsighted to preclude any future projects from having the opportunity to develop?

General FLOWERS. Subject to the usual qualifications concerning capabilities, fiscal year 2002 capabilities are as follows: $100,000 for Cabin Creek, West Virginia to initiate a feasibility study; $100,000 for Fourpole Creek, West Virginia to initiate a reconnaissance study; $100,000 for Mercer County, West Virginia to initiate preconstruction engineering and design for the Brush Creek Basin area; $200,000 for Longacre Port, West Virginia to initiate a feasibility study; and $800,000 for Wood County (Erickson/Wood County Port), West Virginia to continue preconstruction engineering and design.

The President's Budget for fiscal year 2002 includes funding of $100,000 to initiate PED for the Mercer County Brush Creek Basin. The budget does not include funding for Cabin Creek or Fourpole Creek because of a general reduction is study funding. Given the large backlog of ongoing projects and other construction and preconstruction engineering and design work (about $40 billion), the pace of new studies needs to slow to a level that reflects what we can afford to move through construction. The budget does not include funding for Longacre Port and Wood County Port because the development of land-side terminal facilities is considered a local responsibility.

QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

DEVILS LAKE, NORTH DAKOTA

Question. I want to briefly update you on the Devils Lake emergency flooding situation that exists in Northeast North Dakota. As you are aware, Devils Lake is one of only two closed basin lakes in the country. Devils Lake also is unique in that it continues to rise—month after month, and year after year. On the contrary, other lakes that experience flooding or rising levels do so for only a short time, then the water levels recede. In the case of Devils Lake, the water level has risen about 25 feet in 7 years. In the past 60 years, it has risen nearly 50 feet. And, the situation is getting worse. As of yesterday, the reported elevation for the Lake is 1446.92 feet. In early March, the Lake elevation was 1446.14 feet, and as of April 19 (last Thursday), the Lake was at 1446.75 feet. So, the Lake has risen nearly 0.8 feet in the last month, and almost ¼ of a foot in less than one week.

The rising and expanding Lake threatens to cut off one region of our state from emergency services and the normal commerce of daily life. It inundates roads, railways and utilities. The Corps has implemented normal flood protection, mitigation, and remediation measures, such as building levees. However, more must be done. This is an emergency situation, because it threatens peoples' homes, businesses and commerce in North Dakota. An outlet must be built to begin to help address this grave situation. A typical Army Corps analysis may not suffice to justify construction of an outlet. Thus, such an analysis must be crafted so that it factors in the unique characteristics of the Lake, and the unique situation that the Devils Lake region and its residents are facing, as a result. Please let me know what the Army Corps plans to do to address this critical situation and ensure that the relevant and analyses, and construction of the outlet, proceed as quickly as possible.

General FLOWERS. Recognizing the critical situation at Devils Lake, the Corps is working toward completion of the Environmental Impact Statement and the preconstruction engineering and design of a recommended plan by the fall of 2002. To accomplish this, the design of a preliminary plan will proceed concurrently with preparation of the Environmental Impact Statement. For selection of the plan that will be advanced into the design phase, we will evaluate the cost effectiveness of alternatives and their economic justification under a range of scenarios for future lake stages. Much of this evaluation will be based on already available data and modeling. The design phase is scheduled to begin in August 2001. Efforts are under way to complete an updated evaluation of alternatives, collect essential seasonal data for evaluation of project impacts, and appropriately coordinate the Environmental Impact Statement.

GRAND FORKS, NORTH DAKOTA–EAST GRAND FORKS, MINNESOTA

Question. I see that the Grand Forks permanent dike construction for the City of Grand Forks, ND is proposed to be funded at $24.954 million for fiscal year 2002. It is my understanding that an additional $10 million beyond the President's budget request is needed for the next fiscal year to ensure completion of this project in four years. This will save money from increases in inflation, as well as from alleviating the need for annual emergency measures—both in terms of construction and removal of temporary levees. Further, I understand that FEMA is in the process of rewriting the flood maps in the Grand Forks area. Unless the dike is completed in a timely way, these maps will not reflect the protection of this dike and homeowners will unnecessarily pay flood insurance.

Is the Army Corps of Engineers aware of this situation with FEMA and does it agree that it makes sense for the federal government to keep the project on an aggressive schedule?

General FLOWERS. We understand that the Federal Emergency Management Agency is developing flood plain maps to reflect current conditions because the existing floodplain maps do not accurately reflect the flooding risk to which the citizens, businesses and infrastructure in the Grand Forks/East Grand Forks area are exposed. We provide current schedules for completion of the flood damage reduction project to FEMA so that FEMA may make reasonable decisions on scheduling its remapping efforts for the area. Subject to the usual qualifications concerning capabilities, the fiscal year 2002 capability for the project is $35 million.

WAHPETON, NORTH DAKOTA AND BRECKENRIDGE, MINNESOTA

Question. Along these lines, the Corps also has Function 205, or continuing authority, funding to proceed with levee construction in Wahpeton, N.D. However, the Corps has informed me that construction cannot proceed without Breckenridge, MN constructing a flood reduction project, that would include a parallel dike, or levee, on the other side of the Missouri River. The cost for the Breckenridge project is $21 million. Simultaneous construction on both sides of the River is essential to preventing damage to Breckenridge, as well as other surrounding areas. These areas could experience severe erosion and/or flooding, due to an imbalance in pressure on the River, if a levee were to be erected on one side of the River, but not the other. However, funding for the Breckenridge construction is considered a "new start" project. There is insufficient funding in the President's budget request for a "new start" in Breckenridge. I have a letter from the Breckenridge Mayor echoing the need for this project.

Given the need for Breckenridge to construct a levee in order for Wahpeton's construction to proceed, and the fact that Wahpeton already has continuing authority for this critical project to protect the City, wouldn't you agree that it is essential to fund the Breckenridge construction project?

General FLOWERS. The floods of 1997 and, more recently, 2001 have demonstrated the importance of providing permanent flood protection for both Wahpeton and Breckenridge. The two projects are interdependent because there would be project-induced flooding if either were implemented without the other. In addition, the 125-year level of permanent flood protection that would be provided by the Wahpeton levee project depends on concurrent construction of a diversion channel feature that is part of the Breckenridge project. For these reasons, we propose that the two projects be constructed in tandem. The Breckenridge project was specifically authorized by Section 320 of the Water Resources Development Act of 2000, and preconstruction engineering and design for both projects will be completed by the end of fiscal year 2001.

Question. Ms. Tornblom, last year, the President proposed a Recreation Modernization Program to meet some of the needs of Corps recreation areas. This program seemed to make a lot of sense, given that the Corps has 4,340 recreation sites associated with 463 Corps projects. Ten percent of the American population visits these sites for a total of 376 million visits every year. According to Corps data, $15 billion is spent at these sites by visitors to these sites. Seems to me like recreation is a big business. In fact, I have asked the General Accounting Office to conduct a formal cost-benefit analysis, but my understanding is that the recreational interests yield approximately $80 million annually, while the downstream navigational interests yield approximately $7 million.

In this light, I think a Recreation Modernization program for the Corps would make some sense. It is my understanding that this proposal would upgrade recreation facilities throughout the COE inventory from the 1950–1960s standards to current standards and codes. This makes sense because there are so many needs in the Corps' limited O&M budget, that recreation often gets overlooked. Could you

please inform us why funding for the Corps' Recreation Modernization program was not included in the fiscal year 2002 budget request?

Ms. TORNBLOM. The Recreation Modernization Program, which was proposed in fiscal year 2001 but did not receive appropriations, would have been classified as a new construction start in the fiscal year 2002 budget. However, no funds are included in the budget to initiate new construction starts. Rather, funds are included in the fiscal year 2002 budget to achieve meaningful progress on continuing projects that are consistent with established policies.

OPERATION AND MAINTENANCE

Question. You may already be aware that Lake Sakakawea is predicted to have exceptionally low water levels in the coming season. Depending on how the Corps proceeds with its operating plan for the Master Manual, their actions could actually exacerbate this problem. With this information in mind, it seems difficult to understand how the Corps could not give greater consideration to these recreational interests. Given the fact that the Corps' actions are already difficult situation even more difficult, will the Corps commit to providing these limited funds to mitigate the problem?

General FLOWERS. The current operation of the Missouri River Main Stem Reservoir System conforms to the Guidelines set out in the existing Missouri River Master Manual. Under the current manual, storage levels trigger release from the reservoirs to serve the multiple purposes for which Congress established the reservoir system. Those purposes include flood control, irrigation, hydropower, navigation, recreation, municipal and industrial water supply and water quality. The Corps is currently in the process of revising the manual. The many alternatives under consideration include conservation measures, which would keep lake levels slightly higher during drought periods such as the 1980's. Our intent is to complete and implement the revised manual in March of 2003. While the Corps entered the year without funds designated to assist recreation interests with problems resulting from low lake levels, we are now making funds available through reprogramming actions to repair boat ramps constructed by the Corps and to address the noxious weed problem.

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

AMERICAN RIVER WATERSHED (COMMON FEATURES), CALIFORNIA

Question. $13 million is included in the Budget for the American River Project. This project was authorized in WRDA 1996 and modified in WRDA 1999. It includes slurry walls to strengthen the Lower American River Levees, raising portions of the American River Levees, levee and berm raising along the Sacramento River and levee raising along the Natomas Cross Canal. What is your capability for the project in fiscal year 2002 and how would any additional funds be used?

Answer. Subject to the usual qualifications, our capability for fiscal year 2002 is $17 million. With the additional funds we could advance completion of the Lower American River slurry wall construction, authorized in WRDA 1996, by 3 months.

AMERICAN RIVER WATERSHED, (FOLSOM DAM MODIFICATIONS), CALIFORNIA

Question. The Folsom Dam Modification project was included as a new construction start in the fiscal year 2001 Appropriation Act. When do you expect actual construction to begin on this project that is critical to improving the level of flood protection for the Sacramento Area?

Answer. We are scheduled to initiate construction for the emergency generator in January 2002, and enlargement of the outlets will begin in August 2002.

Question. Only $4,500,000 was included in the fiscal year 2002 Budget for the project. What is your full capability for fiscal year 2002?

Answer. Subject to the usual qualifications, our full capability for fiscal year 2002 is $8,000,000.

Question. Assuming sufficient funding in fiscal year 2002 and beyond, what is the project's scheduled completion date?

Answer. Our optimal schedule reflects project completion in September 2006.

SOUTH SACRAMENTO COUNTY STREAMS, CALIFORNIA

Question. We understand that a Section 215 project has been proposed for a segment of the South Sacramento Streams Project. Would you describe that work and the urgency of moving ahead with it at this time?

Answer. The proposed Section 215 work involves the non-Federal sponsor reconstructing approximately 3 miles of existing levee and constructing 0.5 miles of new levee at the downstream end of the project. The project would remedy the problem of sand lens underlining and increase the level of flood protection. The Section 215 work is an integral part of that effort.

Question. Do you have a capability to initiate construction of the project in the fiscal year 2002 and if so, how much is your capability?

Answer. Subject to the usual qualifications, our capability is $10,000,000, which would enable us to initiate Federal construction in the spring of 2002.

SUBCOMMITTEE RECESS

Senator BYRD. I believe the chairman said you should close it.

Senator MURRAY. Okay. In that case, I will. This meeting is recessed. Thank you.

[Whereupon, at 4:07 p.m., Tuesday, April 24, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

THURSDAY, APRIL 26, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:09 p.m., in room SD–124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Cochran, Reid, and Hollings.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENTS OF:

GENERAL JOHN GORDON, UNDER SECRETARY OF ENERGY FOR NUCLEAR SECURITY AND ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ADMIRAL FRANK L. BOWMAN, DIRECTOR, NAVAL NUCLEAR PROPULSION PROGRAM

GENERAL THOMAS F. GIOCONDA, ACTING DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS

KENNETH E. BAKER, ACTING DEPUTY ADMINISTRATOR FOR DEFENSE NUCLEAR NONPROLIFERATION

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will come to order. Thanks to Senator Hollings for coming, and I imagine Senator Reid's going to be here before we finish.

This afternoon the subcommittee will consider the fiscal year 2002 budget request for National Nuclear Security Administration, having nuclear weapons, non-proliferation, and reactor programs.

Combining these programs accounts for about $6.8 billion of the $18 billion requested from this subcommittee for the Department of Energy. For nuclear weapons Stockpile Stewardship, the new administration has proposed $5.3 billion for fiscal year 2002, an increase of $295 million over current year. However, even with this increase the request in my opinion—and we hope to establish here today is inadequate. I will state a few of those reasons and we'll try to go through them as we take the testimony.

We know from this committee's hearings on infrastructure earlier this year that our nuclear weapons facilities have degraded to the point that it will take—over a number of years—billions of dollars to modernize for the future. Although the work must begin im-

mediately, the budget request includes no funds to begin such an initiative.

In case anybody doubts that we need to start on this infrastructure and building program, I think the evidence that we have with reference to a facility needed in Tennessee where the roof is kind of falling down and the workers are having to wear hard hats in a building that doesn't have anything to do with wearing hard hats because the ceiling's falling in on them it's time to get that one going because we need it for a lot of new activities.

Under the budget we've got, the NNSA will not be able to meet the Nuclear Weapons Council refurbishment schedule for three major nuclear weapons systems representing about half of the stockpile, and we must soon have the capability to produce plutonium pits for weapons. We've been putting that date off annually into the future.

I think we've arrived at a schedule which everyone says we ought to do, and we ought to be able to, and I believe that the capability which was lost when Rocky Flats was closed—many think it's high time we get on with that. My analysis at least is there's not enough money in this budget to do that.

As a result, I believe the budget we received is about $800 million short in what we should have to do the job of Stockpile Stewardship in the year 2002 correctly and adequately, and for the Defense Nuclear Non-proliferation program the new administration has proposed $773 million for 2002, a decrease of $100 million, or 12 percent over current year.

Now, maybe the new administration thinks there are ways to do this non-proliferation differently and better. We certainly are anxiously awaiting what that is, but in the meantime we would note, at least for the subcommittee's purposes, that Senator Baker and Senator Cutler—excuse me—Attorney Cutler put together a very detailed report on this issue and they concluded that the most urgent unmet national security threat to our country is the danger that weapons of mass destruction or weapons usable material in Russia could be stolen and sold to terrorists or hostile nation states could use them against the United States after having acquired them either militarily or through civilian action.

And the report concluded current non-proliferation programs of the Department of Energy have achieved results which are impressive as far as they have gone, but their limited mandate and funding fall far short of what is required to adequately address this threat.

However, despite our knowledge of the threat and the success of the programs, the 12 percent reduction stands in the budget as it currently is before us. It puts at risk the Russian-U.S. Plutonium Disposition Agreement and forces some very major cuts in other areas, including the well regarded program that's named the MPC&A program. That's the one where we help the Russians with photography equipment and other kinds of things to maintain the nuclear—maintain their plutonium and other things in a safe manner where they can't be easily taken and transferred around without records.

The threats are too great in this non-proliferation area to—for us to say we can get by with the cuts. I don't believe we can.

And my last comment has to do with the Naval Reactor Program. The administration proposes $688 million, the same amount provided in current fiscal year. This program and the men and women who run it have enjoyed nearly 50 years of unparalleled success in providing safe and reliable nuclear propulsion plants for military use.

I look forward to hearing today your comments on the budget request. We're going to begin, after Senators have commented, with you, General Gordon, and your testimony, then you, General Gioconda, whom I understand you're still acting and you're going to be leaving us pretty soon. I wish you could stay around longer. You're doing a great job.

And we have the Acting Deputy Administrator for Programs, Ken Baker. Thank you for all your work. And then we will have the Acting Deputy Administrator for Defense Nuclear Non-proliferation, and we will proceed now asking first Senator Hollings if he has any opening remarks.

Senator HOLLINGS. I'm very interested in waste disposal, but I'll wait until I can ask my questions.

Senator DOMENICI. Thank you very much, Senator.

Senator HOLLINGS. Thank you.

Senator DOMENICI. Senator Cochran.

Senator COCHRAN. Mr. Chairman, I'll wait until we hear from the witnesses. I have a few questions.

Senator DOMENICI. I appreciate that.

General Gordon, welcome, not only here but to your new job. We know it's difficult. We created your position and that which is under you by a brand new statute last year after much debate and discussion, and we look forward, as that statute indicates, to a better managed part of the department as it pertains to nuclear weapons activities and non-proliferation, and we thank you for the time you're devoting to that end.

Please proceed.

STATEMENT OF GENERAL JOHN GORDON

General GORDON. Thank you, Mr. Chairman, and thank you for the opportunity to come up and discuss the budget request for this year. As you've already noted, I'm joined by Admiral Bowman, General Gioconda, and Ken Baker. They'll also have statements to make and they can answer the hard questions I think as we get into this.

But, Mr. Chairman, I would like to make a special point of thanking the members of the committee and yourself for the continuing support of NNSA, its mission, and for the people who make it all happen, both in Washington and in the field, the Federal employees, the contractors. There's some 37,000 people who depend on what we do here today, and they need your support.

I have submitted a rather long formal statement and I offer that for the record, sir, and I'll be a little briefer as we go through this.

STATUS OF NNSA

I would like to speak for a few minutes about NNSA itself, and I would report to you, Mr. Chairman, that we're making steady but somewhat slow progress on the goals we share of an efficient and

effective organization to lead and manage the portion of the nuclear security enterprise that's been entrusted to us, and I'm not particularly satisfied with where we have been able to establish NNSA as an all up organization with its unique identity and clear lines of authority, but we are moving forward and actually I think have made remarkable progress when measured against some of the barriers and the bureaucracy that we've faced.

And even though it's been difficult to move dramatically on organizational issues we've gotten beyond such issues as dual hatting. We've begun to set up a new framework for the organization itself. We've brought on board critical staff for vital issues such as counterintelligence and security and contracting. We've made real progress in each of those areas.

We have two senior advisors who work for me, one in policy, one in science of immense capacity, a director of congressional affairs with a proven track record, an ES&H advisor with tremendous professional experience who's joined us from Naval Reactors, a senior military assistant, a strong chief of staff who knows where the system is and where it's been in great detail, and I'm particularly excited—and you and I have spoken about this, Mr. Chairman—about the establishment of policy planning staff so we can be much more active in the debates that occur within the administration itself.

Now, I did elect, Mr. Chairman, to spend a large portion of my time in the early months of my administration on the very critical mission-related problems that were squarely on my desk when we took over and a little bit less on the organization itself, and from my perspective there's been real progress to report on NNSA, and I'd like to just touch on that for a moment with you and the other members.

NNSA ACCOMPLISHMENTS

First, the morale at the labs and production facilities really has now turned around. I don't want to say it's fixed. I won't tell you that it's not fragile, but every place you go in the structure now you can find at least a difference and a positive sign on what's happening on morale, in part because we've been able to put to them real work and real energy on real projects.

We've made some marked improvements on security, which, if nothing else, you notice we're off the front pages. We have John Hamre running an important committee for us, looking at the balance between security and science and making sure we don't have to trade one off for the other; that we can in fact do both.

We've established a moratorium on new policies until we can make sure the ones we've got are the right ones and that we're implementing them right, and we've begun work on integrated safeguards and security management, a way to really bring security down to the individual people who are trying to do the work.

In counterintelligence we have a better balance on how we handle foreign visitors. We have a major polygraph study going on with the National Academy of Sciences, and I hope to be able to propose to Congress some perfecting language to the polygraph program itself while maintaining the very highest standards of security.

We substantially changed our relationship with the Department of Defense and the military. The Nuclear Weapons Council is up and running and making decisions. We are working carefully together on requirements and we've agreed as you mentioned on a specific stockpile life extension program where we know what needs to be done. We've reached agreement with the Nuclear Weapons Council and developed a schedule for this program.

I have developed a 5-year budget. It's an important management tool. It's not perfect by any means, but it's a good first start, and we're going to continue that every year as we move ahead. We rebaselined the National Ignition Facility, which is a clear way ahead, and when one goes out and visits it now you no longer hear just about the science, or isn't this going to be wonderful when it gets done, but it's really being run on a project basis. Here's what we did last week. Here's what I'm going to do next week. Here's the budget. Here's the earned value. Here are the problems. They're really dealing with it in a management way that's very different.

We've begun to put new—renewed energy in our operations in Nevada with an aggressive subcritical program. It gives much needed unique information to our work for SSP as a whole with specific work on plutonium.

We've had the first couple of shots now from a very important test facility known as Jasper, or gas gun. It's going to also contribute to our knowledge of plutonium at a much cheaper way than the subcrits, and we're well on our way toward understanding how we will move the ATLAS system there and get it up and running, dependent upon the outcomes of the strategic reviews and the allocation of funds.

We've put into place new contracts at most of our facilities: at Los Alamos and Livermore Labs, under the University of California, a new contractor at Y–12 in Tennessee, a new contractor at Pantex, a new contract at Kansas City, and DOE has extended the contract at Savannah River. And I can report that in every one of those locations there are positive changes that are coming about, either new contracts or through the new contractor aggressively attacking the problems we have.

With non-proliferation, Mr. Chairman, we've been equally successful in Detection R&D with the MTI satellite—from the MTI satellite to the smallest of hand held detectors being made available to first responders in nuclear, chemical, and biological.

MPC&A is having success strengthening the security of several thousand Russian naval warheads and 220 metric tons of uranium and plutonium, and the Second Line of Defense in Russia where we've been helping deploy detectors at sensitive Russian border crossings, and the Nuclear Cities Initiative and the Initiatives for Proliferation Prevention providing opportunities for Russian nuclear scientists to turn to commercial activities and to reduce the footprint of the Russian nuclear complex.

In the HEU purchase, the highly enriched uranium purchase, we've now monitored the conversion of 110 metric tons of Russian highly enriched uranium into a lower grade reactor fuel. We strengthened the safety of Russian-designed reactors. We're trying to convert unneeded material here and in Russia, and we've com-

pleted the canning and safeguarding of some 8,000 plutonium bearing fuel rods from Yongbyong in North Korea.

NAVAL REACTOR'S ACCOMPLISHMENTS

Mr. Chairman, I won't say a lot about naval reactors today other than to report that my friend Admiral Skip Bowman is actually doing a superb job by every measure. His organization operates 102 naval reactor plants, one less than the total number of commercial reactors operating in the United States today. Naval Reactors provide safe, efficient, effective propulsion to 40 percent of the naval combatants.

They're developing the next generation reactor for the Virginia Class submarines and the reactor for the Navy's new class of aircraft carriers CVNX. These are included in the requested budget. But importantly, Naval Reactors continues to make real progress in improving its business practices and operating at the highest environmental standards. Mr. Chairman, what I do, what I ask my staff to do is go to school on them, because they're showing us how to do a lot of this.

ONGOING REVIEWS AND THEIR EFFECT ON THE BUDGET REQUEST

Mr. Chairman, you've mentioned the budget, $6.8 billion total, $5.3 billion for defense programs, $774 million for Defense Nuclear Non-proliferation, $688 million for Naval Reactors.

Mr. Chairman, it's very likely that numbers for the Defense Nuclear Non-proliferation and Defense Programs are not final. President Bush has asked the Secretary of Defense, in conjunction with the Secretary of Energy, to conduct several reviews to create a new vision for the role of the Nation's military in this century. One of those reviews will examine the role of nuclear deterrence in the post-cold war national security environment, including determinations of the size and the structure of the weapons stockpile and the possibility of substantially different requirements.

NNSA is an active participant in that review and its outcome will have a major impact on the work load of the national security laboratories and the plants for many years to come.

Another review is examining the U.S. non-proliferation programs with Russia. At the end of this review I hope we'll have a new strategy for threat reduction activities, and the NNSA is also a major participant in those reviews. The administration will finalize its out-year funding request for defense and national security-related activities when these reviews are complete.

Following these reviews, we will work with you and the staff to provide timely information on the results and any changes to the budget request for 2002 and the out years, and knowing that our schedules and your schedules for this budget are already quite compressed, I wish I could give you a firm schedule on this, but at this time it would really only be speculation on my part.

But notwithstanding some uncertainty about the details of the reviews, I'd like to look ahead, Mr. Chairman, to the challenges and the opportunities that really are in front of us and the steps we need to take to effectively accomplish and focus our programs.

BUDGET PRIORITIES

My formal submission defines the details. I'd like to speak pretty broadly about where this goes, particularly in the light of the possibility of some changes in the numbers.

The requested budget for defense program goes a long way towards stockpile stewardship and includes, as you mentioned, an increase of about 4.6 percent this year. Now, $5.3 billion is a significant amount of money and, as I understand it, the only real increase in the DOE budget, and it will support most of our major campaigns, the technology building blocks for the future. Two national assets—the secure transportation asset and nuclear incident response—will remain a high priority, and weapons safeguards and security, a separate budget category, will meet all known requirements.

At the requested level it will support the ongoing refurbishments of the W87 warhead and begin the work on the B61, which is much needed. It will not, under current allocations, support plans for the W76 or for the W80, although we should be able to begin some engineering development work.

We will proceed with our pit manufacturing plan and schedule, but we will not be able to give a date certain for the certification of a W88 pit, at least without significantly unbalancing the program as a whole. And, at the requested level, we would not be able to aggressively attack the infrastructure problem issue, which we discussed at the last—at my last appearance before the subcommittee.

Mr. Chairman, the underlying approach to our budget was to keep all our campaigns in balance while focusing on three areas: correcting some of the major problems of the past such as the NIF, pit manufacturing and pit certification; beginning to fund the needed refurbishment programs for the stockpile which were not included in the original design of Stockpile Stewardship because we didn't know what work was going to need to be done; and to begin to correct this crisis we have in our facilities. So we await the outcome of the reviews to finalize our numbers.

NUCLEAR TEST READINESS AND LONG-TERM PIT PRODUCTION

As a bit of an aside, Mr. Chairman, there are two topics I want to focus on more this year, that at least in the first year won't have major budgetary impacts, but I think it is now time for us to get on a different step on nuclear test readiness and on long-term pit production as well. I plan to conduct a review very closely tied with the administration's defense reviews on whether and how we should improve our readiness to conduct a nuclear test, should it ever be conducted with the possibility of moving those time lines up.

And I also believe we've now made enough progress in the pit manufacturing program at Los Alamos to begin seriously looking at what it would take to construct a new and larger pit production facility such as the Foster Panel and others recommended. We need to get up on that work.

STATUS OF DEFENSE NUCLEAR NON-PROLIFERATION PROGRAM

Mr. Chairman, the administration request for Defense Nuclear Non-proliferation programs is $101 million less than last year's appropriation. At that level it should be obvious that we will have to curtail efforts in several areas and lose momentum in others. Again, however, the administration is conducting a review of each of those programs and we await the conclusion of those reviews.

From my perspective we manage a series of programs, and I've already highlighted most of them, that taken together contribute measurably to the vital goal of reducing the threat of proliferation of weapons of mass destruction. NNSA has had some real success in this area because we've been able to integrate the technology, the research, and the expertise of the NNSA laboratories with that of the other laboratories of DOE and other U.S. Government agencies.

We quite literally provide the technical base for much of what the government does in proliferation detection and the expertise base to work effectively in Russia and elsewhere to secure materials and weapons, support international agreements, and reduce the threat we face.

And, Mr. Chairman, it is appropriate that the administration review our programs and come to its own conclusions about their merits. For me, I would hope that the real result of these reviews would lead to a more comprehensive approach, a more integrated approach to non-proliferation and threat reduction so the individual programs can be seen and measured in light of an overall approach and clear goals and the individual programs can be judged and work synergistically.

NNSA is responsible for a large range of national security programs, programs that seek to deter and prevent and detect worldwide proliferation of weapons of mass destruction and the materials that produce them. The three-fold threat of unsecured materials, available technology, underemployed expertise argues for a strong, effective program.

Even so, we're mindful of how difficult it is to operate in this environment and the ongoing reviews and policy development activities that specifically deal with issues of Russian attitudes, the relationship with proliferants, issues of access, issues of sustainability.

Mr. Chairman, some days I think I have the best job in American public service. Some days I'm not quite so convinced. But we are making progress on our mission and on the organization itself, and with the strong demonstrated support already by Secretary Abraham, I expect that progress to continue.

I remain excited about the mission and its great importance. We can't be daunted by the magnitude of the problems we face. We need to attack them every day with energy and with commitment. We need to correct the shortfalls of the past but we've got to really look to the future, and this in turn requires that we attract and retain the very best people, give them clear leadership, an important mission, adequate resources to do their jobs, and a safe, efficient work environment.

I remain so impressed by the folks that I deal with every day in NNSA. They're committed, they work hard, often in very difficult

conditions, and I gain a lot of energy from those who do the mission every day. You can and you should be proud of them, as I am.

Mr. Chairman, I very much appreciate the support of this subcommittee for NNSA. The 37,000 people of NNSA need your support. Thank you.

[The statement follows:]

PREPARED STATEMENT OF JOHN A. GORDON

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify on the Department of Energy (DOE) National Nuclear Security Administration's (NNSA) fiscal year 2002 budget request. The overall request—including Defense Programs, Defense Nuclear Nonproliferation, Naval Reactors, and the Administrator's Office—totals $6.8 billion.

The Defense Programs (DP) fiscal year 2002 budget request is $5.3 billion, an increase of 4.6 percent over the comparable appropriated fiscal year 2001 level. This budget will support (1) all scheduled maintenance, evaluation, and certification activities for the current stockpile, while deferring some decisions on future refurbishment workload; (2) manufacture of a certifiable W88 with a newly manufactured pit in fiscal year 2003, with no commitment to a certification schedule or to production quantities; (3) maintenance of all current facilities and sites at approximately the current level of funding; (4) maintenance of current management and operating (M&O) contractor employment levels for ongoing programs; (5) maintenance of secure transportation and nuclear weapon incident response assets at approximately their current levels; (6) current requirements for weapons safeguards and security, while undertaking a limited cyber security initiative; and (7) maintenance of federal staffing levels at the current, on-board level, including re-consolidation of NNSA federal landlord, safeguards, and security staffs. Specific line items include Directed Stockpile Work ($1,043,791,000), Campaigns ($1,996,413,000), Readiness in Technical Base and Facilities ($1,446,988,000), Secure Transportation Asset ($121,800,000), Safeguards and Security ($448,881,000), and Program Direction ($271,137,000).

The Defense Nuclear Nonproliferation (NN) fiscal year 2002 request is $773.7 million. This is a decrease from the 2001 budget, but this does not represent a lessening of our commitment to meeting the ever-growing challenges faced in the international nonproliferation or threat reduction arena. The request does cover the funding needed to support a broad range of nonproliferation goals. These include: (1) international nuclear safety, (2) detecting the proliferation of weapons of mass destruction, (3) preventing the spread of nuclear materials, technology, and expertise, and (4) eliminating inventories of surplus fissile material usable for nuclear weapons. Specific line items include Nonproliferation and Verification Research and Development ($206,102,000), International Nuclear Safety ($13,800,000), Highly Enriched Uranium (HEU) Transparency Implementation ($13,950,000), Arms Control and Nonproliferation ($101,500,000), International Materials Protection, Control and Accounting ($138,800,000), Fissile Materials Disposition ($248,089,000), and Program Direction ($51,459,000).

The Naval Reactors (NR) fiscal year 2002 budget request is $688,045,000, virtually unchanged from the fiscal year 2001 appropriated amount. This budget will support planned activities for Naval Reactors Development, including Plant Technology, Reactor Technology and Analysis, Materials Development and Verification, Evaluation and Servicing, Facility Operation, and Construction. In real terms, the NR budget is decreasing about $18,000,000 due to inflation. This decrease reflects progress toward completing major inactivation work on the S3G and D1G prototype reactor plants at the Kesselring site, along with the final phase of the Windsor site inactivation and cleanup work. Specific line items include Naval Reactors Development ($665,445,000) and Program Direction ($22,600,000).

The fiscal year 2002 budget request for the Office of the Administrator of the NNSA is $15 million. The Department of Energy is required by various laws to enhance U.S. national security through the military application of nuclear technology, and to reduce global danger from the proliferation of weapons of mass destruction. The NNSA, a semi-autonomous Administration within the Department, carries out these responsibilities. Established in March 2000, pursuant to Title 32 of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106–65), the NNSA is structured to provide clear and direct lines of accountability and responsibility for the management and operation of the nation's nuclear weapons, naval reactors, and nuclear nonproliferation activities.

In January 2001, President Bush asked the Secretary of Defense, in coordination with the Secretary of Energy, to conduct a Strategic Defense Review to create a new vision for the role of the nation's military in the 21st century. Completion of this review will certainly impact the fiscal year 2002 and out-year budgets for defense and national-security-related activities. The Administration plans to determine the final fiscal year 2002 and out-year funding requests when the Strategic Defense Review is complete. As Secretary Abraham indicated in his statement on April 9, 2001, concerning the DOE fiscal year 2002 Budget Request to Congress, "While awaiting the policy shaped by the Strategic Defense Review, we will refocus funding to meet vital national security needs, including investments to maintain our nuclear weapons arsenal, shore up an aging weapons infrastructure, and improve safeguards and security at all DOE facilities." I am here today to describe those efforts and the progress we have made since the NNSA was created.

Standing up the NNSA

As you know, the NNSA has formed for just over one year. As the NNSA Administrator, this is my first opportunity to appear before the Subcommittee to discuss the NNSA budget request. Before providing a detailed presentation of our budget, based on our key goals and strategies for attaining those goals, let me share with you my observations about the nation's nuclear security enterprise and some of the accomplishments the NNSA has achieved during its short existence.

I begin by emphasizing that our focus is on our mission, as Congress defined it in the NNSA enabling legislation—Title 32 of the National Defense Authorization Act for Fiscal Year 2000. Title 32 contains six mission objectives:

—To enhance United States national security through the military applications of nuclear energy.
—To maintain and enhance the safety, reliability, and performance of the United States nuclear weapons stockpile, including the ability to design, produce, and test, in order to meet national security requirements.
—To provide the United States Navy with safe, militarily effective nuclear propulsion plants and to ensure the safe and reliable operations of those plants.
—To promote international nuclear safety and non-proliferation.
—To reduce the nuclear danger from weapons of mass destruction.
—To support United States leadership in science and technology.

The NNSA's mission is to strengthen national security and reduce the global threat from weapons of mass destruction, through the application of science and technology. While standing up the NNSA has proceeded more slowly than I would have liked, we are fulfilling our mission every day in our laboratories, production facilities, test site, and, yes, even in remote parts of the world, where we pursue our nonproliferation goals. And, my friend Admiral Bowman oversees 102 naval nuclear reactors, helping underwrite American military presence and deterrence around the globe.

OBSERVATIONS

Over the six months, I have traveled to all of the national defense laboratories, the production plants, and the federal field offices. I have met many of the men and women who make up the NNSA. Based on my observations and interactions, I am very impressed with the dedication our team brings to their work and our mission; the intelligence and creativity they apply to the highly complex scientific and engineering problems that confront them; and the technical skills they use to maintain the safety, security and reliability of this nation's aging nuclear weapons stockpile, while addressing the risks of proliferation and use of weapons of mass destruction, and developing the most efficient, safest nuclear reactors ever conceived.

As long as nuclear deterrence remains the cornerstone of our national security strategy and we continue to face the risk of weapons of mass destruction, we must ask nothing less than the continued excellence these people have delivered for more than fifty years. In fact, we must continue to demand more—more security, improved health and safety of our workers, more environmentally benign processes, and higher efficiency. They, in turn, deserve our support and our advocacy.

As we discuss budgets, programs, and projects, it is imperative that we not lose sight of the fact that the success of the NNSA depends on these talented and patriotic Americans—the technicians, administrative staff, scientists, guards, engineers, maintenance crews, managers, and all the others—who contribute to the nation's nuclear defense. One of my jobs is to make certain that none of us lose sight of this simple fact—we must not jeopardize the success of these programs by making decisions that unnecessarily hinder our people from performing their best work or stifle their creativity or limit their initiative.

I assumed this job at a moment in which the enterprise, as a whole, was struggling with security concerns and questions about its future, and the morale of our people was at an all-time low. While hard to quantify, I sense, and I believe my colleagues and the leadership at the laboratories and production plants would agree, that morale has begun to improve. People are starting to feel better about themselves, their work, their institutions, and the direction in which they see the NNSA moving, especially at the laboratories.

MISSION ACCOMPLISHMENTS

Last year, our overall budget saw its first real growth in many years, and, for that, I thank the Congress. This tangible commitment to our mission by Congress has sent a strong signal that the mission is important and enduring, and has allowed all of us in the enterprise to begin to really look to the future. With these additional funds, we have begun to make marginal improvements. These additional funds will make it easier to attract and retain the next generation of scientists and engineers, to continue to build the needed experimental and computational facilities, and to begin to correct for our aging infrastructure at the production sites and laboratories. Congress authorized an increase in Laboratory Directed Research and Development (LDRD). In fiscal year 2001, we have established a new research and development program, dedicated to improving the efficiency and effectiveness of our production plants.

That said, the NNSA enterprise is still very fragile, and there is much more to do. We are making aggressive, pro-active management decisions to improve our stewardship of the resources provided by the Congress.

The NNSA completed the fifth annual certification of the nuclear weapons stockpile, with the Secretaries of Defense and Energy signed their certification letter on January 11, 2001, for transmission to the President.

Activities are on track to restore the capability of producing tritium, which is required for proper operation of all nuclear-weapon types in the stockpile. On January 1, 2000, a thirty-year interagency agreement with the Tennessee Valley Authority (TVA), making three of its reactors available to begin irradiation of tritium production absorber rods, as early as October 2003. On July 27, 2000, ground was broken for the Tritium Extraction Facility at the Savannah River Site. Delivery of new tritium gas is expected to commence in February 2006.

In concert with the Department of Defense, and through the Nuclear Weapons Council, we now have an agreed upon program to refurbish the B61 bomb and the W76 and W80 warheads, which constitute a significant portion of the stockpile. This work, in addition to the ongoing refurbishment of the W87 intercontinental ballistic missile warhead, is a clear demonstration that stockpile stewardship is working, and a clear measure of a renewed, much improved relationship with the Department of Defense. At the same time, this planned workload demands resources that are not included in the original Stockpile Stewardship Program and demand long-delayed improvements in plant infrastructure, as well.

There are new contracts in place that give NNSA better oversight at our plants and laboratories at Y–12, Pantex, Kansas City, and Los Alamos and Lawrence Livermore National Laboratories.

The approach to solving infrastructure issues is also moving in the right direction. We have begun a Recapitalization Initiative to develop an integrated, prioritized list of maintenance and infrastructure activities that, when completed, will significantly increase the operational efficiency and effectiveness at all of our sites. It is a long-term plan that will allow us to create a weapons complex that is properly sized, using modern technologies to protect the health and safety of our workers and communities, without creating a legacy of hazardous waste and distrust that we do not want, nor can we afford. This plan will increase the operational readiness of facilities, reduce non-productive facility downtime and high costs associated with unplanned corrective maintenance, arrest the continuing deterioration of facilities, extend the useful lifetimes of current facilities.

NNSA has rebaselined the work at the National Ignition Facility. There has been a major turnaround in the management of this once-troubled program, and I have recently certified to Congress that the program is on schedule and within budget. We are making progress in plutonium pit manufacturing and certification, although there are serious issues ahead of us. Directed Stockpile Work has made enormous leaps, and is providing the thousands of parts needed to keep the nuclear stockpile safe, secure, and reliable. The Advanced Simulation and Computing program (formerly the Accelerated Strategic Computing Iniative [ASCI]) is continuing, on track, to provide the world-class computing and simulation tools required to maintain the stockpile, now and into the future. The Nevada Test Site continues to conduct ex-

periments, subcritical and others, that are providing valuable data on the health of the nuclear weapons stockpile, and are exercising skills necessary to maintain test readiness.

We have begun implementing "Integrated Safeguards and Security Management" in the NNSA. ISSM, as it is known, will build safeguards and security considerations into management and work practices, at all levels, so missions are accomplished securely. It is designed to involve the individuals performing work in the process of establishing appropriate safeguards and security practices. Subject matter experts are available to provide guidance and information, but we must place the responsibility for working securely squarely on the shoulders of every individual in our complex—the scientists, technicians, production workers, and professionals performing and managing our missions.

NNSA has been hard at work to secure and dispose of nuclear warhead materials, at home and abroad. We are establishing methods to help prevent the unthinkable from happening—the use of weapons of mass destruction in an attack on this country or our citizens. NNSA's world-class expertise at its national laboratories is vital to the success of this effort.

Since 1993, the Materials Protection, Control and Accounting (MPC&A) program has formed a first line of defense by working with Russia to improve the security of weapons-usable material at ninety-five sites. By the end of the current fiscal year, the program will have completed rapid security upgrades for nearly 4,000 Russian Navy nuclear warheads and an additional 220 metric tons of HEU and plutonium located in Russia and the Newly Independent States—enough material to make roughly 20,000 nuclear devices. In addition, our Second Line of Defense (SLD) Program is improving Russia's ability to detect and interdict nuclear smuggling, by installing radiation detection equipment at key Russian border crossings, including three seaports and two airports.

NNSA is helping to prevent the proliferation of weapons-usable material, while significantly reducing long-term storage costs for these materials in the United States Under the materials disposition program, the United States and Russia are implementing an agreement, signed in September 2000, to permanently dispose of sixty-eight metric tons of weapons-grade plutonium—thirty-four metric tons on each side.

We continue to transfer quantities of surplus U.S. highly enriched uranium—more than thirty-four metric tons to date—to the U.S. Enrichment Corporation, for downblending to low-enriched uranium nuclear-reactor fuel. We recently signed an agreement with the TVA to dispose of another thirty-three metric tons of highly enriched uranium. This agreement with the TVA will save U.S. taxpayers nearly $600 million over the cost of disposing of it as waste.

Under the HEU Purchase Agreement with Russia, we have overseen the conversion of 110 metric tons of Russian weapons-grade HEU to low enriched uranium, for commercial sale to the U.S. for our nuclear power plants. This amount is equivalent to roughly 4,400 nuclear weapons.

NNSA employees are also training civilian nuclear reactor workers in Russia and the Newly Independent States to increase safety standards and prevent another accident, such as the one that occurred at Chornobyl. On December 15, 2000, the government of Ukraine permanently shut-down the last remaining operational reactor at the Chornobyl Nuclear Power Plant, on schedule. NNSA experts were instrumental in making certain this historic achievement was possible.

The Multi-spectral Thermal Imager satellite was launched on March 12th, 2000. This small research satellite was designed and built by a team of NNSA laboratories and industry partners, to develop and test remote sensing concepts that will add to our country's ability to monitor nuclear proliferation. Additionally, this unique satellite is being used by a wide number of civil, environmental, and defense scientists to conduct a broad array of government research.

The Nuclear Cities Initiative (NCI) aims to prevent and reverse the threat of proliferation of nuclear weapons expertise, by redirecting weapons scientists in Russia's nuclear cities to sustainable, non-weapons activities. The NCI also enhances U.S. national security by assisting Russia in reducing the overall size of its nuclear weapons production complex. Last year, this program achieved an historic accomplishment when the Russians moved a concrete fence at the Avangard weapons facility, creating an open "Technopark" for commercial businesses. This is the first time that a Russian weapons facility has reduced its footprint, as part of the nuclear weapons complex downsizing they have committed to undertake.

All of this said, we face a period of uncertainty in our cooperative programs with Russia to reduce the threats of weapons of mass destruction. Recently, Russian President Putin dismissed the head of the Ministry of Atomic Energy, Minister Adamov, and replaced him with Alexandr Rumyantsev, from the Kurchatov Insti-

tute. We are uncertain what this change will mean for our programs. We remain concerned about access required to ensure that our cooperative threat reduction programs are implemented properly and that our financial contributions are well spent. We are also mindful of Russia's cooperation with Iran.

Naval Reactors has compiled an unparalleled record of success, including

—Nuclear-powered warships have safely steamed more than 122 million miles, equivalent to nearly 5,000 trips around the Earth.

—Naval reactor plants have accumulated 5,200 reactor-years of operation, compared to approximately 2,540 for the U.S. commercial industry. In addition, our operating experience is approximately half that of the entire commercial power industry, worldwide (our 5,200 reactor-years, compared to approximately 9,660 worldwide, including the United States).

—Naval Reactors' outstanding, and fully public, environmental record enables our ships to visit more than 150 ports around the world, which is critical to our nation's forward-presence strategy and ability to project power.

Policy Reviews

As mentioned above, the new Administration has chartered several reviews to create a new vision for the role of the nation's military in the 21st century. These reviews will examine the appropriate national security strategy for this country. One of the reviews will encompass the role of nuclear deterrence and a position on the size of the future nuclear stockpile. A second review will evaluate all U.S. nonproliferation programs with Russia. At the end of this review, we may have a new strategy for our threat reduction activities with Russia. The Department and the NNSA are active participants in these reviews. The Administration will finalize fiscal year 2002 and out-year funding requests for defense when these reviews are complete.

IMPROVEMENTS ARE STILL NEEDED

No matter the outcome of these strategic reviews, we recognize the need for change in the business practices of the Nation's nuclear security enterprise.

While we are making steady progress, the NNSA still has work to do to get security right. Our people must see that there is value added in new or additional security requirements. We want to make sure that what we do actually improves security, and that security measures do not unnecessarily impede accomplishing our mission. We have stressed the concept of science AND security, rather than science OR security. We must make sure that the scientific culture and the security culture mesh. Our scientists must understand the need for classification and security, as they advance science. Similarly, our security officers must be sensitive to the environment in which we operate, and help further our mission. Our scientists, engineers, technicians, and our security and counterintelligence personnel must see themselves on the same team.

We must focus on revitalizing our infrastructure, which has long been neglected. This is key for the organization to improve morale, increase recruitment, and retain people. No one wants to work in a facility where weeds grow through the cracks in the buildings, or where you have to wear a hard hat, not for normal safety requirements, but because the concrete in the roof may fall down at any time. Revitalizing our infrastructure will take additional funding, but it will be incumbent upon us to set priorities so this job is done in the most cost-effective way, in future years.

NNSA, as an organization, must continue to sharpen its project management skills. Just two weeks ago I was at Lawrence Livermore National Laboratory's National Ignition Facility. The people there are making great strides in focusing on the project, completing conventional-facility construction, and maintaining a schedule that will see this project to fruition.

At Los Alamos National Laboratory, Defense Programs must ensure that the capability to manufacture plutonium pits is reestablished, and we must come to grips with the long-term requirements for pit manufacture. We have recently established a full-time office in DP that focuses solely on pit production and certification. This pit project office sets schedules and milestones to ensure that we can produce pits, and that they can be certified by the laboratory for use in the stockpile.

A key to many of the management challenges facing the NNSA is implementing a planning, programming, budgeting, and evaluation process. This new management system will (1) improve discipline in program and project management, (2) ensure that each program and project receives appropriate consideration, as tradeoffs are made in establishing the integrated budget, and (3) create meaningful performance measurement and feedback systems. We will measure the value of this system through improvement in our mission performance.

As a first step in the implementation of this process, we have begun a strategic planning process to identify key goals of the NNSA, strategies for attaining those goals, and measures for tracking progress on our goals. In addition to ensuring that NNSA is in compliance with the Government Performance and Results Act (GPRA), this effort has helped foster a recognition of the benefits of managing nuclear security programs on an enterprise-wide basis. We have organized our budget testimony this year to track the key goals and strategies identified by our senior managers. Our six primary goals are:

—Maintain and enhance the safety, security, and reliability of the Nation's nuclear weapons stockpile, meeting military requirements designed to counter threats of the 21st Century.
—Assure the safe and secure management of nuclear facilities, materials, and expertise worldwide.
—Detect, deter, and impede the proliferation and the use of weapons of mass destruction.
—Provide the Navy with safe, militarily effective nuclear propulsion plants, and ensure their continued safe and reliable operation.
—Ensure the vitality and readiness of the NNSA's scientific and technical enterprise, for the next decade and beyond.
—Create a well-managed, responsive and accountable organization by employing effective business practices.

GOAL 1: STOCKPILE STEWARDSHIP

We turn first to a discussion of the stockpile stewardship program that is designed to maintain and enhance the safety, security, and reliability of the nation's nuclear weapons stockpile, meeting military requirements designed to counter threats of the 21st Century. To ensure that the U.S. stockpile of nuclear weapons remains safe, secure, and reliable, the NNSA will continue to advance the Stockpile Stewardship Program. This program was established by the fiscal year 1994 National Defense Authorization Act, which directed the Secretary of Energy "to establish a stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons." The Stockpile Stewardship Program must: (1) predict, detect, and evaluate potential problems, due to the aging of the stockpile, (2) refurbish and re-manufacture warheads and components, as required, (3) support focused, multi-faceted efforts to increase the understanding of the stockpile, and (4) maintain the science and engineering institutions needed to support the nations's nuclear deterrent, now and in the future.

Surveillance and assessment activities, including many aboveground experiments, the manufacture of limited-life components and replacement parts, the reestablishment of a capability to fabricate plutonium pits, weapon refurbishments to extend the lifetimes of weapons in our aging stockpile, securing a source of tritium, and providing secure transportation of nuclear materials are all necessary, whether we're conducting nuclear tests, or not. In addition, we must maintain our nuclear weapons complex, which has been downsized significantly during the last decade and is in dire need of repair; ensure that we have a workforce with the necessary skills; and see to the safety and security of both our facilities and workforce, the communities in which we work, and the environment in which we live.

We are annually conducting hundreds of experiments at our national laboratories and the Nevada Test Site to increase our understanding of what happens when a nuclear weapon detonates. The software being validated by these experiments is already making significant contributions to the maintenance of the nuclear stockpile. Early versions of the three-dimensional weapon performance codes are resolving previously unexplained phenomena from past underground test data and are contributing to the resolution of issues that have been raised by our surveillance program. Simulations have also enabled us to qualify, for the first time without nuclear tests, a radiation-hardened component and a replacement neutron generator for the W76.

Experiments in facilities now under development, such as the National Ignition Facility (NIF), and those that are on-line, such as the Z accelerator and the Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT), will greatly expand our knowledge of what happens in a nuclear detonation. The closer our scientists and engineers get to duplicating in the laboratory the phenomena that occur in nuclear detonation, the greater our chances are of being able to continue to certify that our stockpile is safe, secure, and reliable, without the need to return to nuclear testing. But, even if there were no moratorium on nuclear testing, most activities encompassed by the Stockpile Stewardship Program would still be necessary to assess, certify, and maintain the safety, security, and reliability of the stockpile.

Stockpile Certification

A cornerstone of the Stockpile Stewardship Program is the certification to the President, by the Secretaries of Defense and Energy, whether any safety or reliability concerns exist that would require a return to nuclear testing. At his confirmation hearing, Secretary Abraham stated that, in his judgment, "one of the most sobering and important responsibilities vested in the Secretary of Energy is the duty to certify to the President each year that the U.S. nuclear stockpile is safe, secure, and reliable . . .." In a like manner, I believe my most important responsibility, as the Administrator of the NNSA, is to facilitate that process.

Certification is based on a yearly, rigorous technical review of the condition of the stockpile by the Directors of the three nuclear weapons laboratories, the Commander in Chief of the U.S. Strategic Command, and the Nuclear Weapons Council. The most recent assessment concludes that the stockpile is safe and reliable, and that no nuclear testing is needed at this time.

This certification is made possible by activities within the Stockpile Stewardship Program, through an extensive set of activities and tests assessing and qualifying the myriad of components and subsystems of each of our weapon system types. Data and test results must be analyzed, assessed, and evaluated before conclusions can be drawn regarding the safety and reliability of stockpiled warheads. A significant imperative of assessment and certification is to develop the necessary tools to accurately baseline warheads in the existing stockpile, while designers with nuclear-test and warhead-design experience remain to mentor the next generation of stockpile stewards.

The key to accurate assessments is the expert judgment of our weapons scientists and engineers. Confidence in the accuracy of their judgment and confidence in the safety, security, and reliability of the warheads in our stockpile are more closely linked than ever before. In the past, a weapon steward's judgment was developed and validated through new warhead design and nuclear testing. Today, our Stockpile Stewardship Program is honing and demonstrating expert judgment of the next generation of stockpile stewards through integrated use of surveillance, computational simulations, applied scientific experimentation, material and aging studies, and nonnuclear experiments.

In the absence of nuclear testing, a variety of experiments and tools provide data relevant to nuclear warhead performance. Some of the older tools, designed to complement nuclear testing, are not, in and of themselves, sufficient to provide the needed information. A suite of enhanced capabilities and facilities, to fill in the knowledge gaps and provide enhanced data relevant to various stockpile concerns, has been identified and is being developed through our Campaigns, described later in my testimony.

We are implementing stockpile stewardship through two strategies: a program of Directed Stockpile Work, and development of a suite of science, engineering, and readiness Campaigns.

Directed Stockpile Work

The first strategy for maintaining the safety, security, and reliability of the Nation's nuclear stockpile is our program of Directed Stockpile Work, developed in concert with the DOD. This program applies the improved tools and technologies developed by all elements of the Stockpile Stewardship Program, and consists of three important elements: maintenance and evaluation, refurbishments, and dismantlements.

Stockpile Maintenance and Evaluation

The budget submission for fiscal year 2002 will support all scheduled maintenance and evaluation activities for the current stockpile. Each year, eleven weapons of each type in the stockpile are returned from the active force and are disassembled, examined, tested, and analyzed for defects. One is destructively tested. If defects are found, their effect on reliability and safety is assessed. We conduct flight and laboratory tests on systems and components, including the destructive testing of pits. In fiscal year 2002, we expect to conduct thirty flight tests, seventy-two laboratory tests, thousands of component tests, and we will destructively analyze nine pits. The current budget request will allow us to continue to reduce the backlog of laboratory tests resulting from other priorities during past years. The additional $23 million over our request in fiscal year 2001 that Congress provided for reducing the testing backlog was instrumental in reducing the backlog this year. The additional $17 million that Congress provided for the Enhanced Surveillance Campaign in fiscal year 2001 enabled us to initiate and accelerate the deployment of advanced diagnostic tools, for early identification of warhead aging problems that otherwise may not be detectable until too late.

Scheduled maintenance also includes the replacement of limited-life components, such as neutron generators and tritium reservoirs. In fiscal year 2002, we expect to produce and fill 1,695 tritium reservoirs, produce 1,445 new tritium reservoirs, re-certify 854 neutron generators, and produce 296 new neutron generators. In fiscal year 2001, the complex accomplished the exchange of nearly 4,500 limited-life components. We also expect to achieve first production of replacement tritium reservoirs for the W62 and W87, and continue production of the replacement neutron generator for the W76.

As our nuclear weapons continue to age, we expect more parts to require replacement. Manufacturing replacement parts sounds straightforward, but in the time that has elapsed since the current weapons in the stockpile were originally manufactured, some of our production plants have closed, manufacturing processes, techniques, and standards have changed, and there are more stringent health, safety, and environmental standards. Under these conditions, manufacturing exact replacement parts is difficult, if not impossible and, because nuclear testing can no longer be used to qualify the replacements, extensive testing and analyses must be conducted to ensure that the replicated components are acceptable.

At present, we have nine weapons alterations underway to meet higher safety standards or to replace faulty components in various systems. We are currently on schedule with all nine alterations, and the fiscal year 2002 budget supports those schedules. In addition, we have reached agreement, with the Department of Defense, on a comprehensive plan for refurbishing the nuclear stockpile over the coming decade. Implementation of that plan awaits the decisions from the Strategic Defense Review, and the current fiscal year 2002 budget submission supports only limited execution of that plan.

Refurbishments

Following cessation of production at the Rocky Flats Plant in 1989, the United States has not produced a new nuclear warhead since 1991, nor have we had any requirement to build a new warhead. Prior to 1991, major refurbishment of a warhead to extend its life was not an issue, because new weapon types were continually being introduced into the stockpile. Currently, the average age of warheads in the stockpile is eighteen years, and signs of aging have been identified through stockpile evaluation and enhanced surveillance. As the stockpile ages, we are working closely with the DOD to finalize detailed plans to extend the lifetime of each warhead type. These life extensions, or refurbishments, include the detection and correction of problems, and provide and maintain safety improvements and use control.

The budget submission continues the major refurbishment of the W87 warhead, deployed on land-based intercontinental ballistic missiles. This is the first major retrofit of any warhead in nearly a decade. Delivery of the first production unit to the Air Force, in May 1999, as scheduled, six years after conception of the project, was a major success. The safety concerns and production-line problems that occurred at our Pantex Plant are lessons learned that will be applied in future refurbishments.

Last year, the Nuclear Weapons Council reached final agreement on the technical scope of the refurbishments needed for the B61 bomb and for the W76 and W80 warheads. Together, these systems comprise a substantial portion of the current U.S. stockpile, and the additional funding received for research and development in fiscal year 2001 was used for W76 refurbishment design and W88 dynamic experimentation. The fiscal year 2002 request will support laboratory activities to complete the ongoing studies to refurbish the B61 (some components of which are more than thirty years old), to initiate development engineering to support a first production unit in fiscal year 2004, and to begin the development of a plan for certification of the B61, with a refurbished canned subassembly. We plan to work with the Department of Defense to determine a schedule and, possibly, revised scopes for the W76 and W80 refurbishments, pending completion of the Strategic Defense Review. The current budget request does not support the original schedule eveloped with DOD.

Warhead Dismantlement

Since the end of the Cold War, the United States has reduced its nuclear weapons inventory by approximately sixty percent. NNSA is currently disassembling two types of warheads, and is committed to the safe disassembly of any warheads retired, as a result of the ongoing national security strategy review or future decisions. Disassembly of the W79 Artillery-Fired Atomic Projectile will be complete in fiscal year 2003, and disassembly of the W56 Minuteman II intercontinental ballistic missile warhead will be complete in fiscal year 2005.

Campaigns

The second stockpile stewardship strategy is to maintain and develop the scientific, engineering, and manufacturing capabilities needed for the continued certification of the stockpile, including the ability to design new weapons and conduct underground nuclear tests. This strategy is being implemented through a series of Campaigns, which are focused, scientific and technical efforts to develop and maintain critical capabilities needed to enable continued certification of the stockpile for the long-term. They are technically challenging, multifunctional in nature, and have definitive milestones, specific work plans, and specific deliverables. The Campaign approach was initiated in fiscal year 2001 as part of a new program planning and budgeting framework, to facilitate integration within the Stockpile Stewardship Program. There are currently seventeen campaigns:

—Primary Certification,
—Dynamic Materials Properties,
—Advanced Radiography,
—Secondary Certification and Nuclear Systems Margins,
—Enhanced Surety,
—Weapons System Engineering Certification,
—Nuclear Survivability (formerly Hostile Environments Certification),
—Enhanced Surveillance, Advanced Design and Production Technologies,
—Inertial Confinement Fusion and High Yield (includes NIF),
—Advanced Simulation and Computing (formerly the Accelerated Strategic Computing Initiative),
—Pit Manufacturing and Certification (formerly Pit Manufacturing Readiness),
—Secondary Readiness,
—High Explosives Manufacturing and Weapons Assembly/Disassembly, Nonnuclear Readiness,
—Materials Readiness, and Tritium Readiness.

Today, I would like to discuss, in detail, a few of these Campaigns.

Pit Manufacturing and Certification

We have not manufactured plutonium pits for use in the stockpile since 1989, when the Rocky Flats Plant stopped production of W88 pits, due to facility safety and environmental concerns. As a result, there are not enough W88 pits to meet future surveillance destructive-testing requirements. The budget request for fiscal year 2002 continues to reestablish a capability to fabricate a limited number of plutonium pits at Los Alamos National Laboratory. The plan is to complete the fabrication of a certifiable W88 pit in fiscal year 2003, within this budget request, with no commitment to a certification schedule or to production quantities. As we proceed, we will continue to work closely with the Navy to ensure that military needs for the W88 are met.

The additional $25 million, provided by Congress in fiscal year 2001, was instrumental in developing momentum in pit manufacturing. The NNSA completed a report for Congress earlier this month, as requested by the conference report accompanying the Energy and Water Development Appropriations Act for Fiscal Year 2001. The recently submitted report contains project schedules and cost estimates for production and certification of W88 pits.

The magnitude of the challenge to reestablish a pit production capability at Los Alamos National Laboratory can, perhaps, best be illustrated by the fact that approximately 18,000 activities and 350 individual work packages have been identified, to complete production and certification of the W88 with a newly manufactured pit. To date, we have produced eight W88 development pits, and are on schedule to reestablish the technology and manufacture a certifiable W88 pit in fiscal year 2003. A detailed and rigorous set of engineering and physics certification tests has been defined, to achieve certification without nuclear testing.

A pit project office was established this past year within Defense Programs, to provide oversight of all pit production and certification related activities. In addition to near-term activities, such as the W88, this new office is responsible for long-term pit production readiness planning. For future readiness, we are using the $2 million provided by Congress this fiscal year to conduct pre-conceptual design studies, sufficient to enable a decision for conceptual design planning of a modern pit facility in fiscal year 2002. In fiscal year 2004, new information from pit-aging studies is expected to provide further insight into pit lifetimes. This information, coupled with the requirements for the numbers and types of weapons in the stockpile resulting from the President's Strategic Defense Review, will drive sizing decisions for a modern pit facility. The Nuclear Weapons Council will continue to monitor our work in this area.

Tritium Readiness

Every U.S. nuclear warhead requires tritium to function as designed. Because tritium, a radioactive isotope of hydrogen, decays at the rate of 5.5 percent per year, it must be periodically replenished within each nuclear warhead. We have not produced tritium since 1988, and our inventory, depending on the results of the Strategic Defense Review, is sufficient only until approximately 2005, after which time the five-year tritium reserve we maintain may begin to be drawn down. In May 1999, the Department announced that TVA commercial light water reactors would be used to produce tritium, and that accelerator production of tritium (APT) technology would be developed as backup, by completing preliminary design and engineering development and demonstration activities.

A 30-year interagency agreement with TVA went into effect on January 1, 2000, making three of its reactors, Watts Bar and Sequoyah 1 and 2, available to begin irradiation of tritium production absorber rods, as early as October 2003. This month, TVA submitted a request to the Nuclear Regulatory Commission (NRC) to amend its operating license for the Watts Bar and Sequoyah reactors, to permit irradiation of tritium producing absorber rods. The NRC committed to expediting the approval of these requests.

On July 27, 2000, ground was broken for the new Tritium Extraction Facility (TEF) at the Savannah River Site and, during fiscal year 2001, site preparation and detailed design for the facility is expected to be completed. Originally, construction of TEF was to have begun in early fiscal year 1999, but language in the National Defense Authorization Act for Fiscal Year 1999 prohibited any tritium construction activities during fiscal year 1999. Because of this delay in schedule, we project that the TEF will not begin delivering tritium gas from irradiated absorber rods until February 2006. Depending on the results of the Strategic Defense Review, about one year of the five-year tritium reserve may be consumed. The capacity of TEF to extract tritium from the absorber rods will be sufficient to restore the reserve, within two to three years.

Congress appropriated additional funding for APT in fiscal year 2001, and the preliminary design of APT is expected to be completed this year. However, the current fiscal year 2002 budget request does not include sufficient resources to complete the engineering development and demonstration activities in fiscal year 2002, as previously planned. In addition, an Advanced Accelerator Applications Program that is being planned by Defense Programs and the Office of Nuclear Energy, Science and Technology, may be put on hold. This multi-mission accelerator program is to include waste transmutation, isotope production, and tritium production. An Accelerator Demonstration Test Facility is being planned that would have the capability to be upgraded to produce tritium, if required.

Advanced Simulation and Computing

Senator Bingaman indicated, in the preface to a question following Secretary Abraham's confirmation hearing, that he was disturbed that, following the hearing held last Fall on the Stockpile Stewardship Program, as part of the hearings on the Comprehensive Test Ban Treaty, many of his "colleagues seemed to get the impression . . . that the Stockpile Stewardship Program is a sort of computer simulation exercise . . . " I want to dispel that impression.

Computer modeling and simulation are important elements of the Stockpile Stewardship Program, but the ultimate goal of our Advanced Simulation and Computing Campaign (ASC), formerly referred to as the Accelerated Strategic Computing Initiative (ASCI), is to have the ability to perform three-dimensional, high-fidelity simulations of the performance of all aspects of the operation of a nuclear warhead. By integrating the findings of our experimental and engineering R&D programs, as well as data from past nuclear tests, such simulations are providing our scientists with sufficient confidence to make it unnecessary to use underground nuclear testing at this time.

To fully achieve our goal, it is estimated that we must have a computer system operating at a minimum of 100 trillion operations per second (teraOPS), and computer software, validated by experimental data that provides a much greater understanding of the physics of nuclear explosions than we possess today. We are making remarkable progress toward achieving our goals in this area.

In December 1999, a three-dimensional simulation of the primary explosion of a nuclear warhead was successfully completed, for the first time, at Lawrence Livermore National Laboratory. This proof-of-principle simulation was performed on an ASC Campaign system operating at 3.89 teraOPS and took twenty days. On a Cray-class supercomputer, if sufficient memory were available, this simulation would have taken eighty years.

Soon thereafter, Sandia successfully completed the first-ever, three-dimensional computer simulations of a weapon warhead exposed to hostile radiation and blast environments. As part of this milestone, Sandia also completed a series of three-dimensional simulations of the performance of a neutron generator in a radiation field. These weapon simulations collectively required about 500,000 megabytes of memory and used 2,000 computing processors for 45 days.

In April 2000, eight months ahead of schedule, a proof-of-principle, three-dimensional simulation of the secondary explosion of a nuclear warhead was completed at Los Alamos National Laboratory. This simulation was performed on two ASC Campaign systems, operating at approximately 3 teraOPS each, at Los Alamos and Sandia, and took 42 days. None of these simulations were possible, prior to the development of ASCI-scale computational platforms and software. We expect to meet the next milepost, a proof-of-principle three-dimensional simulation of a full weapon, including both primary and secondary operation, by the December 2001 scheduled date.

The ASC Campaign contributes to all elements of the nuclear weapons life cycle. It is providing the tools that are needed by weapons designers to maintain a nuclear weapon design capability. ASC Campaign computers are being used to help address issues associated with the manufacture of replacement parts for nuclear warheads, transportation and storage of weapons and components, certification of weapons, dismantlements, and the safety of weapons in various accident scenarios. The ASC Campaign is an integral and vital element of the Stockpile Stewardship Program. It provides the integrating simulation and modeling capabilities and technologies needed to combine new and old experimental data, past nuclear test data, and past design and engineering experience into a powerful tool for future design, assessment and certification of nuclear weapons and their components.

The success of the computer modeling and simulation program has been, in no small measure, due to the budgetary support it has received, since its inception. The computing speed, power, and level of physics detail existing today was simply undreamed of a few years ago. The current budget request, however, will slow the scheduled progress of the Campaign, and delay our previously announced commitment to reach a computing capability of 100 teraOPS from fiscal year 2004 to fiscal year 2005. This will delay, by at least a year, our major deliverable to Directed Stockpile Work—the ability to perform a high-fidelity simulation, in three-dimensions, of the performance of a full nuclear warhead.

Completion of three ASC Campaign construction projects will also be delayed for at least one year with this budget. These projects are the Distributed Information Systems Laboratory at Sandia National Laboratories in Livermore, the Joint Computational Engineering Laboratory at Sandia in Albuquerque, and the Terascale Simulation Facility at Lawrence Livermore National Laboratory. Two other ASC Campaign program elements will also be scaled back in fiscal year 2002. These are the Path Forward program, which funds computer hardware and software companies to develop products needed to meet the aggressive ASC Campaign schedule, and the DisCom2 program, which provides remote access to the large computing platforms, enabling sharing of these resources among our production plants and laboratories.

These deferrals in meeting ASC Campaign milestones are consistent with the possible refurbishment schedules that achievable with the fiscal year 2002 Budget request.

Our commitments to selected groups in the university community through our Academic Strategic Alliances Program will not be affected, nor will the operation of the 12-teraOPS machine at Lawrence Livermore National Laboratory, which was recently made available for software development and warhead simulations. It is already fully utilized.

Inertial Confinement Fusion and the National Ignition Facility

The National Ignition Facility, under construction at the Lawrence Livermore National Laboratory, is a vital element of the Stockpile Stewardship Program. It will allow us to study issues that affect aging and refurbishment of the stockpile, validate advanced simulation software being developed by the ASC Campaign, and help in attracting and retaining the exceptional scientific and engineering talent needed by the Stockpile Stewardship Program, over the long term.

The National Defense Authorization Act for Fiscal Year 2001 required the submission of a revised project baseline for NIF, in response to substantial cost increases and schedule slippage, caused by problems in assembling and installing the laser and target system infrastructure. The revised baseline, submitted in final form to Congress last September, retains the full NIF design capability of 192 beams, with completion of the project scheduled in fiscal year 2008, and experiments with the

first eight laser beams beginning in fiscal year 2004. It is important to understand that we will be conducting many experiments at NIF, well before all 192 beams are available in fiscal year 2008. Between fiscal year 2004 and fiscal year 2008, approximately 1,500 experiments will be conducted at NIF. The project goals are to achieve early light in 2003, with four laser beams, and to meet our "First Light" milestone, with eight laser beams, in 2004.

I believe the progress at NIF reflects several management decisions that have been made during the past year and half. These include (1) the hiring of an industrial contractor with a proven record of constructing similarly complex facilities, to manage and install the laser and target system, (2) the creation of a NIF Project Office that reports directly to the Deputy Administrator for Defense Programs, (3) the appointment by the laboratory director of an associate director with line responsibility for the NIF Project, and (4) the selection of a new project manager, with extensive project management experience, to oversee daily NIF Project activities.

As required by the fiscal year 2001 Energy and Water Development Appropriations Act, I recently certified to Congress that the NIF Project milestones, for the revised schedule, are being met within the revised budget. The project is making significant progress. We expect to complete construction of conventional facilities this fiscal year. Laser bays are now under clean room protocols, and installation of laser systems has begun. Our glass manufacturers have delivered more than 1,700 of the required 3,500 laser glass slabs that meet our specifications.

The Conference Report accompanying the Energy and Water Development Appropriations Act for Fiscal Year 2001 also directed the NNSA to assess the role of NIF, to consider the requirement for the full 192-beam configuration, and determine if alternatives to the full NIF could meet the safety and reliability needs of the nuclear weapon stockpile. To meet this requirement, the NNSA initiated a broader study to examine its entire High-Energy-Density Physics Program. NNSA brought together laboratory leadership and technical staff, DP management, and a number of nuclear-weapon-knowledgeable advisors from a variety of federal organizations. Alternatives that were considered included pauses in NIF construction at 48, 96, and 120 beams, a refurbishment of the Z accelerator at Sandia, and the addition of an engineering demonstration milestone to the NIF Project at first light. The principal recommendation of this study, which was submitted to Congress on April 6, was that the NNSA should continue with the current High-Energy-Density Physics Program, including Omega, the Z accelerator, and the 192-beam NIF, with the goal of achieving ignition.

Experiments on the Atlas pulsed-power machine at Los Alamos National Laboratory will begin later this year and will continue in fiscal year 2002. Relocation of the facility to the Nevada Test Site will be deferred, due to higher priorities of the stockpile and limitations imposed by the current fiscal year 2002 budget. In fiscal year 2001, we also expect the completion of the Z-backlighter project at Sandia, in which the Beamlet, a technology demonstration for NIF, is being adapted as a diagnostic tool for use on the Z accelerator. A variety of experiments with this technology, planned to begin in fiscal year 2002 to study hydrodynamics, materials properties, and inertial confinement physics, may also be deferred.

Other Campaign-Specific Experimental Activities

Other experimental activities are underway, across the complex, in support of the nation's nuclear deterrent. At Los Alamos National Laboratory, physics experiments using the first-axis of the Dual Axis Radiographic Hydrodynamic Test Facility (DARHT) have been conducted, providing valuable weapons data. DARHT provides us the capability to take freeze-frame photos of materials imploding at speeds greater than 10,000 miles an hour, allowing scientists to study solids and metals as they flow like liquids, when driven by the detonation of high explosives. We expect the second arm of DARHT to be completed in fiscal year 2002, allowing simultaneous views from two directions, as well as several separate views over the time of the implosion.

Subcritical experiments at the Nevada Test Site continue to be successful. To date, thirteen have been conducted. These experiments are helping us to assess the stockpile by providing understanding of aspects of weapons physics and the aging properties of plutonium. They also help us to certify pits manufactured at Los Alamos National Laboratory, for use in the nuclear weapons stockpile. In addition, subcritical activities are a major contributor to underground nuclear test readiness at the Nevada Test Site. To support related materials research, we have also begun acceptance tests on the JASPER (Joint Actinide Shock Physics Experimental Research) gas gun at the Nevada Test Site. We expect to begin obtaining data on plutonium late this year.

During this next year, we will look hard again at improving test readiness, and will review whether an apporpriate level of resources is being applied to this vital element of stockpile stewardship.

GOAL 2: SECURING NUCLEAR FACILITIES, MATERIALS, INFORMATION, AND EXPERTISE WORLDWIDE

Our second goal is to ensure the safe and secure management of nuclear facilities, materials, and expertise, worldwide. While maintaining and enhancing the safety, security, and reliability of the Nation's nuclear weapons stockpile, the NNSA has a custodial responsibility to ensure that all U.S. nuclear-deterrent assets—information, facilities, and people-are safeguarded and secured to prohibit unwanted damage or unauthorized release of these key U.S. national security assets. The NNSA also works in parallel to address international threats to U.S. national security interests from the potential proliferation of weapons of mass destruction. These new international threats derive largely from the Soviet Union's production of enormous quantities of nuclear materials and weapons, and from potential actions by rogue nations or terrorist organizations with interests contrary to those of our nation. The NNSA is pursuing a balanced and comprehensive approach to nonproliferation that seeks to reduce or eliminate these threats to U.S. national security interests, particularly threats in Russia and countries of the former Soviet Union.

Integrated Security Action Plan

A key strategy for preventing proliferation is effectively managing and protecting the NNSA nuclear weapons, materials, and information. The NNSA is pursuing an Integrated Security Action Plan to protect U.S. nuclear assets. While we are making steady progress, NNSA still has work to do to get security right. We have commissioned a group of eminent Americans, known as the Hamre Commission, to review the entire issue of science and security to help us make sure we get the right picture and perspective. I have warned them to be careful with their recommendations, because many of them are likely to be implemented.

I have called for a six-month moratorium on implementing any new safeguards and security policies. We are using this time to review past policies, identify policy improvements, and determine how policy can most effectively be implemented within NNSA. We are emphasizing the importance of personal commitment and individual responsibility in the protection of our nation's vital assets, and we are seeking to involve employees at all levels of our enterprise in improving safeguards and security.

The NNSA is ensuring that people working on our nuclear deterrent are aware and accountable for their national security responsibilities. In that regard, on March 26, 2001, I announced plans for implementing "Integrated Safeguards and Security Management" in the NNSA. ISSM, as it is known, will build safeguards and security considerations into management and work practices, at all levels, so that missions are accomplished securely. Individuals performing the work will be involved in the process of establishing appropriate safeguards and security practices. Subject matter experts are available to provide guidance and information, but we must place the responsibility for working securely squarely on the shoulders of every individual in our complex—the scientists, technicians, production workers, and professionals performing and managing our missions.

As you know, the counterintelligence polygraph program has raised concerns among scientists and others within the NNSA community. We are sponsoring a scientific study by the National Academy of Sciences (NAS) on the validity and reliability of polygraphy. The NAS study will include what is known about the effects of medications, sleep deprivation, and illness on the physiological responses measured through polygraph examinations. The fifteen-month study began on January 1, 2001. The study's final report is to be released next year and should help us improve upon the Department of Energy's polygraph program.

Safeguards and Security

The NNSA is protecting U.S. nuclear facilities. The NNSA conducts a rigorous Safeguards and Security program to protect the physical assets of the NNSA enterprise. These efforts are an integral part of the Administration's mission of being a responsible steward of the nation's nuclear weapons. In fiscal year 2001, safeguards and security activities were appropriated as direct costs, rather than as allocated costs within indirect and overhead funding, as in the past. We are managing the safeguards and security as a line responsibility in the NNSA. My Chief of Defense Nuclear Security is responsible for establishing safeguards and security policy throughout the NNSA. We will administer the weapons safeguards and security

budget for facilities where NNSA is the landlord, through our new Facilities and Operations organization, which I will discuss later in this testimony.

In 1999, a multitude of corrective actions and enhancements to upgrade the safeguards and security posture at all Defense Programs sites resulted from a program named "Safeguards and Security Goal Posts." By the beginning of fiscal year 2001, all final corrective actions and enhancements resulting from this program had been completed for all sites, except the Y–12 Plant, which was the only site not rated "satisfactory." The ability of the Y–12 Plant to attain an overall satisfactory rating hinges on the availability of funds to correct deficiencies in material control and accountability for the highly enriched uranium operations. The fiscal year 2002 Budget request will maintain physical security functions at our production plants, the Nevada Test Site, and the national security laboratories, at their current security ratings.

The NNSA is protecting vital nuclear deterrent information. The Integrated Safeguards and Security Management program is designed to systematically integrate safeguards and security into management and work practices, at all levels, so that missions are accomplished securely. Implementation of the "Higher Fences" initiative, to enhance protection of certain restricted weapons data within DOE and DOD, by establishing an additional sigma category, requires few resources and is moving forward.

The nuclear weapons complex has always used secure computing systems and networks. However, the need for significant improvement in the protection of nuclear weapon data across the entire complex has been well documented in the past two years. An increased number of countries and organizations are attempting to obtain nuclear weapon data and are using ever increasing sophisticated techniques.

In response, Congress provided supplemental funding in fiscal year 2000, to begin developing the Integrated Cyber Security Initiative (ICSI) Plan. Implementing this plan will sustain the operations and maintenance of cyber security activities throughout the complex, providing solutions for the most critical vulnerabilities revealed through risk assessments of the current network. Also, as called for in the ICSI plan, we will implement and demonstrate a testing network for evaluating and testing products and proposed solutions, complete the design of a new complex-wide network, and identify and catalog all electronic information that is exchanged in the complex.

The fiscal year 2002 Budget request will move us forward on the Integrated Safeguards and Security Management program and the "Higher Fences" initiative, and will allow us to sustain the maintenance and operation of cyber security activities across the complex, and to provide upgrades where the highest vulnerabilities are assessed, but will not allow us to address the long-term solutions set forth in the Integrated Cyber Security Initiative (ICSI) Plan that was submitted to Congress in March of this year.

Transportation Safeguards System

The NNSA is protecting the U.S. movement of nuclear materials, components and nuclear weapons. The NNSA operates a Transportation Safeguards System to move nuclear weapons, components, and special nuclear materials, throughout the country, in a safe and secure manner, precluding theft or diversion. This unique transportation system has operated with an impeccable record of safety and security for more than twenty-five years. Although its primary mission has been in support of the nuclear weapons program, the system provides transportation services for all DOE programs that require nuclear materials to be protected while in transit. This summer, the Office of Environmental Management will begin to remove nuclear materials from Rocky Flats. Other programs have also projected increases in their requirements for secure shipment of nuclear materials. The Transportation Safeguards System resources will have to be increased during the next five years to meet the projected demand for secure shipment of nuclear materials. Headquarters and the Albuquerque Operations Office, in collaboration with other program offices, have initiated a coordinated planning and scheduling process to improve the optimum usage of our assets, to establish NNSA authority to certify Type B shipping packages, and to expand our capabilities by hiring and training special federal agents and enlarging the fleet of trailers, tractors, and escort vehicles.

Defense Nuclear Nonproliferation Activities

With respect to NNSA's international nuclear security responsibilities, the NNSA develops and implements critical U.S. nonproliferation programs. Its role is due, in large measure, to the unique expertise in nuclear weapons and nuclear material handling that it draws from the national laboratories. The NNSA's goal is to ensure the close integration of technical talent and policy expertise with the efforts of other

U.S. agencies working in the nonproliferation arena. Our goal is to address this complex, multifaceted issue in a comprehensive way, with specific, realistic goals for each part of the program. The Office of Defense Nuclear Nonproliferation's programs address different types of problems, and they are designed to do different things, while working to achieve the overall goal of reducing the threat of proliferation of weapons of mass destruction. All of these programs, together, offer a synergy of effect that is greater than the sum of the parts.

The NNSA is pursuing strategies to protect or eliminate vulnerable weapons-usable nuclear material or infrastructure, and redirect excess weapons expertise to civilian enterprises in Russia and other nations that possess vulnerable materials. The Office of Defense Nuclear Nonproliferation is responsible for these nuclear security programs, along with other programs that seek to prevent, detect, and deter proliferation of weapons of mass destruction and the materials needed to produce them. Key programs within NN that deal with vulnerable weapons materials and the nuclear complex infrastructure in Russia include (1) Materials Protection, Control, and Accounting; (2) Fissile Materials Disposition; (3) HEU Transparency Implementation; (4) the Nuclear Cities Initiative; and (5) Initiatives for Proliferation Prevention. NN's other nonproliferation and arms control programs will be discussed in the next section. The three-fold threat of unsecured materials, widely available technology, and underemployed expertise following the breakup of the Soviet Union makes these issues of paramount importance and urgency.

Materials Protection, Control, and Accounting

The NNSA conducts effective programs in Russia to protect vulnerable weapons and weapons-usable nuclear materials. The NNSA's Materials Protection, Control, and Accounting program (MPC&A) is working rapidly to complete its mission, and estimates in its Strategic Plan that comprehensive security upgrades will be complete at all of the warhead storage locations that the Russian Navy has requested, as early as 2007, and for 603 metric tons of weapons-usable nuclear material by 2011. Since 1993, the program has completed rapid upgrades for nearly 4,000 warheads and 220 metric tons of fissile material. The unprecedented degree of cooperation and access shown by the Russian Navy to NNSA employees has facilitated the advancement of our work at a number of very sensitive Russian sites, allowing us to focus our personnel and funds on promptly securing the items in Russia that are most attractive to diversion. One programmatic goal for fiscal year 2002 is to complete security upgrades at thirteen nuclear sites, bringing the total number of completed sites to fifty.

Another goal is to promote sustainable security improvements. "Sustainability" is critical to the long-term mission of the program, because we must ensure that installed MPC&A systems are maintained and operated over the long term. Sustainability also entails fostering the ability of our Russian counterparts to operate and maintain the MPC&A systems unilaterally. To ensure sustainability, we are establishing training centers, identifying credible Russian suppliers of MPC&A equipment, helping draft national regulations and security force procedures, and establishing a federal information accounting system to track amounts and locations for all of Russia's nuclear material. Specifically, in fiscal year 2002, we will conduct fifty training courses in MPC&A design, operation, and maintenance for more than 2,400 students, bringing the total number of Russian personnel trained in MPC&A concepts to greater than 6,000. Furthermore, we have developed and implemented a program to consolidate material into fewer buildings and fewer sites, and to convert excess highly attractive material to a form that is less attractive to potential proliferant nations. In fiscal year 2002, this program will convert an additional 1.8 metric tons of highly enriched uranium to low-enriched uranium (LEU), raising the total converted to four metric tons. This program reduces costs to the U.S. by limiting the number of buildings requiring security upgrades. It also reduces the Russia-borne costs of maintaining installed security upgrades once NNSA's funds are no longer provided.

The NNSA conducts two separate, yet complementary, programs to eliminate vulnerable weapons and weapons-usable nuclear materials in Russia, so that it will never again be used for weapons purposes. We estimate that there are roughly 150 metric tons of plutonium and more than 1,000 metric tons of highly enriched uranium in Russia. These programs are the first step in what is sure to be a lengthy process.

Fissile Materials Disposition

The Fissile Materials Disposition program is responsible for disposing of inventories of surplus U.S. weapon-grade plutonium and highly enriched uranium, for reducing the significant costs associated with long-term storage of these materials in

the United States, as well as for providing the technical support for, and ultimate implementation of, efforts to obtain reciprocal disposition of surplus Russian weapon-grade plutonium. This disposition program is among the nonproliferation programs that is currently undergoing a National Security Council review of U.S. Government nonproliferation assistance programs to Russia.

The fiscal year 2002 Budget request will fund the completion of the mixed oxide (MOX) Fuel Fabrication Facility design and proceed with related MOX fuel qualification activities. We will continue the design of the Pit Disassembly and Conversion Facility at a reduced rate, and we will suspend the design of the Plutonium Immobilization Plant. These changes are necessary, to reduce the anticipated future-year peak funding requirements associated with plans for simultaneously building three plutonium disposition facilities at the Savannah River Site. Despite these schedule changes, the NNSA continues to pursue the irradiation of MOX fuel in existing reactors and immobilization for the disposition of surplus U.S. weapon-grade plutonium. This will enable us to meet the commitments called for in the recently signed U.S.-Russia Plutonium Management and Disposition Agreement and to support the continued consolidation, cleanup, and shut down of DOE sites where surplus plutonium is stored.

Other activities planned for fiscal year 2002 involve providing limited support for the development of facilities in Russia for disposition of surplus plutonium, and continuing surplus U.S. HEU disposition, including capital improvements at the Savannah River Site to support the off-specification blend-down project with the TVA. This project will eliminate tons of surplus weapons material, by converting it to reactor fuel for use in TVA's reactors, which provide electric power throughout the Southeast. Equally important, this work will also save the taxpayers $600 million by avoiding the cost to dispose of this surplus material as waste.

HEU Transparency Implementation

The NNSA is working to convert Russian surplus HEU from the Russian military stockpile into a non-weapon-usable form. The 1993 U.S.-Russia HEU Purchase Agreement remains one of the more impressive nonproliferation achievements of the last decade. The NNSA's HEU Transparency Implementation program is designed to provide assurance that surplus HEU, from dismantled Russian nuclear weapons, is downblended in Russia to LEU and fabricated into fuel for sale and use in U.S. commercial power reactors.

The program monitors the conversion and processing of this material at Russian facilities, subject to the terms of the Agreement. Over the course of the program thus far, seventy-three teams—the equivalent of more than 4,000 monitoring hours—have visited these facilities to monitor conversion operations. During the past year, the NNSA installed a Blend-Down Monitoring System (BDMS) at one Russian facility, to provide continuous monitoring data in support of our transparency objectives. The fiscal year 2002 Budget request will allow the NNSA to continue its blend-down monitoring activities, but at a slightly reduced level. Through the end of 2000, more than 111 metric tons of weapons grade uranium—enough for roughly 4,400 weapons—had been removed from the Russian military program, under this Agreement, and converted to LEU for commercial sale. Our goal for 2001 is to convert another thirty metric tons. This program is a major source of income for the Russian government. Approximately $2.2 billion has been paid to the Russian Federation under this Agreement, and some of this money is to be used for the conversion of defense enterprises and for enhancing the safety of Russian nuclear facilities.

Redirecting Excess Weapons Expertise and Eliminating Weapons Infrastructure

The NNSA conducts two programs focused on redirecting excess weapons expertise in Russia to civilian enterprises and eliminating their weapons infrastructure. The Nuclear Cities Initiative and the Initiatives for Proliferation Prevention Program are programs that work together with the International Science and Technology Centers and the Civilian Research and Development Foundation to address all aspects of this issue.

Nuclear Cities Initiative

NNSA's unique "brain drain" program, the Nuclear Cities Initiative (NCI), was created in 1998, to assist the Russian Federation in (1) diversification of the economy within the closed nuclear cities to attract commercial investors, (2) enhancement of U.S. national security by assisting Russia in reducing the overall size of its nuclear weapons production complex, and (3) prevention and reversal of the threat of proliferation of nuclear weapons expertise, by redirecting weapons scientists in Russia's nuclear cities to sustainable non-weapons activities. We are striving to accomplish this task, working closely with the Russians, to (1) facilitate tran-

sition from weapons research to civilian business and commercial projects, (2) develop joint plans for accelerated downsizing of the Russian nuclear complex, (3) develop local infrastructure to support economic diversification and job creation, (4) conduct targeted training and other activities to improve marketing and management capabilities, and (5) leverage funding and encourage non-U.S. Government investment.

The fiscal year 2002 Budget request will allow the NNSA to focus its commitments in only Sarov, Russia. In an effort to make the closed nuclear cities in Russia more amenable to international businesses, the NNSA has facilitated the creation of two International Business Development Centers, two Open Computing Centers, and two Nonproliferation Centers for research and training new nonproliferation experts. Additionally, we have expanded and upgraded telecommunications capabilities, to enable remote work to be done from those geographically isolated cities. Thus far, with a limited budget, NNSA has facilitated initiation of more than twenty-five commercial and infrastructure projects in the cities, with more than $8 million spent in Russia. With our help, loan officers of the European Bank for Reconstruction and Development loan officers are now established in each city, making more than $1 million in small-business loans to local non-weapons businesses in the closed cities. We are pleased that there are now twenty-four business training courses in those three cities, with hundreds of participants. Looking to the future, we are hopeful that negotiations involving more than ten potential commercial investors will soon bear fruit.

Initiatives for Proliferation Prevention

The Initiatives for Proliferation Prevention (IPP) program was established in 1993, to prevent the proliferation of weapons technologies and expertise, by engaging former Soviet weapon scientists in cooperative research projects with DOE national laboratories and U.S. industry partners, especially in areas that have a strong potential for non-military commercialization. This program enhances U.S. national security by engaging former Soviet weapons scientists in civilian work, to prevent the spread of technologies related to weapons of mass destruction and also to increase access to, and transparency at, former Soviet weapons facilities. We have developed a rigorous process of screening all projects for potential dual-use activities or efforts, relying on other parts of the U.S. Government to bring their expertise to bear on this issue. At the same time, NNSA's activities in this arena also provide U.S. industry with technology and research talent from the former Soviet military establishment. Since its inception, the IPP program has engaged more than 8,000 scientists, engineers, and technicians in the Newly Independent States, and is supporting sixty-four cooperative research projects at sixty-five institutes. These efforts realized seven commercial projects and generated $9.4 million of commercialized products.

International Nuclear Safety and Cooperation

Another strategy for enhancing nuclear security is to improve operational safety and safety systems at nuclear facilities of concern. The NNSA is working to reduce safety risks at the sixty-six operating, Soviet-designed nuclear-power reactors in nine countries, through the International Nuclear Safety and Cooperation program. We plan to complete safety upgrades for these reactors by 2006. There are three reactors in Russia that are to be shut down, as part of DOD's program to eliminate the production of weapons-grade plutonium. These three high-risk reactors, at secured sites, are the oldest operating reactors in Russia, and have not received any safety upgrades under foreign cooperation. Safety upgrades at these production reactors, prior to their planned shutdown in 2006, are among our highest priorities. However, the scope of activities for improved safe operation will be limited.

We are encouraged not just by our progress to address nuclear safety at operating reactors, but by the early closure of older reactors as well. The Ukrainian government shutdown Chornobyl's sole operational reactor—Unit 3—in December 2000, as planned. Our efforts to support the construction of a replacement heat plant at Chornobyl, for decontamination and decommissioning purposes, are also proceeding well. We were pleased when Kazakhstan also made the tough decision to shut down its BN–350 reactor. Our attention is now focused on plans for decommissioning and decontaminating the reactor's sodium coolant, which will ensure that this reactor can never be restarted. The fiscal year 2002 Budget request will allow us to complete one full-scope, nuclear plant training simulator, each, in Russia, Ukraine, and Slovakia. We will also strive for the completion of operational safety improvements at all plants in Russia and Ukraine. Safety procedure and reactor in-depth safety assessments will proceed, albeit at a delayed pace.

GOAL 3: DETECTING, DETERRING, AND IMPEDING PROLIFERATION

Our third goal is to detect, deter, and impede proliferation and the use of weapons of mass destruction. As mentioned in the previous section dealing with nuclear material security, the NNSA develops and implements critical U.S. nonproliferation programs. In addition to the programs already described, NN has extensive efforts in research and development (R&D) and arms control arenas. Our active role in the U.S. nonproliferation interagency community derives, in large measure, from the nuclear expertise found in the national laboratories. NN supports U.S. national, bilateral, and multilateral efforts to reduce the threat posed by the proliferation of weapons of mass destruction.

Research and Development Programs

A key nonproliferation strategy is to enhance the capability to detect weapons of mass destruction. The NNSA goal of integrating technical talent and policy expertise is evident in the Nonproliferation and Verification R&D Program, which enhances U.S. national security through needs-driven R&D, with an emphasis on developing technologies to detect nuclear, chemical, and biological proliferation, and to monitor nuclear explosions.

The following accomplishment is just one indication of the type of activities NNSA is involved with in the R&D area. NNSA was proud that, last year, we achieved a significant milestone in one of our R&D programs: The Multispectral Thermal Imager satellite was launched in March 2000. This small research satellite, designed and built by a team of NNSA laboratories and industry partners, will develop and test remote-sensing concepts that will add to our country's ability to monitor nuclear proliferation. Originally designed for a 14-month research mission (with an expectation of three years of useful operation), the satellite has already achieved most of its design objectives. The MTI program has developed the sensor technology and data processing methodology to make extremely precise multispectral remote sensing measurements from space, and to use these measurements to extract important proliferation monitoring information about observed sites. The engineering required to achieve these precise measurements and complex algorithms, to extract the useful information, is being validated through experiments with the satellite. Additionally, the satellite has been used to support numerous civil, environmental, defense, and space science researchers throughout the government. The satellite has collected more than a thousand images and approximately one third of these were at the request of non-DOE experimenters.

The Proliferation Detection program will develop the requisite technologies to detect nuclear proliferation. Our unchallenged lead responsibility for nuclear nonproliferation technology derives from the expertise and knowledge base resident in our nuclear weapons complex, and it provides a technology template for the detection of activities related to all weapons of mass destruction. The objectives of the detection program are

—to produce technologies that lead to prototype demonstrations and resultant remote proliferation detection systems,

—to strengthen our detection capabilities to respond to current and projected threats to national security and world peace posed by the proliferation of nuclear, chemical, and biological weapons,

—and to develop technologies that are subsequently made available to a wide range of government users, including DOD and the intelligence community.

The separate, yet closely related, Proliferation Deterrence program seeks to develop technical options to prevent and deter proliferation of nuclear weapon technology and fissile materials. Research is focused on developing integrated sensor systems that will improve the accuracy and timeliness of information. Our NNSA experts are working hard to build robust technical deterrence capabilities that include the development of unattended and handheld technologies designed to shape U.S. diplomatic efforts that rely upon verification or confidence building measures, in addition to the development of technical means to defend the homeland against lost or stolen, foreign weapons or fissile materials. We are also improving our forensic capability to identify the origin of fissile material that might be associated with a nuclear threat.

With the fiscal year 2002 Budget, we will continue to develop and demonstrate innovative remote sensing, sampling, and analysis technologies needed to improve early detection of a proliferant nation's nuclear weapons program or non-compliance with international treaties and agreements, as well as tracking foreign special nuclear materials.

The Nuclear Explosion Monitoring Program is designed to provide the United States with the technical capability to detect nuclear explosions. Specifically, NNSA

technical experts are working to develop and deploy sensors and algorithms that enable the United States. to meet its national requirements for detecting, locating, identifying, and characterizing nuclear explosions in the atmosphere, in space, underground, or underwater. Additionally, we are transitioning technologies to, and providing operational support for, U.S. national nuclear explosion monitoring agencies, including the Air Force Technical Applications Center, in partnership with other Air Force elements, the United States Geological Survey, and other government agencies. The program seeks to enable detection of very low-yield events, especially those that might arise from proliferant nation efforts, deliver ground-based systems comprising state-of-the-art hardware and software products for seismic, hydro-acoustic, infrasound, and radionuclide technologies, and develop, engineer, and deliver satellite-based systems to the Air Force. During the next five years, we will develop, demonstrate, and begin deliveries of a new generation of optical, electromagnetic pulse, and direct-radiation sensors for Global Positioning System Block II–F satellites.

In fiscal year 2002, the Nuclear Explosion Monitoring program will continue to develop enabling technology, operational hardware and software, and expertise to detect, locate, identify, characterize, and attribute nuclear detonations through both ground-based and satellite-based systems.

To meet threats posed by chemical and biological agents, the NNSA draws upon the diverse and extensive expertise of its national laboratories. The goal of the Chemical and Biological National Security Program is to develop, demonstrate, and deliver technologies and systems that will lead to major improvements in U.S. capability to prepare for, and respond to, chemical or biological attacks against civilian populations. This program will continue to focus emerging science and technology on the threat of chemical and biological attack against U.S. civilian populations. The NNSA is the primary agency developing non-medical technical solutions for this challenge. Our experts are involved in a broad interagency program to develop sensors that could detect the terrorist use of a biological agent at a large outdoor event, such as the Super Bowl or the Olympics. While we do not have the lead on this activity, NNSA brings to the table superb technical experience in this field. The NNSA is providing the underpinning biological information necessary for biological detection that would support analyses for attribution and event reconstruction purposes, and would aid other agencies in the development of medical and public health countermeasures. The goals of this program are to develop and demonstrate

—chemical and biological detection, identification, and warning systems for domestic, high-risk areas or conditions,

—hand-portable chemical and biological detectors, to provide real-time detection to increase situational awareness during crises, and

—modeling and simulation capabilities, to enable accurate prediction of the effects from chemical and biological attacks in urban areas, to guide preparation and response efforts, chemical and biological decontamination, and restoration techniques for use in civilian settings.

The construction of the Nonproliferation and International Security Center at Los Alamos will continue with funding of $36 million in fiscal year 2002, allowing for its completion in this same fiscal year.

Arms Control and Nonproliferation

Another key strategy is promoting arms control and nonproliferation treaties, promoting agreements, and regimes, and developing the associated technologies to support them. The mission of the Office of Arms Control and Nonproliferation is to detect, prevent, and reverse the proliferation of weapons of mass destruction (WMD) materials, technology, and expertise. It is the focal point within the NNSA for activities that support the President's nonproliferation and international security policies, goals, and objectives, as well as those activities mandated by statute. The program provides policy and technical expertise and leadership for NNSA and the Department in interagency, bilateral, and multilateral fora involved in nonproliferation and international security matters. Several projects that had been initiated last year are not proceeding currently. The NNSA will not be proceeding with the Separated Civil Plutonium activities, due to Russian nuclear cooperation with Iran. Funding for Spent Fuel Storage and Geological Repository in Russia are on hold, to allow time for the new Administration's interagency policy review. At the current budget level for fiscal year 2002, further assistance to Kazakhstan, in implementing the secure long-term storage of the BN–350 plutonium-rich fuel, will be curtailed.

Russia-Focused Programs

The Second Line of Defense program was created in 1998. It is designed to help the Russians detect and prevent nuclear proliferation or terrorism through the in-

stallation of radiation detection equipment at strategic transit and border sites in Russia. It also helps to strengthen Russia's ability to detect and deter illegal nuclear transfers, thus adhering to its international nonproliferation commitments. In fiscal year 2002, this program will be expanded slightly, to increase our cooperation with the Russian Customs Committee. This program's objectives include

—equipping vulnerable border and transit sites with radiation detection equipment,

—utilizing a "systems" approach to equipment installation, including rigorous vulnerability assessments, site survey, and design of candidate sites, and acceptance testing and data evaluation of installed equipment, and

—ensuring sustainability through training for equipment use and procedures for response, using Russian-manufactured and U.S.-tested detection equipment, and providing mobile training stations for use in remote regions.

To date, this program has been quite successful on a limited budget of several million dollars per year. Equipment has been installed at the airports in Moscow and St. Petersburg, and at a port on the Caspian Sea. Eight sites are fully equipped and installation at three additional sites is underway. This relatively young program already has reached significant achievements, including ninety customs officers trained, training manuals distributed to 30,000 front-line officers, passive searches of roughly 120,000 vehicles, 11,000 railroad cars, and greater than 750,000 pedestrians, using radiation detectors installed under our joint program.

Policy and Analysis

The Policy and Analysis office provides analytical support and technical expertise for arms control and nonproliferation treaty, and for agreement policy formulation, negotiation, and implementation at DOE and NNSA facilities and for regional security initiatives. In the next fiscal year, the NNSA will continue to promote arms control and nonproliferation activities, both under formal treaty-related mechanisms and under less formal mechanisms, including the Warhead Safety and Security Exchange (WSSX) Agreement, negotiations on Russian plutonium oxide measurements, under the Plutonium Production Reactor Agreement, and testing, evaluating, and demonstrating technologies, in accordance with the Joint DOE–DOD Integrated Technology Plan. These technologies would support transparency negotiations for several initiatives, including the monitoring regime, to be implemented at the Fissile Material Storage Facility being built by the DOD at the Mayak Production Association in Ozersk, Russia, the 1996 Plutonium Production Reactor Agreement implementation, and U.S.-Russian Federation-IAEA (International Atomic Energy Agency) Trilateral Initiative negotiations.

The U.S. and Russian Federation have declared their commitment to pursuing transparent and irreversible reductions in nuclear arms. The mission of the NNSA Warhead and Fissile Material Transparency Program is twofold. First, we are comprehensively evaluating the impact of a warhead monitoring regime on the NNSA nuclear weapons complex, to ensure that there is no adverse impact on the U.S. requirement to maintain a safe, secure, and reliable nuclear weapons stockpile, and to ensure that no classified information is revealed. Second, NNSA experts are developing and implementing technical measures that can be applied at Russian nuclear weapons facilities, to provide confidence that Russian nuclear weapons are being dismantled, and that excess fissile materials removed from dismantled Russian nuclear weapons cannot be used again for weapons purposes. This program reduces the potential for theft and diversion of Russian warheads and fissile material, by increasing the safety and security of Russian warheads. It also obtains access to Russian scientific and technical information, and gains access and provides transparency in the Russian nuclear weapons complex.

The Warhead Safety and Security Agreement/Laboratory-to-Laboratory Transparency Program is intended to provide a greater understanding of the Russian nuclear warhead dismantlement process, while encouraging advocates for transparency in Russia. The Laboratory-to-Laboratory program is implemented through contracts signed between U.S. and Russian national laboratories. Upon receipt of deliverables from Russian institutes, U.S. laboratories provide funds to Russian scientists, who worked on the deliverables. This program is conducted under the auspices of the extended Nuclear Warhead Safety and Security Agreement. Strict guidelines and oversight are used by the U.S. and Russian Federation to ensure that only unclassified information is exchanged. Areas of work include radiation measurement technology, tags and seals, remote monitoring, and other topics related to nuclear weapons transparency.

The "Agreement between the United States of America and the Government of the Russian Federation, on the Exchange of Technical Information in the Field of Nuclear Warhead Safety and Security," more commonly referred to as the Warhead

Safety and Security Exchange Agreement (WSSX), was signed on December 16, 1994, entered into force in June 1995, and was extended for an additional five-year term last year. Participants in the Agreement are DOE and DOD for the U.S. and MinAtom and the Ministry of Defense for Russia. The June 2000 extension incorporated any ongoing or future DOE/MinAtom Laboratory-to-Laboratory activities concerning the transparency associated with dismantlement of nuclear weapons under the WSSX Agreement. As established under the original WSSX Agreement, a Joint Steering Committee and Joint Coordinating Group approve new Laboratory-to-Laboratory topics/projects for program technical exchange consideration and provide oversight to Agreement implementation.

The Monitoring Warhead Inventories and Dismantlement Program focuses on identifying technical measures and technologies to monitor warhead inventories and dismantlement under future monitoring regimes. Future initiatives involving the monitoring of nuclear warheads, nuclear warhead dismantlement, or fissile material, resulting from dismantled nuclear warheads, will have a significant impact on the NNSA nuclear weapons complex. The NNSA Warhead and Fissile Material Transparency Program comprehensively evaluates the issues associated with potential monitoring regimes, to ensure that there is no adverse impact on the U.S. requirement to maintain a safe, secure, and reliable nuclear weapons stockpile, and that no classified information is revealed. In fiscal year 1999, DOE and DOD agreed to combine resources in support of a joint DOE–DOD Integrated Technology Plan to comprehensively develop, test, and "red-team" technologies that could be used to support Mayak transparency, the U.S.-Russia-IAEA Trilateral Initiative, Plutonium Production Reactor Agreement, and potential future initiatives.

The Plutonium Production Reactor Agreement (PPRA), signed in 1996, commits the Russian government to cease production of weapon-grade plutonium at three reactors that also provide heat and electricity to two cities and their surrounding regions in Siberia. As part of the PPRA, both sides agreed to allow teams from the other side to monitor the shut-down reactors, as well as the plutonium storage facilities. NNSA and Russian technical experts are developing jointly technologies and mechanisms that will enable our monitors to perform their transparency activities, without revealing any sensitive information.

The Trilateral Initiative began in 1996. Its goal is to provide international confidence that excess United States and Russian weapons plutonium is not returned to weapon use. Technical experts from Russia, the United States, and the International Atomic Energy Agency (IAEA) have been working diligently during the past four years to devise technologies and methods to allow IAEA verification of the material, without revealing sensitive information. IAEA inspections at the Mayak Fissile Material Storage Facility will verify that Russian excess plutonium remains removed from weapons programs. The U.S. will place its excess plutonium under IAEA verification at the K-Area Material Storage Facility at the Savannah River Site.

Non-Russia-Focused Programs

While the bulk of our nonproliferation activities take place in Russia, the NNSA is also involved in nonproliferation and arms-control-regime projects in many other parts of the world. For instance, since 1995, the United States and Kazakhstan have been working to reduce proliferation risks associated with three tons of weapons-grade plutonium. This material, which is located at the BN–350 fast-breeder reactor in Aktau, Kazakhstan, contains enough plutonium to manufacture hundreds of nuclear weapons. Furthermore, unlike most spent fuel, the majority the BN–350 spent fuel material poses no significant radiation hazard to a would-be thief. The project has

—reduced the threat to United States national security posed by the vulnerability of the weapons-grade material,

— significantly enhanced physical protection and material control measures at the plant,

—utilized a former weapons-related complex in Kazakhstan, which was converted to peaceful uses under the Cooperative Threat Reduction program, to manufacture most of the storage canisters,

—instilled a safety and security culture, by conducting all U.S.-sponsored activities in a cost effective manner, consistent with international safeguards, security, and safety standards, and

—packaged the nearly 3,000 fuel assemblies in welded and evacuated 1½-ton steel canisters in such a way that "hot" assemblies are combined with "cool" assemblies, to provide a radiation barrier to theft, while also stabilizing the spent fuel for long-term storage. This phase will be complete this summer, securing three metric tons of very high-grade plutonium.

The Aktau project will, as funding allows, continue to support the IAEA in the implementation of internationally accepted safeguards measures over the material, continue to provide non-weapons-related employment for nuclear scientists in Kazakhstan, and provide security and international safeguards measures for the transportation and long-term dry storage facility for the BN–350 material.

NNSA experts are also actively working in North Korea to reverse and prevent proliferation of nuclear weapons, by securing approximately thirty kilograms of weapon-grade plutonium contained in Nyongbyon 5 megawatt reactor spent fuel. Similar to the objectives of the Aktau project, NNSA technicians have

—packaged the 8,000 assemblies in canisters and placed those canisters under IAEA monitoring, and

—performed field operations to maintain packaged spent fuel in a safe condition, appropriate for future shipment.

We are also supporting the IAEA in the implementation of verification and international safeguards of the material, while helping to prepare plans to support future shipment and disposition of spent fuel.

In an effort to impede the use of weapons of mass destruction, the NNSA supports several projects targeted at reducing the amount of fissile material that could be available to potential proliferators to fashion into a nuclear device. In the Reduced Enrichment for Research and Test Reactors (RERTR) Program, NNSA continues to work to reduce international commerce in civil HEU, by developing technologies to convert foreign and domestic research and test reactors from HEU to LEU. To accomplish this, the program continues to

—develop denser LEU fuels that can be used to convert most, if not all, research reactors to LEU fuel,

—develop LEU targets and chemical processing methods that can be used for production of medical radioisotopes,

— perform design and safety analyses, and transfer technology to assist conversion of research reactors to use of to LEU fuel and targets; and

—provide support to the Russian RERTR program, to develop high-density fuels and to complete the design and safety analyses needed for LEU conversion of Russian-designed research reactors.

Along those same lines, and based on its own experience with the RERTR program, NNSA experts have begun cooperation with Russia to establish a Research Reactor Fuel Take-Back Program, to prevent proliferation of nuclear weapons, by repatriating to Russia civil HEU fuel, from Soviet/Russian-supplied research reactors in sixteen countries, many of which are located in regions of proliferation concern. This program is in its early stages, and is working closely with the IAEA.

NNSA is also active in strengthening regional security and nonproliferation, not only on the Korean peninsula, but also throughout East Asia, South Asia, and the Middle East. We are doing this by participating in U.S. policymaking, promoting regional security dialogues, and sharing with key states in these regions the expertise of the national laboratories on technical measures to implement nonproliferation agreements. Under a program to strengthen the Biological and Toxin Weapons Convention (BWC) regime, NNSA supports the United State in its efforts to negotiate a legally binding protocol to the 1972 BWC. This protocol is part of a larger effort to deter noncompliance with the BWC and to reinforce the global norm against the proliferation of biological weapons. Our technical experts facilitate U.S. commerce through implementation of bilateral peaceful nuclear cooperation agreements with our nuclear trading partners.

GOAL 4: PROVIDING NAVAL NUCLEAR REACTORS

Our fourth goal is to provide the Navy with safe, militarily effective nuclear propulsion plants, and ensure their continued safe and reliable operation.

Naval Reactors is a highly successful semi-autonomous organization inside of the NNSA. Admiral Bowman, the Program's director, is responsible for providing the U.S. Navy with safe, militarily effective nuclear propulsion plants, and ensuring their continued safe and reliable operation.

The responsibilities and authority of the Director of this unique dual agency organization were set forth in Executive Order and in Public Laws. This cradle-to-grave responsibility begins with technology development and continues through reactor operation and, ultimately, reactor plant disposal.

With 102 operating Naval reactor plants in warships comprising forty percent of the Navy's major combatants, primary emphasis and most effort is placed on ensuring the safety and reliability of these plants. Naval Reactors is developing the next-generation reactor for the Navy's new VIRGINIA-class attack submarines and a reactor for the Navy's new CVNX class of aircraft carriers.

I will continue to support and promote this unique Program that produces the "culture of excellence" that NR is known for.

GOAL 5: VITALITY AND READINESS OF THE NNSA ENTERPRISE

Our fifth goal is to ensure the vitality and readiness of the NNSA's scientific and technical enterprise, for the next decade and beyond. We are particularly concerned about attracting and retaining a preeminent workforce and revitalizing our aging infrastructure.

Nuclear Expertise

A key strategy for ensuring the readiness of the enterprise is to attract and retain the best workforce possible, in today's highly competitive market for technical talent, by providing a challenging and rewarding work environment. Within a decade, most of our weapons designers with nuclear testing experience will be eligible for retirement and may have left our workforce. This means that when our newest system, the W88, reaches the end of its original, expected design life in 2014, we may no longer have anyone with test-based job experience to help evaluate modifications that may be required, due to aging. As part of the Stockpile Stewardship Program, we are using the remaining critical staff to train and mentor the next generation of stockpile stewards, who will use the new stockpile stewardship tools, along with existing nuclear test data and the weaponization database.

As I indicated in the beginning of this testimony, our people are our most important asset. But our experienced cadre of scientists, engineers, and manufacturing personnel is dwindling, as workers retire. Attracting and retaining the critically skilled people we need is one of the major problems faced by the nuclear weapons complex today.

We provided a report to Congress last year, in response to section 3163 of the National Defense Authorization Act for Fiscal Year 2000, that describes the situation at each of our contractor sites, with regard to their current and projected critical skills status and their plans for maintaining essential nuclear weapons expertise. At present, we believe the situation is manageable, but we will carefully monitor the implementation of each site plan. We are also currently reviewing our policy with our management and operating contractors to ensure that it promotes effective recruitment and retention. The three new contracts with our production plants, awarded in fiscal year 2000, contain a new clause that states it is our policy not to inhibit recruitment and retention. The new contracts with the University of California for the Los Alamos and Lawrence Livermore National Laboratories include maintenance of critical skills as one of the key improvement areas that will receive focused evaluation by the NNSA.

One might think that recruiting and retaining the critically skilled people we need could be solved by simply paying higher salaries. Certainly that is true in some instances, but not all. One of the problems in cyber security is that once we have trained individuals in the latest techniques, we often lose them to private industries that are paying higher salaries. Of course, a number of the critically skilled people that are needed in the complex have less direct application in private industry, for example, plutonium metallurgists. This raises the problem of encouraging individuals to enter these fields in the first place, and it is here that our new experimental facilities and capabilities come into play.

A significant element in attracting and retaining personnel at the national defense laboratories has always been the Laboratory-Directed Research and Development (LDRD) Program. I would like to thank Congress for removing the restrictions against allowing our contractors to set aside up to six percent of their weapons activities appropriations for Laboratory-Directed Research and Development. The central objective of the LDRD program is to enhance the scientific and technical capabilities of the national laboratories, by investing in fundamental science and technology to meet long-term national needs. Sustained support for this program is essential, as it impacts recruitment. Overall, the personnel pool is still low which reflects the time it takes to recruit individuals. A similar program, authorized by Congress for the production plants, began in fiscal year 2001.

Although Laboratory and Plant Manager Directed Research and Development Programs are essential elements in attracting people to the nuclear weapons program, the enduring attraction and retention of these people is fundamentally related to three issues: national importance of the mission, technical challenge of the program and advanced experimental, computational, and manufacturing capabilities.

Maintenance of the Complex

Another key strategy for assuring the vitality of our enterprise is to provide state-of-the-art scientific and technical tools and facilities, in a safe and secure environ-

ment. The current budget request for fiscal year 2002 will provide approximately the same level of funding available to our facilities and sites, as it has during the past several years. As I indicated in my testimony before the Senate Energy and Water Development Appropriations Subcommittee on March 13th, that level of funding has focused maintenance activities each year on those facilities necessary to carry out the immediate workload. We have not been able to make a significant investment for sustained, preventive maintenance or investments to reduce the risk of equipment failures, to increase operational efficiency and effectiveness, or to extend facility lifetimes. As a result, our aging nuclear weapons complex—more than half of our structures are greater than fifty years old—is deteriorating at an accelerating rate. The assessment Defense Programs conducted last year indicated that, in just the last five years, the percent of the complex found to be in either excellent or good condition had fallen from roughly 56 percent to only 26 percent.

The condition of our facilities and infrastructure is certainly not a new story, having been documented in a number of studies over the past decade, and addressed by various construction-oriented initiatives, including Utilities and Equipment Restoration, the Facilities Capability Assurance Program, R&D Revitalization, Non-Nuclear Reconfiguration, and the Stockpile Management Restructuring Initiative, during the past three decades. The condition of our facilities and infrastructure has also been recognized by Congress, which, since fiscal year 1998, has earmarked $86 million above requested levels, specifically for infrastructure improvements at Y–12, Pantex, Kansas City, and Savannah River. Certainly, increased funding is vital, but it is only one part of the solution. Excellent facility management is a standard business practice of most major organizations and I have already taken steps to establish an office within NNSA to manage the facilities and infrastructure of the nuclear weapons complex. This office will focus on long-term planning, establishing the processes—absent too long—that will institutionalize the procedures, standards, and expectations for the complex.

A Recapitalization Initiative has been developed to redress infrastructure problems throughout the complex in response to a recent comprehensive study of facilities and infrastructure. This multi-year initiative to correct maintenance deficiencies, with the goals of stabilizing the infrastructure, increasing availability of our current facilities, and extending their useful lives will be reviewed as part of the strategic review of national security programs.

GOAL 6: CREATING A WELL-MANAGED ORGANIZATION

Our sixth goal is to create a well-managed, responsive and accountable organization, by employing effective business practices. On March 14, 2001, I announced my plans for realigning the NNSA's organizational structure to improve performance of our core mission of strengthening national security and reducing the global threat from weapons of mass destruction, through applications of science and technology.

This past January, after listening to the findings of my two organizational options teams, I concluded that NNSA should be realigned into "product" and "support" divisions, as is the practice in many major private sector enterprises.

Our "product" divisions, Defense Programs and Defense Nuclear Nonproliferation, will focus on defining and advocating for the most effective means of accomplishing our mission. On the other hand, key support functions have received less-than- adequate attention in the past. Security and safety management, infrastructure and project management, the personnel system, and the planning and budgeting process all need focus and dedicated management attention. In creating two new Associate Administrators, one focused on facilities and operations and the other on management and administration, we will establish the advocates for many of the functions that the Congress recognized as needing attention in the crafting of Title 32. By taking these functions off the plates of my Deputy Administrators, I am freeing these managers to focus more intensively on program concerns and mission accomplishment.

We have no intention of realigning Naval Reactors within this reorganization—they will remain separately managed as specified in Title 32. We have made use of this program's record of success and their many lessons-learned in the shaping of the NNSA.

The two new Associate Administrators will support the mission organizations. The Associate Administrator for Management and Administration will be tasked to ensure efficient management of budget, finance, procurement, information, and people, to make them serve the needs of the product divisions. The Associate Administrator for Facilities and Operations will ensure responsible stewardship of our facilities and will be successful only if these facilities are available to the program organizations for performing our missions. These changes are designed to consolidate respon-

sibility for security, safety, and environmental issues at NNSA sites; to establish clear and direct lines of communication for laboratory directors and plant managers; establish greater personal accountability; and to improve productivity and morale.

The Deputy Administrator for Defense Programs will focus on maintaining the safety, security, and reliability of the nuclear stockpile. Significant strides have been made in that area with the Department of Defense, in that we are implementing plans for detailed, requirements-driven stockpile life extension and refurbishment. Defense Programs will direct planning and set goals for production at the plants and for the science-based stockpile stewardship activities at the national laboratories. Defense Programs will retain responsibility for major program-oriented construction and facility initiatives.

The Defense Nuclear Nonproliferation organization will continue to reduce the threats posed by weapons of mass destruction, strengthen nonproliferation institutions and norms, develop technologies to prevent nuclear smuggling, detect proliferation, respond to possible chemical or biological weapons use, and reduce the danger posed by unsafe operation of Soviet designed reactors worldwide.

I recognize that establishing these "product" and "support" divisions creates a degree of tension within the organization, but I expect that this tension will evolve into cooperation and support as each element begins to work with the others to accomplish our mission. This organizational structure works, if we are able to adopt a corporate approach to accomplishing the mission. Each Deputy and Associate Administrator must recognize that their personal and organizational success is tied to the success of the overall organization. We are creating a Management Council consisting of the Deputies and Associates that will be tasked with resolving cross-cutting issues and disputes. These issues will be referred to the Administrator, only if the Council cannot resolve them. Also, I will seek establishment of a Principal Deputy Administrator to help me resolve operational issues among NNSA elements and to assist in the day-to-day management of the enterprise. In sum, we are trying to develop a corporate approach to decision making.

Mindful of the legislative mandate to provide the Armed Service Committees with a plan by May 1, 2001, "for assigning roles and responsibilities to and among the headquarters and field organizational units of the NNSA," we divided the effort into two phases. The first phase addressed headquarters elements. In January, we assembled ten teams to tackle these issues for the headquarters elements. The reports of these teams formed the basis for the recently-announced reorganization. The May 1, 2001 interim plan is the first step in a multiphased effort, and will include mission and function statements for each major element of our realigned headquarters organization; it will describe relationships between each NNSA element; and it will discuss relationships between NNSA elements and those organizations external to the NNSA. The report will also contain an implementation plan for making this organizational transition by October 1, 2001, describing anticipated changes to organizational units and presenting a strategy for making the staffing transition. A final report will be transmitted to Congress in October. I have made a commitment that, in this initial reorganization phase, everyone currently employed will either be retained in a job similar to their current position or be placed in a new job within NNSA. We need to retain our federal talent for this to be a success!

Realigning the field structure is the second phase of our efforts to establish an effective and efficient NNSA enterprise. Our May 1st plan will include a design outline for allocating roles and responsibilities between headquarters and the field. As the next step, I intend to charter a neutral group of experts to advise me on options for addressing key structural issues uncovered in by previous studies of this issue. This group will be asked to gather information and develop options over the next six months, with a view to resolving field-structure issues by the end of the year.

My focus in these organizational adjustments is on making measured, thoughtful changes that improve NNSA's effectiveness in accomplishing our mission and then seeking to improve our efficiency through a structured process that does not disrupt current mission performance.

Detailed Budget Proposals and Multi-Year Plans

One of the key strategies for creating a well-managed organization is to adopt an integrated business management system that links strategic planning, programming, budgeting, execution, and evaluation. On the budgeting front, the good news is that NNSA submitted a Future-Years Nuclear Security Budget to the Office of Management and Budget (OMB) on March 2, 2001. OMB intends to carefully evaluate our future-year budget, over the next few months, in conjunction with the Administration's strategic review.

Internally, our focus within NNSA is on improving our planning, programming, budgeting, and execution (PPBE) process. Our first future-year budget request was

constructed while we began to implement a systematic process for connecting and integrating our plans, programs, funding requests, and performance evaluation processes. At the moment, these processes are not as well synchronized as we want. We expect that the fiscal year 2003 budget process will be a transition year in our implementation of a PPBE system. The system should be fully implemented during the fiscal year 2004 process. The graphic attached to my testimony presents a picture of how we expect the process to operate when the system is fully implemented.

The NNSA PPBE system will (1) establish standardized business management processes where feasible and will provide flexibility for programs as appropriate; (2) improve discipline in program and project management; (3) assure that each program and project receives appropriate consideration as tradeoffs are made in establishing the integrated budget; and (4) create meaningful performance measurement and feedback systems. We hope to demonstrate the value of this system through measurable improvement in our mission performance.

The system is divided into four phases:

—Long-Range Planning—for the fiscal year 2004 cycle, this will be performed between June and October of fiscal year 2001.

—Programming—guidance for fiscal year 2004 will be issued early in 2002, and program decisions will be reached by June 2002.

—Budgeting—NNSA senior managers will review the budget in June or July of 2002 and will then participate in the Department's process, tied to the preparation of the President's budget, which is released in January or February of 2003.

—Execution and Evaluation—execution year funding will cascade down through program and implementation plans. Program managers will perform periodic reviews and report the results to appropriate officials.

With the help of the Institute for Defense Analysis, NNSA has developed a detailed plan for implementing this system. NNSA's near-term priorities include:

—communicating our plans throughout our enterprise,

—establishing and implementing an Integrated Priority List and resource prioritization process,

—improving the quality, timeliness, and integration of future-year program and implementation plans,

— establishing and implementing a formal change control process,

—conducting periodic, formal evaluations, and

—reviewing and establishing NNSA information technology requirements for the process.

Development of a future-years defense budget process that brings us more in line with the needs of our missions, plants, and national laboratories is an important step. We have established momentum toward reaching that goal and we are making slow but steady progress. Your continued support for our efforts will be needed to reach this objective.

Improving Personnel Management

Another key strategy for improving business processes is to stress accountability at all levels of the organization. We must hold managers and contractors accountable for program and service results, hold individuals accountable for meeting performance goals, and reward individuals, units, and contractors accordingly. Finally, we must foster an orientation toward self-development.

Title 32 contains limited, but important authority for the NNSA Administrator to begin revitalizing the Federal staffing of our nation's nuclear security enterprise. Review of our interim policy for implementing excepted service appointments and compensation authority for no more than 300 scientific, engineering, and technical positions within the NNSA is nearly completed. We expect to begin exercising this authority by the beginning of July 2001.

The policy was developed by NNSA staff, in consultation with other agencies, that use similar authorities. Indeed, our team leader was the architect and implementer of the excepted service authority granted to the Defense Nuclear Facilities Safety Board by Congress. His expert advice was invaluable in establishing this interim policy.

Our interim policy is designed to provide NNSA managers with sufficient flexibility to attract and retain key personnel needed to meet our demanding mission, while ensuring that NNSA uses this special authority with due regard for the Merit Systems principles of federal personnel management. An integral element of the policy is the Pay-For-Performance feature, allowing for performance increases and performance bonus pools. Implementation of this Pay-For-Performance feature will be deferred until a uniform performance appraisal system can be established for our

excepted service employees, and until our managers can be trained to develop fair and accurate measures of staff performance.

We see this interim policy as just the first step in revitalizing our federal staffing process. We urgently need to begin hiring staff at entry and mid-career tiers to avoid future gaps in staffing and leadership. As you may be aware, almost fifty percent of our staff is within a decade of retirement. We intend to outline a more complete plan for improving personnel management and continuity in the May 1st Report to the Armed Services Committees.

CONCLUSION

I believe that NNSA is on the right course. The NNSA enjoys the support and endorsement of Secretary of Energy Spencer Abraham. It is the right idea to bring together the national security missions of DOE, and to focus our work with clear goals and plans, clean lines of authority, and a strong view to the future. We are on a good path to improve on our management and performance, to manage our programs efficiently and effectively, and to plan our future.

The culmination of all the stockpile stewardship activity—of all our surveillance, maintenance, refurbishment, research and development, and construction—is annual certification of the stockpile. The Stockpile Stewardship Program has, for the past five years, given the Secretaries of Energy and Defense the necessary confidence to inform the President that a return to nuclear testing is not required to maintain the safety, security, and reliability of the nuclear weapons stockpile. With appropriate resources, we will be able to continue to provide that confidence for the foreseeable future, maintaining a credible nuclear deterrent for as long as we should need it.

This confidence—and I cannot emphasize this enough—is largely the product of expert judgment, the expert judgment of some of America's best and brightest men and women, in both federal service and throughout the nation in our laboratories and plants. Their judgment is only meaningful because of their experience in pursuing the highest standards of excellence in science, engineering, manufacturing, and management. If we offer these people anything less—if we continue asking some to work in substandard facilities with aging equipment, if we burden them with unnecessary bureaucratic requirements and politics, if we fail to give them challenging work—then they will go elsewhere, our confidence in our weapons will suffer, and, under such circumstances, our nuclear deterrence will fail.

The scientists and engineers that are stewards of our nuclear arsenal have also been making important technical contributions to controlling, detecting, and deterring the use of weapons of mass destruction. NNSA's unique contribution is evident in the caliber of personnel working on these complex, interrelated threat reduction programs. Their expertise resident in our national laboratories has been honed by years of working in support of the U.S. nuclear complex. Our technical experts are ready and willing to share their nonproliferation and counterproliferation experience with their counterparts in Russia. Mr. Chairman and members of this Committee, I think we can all agree that as a nation, we may face no greater challenge than preventing weapons or weapons usable materials from falling into the hands of those who would use them against the United States or our allies. It has been more than a decade since the Berlin Wall fell, opening a new era in history. In many ways, we live in a more dangerous world now, since the demise of the Soviet Union. The threat to our safety and international security is more diffuse, which makes it harder to defend against. Rather than one monolithic threat, we must be prepared against rogue nations or terrorist organizations with interests inimical to ours. I am very proud of the nonproliferation programs that are rightfully part of the defense nuclear security enterprise. The review being conducted at the present time by the White House is timely and I am confident it will reveal that the NNSA's programs are making solid contributions to the national security of the United States.

Again, I thank the members of this Panel for their commitment and support of our mission, and for your support of the people of NNSA who actually do the work and accomplish the mission: scientists, engineers, technicians, policy planners, administrators—at headquarters, in the field, at our laboratories, plants and the test site.

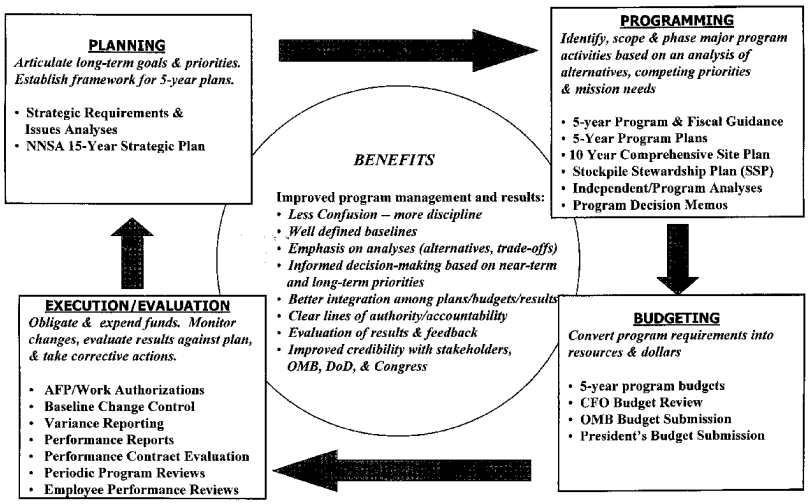
Simply stated, NNSA has great people and a great mission. Thank you again for the opportunity to appear here today.

NATIONAL NUCLEAR SECURITY ADMINISTRATION FISCAL YEAR 2002 CONGRESSIONAL BUDGET REQUEST

[Dollars in Millions]

	Fiscal Year 2000 Comparable Approp.	Fiscal Year 2001 Comparable Approp.	Fiscal Year 2002 Request to Congress	Fiscal Year 2002 vs.	Fiscal Year 2001 (Percent)
Weapons Activities	$4,563,505	$5,069,289	$5,300,025	$+230,736	$+4.6
Defense Nuclear Nonproliferation	712,672	873,884	773,700	−100,184	−11.5
Naval Reactors	669,637	687,560	688,045	+485	+0.1
Office of the Administrator	350	9,978	15,000	+5,022	+50.3
Total, NNSA	5,946 164	6,640,711	6,776,770	+136,3059	+2.0

Planning, Programming, Budgeting and Execution System (PPBES)



Senator DOMENICI. Thank you very much.

General, might I just quickly say we thought the nuclear weapons and non-proliferation activities within the Department of Energy needed to be somewhat carved out with a National Nuclear Security Administration, becoming a semi-autonomous management scheme for them. From this Senator's standpoint we worked very hard on that.

I remain thoroughly convinced that was the very best way to go, and I think you understand that role and have explained it very well. I would say we're not close to where we ought to be; we've just taken the first—maybe the first snap from center and the quarterback's back ready to do something. We look forward to being of help wherever we can as you begin to put this total organization together so that much of the difficulty in managing within a department as dysfunctional as DOE, almost dysfunctional by mandate, how we put it together.

We look forward to helping you wherever we can make that a much more straightforward management of some very serious, dangerous, and yet important activities.

General GORDON. Thank you, Senator.

Senator DOMENICI. Our next witness will be Admiral Bowman——

Senator REID. Mr. Chairman.

Senator DOMENICI. Yes, please.

Senator REID. If I could just say one brief thing?

Senator DOMENICI. Absolutely.

Senator REID. When the idea of you and Senator Kyl and others to develop this entity that now General Gordon runs I was very dubious. I didn't stand in the way but I wasn't on the side cheering you on, and I in hindsight recognize that I was probably wrong.

But it appears to me that the DOE is functioning better in this regard than it ever has. A lot of it has to do with the leadership of General Gordon, but it's also the entity that was set up. So I want to tell you that I'm not sure I found religion but maybe so.

General GORDON. Could I react to that, Mr. Chairman?

Senator DOMENICI. Yes. Briefly, General.

General GORDON. I appreciate that very much, Senator Reid, but I also just want to say that one of the things that's helped turn the morale around and the energy around within the complex in the field itself has been the clear signal from the Congress that there's a mission, there's a long-term mission that people care and appreciate and they're willing to put some resources behind it.

Senator DOMENICI. Thank you. Admiral, we're fortunate to have you back, and I want to say to you in the event you have never heard me make reference to your great successes, whenever this Senator speaks of nuclear power, is it safe and can we do it right, and should it be something we seriously consider during these energy-short times, I most of the time give as an example that there's over a hundred boats, American Navy boats of various sizes and shapes that are on all the oceans and seas of the world and that in those boats are one or two nuclear power plants that are generating the same kind of waste that we are so worried about here at home and yet they're carrying them around in their boat bottoms, so all the sea ports of the world except perhaps in Australia—all the others let you go into them, let you dock, you have right on them a nuclear power plant, and I think that's a great testimony to their safety.

And that's from its origins, but that's from its continuation, which is what you brought forward after a great Admiral started this and made sure of its safety, and I compliment you, and we'll listen to your testimony now.

Senator REID. I think that's an answer to our nuclear waste problems. Just put them on the boats.

Senator DOMENICI. All right, Admiral.

ADMIRAL BOWMAN'S OPENING STATEMENT

Admiral BOWMAN. Thank you very much, Mr. Chairman, members of the committee. I thank you for the opportunity to testify and thank you very much for those very kind words.

As you know, Admiral Hyman Rickover organized this Naval Reactors program back in the late 1940s. His visionary concept then was cradle to grave responsibility for all aspects of maintaining and operating the Navy's nuclear powered warships, managed cen-

trally by a single purpose organization with clear lines of authority, responsibility, and accountability.

Naval Reactors basic structure, policies, and practices were preserved in an executive order signed by President Reagan on the day Admiral Rickover retired in 1982. The key to Naval Reactors operational excellence over these years and its unsurpassed record has been adherence to the tenets of that executive order.

Congress has fully supported this concept by writing that executive order into law twice in two defense authorization acts. As a result I would say the country has benefitted. In so doing Congress placed great faith in this program and has duly protected the core values that have been the hallmark of our success for more than 50 years and the enabler of even more to come. I appreciate that faith very deeply.

The core values of Naval Reactors must be preserved. I'm committed to operational excellence and an unsurpassable record of innovation and safety. We must continue to design and deliver the world's finest warships for our Navy and our country.

I don't take lightly my responsibility to continually revalidate the faith that you have placed in us.

We all recognize that the threats that the country faces today aren't the ones that we faced yesterday. How to protect our Nation's interests, what forces are needed for our defense, and how we will respond to those threats are among the most pressing and important issues faced by the leaders of this country.

Just as the Nation's defense environment and requirements have evolved, Naval Reactors has also evolved to deliver what is demanded of it. Let me very quickly run through some facts about our fiscal year 2002 DOE budget request and this Naval Reactors program.

NAVAL REACTOR BUDGET REQUEST SUMMARY

My DOE budget request remains flat as General Gordon said, at $688 million from this year's fiscal year 2001 numbers to fiscal year 2002. In real dollars therefore it is actually decreasing by about $18 million due to inflation.

To put my budget in perspective, it's less than 4 percent of the DOE budget and less than 1 percent of the country's defense budget. I think the returns say that it's a good solid investment.

Today the Naval Reactors program supports 102 reactors, as General Gordon said earlier, and 55 attack submarines, 18 ballistic missile submarines, 9 nuclear powered aircraft carriers, and 4 training and prototype platforms along with the deep diving NR1 deep submergence vehicle. We have one fewer attack submarine this year than when I testified last year, and that force number could drop even lower if we don't watch what's going on and if action isn't taken soon.

Our number one priority at Naval Reactors is supporting the nuclear powered fleet and ensuring their safe and effective operation. The average age of these ships today is about 16 years old. The average age will be over 22 years by the end of this decade. As the ships age they place a greater demand on the Naval Reactors DOE budgets.

The nuclear Navy is being employed at an unparalleled and unrelenting pace today. For example, the national level intelligence, surveillance, and reconnaissance missions requirements for our attack submarines has nearly doubled over the last decade while the number of those attack submarines has nearly been cut in half.

Our carriers are also stretched to their limits, attempting to meet all the power projections and forward presence requirements placed on them. Every one of our last 11 carrier battle groups to deploy actually engaged in combat. To meet just the top priority requirements being placed on the submarine fleet we simply must refuel the five remaining Los Angeles class submarines scheduled for early inactivation, and I think we should also seriously consider converting Trident submarines coming out of the strategic inventory to Tomahawk-shooting SSGNs.

Those ships can carry by design as many Tomahawk missiles as an entire battle group does today.

We must also increase the build rate of the new Virginia Class submarine, but even doing all of this will leave us short of attack submarines, as judget by the Chairman of the Joint Chiefs' requirements. Fortunately, our technological superiority is allowing us to stretch the assets we have to fill some of that gap.

For example, we've extended the life of selected submarines and have also begun now looking to further extend that lifetime. However, pushing the life of these submarines comes at a cost. Life extension exacerbates the aging fleet problem, and as the fleet ages, it takes more resources to support.

We are also forward basing three submarines in Guam to get them closer to their operational areas, eliminating the long transit from the west coast to the Pacific Rim and greatly increasing the mission days on station available from these three ships. We're designing better, more cost effective ships for the future.

When the Navy's new Virginia Class attack submarine is delivered it will provide needed capability for the 21st century at an affordable price. The reactor plant design, which will be about 96 percent complete by the end of this fiscal year—I'm sorry—by the end of fiscal year 2002 will use advance component and systems technology, including a life of the ship core, which will make future refuelings unnecessary.

The nuclear propulsion plant design of the new carrier, the new CVNX aircraft carrier is well underway. The CVNX reactor plant will provide 25 percent more energy than the Nimitz Class ships and will have more than triple the electric power available to the skipper on demand.

We are designing and developing CVNX—the carrier of the future—nuclear propulsion plant without an increase in the DOE budget. We're focused on designing and delivering warships to the fleet that are more capable, more adaptable to technology insertion, and more enduring. To do so, my program will continue to require highly skilled and qualified professionals.

To that end, Mr. Chairman, in particular I was pleased to see and read of your proposed legislation supporting nuclear programs in our Nation's universities. Our laboratories and vendor base draw to some extent upon the shrinking pool of uniquely skilled individuals, and I'm very grateful for your support.

I would note that I sit on two of the visiting committees of these nuclear engineering departments at two of our universities in this country, and I am seeing exactly what your legislation is addressing, and I certainly appreciate your initiative.

Where science leaves off we are employing smart business strategies to get more out of every dollar. Multi-year contracts, block buys, advance appropriations, shipyard teaming are just a few of the examples of what we're studying. I strongly advocate these types of initiatives because they do use the taxpayers' dollars more efficiently.

PREPARED STATEMENT

The nuclear Navy is a true crown jewel in our Nation's defense arsenal. No other nation has anywhere close to this level of capability. That's due in very large part to the wisdom of Congress and your support. You have consistently supported this program in its endeavors. Naval Reactor's record is strong and the work is important and the funding need is modest. I offer you my thanks and gratitude.

Mr. Chairman, with your permission I have a longer written statement for the record.

[The statement follows:]

PREPARED STATEMENT OF ADMIRAL FRANK L. BOWMAN

Thank you for inviting me to testify on Naval Reactors' fiscal year 2002 Department of Energy budget request.

Naval Reactors is a semi-autonomous, centrally managed, single-purpose organization with clear lines of authority and total responsibility and accountability for all aspects of naval nuclear propulsion. As the Director of Naval Reactors, I have specific responsibilities within the Department of the Navy and the Department of Energy, and as necessary, direct access to the Secretary of the Navy and to the Secretary of Energy to fulfill these duties. Naval Reactors' principal mission is to provide militarily effective nuclear propulsion plants to the U.S. Navy and to ensure their safe, reliable, and long-lived operation.

Admiral Hyman Rickover organized Naval Reactors in the late 1940's. His visionary concept was cradle-to-grave responsibility for all aspects of maintaining and operating the Navy's nuclear-powered fleet. The Program's basic structure, policies, and practices were preserved in Executive Order 12344 signed by President Reagan upon Admiral Rickover's retirement in 1982.

The key to Naval Reactors' operational excellence and unsurpassed record has been strict adherence to the tenets of this Executive Order. Congress has fully supported this concept by writing the Executive Order into law in two Defense Authorization Acts. This charter, incorporated into the National Nuclear Security Administration Act, maintains my responsibility for all aspects of the Naval Reactors Program, including:

—Research, development, design, test, and construction;
—Operation, operator selection and training, maintenance, and disposal; and
—Administration (e.g., security, nuclear safeguards, transportation, public information, procurement, and fiscal management).

Congress has placed faith in this Program and protected the core values which have been the hallmark of the Program's success for the past 50 years and which are the enabler for continued success into the future.

I do not take lightly my responsibility to continually revalidate the faith you place in Naval Reactors. Our core values must be preserved; Naval Reactors is committed to operational excellence and an unsurpassable record of innovation and safety. We must continue to design and deliver the world's finest warships for our Navy and our country. In this regard, Naval Reactors has compiled an unparalleled record of success:

—Nuclear-powered warships have safely steamed over 122 million miles-equivalent to nearly 5,000 trips around the Earth.

—Naval reactor plants have accumulated over 5,200 reactor-years of operation, compared to about 2,540 for the U.S. commercial industry. In addition, our operating experience is about half that of the entire commercial power industry worldwide (our 5,200 reactor-years compared to about 9,660 worldwide-including the United States).

—Naval Reactors' outstanding (and fully public) environmental record enables our ships to visit over 150 ports around the world-critical to our Nation's forward-presence strategy and ability to project power.

We all recognize that the threats the United States faces today are not the ones we faced yesterday. How to protect our Nation's interests, what forces are needed for our defense, and how we respond to these threats are among the most pressing issues faced by the leaders of the country. Just as the Nation's defense environment and requirements have evolved, the Naval Reactors Program has evolved to deliver what is demanded of it.

Let me quickly recount some facts about the Naval Reactors Program:

—Today, the Naval Reactors Program supports 102 reactors in 55 attack submarines, 18 ballistic missile submarines, 9 nuclear-powered aircraft carriers, 4 training and prototype platforms, and a deep submergence vehicle. We have one less attack submarine than we did just a year ago, and submarine force level could drop even lower if our country fails to act soon.

—The Program's number-one priority is supporting the nuclear-powered fleet and ensuring its safe and effective operation. The average age of these ships today is about 16 years. This average age will be over 22 years by the end of the decade because so few new ships are being added. As these ships age, they place a greater and greater demand on Naval Reactors' DOE budgets.

—The nuclear Navy is being employed at an unparalleled and unrelenting pace. For example, the national level Intelligence/Surveillance/Reconnaissance (ISR) mission requirements for our attack submarines have nearly doubled over the last decade, yet the force has been cut nearly in half. Our carriers are stretched to their limits, attempting to meet all of the power projection and forward-presence requirements placed on them. Every one of our last 11 carrier battle groups to deploy has engaged in actual combat.

—To meet just the highest priority requirements being placed on the submarine fleet, we simply must refuel the five remaining LOS ANGELES-class submarines scheduled for early inactivation and seriously consider converting Trident ballistic missile submarines coming out of the strategic inventory to SSGNs. These ships can carry as many Tomahawk missiles as an entire battle group does today. We must also increase the build rate of the VIRGINIA-class submarines. But even doing all this will leave us short of attack submarines.

—Fortunately, our technological superiority is allowing us to stretch the assets we have to fill some of the gap. For example, we have extended the life of selected submarines, and we are looking to extend some further still. However, pushing the limits comes at a cost. Life extension exacerbates the "aging fleet" problem; and as the Fleet ages, it takes more resources to support.

—We are forward-basing three submarines in Guam to get them closer to their operational areas-eliminating the long transit from the West Coast to the Pacific rim and significantly increasing the mission days on station available from these three ships.

—We are designing better, more cost-effective ships for the future. When the Navy's new VIRGINIA-class attack submarine is delivered, it will provide needed capability for the 21st century at an affordable price. The reactor plant design, which will be about 96 percent complete by the end of fiscal year 2002, will use advanced component and systems technology-including a life-of-the-ship core, which will make future refuelings unnecessary.

—The nuclear propulsion plant design of the new CVNX class aircraft carrier is well underway. The CVNX reactor plant will provide 25 percent more energy than the NIMITZ-class ships and will have more than triple the electric power available to the skipper, on demand. We are designing and developing the CVNX nuclear propulsion plant without an increase in our DOE budget.

VALUE OF NUCLEAR POWER

Nuclear power enhances a warship's capability and flexibility to sprint where needed and arrive ready for sustained power projection. The Navy has repeatedly employed the unique capabilities inherent in nuclear propulsion. Sustained high speed (without dependence on a slow logistics train) enables rapid response to changing world circumstances, allowing operational commanders to surge these ships from the United States to trouble spots or to shift them from one crisis area

to another. Nuclear propulsion helps the Navy stretch available assets to meet today's worldwide commitments.

Nuclear-powered carriers can transit to a crisis area unsupported at sustained high speed and arrive fully ready to launch the awesome firepower of the airwing. Then, they can sustain that presence and response without immediate replenishment of combat consumables, and with tactical mobility and flexibility, free from the need for propulsion fuel replenishment. The future carrier, CVNX, will continue to provide these benefits.

The 55 U.S. nuclear attack submarines possess inherent characteristics such as stealth, endurance, mobility, firepower, and multimission flexibility. These characteristics afford unfettered access to contested battlespace 24 hours a day, 7 days a week, for as long as required. Once there, submarines can surveil new or emerging adversaries undetected and provide timely insight on their intentions and capabilities to policymakers without risk of political escalation—particularly valuable because many potential adversaries understand their vulnerability to satellite reconnaissance, and often employ deceptive methods to defeat it. Should tensions escalate, submarines can also execute Tomahawk strikes from undisclosed locations without warning, often from inside an adversary's defensive umbrella.

HIGHLY TECHNICAL AND SPECIALIZED EMPLOYEES

We are focused on getting more out of existing ships and designing and delivering new warships to the Fleet that are more capable, more adaptable to technology innovation, and more enduring. Doing so requires highly qualified and skilled professionals.

Naval Reactors' highly technical work requires rigorous technical discipline and attention to detail. We have extremely talented engineering staffs, both in Government service and at our prime contractors, including many young people who have been out of college less than 5 years. The importance of the work to our country is a key factor for keeping the talented people we need. However, retaining these people is a challenge given a decade of economic expansion and the resulting opportunities in the private sector. Unfortunately, today government service has difficulty keeping pace due in large measure to antiquated hiring practices and noncompetitive compensation programs. Today, the top three levels of government Senior Executive Service civilians are pay-capped at the same dollar value. Attention should be given this situation.

Naval Reactors touches a highly technical and specialized vendor base, therefore I am acutely aware of the shortages of engineering graduates, especially in the nuclear field. Declining enrollments in nuclear engineering departments at schools across the United States and a declining number of universities offering degrees in nuclear engineering have limited the employment candidate pool of nuclear engineering graduates. To that end, I was particularly pleased to read of proposed legislation supporting nuclear programs in our Nations' universities. Our laboratories and vendor base draw to some extent upon this shrinking pool of uniquely skilled individuals and I am grateful for your support.

FISCAL YEAR 2002 DEPARTMENT OF ENERGY BUDGET REQUEST

Naval Reactors' fiscal year 2002 DOE budget request is $688M, about the same amount as appropriated for fiscal year 2001. With inflation, this means the Naval Reactors fiscal year 2002 budget request is $18M less in real terms than the fiscal year 2001 budget. To put my budget request in perspective, it is less than 4 percent of the DOE budget. Since the beginning of the 1990's, Naval Reactors' budget has declined 30 percent in real terms.

Naval Reactors' number-one priority is to support the 82 nuclear-powered warships that make up over 40 percent of the Navy's major combatants. This responsibility includes ensuring safe and reliable operation of reactor plants in these ships, enhancing the reactor plants' performance, and developing improved reactor plants to support the Navy's needs for the future.

Sustaining today's 102 operating reactors requires continual analysis, testing, and monitoring of plant and core performance. Nuclear propulsion is a demanding technology-the harsh environment within a reactor plant subjects equipment and materials to the deleterious effects of irradiation, corrosion, high temperature, and pressure over a lifetime measured in decades. In addition, naval reactor plants must be rugged enough to accommodate ships' pitching and rolling; have the resilience to respond to rapidly changing demands for power; be robust enough to withstand the rigors of battle; and be safe and easily maintainable by the Sailors who must live next to them.

Naval Reactors' DOE laboratories have made significant advancements in components, materials, core lives, and predictive capabilities. These advancements allowed the Navy to extend the service life and intervals between major maintenance periods for nuclear-powered warships and reduce ship off-line time for maintenance. Increasing ship availability also increases the Navy's warfighting capability, while simultaneously reducing maintenance costs. Added ship availability is particularly important in the face of Fleet downsizing, as the operational demands on each remaining ship continue to increase. In the same vein, some development effort is devoted to ensuring that we can meet the Navy's need to extend warship lifetime.

New development and analysis challenges continually arise as a result of Program advancements. For example, the longer intervals between major maintenance periods reduce opportunities to examine and/or replace aging components. Thus, a more extensive analytical and testing effort is required to verify that materials and components are performing properly. Extended ship lifetime also demands exhaustive testing and performance enhancements to ensure that component endurance—despite potential corrosion and mechanical strain—can be ensured for significantly longer than the original design life. As data are gathered from deploying ships with long-lived reactor cores, the emphasis on evaluating material performance has grown. A life-of-the-ship core offers extraordinary advantages in terms of ship availability, cost reduction, and reduction in radiation exposure and waste generation. However, a life-of-the-ship core eliminates mid-life opportunities to examine reactor components. Testing and verification, therefore, become even more important to ensure that naval reactor plants will continue to perform safely.

New plant development work at the Program's DOE laboratories is focused on completing the design of the next-generation submarine reactor for the Navy's new VIRGINIA-class attack submarines and on continuing the design for a new reactor plant for the Navy's new CVNX-class aircraft carriers.

The design of the reactor plant for the VIRGINIA-class submarine will be about 96 percent complete by the end of fiscal year 2002. Currently, the design of the reactor plant for the VIRGINIA-class is over 90 percent complete. Today, 99 percent of reactor plant components have been delivered-all on schedule to support ship construction, and within budget. The lead-ship pre-reactor-fill testing and initial reactor fill have been completed. Significantly, the initial reactor fill was completed within 3 months of the schedule established 6 years ago. Reactor plant construction is 89 percent complete, and overall lead ship construction is 45 percent complete and is on schedule. VIRGINIA is expected to go to sea in fiscal year 2004 and will provide needed capability for the Navy at an affordable price.

CVNX is the first new carrier designed since the 1960's NIMITZ Class. The CVNX reactor plant will build on three generations of nuclear propulsion technology developed for submarines since NIMITZ to incorporate needed advancements in warfighting capabilities and to significantly reduce lifecycle costs.

Reactor plant design work is well underway to support the long design and manufacturing lead-times of reactor plant components needed for the CVNX ship construction schedule. Current design efforts include general arrangement design, system description and diagram development, and component design, such as final sizing and system interface evaluations. Long lead reactor plant forging contracts were placed this fiscal year and necessary system descriptions and general arrangements required for later design activities have been established. By the end of this year, over 70 percent of reactor plant system descriptions will be approved. The first contract for major reactor plant components will be placed in fiscal year 2002.

Naval Reactors also is continuing inactivation of six DOE developmental and training prototype reactor plants. The increased sophistication of computer models and the accumulation of operational data, along with the decrease in the need for Navy plant operators, have allowed the shutdown of six of our eight land-based prototype reactor plants. Since 1993, Naval Reactors has been inactivating and dismantling the shutdown plants in three States as promptly as funding and manpower have allowed.

Major inactivation work is nearly finished. The last of the prototype reactor plants at the Naval Reactors Facility in Idaho was defueled in fiscal year 1999. Inactivation and cleanup work at the Windsor site in Connecticut is complete, and regulatory approval for unrestricted release has been requested. The two shutdown prototype reactors at the Kesselring site in New York have been inactivated and defueled, and major dismantlement work will be completed in fiscal year 2002.

NAVAL REACTORS DEPARTMENT OF ENERGY BUDGET DETAIL

PROGRAM TECHNICAL REQUIREMENTS

Naval Reactors' technical budget request is categorized into four areas of technology: Reactor Technology and Analysis; Plant Technology; Materials Development and Verification; and Evaluation and Servicing. This approach supports the integrated and generic nature of our DOE research and development work. The results of Naval Reactors DOE funded research, development, and design work in the following technology areas are not only incorporated into future ships, but also retrofitted into existing ships.

—The $226.0M requested for Reactor Technology and Analysis will continue work on the next generation reactor for the VIRGINIA Class submarine, development work on the new reactor for CVNX Class aircraft carriers, and ensure the safe and reliable operation of existing reactors. The reduction in operating plant maintenance periods places greater requirements on thermal-hydraulics, structural mechanics, fluid mechanics, and vibration analysis work to accurately predict reactor performance and to identify and avoid problems. The continued push for longer life cores also means we will continue to operate reactors beyond our operational experience base for many years to come. Improved analysis tools and understanding of basic nuclear data will allow us to predict performance more accurately and safely throughout extended core life. Other efforts in this area include revising core manufacturing processes to reduce cost and hazardous waste, performing reactor safety analyses, developing components and systems to support the Navy's acoustic requirements, and developing improved shield designs to reduce costs and radiation levels.

—The $116.0M requested for Plant Technology will allow Naval Reactors to develop and analyze those systems that transfer, convert, control, and measure reactor power to maximize plant performance. The request reflects the requirement to develop improved steam generator performance, which will benefit CVNX steam generators-the largest components developed to date. Development of technologies in the areas of chemistry, energy conversion, instrumentation and control, plant arrangement, and component development will continue to improve performance and address operational requirements. Naval Reactors is also developing components to address known limitations or to improve reliability, including a redesigned main coolant pump for the NIMITZ-class plants and new instrumentation and power distribution equipment to replace older, technologically obsolete, and increasingly harder-to-support equipment.

—The $130.9M requested for Materials Development and Verification will fund essential material analysis and testing as ships are kept in service longer than originally intended, and materials are, therefore, called upon to perform safely and reliably for a longer time. Work on the core and core structural materials includes testing and analysis of fuel, poison, and cladding materials to verify acceptable performance, as well as developing materials with such enhancements as reduced susceptibility to corrosion or swelling. Testing and development of reactor plant materials also ensures reliable performance and leads to improvements such as reduced cracking and stress.

—The $132.3M request for Evaluation and Servicing is needed to fund the operation and servicing of land-based test reactor plants and part of Naval Reactors' share of the Advanced Test Reactor, a specialized materials testing facility operated by the DOE Office of Nuclear Energy, Science, and Technology. Materials, components, cores, and systems in these plants provide important technical data and experience under actual operating conditions, thus allowing potential problems to be identified and addressed before they occur in the Fleet. With proper maintenance, upgrades and servicing, the two operating test reactor plants and the Advanced Test Reactor will meet testing needs for some time.

The accumulation of operational data from the prototype and fleet operating plants, expended core examinations, and advances in computer modeling developed by Naval Reactors have enabled the Program to shut down six of the Program's eight land-based prototype plants, resulting in significant cost savings. For most of the last decade, Evaluation and Servicing funds have been focused on inactivating and laying up or dismantling the shutdown plants to place them in an environmentally benign state.

As inactivation work on the six shutdown prototypes comes to completion, resources in this area decrease to a base level to continue ongoing cleanup of facilities at all Naval Reactors sites, to reduce hazards to personnel, and to reduce potential liabilities due to aging facilities, or changing conditions.

PROGRAM INFRASTRUCTURE AND ADMINISTRATIVE REQUIREMENTS

In addition to the budget request for the important technical work discussed above, infrastructure and administrative funding is also required for continued operation of the Program. Specifically, the fiscal year 2002 budget request includes:

—$22.6M in Program Direction funding to cover Naval Reactors' 191 DOE personnel at Headquarters and the Program's field offices, including salaries, benefits, travel, and other expenses. This staff maintains oversight of the Program's extensive day-to-day technical and administrative operations, while continuing to ensure compliance with growing environmental, safety, and other regulatory requirements, which-notwithstanding our excellent record-necessitates substantial effort.

—$47.0M in Facility Operations funding to maintain and modernize the Program's facilities, including the Bettis and Knolls laboratories and the Expended Core Facility (ECF).

—$13.2M in Construction funding to refurbish and expand Program facilities. This includes the continuation of the ECF Dry Cell project in Idaho, which will significantly improve Naval Reactor's ability to process naval spent fuel for dry storage. (As identified and agreed to in a Settlement Agreement signed by the Department of Energy, the Navy, and the State of Idaho, Naval Reactors fuel must be among the early shipments of spent fuel to the first permanent repository or interim storage facility.) The requested funding also enables the continuation of the Major Office Replacement Building project.

CONCLUSION

The ongoing support of the Senate Appropriation Committee, Subcommittee on Energy and Water Development is one of the single most important factors in our success story. The Subcommittee has recognized the requirements and demands the Program confronts daily: a growing need for power projection and forward presence far from home, which strains our dwindling number of nuclear ships; an aging nuclear fleet; the competitive climate in which we recruit and develop our people; and the funding required to meet these commitments today and into the future.

For the post-Cold War period, many have urged the armed forces to transform into expeditionary units capable of rapid deployment and sustained presence where regional unrest requires it. The nuclear Navy is just such a force-and it is available today.

The nuclear Navy is a true crown jewel in our country's defense arsenal. No other nation has our level of capability. That is due in large part to the wisdom of Congress. You have consistently supported this Program in its endeavors. I offer you my thanks and gratitude.

STATUS OF THE STOCKPILE STEWARDSHIP PROGRAM

Senator DOMENICI. It will be made a part of the record. Thank you.

General Gioconda, do you have a statement?

General GIOCONDA. Yes, sir.

Senator DOMENICI. Do you have a written one?

General GIOCONDA. No, sir. I don't.

Senator DOMENICI. Okay. Thank you. Would you proceed?

STATEMENT OF GENERAL THOMAS F. GIOCONDA

General GIOCONDA. Yes, sir.

Good afternoon to the members of the subcommittee. I'd just like to make a few important points about the Stockpile Stewardship Program and amplify some of the things that General Gordon has said.

Senator DOMENICI. Please.

General GIOCONDA. First, I'm pleased to report that the Stockpile Stewardship Program is delivering to the American people a safe and secure and reliable stockpile, and that's important, being the money that we have spent up to date. The program is working because of the continued dedication and patriotism of thousands of

men and women, both Federal and contractor across the country, who make up the nuclear weapons complex, and it's important that we recognize their contribution of 50 years.

We have completed the fifth annual certification of the stockpile as safe and secure and reliable with no need to return to underground nuclear testing at this time. The annual certification process is very important in that it places every part of the complex on alert to be that every year, and it's important to recognize that certification assessment goes on every year and now for the fifth time is very successful.

Mr. Chairman, it's important to understand that the investments made by this committee for the new science hardware developed over the last 5 years is already making remarkable contributions to sustaining the Nation's nuclear deterrent. For example, the DARHT facility at Los Alamos is providing data on primary implosions needed specifically for the W88 and W76 assessment.

The Jasper facility in Nevada will begin shots this fall, which will provide critical data on the unique material properties of plutonium. We'll also begin experimental activities in ATLAS later this year.

The program is also delivering for the stockpile—we have responded to the needs of the Department of Defense. We feel that the 61–11s replace the B53. We met the W87 initial operating capability and are continuing with that work load through fiscal year 2002. We are very proud of the Pantex team for meeting this important milestone for the Air Force.

We're about to begin refurbishment of the B61. We're producing W76 neutron generators and Acorn Tritium reservoirs. We're doing preliminary development in engineering work to get ready for the future refurbishments of the W76 and the W80. Refurbishment of all these weapon systems would represent a significant portion of the active stockpile on alert today.

The pace and scope of these refurbishments are part of the ongoing strategic defense review called by the President. We have met important milestones in reconfiguring the complex for the future. Sandia has made its first new neutron generator, the first since the closure of the Pinellas plant in 1994.

We are making development pits at Los Alamos, recovering from the capability loss of the shutdown of Rocky Flats in 1989. The Tritium program is on track to deliver new gas to the stockpile by 2006, all very important parts of the nuclear weapons complex.

Next week we begin to pour concrete for the Tritium Extraction Facility at Savannah River. This TEF will extract tritium gas from burnable, absorber rods irradiated by the TVA. These are important achievements that have required a tremendous effort over the past several years, and I want to make note of those.

INFRASTRUCTURE STATUS

Our success in the stewardship program rests in part on the facilities where we work. We've completed a comprehensive study of the weapons complex facilities and infrastructure that you mentioned in your opening statement, Mr. Chairman. We're taking the first steps to systematically maintain and manage the infrastructure and to arrest the serious rate of deterioration.

As General Gordon has testified, we have a multiyear initiative to restore operational efficiency, reduce facility down time, and ultimately move us to the right facility configuration for the future. We must not ask our work force to perform their important national security mission in antiquated facilities.

CHALLENGES AND ADVANCES OF THE STOCKPILE STEWARDSHIP PROGRAM

But there are also other challenges before us. The NIF project is back on track and it must stay on track. We continue to watch this program very closely. We have established a headquarters office for NIF that reports directly to me. We plan to do our first stockpile experiments in NIF as early as fiscal year 2004, and to have completed some 1,500 experiments by fiscal year 2008, when it will be completely done.

The NIF is vital for the long-term success of the Stockpile Stewardship Program, especially in its crucial contribution to high-energy density physics needed for the health of the stockpile. We have a vibrant and successful program of subcriticals going on at the Nevada Test Site that must be sustained, above-ground experimental capabilities such as radiography which must be further developed for the future health of an aging stockpile.

The advanced 3D simulations of models being developed by the ASCI program are already providing benefits to the stockpile. We're using archive test data and new above-ground data to validate the codes that our designers so rightly need. But with all the competing requirements for dollars in the program today, we're slowing the computer procurement schedules by about 1 year to keep the balance right in all aspects of the Stockpile Stewardship Program.

As mentioned earlier, we have met the W87 deliveries needed for the Air Force, but schedules are tight and the complex as a whole was stretched to make this milestone due to age and dormant infrastructure. We have an agreement with the Nuclear Weapons Council on the future life extensions for the B61, 76, and the W80. Only the B61 is fully supported by fiscal year 2002 budget requests pending completion of the strategic defense review.

Again, I must state as I said last year before you, I don't believe we can get there without significant investments in the infrastructure. We are getting on top of managing our pit program by our new campaign, which includes both manufacturing and certification, and while we're on schedule for manufacturing a certifiable pit by 2003 our resource and commitment to final certification of a pit without nuclear testing must await the strategic defense review.

On the management front we have put in place three performance based contracts at Pantex, Kansas City, and Y–12. These new contracts are already providing benefits to us. At Pantex BWXT Technologies has implemented several process improvements that have increased the rate of pit repackaging and reduced radiation exposure to our technicians. Pantex has——

Senator DOMENICI. General, could you summarize, please?

General GIOCONDA. Yes, sir.

The other part I was talking about is the—also the renegotiated contracts with the University of California, and I recently co-chaired the first quarterly review of that contract to let you know that the performance programs milestones are in place and on track in that regard.

Also, regarding the budget, I think we've said enough there, but the current budget request is a current services approach for the work on the B61 and improvements in security, but all have to await the strategic review outcome.

Senator REID. Mr. Chairman.

Senator DOMENICI. Yes, Senator Reid.

Senator REID. Since I'm the junior member of this group I can see my questions will be coming. I'm not going to be able to be here so I would ask your permission to be able to submit the questions in writing. Perhaps General Gordon could—most of them are directed towards him. If he could get them back to me in a couple of weeks?

Senator DOMENICI. Certainly.

General GORDON. Of course, sir.

Senator DOMENICI. Any questions will be answered within 2 weeks.

Senator REID. Thank you very much.

Senator DOMENICI. All of yours and any others.

Senator Hollings, you were here first and besides, it's your turn. Would you permit me one observation then I'll yield to you for whatever you'd like?

Senator HOLLINGS. Yes.

Senator DOMENICI. Let me say to both of you, General Gordon, and you, Brigadier General Gioconda, you know I'm reading in your statements this notion that some of these very, very important issues are subject to strategic review—defense strategic review. I want you to really know what I think that means.

I don't think that means that. I think it means nobody wanted to put in the money this year.

In any event, we anxiously await the strategic review. We hope it really addresses these issues and we hope it's done pretty quickly, because some of us have been looking at three or four of the issues you just recited reference the certification of the pits and others, and some that you have recited, and they were all ready to go, and they should have been funded this year.

And I guess that I will accept temporarily the excuse that somebody is reviewing them in some kind of overall strategic look, but I'm not sure of that. I think we'd better keep our eyes open, and I guarantee you as chairman of this committee I will. If we don't have something in the next couple of months my propensity is not going to be to wait around for it but rather to pay for it.

Senator Hollings.

Senator HOLLINGS. The administration wants to make room for some other programs or cuts or even tax cuts, and he told poor General Gordon, he said: Now, General, you find the money and you cut $156 million of the environmental management one, and specifically that's why I had to come with respect to this MOX facility down there at Savannah River.

Now, let me first thank, because as chairman of the Budget Committee you've got a hard charger but you're very generous to me as the chairman of the Energy Committee, and I appreciate it very much.

Admiral Bowman, I'm glad to see you again. He has a nuclear power school down there at the Navy Yard in Charleston, South Carolina, and being one of Hyman Rickover's boys, you've got to be the best.

General Gordon, I commend you for your enthusiasm. It's hard to find a general enthused in this town.

STATUS OF MOX FACILITY PROGRAM

So, let's get right to the point. Three years ago we had a competition. Senator Gramm down there with Pantex in Texas, me at SRS, others and so forth about this disposing of surplus plutonium in the MOX facility and of course the pit disassembly to feed into it, and commitments were made specifically that we were going to ramp those things over the years. Certainly it is—you had to have the pit disassembly before you could get the MOX. Otherwise you couldn't key it into the MOX facility.

And you look at this budget and find out that not only is the pit disassembly cut back but they even eliminated the immobilization program there.

I'm ending up with what I said 3 years ago when I said, wait a minute. I'm going to end up with all the storage. Now, that's not just an individual environmental view of mine. It's the Nation's view in the sense that we've got the Tuscaloosa Aquifer that comes right through the Savannah River.

And I was chairman of the Regional Advisory Nuclear Energy Commission they had back in 1955, 45 years ago, and we looked at a desert island out in the Pacific for disposal. We looked at the chalk caves in Kansas. We looked into the deep ocean and we finally got into Senator Reid's back yard at Yucca, and I hope we can move forward there, but, I can't stand all this storage here that's coming in. That's not only standard, it's very dangerous.

Don't you think so? What's the score here? I seems that you're trying to comply with OMB and not with nuclear policy is what bothers me.

General GORDON. Senator, the request as we've noted that came out was $100 million less than last year, and that has—at that funding level we are compelled to either reduce or do something about it.

What we tried to do was to keep the focus on the MOX program for the very reasons that you just said, so that there would be a way out for the material once it got there. And with the amount of money that was potentially available or at least within the request was to try to keep focus on the MOX so we could keep that moving, and one of the things we did to try to balance out the funding was to then to significantly defer the immobilization so that the——

Senator HOLLINGS. But can it get to MOX with it not going through the pit disassembly? I know—they talked about the canyons about back 3 or 4 years ago and they said it was untried and

not necessarily secure, and maybe they want to try that or at least rhetorically say that's what they're going to do.

Senator DOMENICI. Let me ask Mr. Baker to try to jump in on that.

Mr. SISKIN. Senator.

Senator DOMENICI. Ed Siskin.

MOX PROGRAM STATUS

Mr. SISKIN. Using the facilities at Los Alamos National Lab and potentially using canyon facilities at Savannah River we can get enough oxide to operate the MOX facility for about 3 years, so by delaying the pit disassembly and conversion facility, basically what we'll do is we use existing oxide supplies—and oxide supplies that we will get in the next 5 years—to operate that facility until we can bring the pit disassembly and coversion facility on line.

With respect to the immobilization facility our intent is this. The facility has the capability to handle about 3.5 tons a year. The amount of material we have to process through the immobilization facility is 8.4 tons, so the schedule was originally calling for that facility to be available in 2010 to be completed by 2022. Obviously we have a little bit of flexibility in the schedule before we have to start building and operating that facility and still meet all of our commitments.

We still remain committed to meeting our commitments to South Carolina and everything that goes into South Carolina will come out.

Senator HOLLINGS. Will come out?

Mr. SISKIN. Yes, sir.

Senator HOLLINGS. You've tried this in the canyons already you say?

Mr. SISKIN. We have not tried it in the canyons. We have tried it in areas at TA–55 at Los Alamos National Lab, and by using certain surplus pits that have an awful lot of plutonium in them it will be possible to provide a continual amount—a significant amount of plutonium oxide to support the MOX facility.

So by doing this we do several things: we support the President's budget, although it's very, very tight. I have to admit that I certainly wouldn't object to some additional funding in that regard. But we also meet our commitments to Russia and we also meet our commitments to South Carolina within the confines of the bilateral agreement.

Senator HOLLINGS. Well, I thank you very much, and you, Mr. Chairman, and the committee. I'll have some other questions but we've got to sort of work this out. And I know these gentlemen are working in good faith and they're expert on it, and I want to make sure we just don't end up with what exactly I had a grave misgiving about some 3 years ago when we had this commitment that we just end up with a bunch of storage there, which has been going on now since we started in the early 1950s, almost 50 years, and we've got to get it out of there some way or somehow.

General GORDON. Senator, we understand that commitment. We're trying to work a very tight budget issue, and Mr. Siskin has outlined to the best way we can figure out to look ahead to meet

those commitments that have been made in an extremely tight budget environment.

Senator HOLLINGS. Thank you very much, General.

Thank you, Mr. Chairman.

General GORDON. Thank you, sir.

Senator DOMENICI. Senator Hollings, I might say that to be honest with you I was quite surprised when the proposal was put forth that we would go with MOX as we are now, at least as we contemplated. As you know, the United States had kind of abandoned that approach for quite some time. The new plan seemed very feasible and with all the work that was done in your State by your State and your experts in your State we came up with a reasonable plan.

That isn't to say that the building and operational functioning of a MOX plant is an easy proposition. You and I both understand it is for some people something we should never do. For others it's an absolute necessity. In any event, I'm going to try very hard as you get the final allocations from Senator Stevens to get a little more defense money in this than the administration put in, and one of the reasons is because of our commitments.

And I just stated them in a very general sense, but the MOX commitment is included in it.

Senator HOLLINGS. You've been outstanding, Senator, and I appreciate it very much, and I appreciate the witnesses too. Thank you.

Senator DOMENICI. Thank you.

General GORDON. Thank you.

Admiral BOWMAN. Thank you, Senator.

Senator DOMENICI. The senator from Mississippi, Senator Cochran.

Senator COCHRAN. Mr. Chairman, thank you very much.

NATIONAL IGNITION FACILITY STATUS

General Gordon, last year you wrote a letter to the chairman, Senator Domenici, and you said without the National Ignition Facility the ability of the weapons laboratories to continue to certify the safety, security, and reliability of the nuclear weapons stockpile into the future without underground testing is doubtful. That's a quote from your letter.

My question is: Is the budget that's submitted sufficient to construct the National Ignition Facility on the schedule that you have so that we can avoid underground testing?

General GORDON. Senator, I contend—I continue to believe that the NIF is a very critical facility. It contributes significantly to the ability to certify significantly the program and significantly to being able to attract the people we need. At the requested budget it will be extremely tight to be able to do that, even in this stretch out that we've done over the last year until we do this program. It will be very, very difficult.

Senator COCHRAN. What does that mean in terms of our perception as having a reliable deterrent? Is that called into question as well?

General GORDON. It doesn't call it into question in the near term, Senator, but in the long-term deterrence is going to be seen in both

the stockpile, the qualities we have, the confidence we have in the overall stockpile, and what we are seen to be able to do and to continue to do into the future with an aggressive program.

So it's an important program to me. We need to continue to figure out how to fund it and keep it on track. It is a program that has been put about to its limits on ability to stretch it out. We're already spending more money on a yearly basis than we ought to. As a project it ought to be a little bit shorter. It would be a lot more efficient to build it in that way.

Senator COCHRAN. We learned at an earlier hearing that one of the capabilities of the NIF was to examine the part of the weapon known as the primary, and in previous testimony we learned also that the primary, if it fails, would render the weapon of limited or no value. If we've learned that probably our adversaries know that too.

Does that create a problem for us in terms of the perception of our deterrent capability?

General GORDON. The primary is key. There is no weapon without a primary. That's your point. And the NIF program and the full range actually of the Stockpile Stewardship Program contributes to the certainty that the primary will work. It's an important element of what we're trying to do. Yes, sir.

CERTIFIABLE PITS SCHEDULE

Senator COCHRAN. When you talked about this certification and the certifiable pits, we understand the schedule has changed on that now, and my question is when do you expect at this point to produce the first certifiable plutonium pits?

General GORDON. Sir, we've produced about—we're pretty happy with the manufacturing process that's going on in Los Alamos. We really made some turn arounds in there. We've produced seven or eight development pits at this time, and we expect to produce what we will call a certifiable pit in 2003. That means it meets all the standards, been through all the processes.

What that pit will not have done though is been certified because we have not done all the science behind it to assure that these new processes are identical to that which was made years ago in Rocky Flats. We'll stay on project with this budget—this budget request for the production and for the certifiable pits. I cannot say at this budget level when I can get the science done to certify it.

Senator COCHRAN. Do you think we should be considering restarting pit production somewhere in the production complex?

General GORDON. As I alluded in my statement, Senator, what I—it is now time in my opinion to get very serious about suggestions and recommendations that have been made by the Foster Panel and others that we look to structures that would give us capability and capacity beyond that which could be reasonably expected to be produced in a laboratory environment, and I'm putting that up on one of our priorities this year to take the work, the understanding that we've learned from the Los Alamos work and from moving the pit manufacturing into the modern processes that must come today.

We now know enough how to start seriously designing a long-term, more capable facility.

Yes, sir?

CERTIFICATION OF STOCKPILE

Senator COCHRAN. Have you discovered anything in the work that you've done that if we were in a testing mode that would lead you to conclude that we should conduct a test?

General GORDON. We haven't seen anything—just the opposite. We continue to certify the stockpile. It does not need to be tested at this date. The existing stockpile does not need to be tested at this date. Stockpile Stewardship is working from that regard.

We are finding numerous aging related problems, and thus we propose to put with agreement with the Nuclear Weapons Council in the military to put some 60 percent of the stockpile through refurbishment over the next 10-plus years. We know what needs to be fixed. What we know about doesn't need testing. We need to fix stuff that's aged out.

If we were in a test environment there would be certain things we're doing—would do, but there is no requirement for safety, reliability of the existing stockpile to test now or in the immediate future.

INFRASTRUCTURE FUNDING

Senator COCHRAN. Senator Domenici asked you about the infrastructure and talked about the hard hats and gear people are having to wear just to protect themselves from things falling from the ceiling. Is there sufficient funding in this budget request to do something about that and to put the infrastructure into a modern and safe mode?

General GORDON. Senator, at this budget request we will do very little to change the infrastructure situation we have and will not be able to complete the infrastructure changes required to accommodate the stockpile life extension programs for the entire stockpile that we've agreed to do for the military.

Senator COCHRAN. Thank you.

Senator DOMENICI. I would say, Senator Cochran, even though the idea is to start on a 10-year plan for infrastructure building, we already know what the first one would be, and then you've just reiterated it. There's two facilities combined in Tennessee that have to be replaced in order to be functional both for some of the things that are needed and also just to have something that we're not embarrassed about putting our workers in a service kind of facility wearing hard hats because of a roof—those would be the first ones, and then the inventory's ongoing as to real old facilities that are part of the nuclear complex for years.

And they do—they are beginning with a 10-year plan. We don't have the startup money for it in this budget.

General GORDON. Mr. Chairman, the plants really are the worst situations that we have out there, and we put people in very, very difficult situations and make them do their work in tough ways, and we ask the—we tell the plant manager that his profit, his fee is dependent upon the safety of the workers, so make sure you wear your hard hats when you go into that dangerous facility. That's not right.

But the point I was going to make is it's now reached the point where it's getting beyond the factories, beyond the plants, and in some focus groups in Los Alamos the last couple of months sitting down with the younger scientists, they're starting to complain about their work environment, their facility as well. It's going to start affecting recruiting and retention as well.

Senator DOMENICI. Well, I think Senator Cochran will support me wholeheartedly. It's a question of where do we find the money?

Thank you, and I'm going to ask a few questions and then let Mr. Baker conclude the testimony today.

5-YEAR PLAN FOR NATIONAL IGNITION FACILITY

General Gordon, in the language that permitted you to proceed with NIF if you saw it as being necessary, that is to proceed with the remainder of the funding for this year, there was a requirement imposed by Congress that you submit to the Congress a 5-year plan and budget projections with reference to the future nuclear security needs. I understand we did not get that, yet you released the money. I'm not blaming you. It seems like the administration said you didn't have to submit the plan even though the language is pretty clear that you could go ahead and release the money.

Is the plan ready and just something that the administration wasn't ready to give us? Is that what I can conclude?

General GORDON. Mr. Chairman, as I said in my statement, we wrote what is to me a very competent, if not perfect yet, 5-year plan. We worked very hard at it. We developed it so it would have a budget to fit a strategy. We've actually started with the strategy first rather than the budget. We tried to figure out how to balance in these programs that we're talking about and lay that out for a period of time and so we could do sort of a logical planning, a logical management if you want.

And as part of our submission in the normal administrative budget process that was submitted to the Office of Management and Budget.

Senator DOMENICI. Right. The Stockpile Stewardship budget request of $5.3 billion is 6 percent above current levels. Is that correct?

General GORDON. I think $4.6 billion, but yes, sir.

Senator DOMENICI. Okay. Within that request for actual work on nuclear weapons called directed stockpile work there's an increase of 13 percent. However, even with these increases the NNSA work will—you will not be able to perform all the required weapons work.

So isn't it true that if you look through and say what do you actually need so that you can accomplish the purposes that you set out to do in 2002 is about $6.1 billion or thereabouts?

General GORDON. Yes, sir.

Senator DOMENICI. We'll submit a written question for you to tell us what the $5.3 billion will do and what's left out in terms of the $6.1 billion needed. You can do that later though if you have that. I think you do.

PIT PRODUCTION

The pit production—I have a series of questions on it, but I think I understand it. What we're really saying is we know how to do it but part of doing it is to certify that it indeed is a replacement part in all respects, and that part, certifiability, is not completed yet. Is that correct?

General GORDON. There's good news and there's bad news.

Senator DOMENICI. Okay.

General GORDON. The good news is the manufacturing is working. It was a hard way to go. The folks up at Los Alamos turned to it, produced it. It looks good. It really, really does.

We had the Secretary out there the other day. We actually had him holding one. It looks good.

The certification of that is a difficult, complex process. It's taking longer than one. It's more expensive than one, and I don't quite have the funds to be able to proceed at the pace we should.

Senator DOMENICI. I think what I'm going to do is submit the rest of the questions to you and General Gioconda and let Mr. Baker wrap up our hearing. I have a 3:30 meeting to see if we can complete the total budget in terms of the dollars, and I don't want to let the people that I'm negotiating with sit up too long and wait.

STATEMENT OF KENNETH E. BAKER

Mr. BAKER. Mr. Chairman, I will—if I can I'd like to submit this for the record. I'll just read some of the highlights that I think——

Senator DOMENICI. Great. It will be made part of the record.

NUCLEAR NON-PROLIFERATION AREA STATUS

Mr. BAKER. First of all, I want to thank you for your support, this committee's support over the years for threat reduction, and once again, I ask for your help in making this world a safer place.

As you know, the nuclear non-proliferation area is where we do our non-proliferation work. The national non-proliferation efforts to reduce the threat posed by weapons of mass destruction come in three areas. First we detect the proliferation of weapons of mass destruction. We prevent the spread of weapons of mass destruction, technology and expertise, and we then of course we reverse the proliferation of nuclear weapons capabilities.

As you stated, sir, the Baker-Cutter report concluded that U.S. non-proliferation work within Russia represents some of the most crucial dollars spent to protect the U.S. national security. The possibility that weapons of mass destruction or the material to create them could fall into the hands of terrorists or nations of concern poses the greatest unmet threat to America's citizens abroad and at home.

It is more effective to try to control and secure these materials than it is to try to locate them some place in the Russian territories. It's like trying to find a needle in a haystack.

The fiscal year 2002 budget request of $773.7 million—this is a decrease, sir, of $101 million as compared to the 2001 budget, but this does not represent a lessening of NNSA's proliferation team's commitment to the challenges we face with international non-proliferation. We remain focused on our mission which is essential for

the security of this Nation, but the pace and scope of our efforts will have to be reduced because of funding levels.

MPC&A PROGRAM STATUS

I want to take a few minutes to run through our main programs with you. The MPC&A program—it secures nuclear material at its source. It consolidates material into fewer buildings, and now we're working to sustain the security improvements for years to come.

By the end of the decade we estimate that the security upgrades will be completed on all the warhead storage locations for which the Russian Navy has requested—and this is a classified number, but it's a very high number of warheads, sir—as well as 603 metric tons of weapons useable materials located outside of weapons sites and at 53 other sensitive sites. This is enough material to build approximately 41,000 bombs.

In fiscal year 2002 we hope to take advantage of our recent agreement on access and expand our activities, which combined have more than 300 metric tons of weapons useable material. Additionally, we plan to increase our highly successful cooperation with the Russian Navy as well as innovative material consolidation and conversion program.

IPP PROGRAM STATUS

I would like to turn now to the IPP program third. Thanks to you and many others, the Initiatives for Proliferation Prevention is a major success story with immediate non-proliferation impact. IPP commercialization has taken off. Eight IPP projects are now commercially successful, providing 300 long-term private sector jobs in Russia and more than $17 million in annual sales revenues.

There are another 20 IPP projects that are posed for commercialization this year. IPP projects are successful due to the U.S. private sector involvement from the start of the requirement for business to match NNSA funding. On average the U.S. industry contributes $3 for each $2 that the U.S. taxpayer puts in.

This year we have started to see infusions of substantial venture capital. Two U.S. member companies have attracted over $40 million worth of private sector investment as a result of technologies developed through IPP. We know the long-term solution of the proliferation problem of unemployed Soviet weapons scientists lies in the private sector and commercial self sustainability and is a basis for our exit strategy in IPP.

NUCLEAR CITIES INITIATIVE STATUS

We have generated substantial momentum in the U.S. industry community with roughly $30 million private sector in new IPP projects ready for implementation. The Nuclear Cities initiative is not as successful.

Mr. Chairman, we have been criticized for lack of fast work in this area. However, it is important to recall that the program is still young and requires the initial period to lay the foundation for programs, as was the case for the IPP program.

SECOND LINE OF DEFENSE PROGRAM STATUS

The Second Line of Defense Program is with the Russian Customs Service. This program helps detect—prevent nuclear proliferation and terrorism through the installation of radiation detection equipment in strategic transit and border sites in Russia; thus far a small amount of money.

This program has been quite successful. Equipment has been installed at the international airports at Moscow and St. Petersburg, and on the Port of the Caspian Sea. Ninety custom officers have been trained and training manuals have been distributed to 30,000 front-line officers. These radiation detection monitoring systems have roughly checked 120,000 vehicles, 11,000 railroad cars, and 750,000 pedestrians.

Building on these successes we plan to expand this into six other locations this year.

INTERNATIONAL PROGRAMS STATUS

The Office of Defense Nuclear Non-proliferation is involved in important non-proliferation projects outside the country. For example, we have achieved major successes and three tons of weapons grade plutonium, enough to manufacture hundreds of nuclear weapons, and we've done other things, sir, that I will submit for the record in non-proliferation. I would like to get to fissile materials.

The fissile materials program is responsible for disposing of inventories of surplus U.S. weapons-usable plutonium and highly enriched uranium in order to reduce the potential theft or diversion of these materials, especially in Russia, as well as to reduce the significant cost associated with long-term storage of these materials in the United States. We are leveraging our domestic program to obtain reciprocal disposition agreements with the Russian plutonium program.

MOX FACILITY STATUS

In fiscal year 2002 funding will be used to complete the MOX fuel fabrication facility. We will continue to design the pit disassembly conversion facility at a reduced rate. Due to budgetary constraints, we will suspend a design of the plutonium immobilization facility. These changes are to reduce the anticipated future year peak funding requirements that would have been associated with previous plans while simultaneously building three facilities in Savannah River.

I would like to submit the R&D program for the record. We do need more money. We have cut programs in the R&D, programs, sir, that are big in proliferation detection that helps not only DOE but also this country.

But I would like to close and say, Mr. Chairman, I'll tell you without a doubt even with this budget the people of NN and the national labs are unsung heroes. They have spent days, weeks, and months in places where accommodations were worse than I have ever seen, with no hot water, windows that wouldn't close in the winter time. However, they continue to work.

Why? It's because they know the opportunity to make American citizens safer will not last forever. The window is still open. The time is now to work harder. The Russian federation is undoing a time of change. Presently we are hopeful that this will provide new and improved opportunities for us. The fruit of our work will be experienced for our generation and generations to come.

I think you will agree that this Nation has faced no greater challenge than preventing weapons and weapons useable material from falling into hands of those who might use them against us and our allies. We live in a more dangerous world now than we did during the cold war. The threat to our safety and our international security is more diffuse, which makes it harder to defend against.

I think the review being conducted now in the White House is a useful and timely exercise, but I am confident that the review will show that NN's programs that you have helped so much will make a solid contribution to national security and the United States of America.

Senator DOMENICI. Thank you very much.

I want to thank all of you and tell you how I feel about us having such a short period of time. It's obviously not enough for this subject, but somehow or another we have more to do around here than we can get done. I'm very pleased that we get to work together on an ongoing basis on most of these issues and we'll continue to do that.

General Gordon, good luck in filling the rest of your high positions, and hopefully by the end of this fiscal year you will have many more of the functions right under you being accomplished directly through the organization that you had.

To the rest of you, thank you very much. I tend to think that the whole area of nuclear activity somehow or another as we go through both an energy crisis and a pollution problem—that is air pollution problem of high, high importance if not here and in the world that somehow or another nuclear is going to come back and people are going to take a look at it. I'm reading that the Cheney task force is doing that.

The reason, Admiral, that I frequently use the story about your boats at sea is because—not because they're at sea, but rather they're in ports. They're not at sea forever. They stop places, and those places mean that in seaports of the world we have two nuclear—or one nuclear reactor right there in the water in the hull of an American boat with all the nuclear power plant on it and the waste—the highly enriched waste that comes out of there and the rods. they're on board.

And somehow or another with the medium being water, which is miscible and can—seems like you could gender up all kinds of fears about what would happen. It would seem like the world understands there is no risk.

Admiral BOWMAN. Yes, sir. We are welcome in over 150 ports around the world today.

Senator DOMENICI. Yes. And I want to close by saying before the year's out I want to pull out on one of your nuclear submarines. Okay?

Admiral BOWMAN. Terrific.

Senator DOMENICI. We'll do that.

Admiral BOWMAN. Yes, sir.

Senator DOMENICI. I'll call you and we'll go together.

Admiral BOWMAN. Great.

ADDITIONAL COMMITTEE QUESTIONS

Senator SPECTER. Thank you very much. There will be some additional questions which will be submitted for your response in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

CONDITION OF THE NUCLEAR WEAPONS STOCKPILE

Question. General Gordon, is the nuclear weapon stockpile safe, reliable and secure?

Answer. Yes. On January 11, 2001, the Secretaries of Energy and Defense certified to the President that the stockpile remains safe, reliable and secure—the 5th annual certification without the need for underground nuclear testing.

Question. Do you have confidence that the weapons in the stockpile can and will perform as designed?

Answer. Yes, I do. This confidence is based on the fact that the weapon systems in our current stockpile were thoroughly tested and documented prior to the cessation of underground nuclear testing in 1992. Since that time, DOE has conducted extensive surveillance, analysis, simulations and tests through the science-based Stockpile Stewardship Program to detect and anticipate problems that could degrade the performance of the stockpile.

HOW TO USE ADDITIONAL RESOURCES

Question. General Gordon, in my opening statement, I identified several critical areas as being underfunded in the request. Please respond for the record how you would use an additional $800 million within the stockpile stewardship program in fiscal year 2002.

Answer. You suggested that the fiscal year 2002 budget request is underfunded in the areas of weapon refurbishments, pit work, and infrastructure. Let me discuss each of these in turn.

The fiscal year 2002 budget request includes a 14 percent increase over fiscal year 2001 associated with refurbishment work. We will continue with the W87, and we are about to begin the refurbishment planning for the B61. We have agreement with the Nuclear Weapons Council on future life extensions for the W76, and W80. The budget supports limited engineering development work for these two systems. However, the pace and scope for these refurbishments are part of the ongoing strategic defense review called for by the President, and final determinations on resource requirements for these two systems will be made in light of the conclusions from the strategic review.

Regarding pits, the fiscal year 2002 budget request includes $128 million for the Pit Manufacturing and Certification campaign, and another $90 million spread throughout the programs for facilities and supporting research. We are on schedule for manufacturing a certifiable pit in fiscal year 2003. We have identified the series of experiments necessary to certify a pit and we have completed a detailed resources based manufacturing and certification plan to certify a pit by 2009. You are concerned that a lack of resources has caused a slip in this schedule, but in fact, the schedule has been quite fluid due to technical issues. Whether we go forward with this plan must await the results of the Administration's Strategic Review.

Finally, you suggest that infrastructure is underfunded in the request. We have developed a multi-year infrastructure initiative to systematically address high priority maintenance backlog items, and put in place proactive management of the infrastructure to arrest the rate of deterioration and improve the operation and availability of our facilities. Since the initiative is designed to address problems, it would require resources in addition to the base maintenance funding request.

The base maintenance funding included in the fiscal year 2002 request, estimated at between $300–$350 million, will be managed under this new approach. The fiscal

year 2002 request does not now include funding for the new initiative because the infrastructure issue is expected to be addressed by the strategic defense review.

The $800 million above the budget request that you suggest corresponds roughly to the increment to fund the Defense Programs requirements estimate included for fiscal year 2002 in the Future Years Budget Plan currently pending before the Office of Management and Budget. About 60 percent of this increment would be associated with the three items discussed above. Another 20 percent would be used to accelerate the pace of cyber security improvements, and computing activities and their associated facilities. The remaining 20 percent is associated with rebalancing campaign activities with the directed stockpile workload, readiness in technical base and facilities, and program direction to lower the program risks in these key areas.

ADEQUACY OF THE FISCAL YEAR 2002 BUDGET REQUEST

Question. Are there any critical needs not addressed in the budget because of lack of budgetary resources?

Answer. No. The Administration has stated that final resource decisions for the fiscal year 2002 budget will be made following completion of the strategic defense reviews. The fiscal year 2002 request provides a 4.6 percent increase that maintains ongoing programs, sites, and M&O employment levels at roughly the fiscal year 2001 level and all critical needs are met within this level.

Question. Will the budget request before the committee allow NNSA to meet all DOE annual weapons alterations, modifications and surveillance schedules?

Answer. Yes. Funding for these activities is included in Directed Stockpile Work, Stockpile Maintenance and Stockpile Evaluation, and it will support the workload requirements in the current Production and Planning Directive, and will reduce the backlog in evaluation testing as recommended in the 150 Day Study.

Question. Will the budget request before the committee allow the NNSA to meet life extension program production milestones for the B61, W76, and W80?

Answer. The budget request fully funds life extension and refurbishment activities in fiscal year 2002 for the W87 and B61, and supports limited engineering development for the W76 and W80. Although we have agreement with the Nuclear Weapons Council on the schedules for the W76 and W80, these may be revisited following the Administration's strategic review. We anticipate further guidance on pace and scope for these systems, and budget adjustments will be made as necessary.

Question. Does this budget make the appropriate investments in future manufacturing facilities, process development, critical skills so that NNSA will be able to meet the known future military requirements as well as the stockpile life extension program?

Answer. This budget request begins to make many investments in future manufacturing facilities, including continuing nine major construction projects with an estimated cost of over $770 million at the production plants, and production-related construction at the laboratories. Process development is funded through the ADAPT campaign, at essentially the fiscal year 2001 level. With the impetus of the Chiles Commission recommendations, and the promise of future workload, the production plants continue to make progress in addressing critical skills and transforming their workforce for the future. The budget request will support fiscal year 2001 contractor employment levels for ongoing programs, and we anticipate no involuntary layoffs for defense programs.

We have pointed out that infrastructure investments are needed, beyond what is in the current budget request, to arrest the deterioration of our facilities due to insufficient maintenance expenditures in the past. In addition, depending on the schedule for weapon life extensions recommended by the strategic reviews, there may be additional investments required.

Question. If the Committee were to provide you additional funds, what would be your next priorities and at what level of funding?

Answer. I will be in a position to respond to this question after completion of the strategic reviews. The President stated his views about strategic vision driving resources and budget priorities, and I expect that the Administration will follow through on its commitment to finalize fiscal year 2002 and outyear funding requests to meet validated requirements for defense-related programs at the conclusion of the reviews. My priorities will always be centered on the people, directed stockpile work, our science technology base, and our critical infrastructure.

SIZE OF THE FUTURE NUCLEAR WEAPON STOCKPILE

Question. If it turns out that the defense policy reviews ultimately recommend a smaller nuclear stockpile, how will that affect your five-year budget plan?

Answer. We believe that the on-going defense reviews may result in potentially significant upward pressure on our current five-year budget plan. While there may be some modest reduction in direct weapon system funding needs, the emerging concerns to: reestablish a near-term pit manufacturing capability; rebuild a rapidly aging human and capital infrastructure; provide an assured resource of tritium; and establish and maintain the tools and capabilities necessary to continue to certify the reliability, safety, and security of the enduring stockpile without underground testing ultimately will affect the size of our five-year budget plan. We also would expect to increase our need for dismantlement of weapons if the stockpile is reduced.

It is also worth noting that those weapons most likely to be retained have already been planned for refurbishment. Regardless of the ultimate decisions on the stockpile, our refurbishment requirements are well defined for at least the next five years which in turn drives scientific, facility, and budgetary needs.

Question. Will you still need to rebuild the complex infrastructure?

Answer. Absolutely. Should we move to a smaller stockpile it would place a greater premium on the reliability, safety, and security of the remaining weapons. It would require the complex to be able to remanufacture components on a very timely basis if problems were discovered, or to respond quickly to new threats.

Question. Will you still need the full suite of science-based diagnostic and test facilities?

Answer. Yes. The suite of capabilities planned for the Stockpile Stewardship Program was developed by considering the technical requirements for maintaining a safe, secure and reliable stockpile over the long term. The scientific and engineering issues that will arise in maintaining the stockpile are independent of the size of the stockpile and the capability and tools required for assessing the safety and performance of weapons do not change with the number of weapons. The NNSA considers that a full suite of diagnostic and test facilities will be required even in the event of any arms reductions.

MICROSYSTEMS AND ENGINEERING SCIENCES APPLICATIONS (MESA) COMPLEX

Question. When additional resources are provided for the NNSA, would you agree that MESA construction funding should be significantly increased?

Answer. MESA is one of a number of activities that we have slowed pending the outcome of the Administration's strategic review. Depending on recommendations from that review concerning the future of the W76, we will need to revisit the MESA schedule. MESA is needed to produce a new arming, firing, and fuzing component that is currently planned as part of the eventual W76 refurbishment.

CYBER SECURITY

Question. Last year, Congress provided a supplement of $20 million for NNSA to make some immediate improvements in cyber security and to develop a cost-effective plan for the longer term. The resulting program for the Integrated Cyber Security Initiative has been received. The schedules shows 15 major milestones for this fiscal year and 26 more by the end of 2005.

How much funding is requested for this initiative

Answer. There is $30 million specifically identified in the President's budget request to fund the Integrated Cyber Security Initiative. At the current funding level the DOE will provide cyber security in fiscal year 2002 comparable to that provided in the fiscal year 2001.

Question. Is the plan on tract to meet its milestones in fiscal year 2001?

Answer. The current efforts will support development of a cost-effective implementation plan for the long term and have provided some immediate improvements in cyber security at select sites.

Question. How much will the necessary activities cost and how will they be funded?

Answer. The exact cost of the program will be developed along with the development of a detailed implementation plan. The actual cost will depend on which options are selected by the Department. That selection will take place as the plan is finalized. Funding will be requested based on identified need.

Question. What is the Department's plan to upgrade cyber-security throughout the weapons complex?

Answer. The overall plan was presented in a report provided to Congress on the Integrated Cyber Security Initiative. Effort is underway to develop additional implementation details of this plan.

Question. How important is cyber security and what is the appropriate level of funding to address our cyber security vulnerabilities over the next 5 years.

Answer. As the United States becomes more reliant on electronic means to store, move and access its critical information, it further the concern over the vulnerability of that information. The amount of protection must be based on a prudent determination of the value of the information and the processes that are supported. From a DOE perspective, the funding will be requested to maintain protection of the valuable DOE information and processes.

NATIONAL IGNITION FACILITY

Question. Should not funding for NIF only be provided after we have ensured adequate resources are available for the near-term weapons refurbishment mission?

Answer. If NNSA requirements remain the same after the Administration's strategic review, maintenance of the safety and reliability of the stockpile clearly requires increased expenditures for infrastructure, stockpile life extension programs, and development of a pit production capability. At the same time, the Stockpile Stewardship Program (SSP) must develop and deploy new scientific tools like NIF that are the only known means of assuring that we properly understand stockpile aging and the actions that we plan to undertake to sustain the deterrent. As we reaffirmed in the recent high-energy-density-physics (HEDP) study, a vital HEDP Program is an essential component of SSP, and that with the full 192-beam NIF, the program meets its requirements. No alternative to the NIF was found that meets the program needs.

We are working hard to balance the SSP, while meeting near term commitments and investing in critical capabilities required to provide for the longer term health of the stockpile. To fit within the available resources, many elements of the SSP including the NIF have been deferred and stretched out to the maximum extent possible over several years. Further stretch-out of NIF funding could damage the SSP immediately, as well as in the longer term. Without the NIF, in my opinion, the SSP could be unable to perform its long-range mission of maintaining the safety and reliability of the nuclear weapons stockpile.

The timing of NIF's availability is an important issue for the SSP. In the next ten years, we will embark on major weapon refurbishment programs while at the same time the majority of the remaining experienced weapons experts will be retiring. It is vital that NIF and other new SSP tools be brought on board during this time. As NIF begins to come on-line during the latter half of this decade, it will provide unique experimental capability in the high-energy-density regime to investigate stockpile issues. It is estimated that approximately 1,500 experiments will be conducted at NIF between fiscal year 2004 when eight laser beams will be on line and fiscal year 2008 when all 192 beams are expected on line. NIF will also provide both basic physics data, and model validation needed to support computer simulation and thus the health of the Nation's stockpile.

FOSTER PANEL RECOMMENDATIONS

Question. The Foster Panel has suggested a number of additional activities as a part of the stockpile stewardship program. Such as:

—exercising end-to-end design, production and certification capabilities not currently being used
—dual revalidation of all weapons designs
—developing new designs of robust, alternative warheads
—increasing enhanced surveillance
—possibly reducing the nuclear test readiness response time to less than one year

What is your response and what would these items add to the SSP baseline?

Answer. DOE and the NNSA have been supportive of the Foster Panel since its inception and there is agreement on many of the issues identified in the report. However, the Foster Panel and NNSA have different views on the integrated solutions to best address the issues and the trade-offs between cost, scope, schedule, and risk. The Foster Panel recommendations all act to reduce risk, but some may do so at a significant cost or represent a significant change to current national policy. We are continuing to study the recommendations and potential implementation of solution sets.

There is currently no military requirement to produce new weapons, and we have not received such a request. The life extension programs authorized by the Nuclear Weapons Council for the B61, W80, and W76 will sufficiently exercise the design, production and certification capabilities of the weapons complex. Successful completion of these programs represents a workload and workscope unmatched in the weapons complex in more than ten years.

NNSA has developed an alternative approach to Dual Revalidation which achieves the same high-priority objectives, but takes less time and is less costly. Baselining,

a first necessary step of any Dual Revalidation effort, will be applied to all of the warhead types during the next five years, while some designers that originally worked on the system are still available. The first Dual Revalidation on the W76 Trident was valuable, but was much more expensive than estimated, and took much longer than originally anticipated—five years instead of three. If we choose to perform Dual Revalidation studies in the future, their focus and scope can be based on the key points brought out by completed baselining studies.

Enhanced surveillance is systematically fielding diagnostic tools and conducting studies of components and materials in the stockpile to identify impacts from aging before there is impact to the stockpile. We agree that additional resources in this area could expand or accelerate capabilities to detect and respond to aging issues.

We reported in the "Nuclear Test Readiness Posture Report to Congress", dated February 2001, that for anything other than an extremely simple demonstration of capability, a six-month nuclear test response time was not technically feasible, especially considering the safety, environmental, and the Threshold Test Ban Treaty reporting requirements associated with a nuclear test resumption. In addition, it is estimated that maintaining a six-month posture would cost and additional $75 million per year, precluding investment in other more urgent areas of stockpile stewardship. Other options are being investigated.

CRITICAL SKILLS

Question. The Chiles Report in 1999, and many others since then, continue to identify critical skills as a major problem for the weapons complex.

What have you proposed in this budget request to address the ongoing problem of recruiting and retaining the critical technical and scientific workforce needed to support and maintain over the long term a safe and reliable nuclear weapons stockpile in the absence of underground nuclear testing?

Answer. The Laboratory Critical Skills Development Program under the Readiness in Technical Base and Facilities element of our budget is a direct funded initiative at $5.4M, aimed at identifying and developing critical scientific, engineering and technical skills at the three laboratories. The Laboratory Directed Research and Development programs which are targeted at 6 percent of our laboratories' budgets, and the Plant Directed Research and Development programs which are targeted at 2 percent of the budgets of the weapons plants, contribute to the recruitment, development and retention of needed critical skills. In addition to these initiatives which have a clear connection to critical skills, most of the key technology initiatives in the Stockpile Stewardship Program such as NIF, ASCI, Advanced Design and Production Technologies, etc. are intended to meet programmatic objectives while also promoting contractor efforts to recruit, develop and retain the right critically skilled workforce. A large share of the initiatives that directly impact on recruitment and retention such as pay levels, benefit programs and working conditions are within our contractors' discretion or covered by contractor overhead programs. We review proposed changes to these programs and have encouraged our contractors to propose pay and benefit changes that promote recruitment and retention of critical skills. We also use the contractor evaluation process in our performance-based management contracts to encourage and incentivize effective critical skills programs. One of Defense Programs key performance targets in both the fiscal year 2001 and fiscal year 2002 budgets is "Maintenance of critical skills to meet long term requirements." The restructured contracts with the University of California for Los Alamos and Lawrence Livermore National Laboratories include a special management initiative on critical skills which will ensure senior University and laboratory management focus on the issues.

PIT PRODUCTION AND CERTIFICATION

Question. NNSA continues to work to reestablish plutonium pit production and certification at Los Alamos to replace pits destructively tested in the surveillance program and to replace pits in the future should surveillance indicate a problem. This capability is central to the weapons complex of the future.

The original deadline for delivering a pit to the military was 1998, it then slipped to 2001, then 2003, then 2006. As of your interim report last Fall, the date was 2007.

Please update the committee on NNSA's efforts to reestablish pit production at Los Alamos?

Answer. The pit manufacturing effort is fully funded in fiscal year 2001 and fiscal year 2002 and is on track to fabricate a certifiable W88 pit in fiscal year 2003. The manufacture of a certifiable W88 pit is the first major milestone required to establish that W88 replacement pits manufactured at Los Alamos National Laboratory

(LANL) are qualified for use in the nuclear stockpile; the later milestone is certification that the pit will meet required functions. Manufacturing and process specifications required to build W88 pits have been established and LANL has fabricated eight W88 development pits. NNSA, with LANL, has developed a certification plan for non-nuclear testing required to confirm equivalent performance of LANL pits with Rocky Flats pits. Risk mitigation actions to avoid single test failures continue to be assessed and project management systems to measure "earned value" will be in place for fiscal year 2002.

Question. Is it true, that under the Administration's budget request, delivery of a certified pit is put off indefinitely?

Answer. With the current fiscal year 2002 funding for the pit manufacturing and certification project, NNSA will fabricate a certifiable pit in fiscal year 2003. However, the current fiscal year 2002 request will not enable the laboratory to conduct all certification activities required to place a newly fabricated replacement W88 pit in the nuclear weapons stockpile in fiscal year 2009. However, we expect to review the pit manufacturing and certification request following completion of the Administration's strategic review.

Question. Is it true that $148 million must be added to the request for fiscal year 2002 in order to get back on a schedule that would allow delivery of a pit no later than 2009?

Answer. A laboratory assessment of the March W88 Pit Manufacturing and Certification Integrated Project Plan and associated support for facilities at LANL estimated an additional $148 million in fiscal year 2002 would enable the delivery of a W88 pit to the Department of Defense in 2009. We still need further NNSA peer review and independent assessments to validate the entire resource allocation need.

LABORATORY DIRECTED RESEARCH & DEVELOPMENT

Question. LDRD investments have a proven track record of high returns to the taxpayer. In addition to significant contributions to mission relevant areas, these funds account for over 30 percent of the new knowledge, as measured by publications, at a laboratory like Los Alamos. There's no question that LDRD investments help attract the high-caliber staff required to meet the challenges of nuclear weapons science and engineering. Do you concur that the weapons programs have benefitted very significantly through the LDRD program and the funding should be maintained at 6 per cent?

Answer. Definitely yes. Our weapons programs and the laboratories as national research institutions have benefitted significantly from the LDRD program. Many of the most innovative technical discoveries applied to the weapons programs originated in LDRD projects. Further, the NNSA concurs with the Laboratory Directors' previous testimony that the weapons program, and national defense in general, have been more than repaid for the cost of the LDRD program. We believe funding should be maintained at 6 percent. Our experience during fiscal year 2000, when the funding was reduced to 4 percent, was that the program suffered in several different ways, the impact of which will be experienced over several years.

INDUSTRIAL PARTNERSHIPS

Question. Congress has frequently noted that carefully structured partnerships with United States industry can enable the labs to accomplish their missions more effectively, at the same time that they assist industry with new products and processes that boost our domestic competitiveness. The previous Administration reduced their support for such partnerships, which Congress reversed for the current fiscal year.

In your view, are partnerships being used effectively by the laboratories?

Answer. Yes, we believe that partnerships (collaborative activities) are currently being used effectively. One effective mechanism is the Cooperative Research and Development Agreement (CRADA) which was established as a contractual mechanism to encourage and simplify collaboration with the private sector. In fiscal year 2000, the NNSA complex initiated over 50 new CRADAs bringing to almost 350 the number of active CRADAs. In fiscal year 2001, the Department initiated a new budget structure for the Stockpile Stewardship Program. Technology partnerships are not directly supported as a separate program by Stockpile Stewardship within this new budget structure. At this point in fiscal year 2001 there have been four newly executed CRADAs, 137 continuing CRADAs for a total of 141 active CRADAs all of which directly support the NNSA national security mission. Since the funding mechanism for CRADAs transitioned this fiscal year, we are carefully monitoring the effects of that change. We anticipate that there will be a reduction in those CRADA activities where there are only 'spinoff' benefits to industry. We hope that the pro-

gram-sponsored partnerships and funds-in CRADAs will more than make up for the spinoff partnership reductions.

Question. Is Congressional guidance to increase partnerships being followed?

Specifically, Congress recommended at least $30 million be invested in industrial partnerships in the current year, plus set aside $3 million for assistance with small business technology-based companies near the weapon labs and identified $6 million for a program, to be matched with $6 million from NIH, to evaluate and develop NNSA technologies for medical needs.

Answer. NNSA fully supports the development and execution of technology partnerships that support the NNSA missions and has directed that program officials consider funding partnerships as part of the planned execution of their programs when it is appropriate and advantageous. The accounting system does not provide information on partnerships, however , a staff estimate indicates that approximately $17.6 million has been invested in industrial partnerships. We anticipate that this number will increase as time goes on. Although the set aside for assistance to small business technology-based companies near the weapon labs was not appropriated, we recognize that support for small business in the vicinity of the laboratories and facilities not only contributes to technological advances in the private sector and maintenance of the procurement base, but also promotes local good will and acceptance of the continuing operation of the laboratories and facilities. The NNSA laboratories and facilities have been encouraged to participate in these small business programs.

With respect to working with NIH to explore joint opportunities for the development of medical devices, our involvement with NIH has resulted only in encouragement to continue to respond to NIH solicitations. Although we have not yet been successful in the development of a joint NNSA/NIH medical devices program, the NNSA laboratories continue to use their unique skills in support of national security for the development of medical devices.

ADMINISTRATION SUPPORT FOR NONPROLIFERATION PROGRAMS

Question. Why does the Administration propose such deep cuts in the nonproliferation programs in Russia?

Answer. Although the fiscal year 2002 request is $100.2 million (11.5 percent) below the fiscal year 2001 appropriated level, it represents a $52.2 million (7.3 percent) increase over the fiscal year 2000 level. The fiscal year 2002 request normalizes growth over two years at just under 4 percent per year. A review is underway to examine the nonproliferation programs with Russia. At the end of this review, I expect to have a clear understanding of the Administration's policy requirements for our threat reduction activities. The National Nuclear Security Administration's final Future-Years Nuclear Security Program for fiscal year 2002 through 2007 will be submitted after completion of the strategic review of national security-related activities.

SAFETY AND SECURITY RECORD

Question. Admiral Bowman, Naval Reactors has long enjoyed an outstanding record on safety and security. Would you elaborate on your Program's success in these areas and describe how your management systems support safety and security?

Answer. Naval Reactors is a semi-autonomous, centrally managed, single-purpose organization with clear lines of authority and total responsibility and accountability for all aspects of naval nuclear propulsion. The precepts of this organization, developed under the leadership of Hyman G. Rickover were preserved upon his retirement in 1982 by Executive Order 12344 issued by President Ronald Reagan (attached). This executive order was subsequently set forth in two Defense Authorization acts. The clear focus of the organization's mission, combined with a management philosophy which clearly assigns responsibility and authority, has resulted in an organizational culture that intertwines the need for safety, environmental stewardship and security with everyone's daily efforts.

Naval Nuclear Propulsion Program technology is among the most sensitive and valuable military technologies currently in use in the United States. Nuclear powered vessels comprise about 40 percent of the U.S. Navy's combatant fleet, including the entire sea-based nuclear deterrent. All submarines and over half of the Navy's aircraft carriers are nuclear powered. This nuclear technology measurably contributes to the United States ability to defend its interests worldwide. The proliferation of this technology and the resultant development of nuclear powered submarines and surface combatants in other countries could result in destabilizing geopolitical conditions, to the detriment of world stability and U.S. interests.

For that reason, information that permits nuclear propulsion to be applied to warships must be protected. This information is identified as naval nuclear propulsion information and concerns the design, arrangement, development, manufacture, testing, operation, administration, training, maintenance and repair of the propulsion plants of Naval nuclear-powered warships and prototypes including the associated shipboard and shore-based nuclear support facilities. Program personnel are trained from their first days to develop a knowledge of the details to ensure they can identify and correct problems, or resolve issues while they remain small. They understand the vital role of security in meeting the mission of the Navy.

Security is "mainstreamed" in the Program. Shortly after entering the Program, all personnel are indoctrinated in the requirements and the importance of safeguarding naval nuclear propulsion technology. Then, protection of this technology is factored into the daily Program routine and reinforced periodically. Consequently, security is not an afterthought requiring retrofit into Program operations at a later date. Some of the principles employed to protect classified information are used to protect Program sensitive unclassified information. For example, foreign nationals are not permitted access to classified or unclassified Naval Nuclear Propulsion information except through approved government-to-government agreements, and assignment of foreign nationals at Program laboratories and other facilities is not permitted.

The U.S. Naval Nuclear Propulsion Program is centrally controlled by a highly experienced but lean integrated organization of Department of the Navy and Department of Energy personnel. This organization is responsible for all aspects of the Program, including research, design, development, testing, operation, and personnel. In addition, peer review of reactor safety aspects of design, crew training, and operating procedures is provided by the U.S. Nuclear Regulatory Commission and the Advisory Committee on Reactor Safeguards.

U.S. nuclear-powered warships and their reactors have been designed to the most exacting and rigorous standards. They are designed to survive wartime attack, and include redundant systems and means of auxiliary propulsion, and are operated by highly trained crews using rigorously applied procedures. All of these features enhance reactor safety just as they contribute to the ability of the ship to survive attack in time of war.

Over 100,000 officers and enlisted technicians have been trained in the Program. The officer selection process accepts for interview by the Director only applicants who have high standing at colleges and universities. All personnel receive over a year of training in theoretical knowledge and practical experience on operating reactors that are like the reactors used on ships. Even after completing this training, before manning a key watch station, the personnel must specifically qualify on the ship to which they are assigned. Despite the extensive training and qualification program, multiple layers of supervision and inspection are employed to ensure a high state of readiness and compliance with safety standards.

All U.S. nuclear-powered warships use pressurized water reactors. The radioactive fission products are contained within high-integrity fuel modules that can withstand battle shock. The fuel is fabricated such that U.S. Naval reactors do not operate with fission products released to the primary coolant. The reactor compartment forms a container and shields the crew from radiation. This compartment contains no loose radioactivity in accessible areas and can be entered without any protective clothing within minutes of shutting down the reactor.

The U.S. Naval Nuclear Propulsion Program has historically incorporated major efforts to minimize radiation exposure. No civilian or military personnel in the Naval Nuclear Propulsion Program has ever exceeded the Federal accumulated limit, which until 1994 allowed 5 rem of exposure for each year of age beyond age eighteen. Since 1967, no person has exceeded the Federal quarterly limit, which allows up to 3 rem per quarter year. Since 1968, no person has exceeded the Navy's self-imposed limit of 5 rem per year for radiation associated with naval nuclear propulsion plants. The Federal limit was changed in 1994 to adopt the 5 rem per year limit already in use by the Navy in lieu of the accumulated exposure limit. The average exposure to nuclear-powered ship operators for the last 10 years is less than 0.04 rem, compared to 0.30 rem per year from background radiation for the general public. This occupational exposure record is indicative of the conservative design employed in U.S. naval application. With regard to liquid discharges of radioactivity, design and operating practices strictly enforce a policy of minimum discharge to the environment. Within twelve miles of land, where no intentional discharge is allowed, the total gamma radioactivity discharged by all U.S. ships and facilities during any single year is less than 0.002 curie. That amount is 100 times less than the radioactivity discharged by a single typical U.S. commercial nuclear power station in a year, which is itself within permissible limits.

While the strict procedures followed to control release of radioactivity preclude the need for environmental monitoring, the U.S. Navy does conduct environmental monitoring in locations where U.S. nuclear-powered ships are home ported or serviced, such as bases and shipyards, so there will be independent evidence to confirm the absence of any environmental effect. This monitoring consists of analyzing harbor water, sediment, and marine life samples for radioactivity associated with naval nuclear propulsion plants; radiation monitoring around the perimeter of support facilities; and effluent monitoring. Environmental samples from each of these harbors are also checked at least annually by a U.S. Department of Energy laboratory to ensure analytical procedures are correct and standardized. The U.S. Environmental Protection Agency has conducted independent surveys in U.S. harbors and results have been consistent with Navy results. These surveys have confirmed that U.S. naval nuclear-powered ships and support facilities have no significant effect on the radioactivity of the environment.

In addition to the many safety considerations referred to above, there are several other factors that enhance naval reactor safety. Naval reactors are smaller and lower in power rating than typical commercial plants. They also operate at lower power levels, particularly when in port or in restricted waters. Thus, the amount of radioactivity potentially available for release is less than one one-hundredth of that for a typical commercial reactor. Naval reactors have ready access to an unlimited source of seawater that can be used for emergency cooling and shielding, and are mobile. In the event of a problem, the ship can be moved, which, of course, is not the case for a fixed, land-based reactor.

On the whole, the Program's success in safety and security is due in large part to its clear lines of authority and total responsibility and accountability for all aspects of naval nuclear propulsion. The success of this organization and its personnel is unsurpassed. The safety record of United States nuclear-powered warships is outstanding. In the history of the Naval Nuclear Propulsion Program, there has never been a nuclear reactor accident, nor has there been a release of radioactivity having a significant effect on the environment or the public. The Program currently is responsible for 82 operating nuclear-powered warships and 102 operating reactors. Since 1955, U.S. Navy nuclear-powered ships have steamed over 122 million miles and amassed over 5200 reactor-years of operating experience. These ships have visited more than 150 ports in over 50 foreign countries and dependencies.

NUCLEAR CITIES INITIATIVE

Question. What progress has been made recently in downsizing of the complex and conversion of weapons manufacturing plants to alternative missions?

Answer. Significant progress has been made at the Avangard Electromechanical Plant, a nuclear weapons facility in Sarov where a non-weapons related Technopark is being created. The strategy for closure at Avangard is the following: as a significant new project is developed, a suitably-sized facility is identified for installation of production and assembly lines for the project; then additional real estate is carved out of the active area, thus enlarging the Technopark and reducing the footprint available for weapons work. The effect is to reduce the size of the plant piece-by-piece and to contribute to the irreversibility of downsizing by bringing in commercial enterprises.

Through the impetus of the Nuclear Cities Initiative (NCI), about 10 percent of the Avangard site—including 10 acres, 6 major buildings and over 500,000 square feet of available floorspace—has already been moved out of the weapons area and is available for commercial non-weapons activities. Four significant commercialization projects and three infrastructure projects are underway at Avangard. The projects include contributions from the Ministry of Atomic Energy (MinAtom) and other Russian sources, and agreement has been reached between MinAtom and the Department on levels of fiscal year 2001 funding from the NCI program. The projects will become fully operational in 2–4 years. At full production and employment these four commercialization projects will provide jobs for about half of the 3,600 Avangard employees and well over 1,000 jobs for VNIIEF employees.

Question. How much funding could be intelligently used within that program to generate significant progress—but always conditioned on meeting transparent milestones?

Answer. Progress is viewed differently by our two nations, and the differences must be recognized if we are to be successful in developing transparent milestones. To reduce costs, Russia wants to downsize its nuclear weapons complex, but it will not abandon the people to unemployment. Hence, the MinAtom objective is to create civilian jobs through sustainable commercial activities and the metric is the number of jobs created. The Russian approach is step-by-step; success with Avangard at

Sarov will allow us access to other closed nuclear cities. In addition, strong and stable funding of the program will engender Russian confidence in the U.S. commitment to the program, further accelerating progress.

The U.S. objective for NCI is to obtain irreversible reduction of the Russian nuclear complex. The metric at this time for the United States is, therefore, the square feet of facilities (buildings) and acreage of space converted to civilian commercial activities. As a detailed integrating strategy develops for our Russian programs, the metric will naturally evolve toward specific facilities that represent a high priority for the United States.

To this end, we believe that now is the appropriate time to move aggressively toward the rapid and irreversible closure of the Avangard nuclear weapons facility. Given the infrastructure, which has already been developed and the significant number of companies expressing interest in moving into the Technopark, NCI could advance the closure of Avangard over the next two years and be in a strong position to move into another city.

A secondary benefit associated with this strategy is the avoidance of cost for Material Protection, Control and Accounting Program upgrades at these two sites.

LABORATORY DIRECTED RESEARCH AND DEVELOPMENT

Question. Did the return to the historic level for LDRD help with morale?

Answer. Yes. The return to the 6 percent funding for LDRD did improve morale. One of the aspects most significantly affected by the reduction was the ability of the Laboratories to recruit new Post Doctoral Candidates. The LDRD program supports, on the average, about half of the funding for Post Docs across the three NNSA Laboratories. A 6 percent funding level helps provide these scientists and engineers motivation to bring good ideas forward, both to advance the missions of the laboratories and their own careers.

Question. I've heard a suggestion that some small amount of LDRD, probably in addition to the 6 percent, be set aside specifically for helping new staff members gear up for major contributions in key programs. That strikes me as an excellent suggestion.

Do you concur that such funds would provide important new ways of hiring new staff and helping them gain the specialized knowledge they need for programmatic contributions?

Answer. Yes. Such funds would help in enabling the labs to improve their efforts to recruit and retain new scientists and engineers. Integrating new technical staff into the system of research at our labs is vital to our retention efforts. Innovative, high-risk ideas explored through the LDRD Program lead to research activities that team senior technical staff with relatively new staff members. This collaboration is beneficial for the training of new technical staff, retention of existing staff, the development of new ideas and helping new staff integrate into the mission of the nuclear weapons laboratories.

POLYGRAPHS

Question. Do you agree that Congress moved too fast to impose too many requirements for polygraphs, before we have information from the National Academy?

Answer. First, I must say that the DOE Office of Counterintelligence has worked hard to design a professional and effective Polygraph Program in compliance with the federal rule and the legislation mandating its existence. Thus far, DOE has tested more than 2,000 contractors and employees and 99 percent of those tested have stated they felt the examination was fair and did not constitute an unwarranted invasion of privacy. Also, none of those selected to take the test has refused to do so. I'm very happy with those results. However, there obviously remain concerns about the test, and I want to be responsive to those. I view the Congressionally mandated DOE polygraph program and the National Academies' study as necessarily moving in parallel. I do not think the program implementation should necessarily have been delayed to await the results of the study, though the study may provide information useful to program improvement. In hindsight, we have concerns that the groupings of personnel required by the legislation may not have been the most effective approach to identifying those personnel who should be subject to a polygraph. Within groups there are positions that vary in degree of sensitivity, and we are studying assessment methodologies to be able to identify those "high-risk" positions that we feel are most appropriate for polygraph. This is an ongoing study whose results may suggest a change to the legislative requirements may be appropriate. We are also very interested in the National Academies' study of polygraph. The NAS study will include what is known about the effect of medications, sleep deprivation, and illnesses on the physiological responses measured through polygraph exams. The 15-

month study began on January 1, 2001, and the final report is to be released next year. I view this study as a potential means through which DOE may further improve on its successful Polygraph Program.

POLYGRAPHS AND EMPLOYEE MORALE

Question. Do you agree that polygraphs are negatively impacting morale and potentially doing far more harm than any good?

Answer. I know that personnel from Sandia, Los Alamos and Lawrence Livermore National Laboratories have discussed their concerns with the Office of Counterintelligence, and I am aware that they are engaged in an ongoing dialogue on the topic. We are doing all that we can to address employee concerns with respect to the polygraph program, and seek to minimize any negative impact it may have on recruitment and retention. Unlike the National Security Agency and the Central Intelligence Agency, where polygraph has long been used as a condition of employment and is seen by employees as something of a "rite of passage", our scientists in many instances are just now being confronted with this prospect, after many years of loyal service. We must deal with this cultural shift in a straightforward manner; addressing their concerns while protecting our most sensitive equities and complying with the legislation mandating polygraph.

While polygraph may now be a factor, the issues of recruitment and retention are complex and pre-date DOE's proposed use of counterintelligence-scope polygraph examinations. This is well documented in the March 1999 Report of the Commission on Maintaining United States Nuclear Weapons Expertise (Chiles Report). The Chiles Report characterized DOE as being in a war for talent with the private sector. The scientific and technical talent that DOE must attract and retain has many options in today's competitive technology marketplace.

The Department is committed to achieving the goal of having both good science and good security, and will continue to work hard to address employee concerns that impact on that goal.

APT AND AAA

Question. In the current year, Accelerator Production of Tritium (APT) is funded within Defense Programs and Advanced Accelerator Applications (AAA) is funded within the Nuclear Energy Office. The Department has recently issued a report, requested by Congress, from the Office of Nuclear Energy which was coordinated with the NNSA. That report outlines a comprehensive program for a future AAA program that incoroporates APT, and includes partnering with Defense Programs.

Do you concur with plans to incorporate APT into a broad AAA program?

Answer. Yes. The nation has invested more than $600 million in accelerator technology under the APT project. That investment can better be realized under the AAA Program than through closure of the project and archiving of data. The AAA Program's proposed new test facility could provide data valuable to civilian science as well as national security programs. In addition, the new facility, if built, could retain the capability to be upgraded to produce tritium, if that is ever required.

Question. And, do you agree that it is in the national interest to advance APT technologies to the point where they could be readily scaled up to meet stockpile needs for tritium if any issues develop with the reactor-based program for tritium production?

Answer. I believe it is in the national interest to capitalize on the investment of more than $600 million in accelerator technology represented by the APT by transitioning the technology development to the AAA program. Our primary tritium program, which will use TVA reactors to produce tritium, is going extremely well, and we, therefore, believe that the need for a 'readily scaled up' backup is not a wise use of taxpayer resources. Nonetheless, I agree that it would be prudent, to include in any new facility at least the capability to be upgraded for tritium production.

RETIREMENT SYSTEMS

Question. Retirement systems are one of the most important benefits that staff must evaluate in selecting places of employment. There are currently vast differences among retirement benefits at the different weapons laboratories. Furthermore, the private sector has a far wider range of benefit options, such as stock options, that can be used to encourage people to accept employment.

I hear from many constituents that retirement systems, most notably at Sandia, are seriously lagging other laboratories. Sandia has conducted their own analysis of this situation and confirmed this discrepancy. The employees are particularly concerned because the Sandia retirement system is extremely well funded and probably could support much higher benefits.

In my view, the Department should be encouraging its contractors to maximize their retirement benefits since this can have a significant impact on their ability to hire and retain highly qualified staff.

Do you concur with this view?

Answer. Retirement systems are indeed an important consideration when applicants and employees compare employment offers. The Department has found that the weapons laboratories provide retirement benefits that are equal to or above what is offered by comparable employers with government contracts and in the private sector. Among NNSA sites (LANL, LLNL, Sandia, Knolls Atomic Power Laboratory, Oak Ridge, Kansas City Plant, Bechtel Nevada, and Bechtel Bettis) the Sandia salaried Pension Plan is second only to those at the Los Alamos and Lawrence Livermore National Laboratories which are covered by the University of California Retirement Plan. The Department's contractors have almost every benefit option available to offer employees, including, in the Sandia case, the ability to offer stock options although they have chosen not to do so. The Department supports and encourages contractors to develop attractive, contemporary, and competitive benefits packages.

The Department is very concerned about public and media statements that claim that Sandia benefits are below standard. Based on our review, the Sandia analysis entitled "Current Pension Plan Review March 26–29, 2001 by Joan Woodard and Ralph Bonner," supports the Department's analysis and findings that Sandia's pension plan for salaried employees and the 401(k) defined contribution plan provide a retirement benefit equal to or greater than most comparable employers. According to the two studies referenced in the Sandia analysis, the 2001 Hewitt Associates survey for salaried employees and the 2000 Towers Perrin High Technology BENVAL survey, Sandia's retirement benefits rank at or near the top in a list of comparable employers. Only when compared to the University of California Retirement Plan (UCRP) for older employees is the Sandia defined benefit plan lower. However, in the case of employees leaving employment before age 55, Sandia's benefits actually exceed the UCRP in some cases. Moreover, when the employer portion of the Sandia 401(K) defined contribution plan is factored in for salaried employees they compare even more favorably with the UCRP which does not include a 401(K).

With regard to the use of excess assets in the pension plan to fund benefit increases, the Department does not view the existence of excess assets as justification for benefit increases. To do so would effectively penalize both the contractor and the Department for advance funding and good asset management. Moreover, the Department's Inspector General has previously warned the Department to not allow unwarranted benefit increases which would be funded by the available excess funds from the pension plans. The overfunding of a pension plan is no more compelling a reason for increasing benefits than an underfunded plan is for decreasing benefits, particularly in light of the fact that they are subject to significant market fluctuations.

Finally, the Department evaluates the compensation and benefit packages provided by its contractors from the prospective of Total Compensation. To separate individual elements of compensation and benefits for comparison without consideration of the Total Compensation can be misleading and result in unnecessary cost escalation.

ADVANCED HYDROTEST FACILITY AT LANL

Question. An advanced hydrotest facility has long been planned for the stockpile stewardship program. In fiscal year 2001, $15 million was appropriated for R&D and pre-conceptual designs for a facility using protons. As you know Los Alamos has had some substantial developments in this area.

What are the plans for continued development of this facility in fiscal year 2002?

Answer. The continuing program of proton radiography experiments at Los Alamos and Brookhaven have been successful and show that this new technology is a promising and viable option for application to meet the radiographic requirements for primary certification. NNSA's plans and path forward for Advanced Radiography are contained in the Hydrotest and Radiography Requirements—Interim Report provided to this committee in response to HR 106–116. The AHF pre-conceptual design activities led by Los Alamos continue to meet the milestones laid out in this report.

Principal milestones for NNSA are to complete pre-conceptual design review activities in fiscal year 2001 and then to review our understanding of the requirements for an advanced radiography facility and the status of current technologies in order to support a mission need determination in early fiscal year 2002.

We have commissioned a JASON review of primary certification requirements and the role of an AHF in meeting those requirements. This study will be performed this

summer and will give us a preliminary look at the issues that we will review further before making a mission need determination.

If a mission need decision is made (Critical Decision-0), then we would continue to support Conceptual Design activities in fiscal year 2002 with Operation and Maintenance funding in the advanced radiography campaign. The effort that can be applied to conceptual design and engineering development and demonstration activities in the fiscal year 2002 budget submission have been balanced against other requirements, including advanced radiography campaign efforts to optimize DARHT I, support the commissioning of DARHT II, and certification activities.

QUESTIONS SUBMITTED BY SENATOR LARRY E. CRAIG

UPGRADES TO THE ADVANCED TEST REACTOR

Question. Upgrades to the Advanced Test Reactor. The Naval Reactors Program is the primary programmatic "customer" at the Advanced Test Reactor at the INEEL. There have been proposals to invest in some facility upgrades at the Advanced Test Reactor to construct a dedicated experiment assembly area and to upgrade experiment handling equipment. These upgrades would attract additional users to the Advanced Test Reactor, and would therefore reduce the overhead costs charged to Naval Reactors. Would you be supportive of these facility upgrades, if funding could be found within DOE's budget?

Answer. Yes, NR supports the proposed upgrades. Seven years ago NR vacated test space in the Advanced Test Reactor (ATR) to provide access for other customers to reduce NR costs. Since that time, NR has actively supported efforts by DOE and the operating contractor to bring in new customers to use this space. Two years ago, DOE's branch of Nuclear Energy (NE) funded the installation of a new experiment facility, the Irradiation Test Vehicle (ITV) to support additional testing. The ITV enhanced ATR capabilities by allowing for the testing of multiple capsules with independent temperature control. Currently the ITV is not being used, and only a small number of other capsule experiments are being run in ATR. Enhancing the ability to assemble capsules and handle tests will increase the likelihood for other customers to use the ATR, reducing the costs paid by NR through the DOE. NR supports these upgrades that will have minimal effect on NR testing, while enhancing the utilization of the ATR. NR supports continued effort by NE to make upgrades that will improve ATR testing and data gathering capabilities and bring in other customers.

BN–350 REACTOR

Question. Given the strategic importance of Kazakhstan from both an energy and a geopolitical perspective, could you describe the Department's plan for fulfilling the commitments that the U.S. has made to assist Kazakhstan?"

Answer. The project at the BN–350 breeder reactor in Aktau has indeed been a major nonproliferation success. By June, NNSA will have completed the packaging of the plutonium-rich BN–350 spent fuel. The theft vulnerability of the material is now orders of magnitude less than it was in 1995 when the Department first visited Aktau. The Department has spent $15 million on material protection, control, and accounting measures at the reactor facility. In June, we will complete the packaging of nearly 3000 assemblies containing about three tons of weapons-grade plutonium. The packaged material is now in the BN–350 pool and is as secure from theft as it will ever be. By July, NNSA will have spent $43 million on the spent fuel disposition aspects of this project.

The 1997 agreement provided a "provisional" approach to the long-term storage at the Baikal site on the opposite side of Kazakhstan from the BN–350. The agreement committed the Department to support that approach unless logistical, technical, or costs issues made that approach infeasible. Last September, a joint U.S./Kazakhstan study concluded that there are significant advantages to storing the material at Aktau both technically and financially. For unclear reasons, the Government of Kazakhstan decided to ship the material to Baikal. The Department does not have the funds to support that decision and is concerned that this approach was not supported by the joint U.S./Kazakhstani study.

In January, Kazakhstani officials announced that they had developed a plan that would allow them to transport and store the material at Baikal on their own. They asked for U.S. help in the area of security and for the design and construction of the storage site, as well as any other aspect of the project. The Department's priorities remain focused on the proliferation risks of the material. Therefore, we intend to address the physical protection requirements of transporting and storing the ma-

terial, as the Kazakhstanis requested. We also intend to continue supporting the IAEA in a comprehensive program of safeguards against a successful diversion of the material's plutonium. These two efforts will require most of the project's budget.

In February 1999, Kazakhstan requested NNSA assistance in upgrading the safety of the reactor following a critical review of the plant by an IAEA team. Subsequently, Kazakhstan announced that the reactor would be shutdown permanently. The plan is to place the reactor in a radiologically and industrially safe condition over the next 7 years and to maintain it for up to 50 years before it is dismantled. Kazakhstan has requested United States and international technical and financial assistance for the shutdown project.

In December 1999, the Secretary of Energy and Minister Shkolnik signed a joint Implementing Arrangement for decommissioning the BN–350. The Arrangement states that the United States and Kazakhstan will cooperate in the shutdown project. Specifically, DOE will support decontaminating, draining and deactivating the sodium coolant; and development of a decommissioning plan that will be reviewed under the auspices of the IAEA. The Implementing Arrangement also states that DOE will assist Kazakhstan to find additional international partners for the decommissioning project.

Decommissioning the BN–350 will permanently eliminate a source of weapons-grade material production. It also will eliminate a nuclear safety concern on the shores of the Caspian Sea in a strategically vulnerable region that is about 150 miles south of the Kashagan oil field. The project has the additional objectives of sustaining a nuclear infrastructure within Kazakhstan to support the remaining four research reactors and fostering Kazakhstan independence. Decontaminating, draining and deactivating the coolant, as well as the immediate safety upgrades, will cost about $29 million over five to seven years. Because of the nonproliferation nature of the project, NNSA has been able to obtain commitments from State's NDF, ISTC and AID programs for most of these funds. NNSA is also working to form a collaborative project with Japan.

QUESTIONS SUBMITTED BY SENATOR HARRY REID

ADMINISTRATION STRATEGIC REVIEW

Question. I've heard that the budget we just received up here may be changed as a result of the recommendations in the forthcoming strategic review of the DOD programs. Is this true?

Answer. Yes. The results and recommendations of the strategic reviews will set the Administration's budgetary priorities for defense and national security-related activities. The President believes that the Nation's defense strategy must drive decisions on defense resources—not the other way around. Accordingly, the Administration plans to determine final fiscal year 2002 and outyear funding requests once the Strategic Defense Review is complete. That means that there is a possibility that a budget amendment will be forthcoming.

Question. Can you give me an idea about when this will come up to us?

Answer. I must defer to the White House on when the reviews will be finalized. We will work with you and your staffs to assure that we provide all of the information you need to evaluate our requirements for fiscal year 2002 and the outyears.

INFRASTRUCTURE

Question. Several weeks ago, you testified to this committee about infrastructure problems across the weapons complex. For the members who couldn't make that hearing, can you briefly tell this committee why this occurred?

Answer. The current condition of the nuclear weapons complex is attributable to several factors, among which are the age of the complex, facility & infrastructure underfunding, and the increasing demands placed on facility management by current environmental, safety and health laws and regulations. The majority of the facilities are 40 years or older. The design lives of many of these facilities have been exceeded, using any reasonable standard. Facility and infrastructure requirements have been underfunded for a long time. This chronic underfunding has taken a significant and measurable toll on our facilities. Finally, the costs directly attributable to compliance with today's health, safety, and environmental requirements continues to grow.

Question. What will it cost Congress to make repairs after this long period of neglect?

Answer. I believe that I am prepared to efficiently execute between $200–$300 million to start our recapitalization of the complex in the first year. Following there-

after, I believe that $500 million will be required annually for the next ten years to restore and recapitalize the complex. No funds were included in the current fiscal year 2002 request pending completion of the strategic review.

Question. DOE has a very bad record of construction management. If the Congress were to provide that much money, how can we be assured that the problems will get fixed?

Answer. As stated in the Defense Programs "Annual Report to Congress on Construction Project Accomplishments" dated January 17, 2001, Defense Programs has committed to a multi-year project management improvement campaign that is targeted at eliminating root cause project management problems through a fundamental change in culture and process. The PM Improvement Campaign encompasses the recommendations of numerous external review groups and the results of extensive bench marking of best practices being employed by both public and private industry. The Campaign is subdivided into eight individual goals designed to significantly improve project planning, decision making, lessons learned, career development for project managers, and complex wide procedures. Definitive results will not occur over night, studies by OMB have shown that at least three years is required to turn a culture around.

Defense Programs/NNSA is committed to maintaining the momentum of implementing change through such techniques as new start Independent Project Reviews (IPRs) of line item new starts to ensure program requirements are clearly defined, a competent integrated project team is in place to address stakeholder issues, and sound planning baselines have been established for execution of the work.

Question. Why not wait on the infrastructure initiative until after the Administration completes its strategic review?

Answer. I remain close to the analysis being conducted by the Department of Defense regarding our military needs, particularly those dealing with the strategic nuclear posture of our forces. We are committed to retention of a weapons production capability, even if we reduce the number of weapons on hand. There is not a strong direct correlation between weapons reduction and facility requirements. One element of a credible deterrent is to have a production complex that can meet existing requirements and respond to emerging threats in a timely manner. As you also know, I am committed to reducing the footprint of our current sites and facilities. In this case, we are looking for additional resources to eliminate unused facilities that have no part in our recapitalization plan.

ADMINISTRATION STRATEGIC REVIEW

Question. Last year's authorization act strongly reinforced the requirement for a Five Year Budget Plan for NNSA. Is it included with the fiscal year 2002 budget?

Answer. The National Nuclear Security Administration's final Future Years Nuclear Security Program for fiscal year 2002 through fiscal year 2007 is currently undergoing review and will be submitted to Congress after completion of the President's strategic review of national security-related activities.

Question. How much money is allocated to the weapons laboratories in the fiscal year 2002 request?

Answer. The fiscal year 2002 budget request allocates $2.901 billion to the three national security laboratories. This comprises 55 percent of the request. It is important to remember that this is a preliminary allocation based on the Congressional request, and it will likely be updated with the completion of the strategic review.

NEVADA TEST SITE

The NNSA, in order to meet its legal obligations under the Federal Facility Agreement with the State of Nevada in regards to the Nevada Test Site is required to provide for the protection of underground water resources that may be threatened by the underground nuclear testing program.

The plugging and abandonment of underground nuclear test boreholes will prevent the transmigration of radiological contaminant between groundwater layers and potentially prevent the contamination of drinking water supplies. I am particularly pleased that your budget request provides a significant increase in funding (from $800,000 to $4 million in fiscal year 2002) over past years, but I am interested in your long term commitment to this project. I have heard that this project could ultimately cost over $150 million and take over five years to accomplish.

Question. Will the NNSA support this long term effort or should this subcommittee explore placing this project with the Environmental Restoration and Waste Management Program?

Answer. The NNSA agrees that protection of ground water in and surrounding the Nevada Test Site is very important. Total Project Cost estimate to accomplish

the project in 6 years is in the $144 million range. To that end, we have set aside approximately $4.6 M in fiscal year 2002 to support work to prevent potential contamination from expended nuclear test holes and plan to continue this work at a funding level of $5 M in fiscal year 2003. We are projecting that increased work, funded at a level of approximately $10 M, will be appropriate in fiscal year 2004. In fiscal year 2005, the program effort will be evaluated to determine what future work and funding levels will be optimum. Outyear funding is contingent on the conclusion of Administration's review of our 5-year budget.

The NNSA works closely and cooperatively with the Department of Energy Environmental Management staff on this effort. However, the areas of the Nevada Test Site in which these expended nuclear test holes are located, are integral to the NNSA mission and correcting these effects remains our responsibility.

Question. Are you going to move the Atlas facility from LANL to the Nevada Test Site since additional funds were provided last year?

Answer. We have utilized the funds provided last year to fully plan the move but we have not provided funds in the fiscal year 2002 budget request to move the facility. An ATLAS project team has been formed, an environmental assessment has been performed, and design of a new building to house the machine at the Nevada Test Site (NTS) is underway. Plans are also being formulated to dismantle, move, reassemble, and recommission the ATLAS machine to prepare for full scale operation at the NTS.

It is expected that ATLAS will operate on an interim basis at Los Alamos for the entire year of fiscal year 2002 to conduct experiments for the Dynamic Materials Properties Campaign in support of the Stockpile Stewardship Program. It is expected that the actual disassembly, move, and reassembly of the machine will be started in fiscal year 2003 and be completed in early fiscal year 2004, assuming adequate budget support.

Question. Is the sub-critical program on track?

Answer. Yes. The subcritical experiment program is active, providing important information for stockpile stewardship and helping to maintain nuclear test readiness. In fiscal year 2001, we are planning to complete three experiments and eight are planned for fiscal year 2002. Subcriticals are providing valuable data on the behavior of plutonium which is crucial to an enhanced understanding of nuclear weapons. The conduct of these experiments exercise many of the skills that would be needed if it were necessary to resume underground testing.

PLUTONIUM PITS

Question. At a previous hearing regarding the status and challenges that face the NNSA you mentioned the problem of Pit Certification. You indicated in that testimony that we could expect pit certification to be the same kind of story as NIF.

"Underfunded, under-costed, under-scheduled, and under-planned" were your words. Your fiscal year 2002 request calls for over $128 million for what is termed "Pit Manufacturing and Certification." In addition you have requested almost $83 million for the CMR and TA–55 facilities at Los Alamos where a majority of that Pit work will be done. I went through the financial schedule for this CMR facility that the Department provided to this Subcommittee in last year's budget request and the total appropriation provided for this facility from fiscal year 1992 to fiscal year 2001 was over $106 million. Appropriations for Pit Manufacturing and certification in fiscal year 200 and fiscal year 2001 totaled over $250 million.

I'm sure that if we go back to the early 90's and check, we will find close to a billion dollars total for this mission whose completion is still not within sight, and which, by your own acknowledgement, is badly broken.

Question. General Gordon, can you outline for me, either now or in writing, the precise steps you are planning to take to restore this program's credibility?

Answer. This program has been assigned the highest priority by the NNSA and Los Alamos National Laboratory (LANL), and both are committed to its success. LANL has appointed experienced project managers for both the pit manufacturing and pit certification projects and has given them the necessary fiscal and programmatic responsibility. Similarly, the NNSA has established a Pit Project Office at DOE Headquarters headed by an experienced project manager. This Office will ensure that the pit project meets programmatic objectives. The pit manufacturing and certification effort is being projectized for fiscal year 2002 based on a W88 Pit Manufacturing and Certification Integrated Project Plan. The W88 pit manufacturing and certification effort has been reviewed both technically and programmatically by DOE and external reviewers. Additional reviews will be conducted to assess programmatic risks and to ensure the program is on track. The W88 pit manufacturing and certification project is essential to demonstrate that the nuclear

stockpile can be maintained without nuclear testing and will continue to receive the highest level of attention.

Question. Why is Los Alamos producing plutonium pits if the United States isn't manufacturing new nuclear weapons?

Answer. The Los Alamos National Laboratory is working to produce replacement pits for the W88 warhead because production of W88 pits was abruptly stopped at the Rocky Flats Plant (RFP) in 1989 before enough pits were produced to meet required destructive pit assessments during the projected 20-year design life of the W88 warhead. In addition, the manufacture and certification of a W88 pit without nuclear testing is a principal challenge of the Stockpile Stewardship Program. Absent the manufacture of new nuclear weapons, newly manufactured pits still must be produced to replace those pits that are destructively assessed in the surveillance process during the design life of the nuclear warhead.

NATIONAL IGNITION FACILITY

Question. You recently submitted to the Congress the NIF certification package. I will let Chairman Domenici's thoughts on the completeness of that certification stand as my view. Setting those concerns aside for the moment, I want to hear from you, clearly and concisely, both that you must have the full 198 Beam NIF and an explanation of why NIF is so important to the Stockpile Stewardship Program. You have been the Administrator for long enough now to form your own view.

Is this something you have to have to fulfill your mission?

Answer. Yes, the NNSA must have the full 192-beam NIF in order to meet the needs of the Stockpile Stewardship Program (SSP) and fulfill the NNSA mission to maintain the safety, security and reliability, of the US nuclear weapons, both now and in the future.

NIF is important to the SSP for three reasons. One, it will provide unique experimental weapon physics capability, for the study of issues which can affect an aging or refurbished stockpile. Two, it will advance critical elements of the underlying science of nuclear weapons that will play a major role in validation of the advanced simulation codes. Three, it helps to attract and train the exceptional scientific and technical talent required to sustain the SSP over the long term.

NIF is an essential facility of the high-energy-density physics (HEDP) program within the SSP. As you know from my NIF certification package, NNSA's Office of Defense Programs recently reviewed the HEDP program, with a particular focus on the NIF, and whether there are alternatives to the full 192-beam NIF. The baseline HEDP program, including the full 192-beam NIF, meets the requirements, and is the appropriate path forward.

If we do not have the NIF to further our knowledge and capabilities in the area of high-energy-density physics (HEDP), as it relates to the current nuclear weapons stockpile, the deterrent, will be at risk. Without the full tool set identified for SSP, we will not be able to adequately assess the types of issues that are sure to arise.

We must provide our future stewards the ability to quantitatively determine the validity of their models when applied to situations not explicitly covered by the existing set of test results. NIF is the only HEDP facility currently in the Defense Program's baseline or being discussed that provides the experimental capabilities needed to approach this task.

Question. What is included in the fiscal year 2002 budget for the National Ignition Facility and is it consistent with recently approved baseline for the project?

Answer. Senator, I included the approved NIF Funding Profile through fiscal year 2008 in the referenced certification. In addition, I submitted a follow-up, clarifying letter on April 13, 2001 wherein I stated that under the current fiscal year 2002 budget profile, the National Nuclear Security Administration would be required to restructure the NIF and other elements of the Stockpile Stewardship Program if the requirements remain the same. However, the Nuclear Security Program for fiscal year 2002 through 2007 is currently under consideration as part of the President's comprehensive strategic review of national security-related activities. Any changes resulting from the conclusion of the review will be transmitted to Congress as part of the final plan.

Within the requirements budget, the NIF construction project requires at total of $246 million construction funding with an additional $72 million operating and maintenance funding for a total of $318 million in fiscal year 2002. This is consistent with the approved baseline.

HAZARDOUS ACTIVITIES

Question. During our subcommittee hearing last year I expressed some concern about the planning process that is employed by NNSA in selecting technologies and

ultimate location for high hazard high risk work. I have an overriding concern that large investments in hazardous new facilities are being made with consideration for the premature obsolescence of these facilities brought about by public encroachment. The fiscal year 2001 Appropriation made available $15 mission to support research, development and conceptual design for an advanced hydrodynamic test facility for advanced radiography. Your fiscal year 2002 budget request indicates that Defense Programs may initiate a conceptual design for an AHF or advanced hydro facility which will cost in excess of $3 billion.

General, I am very concerned that this subcommittee and the Congress are blindly agreeing to a major system acquisition without the appropriate reviews and validations of technologies. Additionally, the informed decision making required to determine the right location should be completed before another billion dollar stockpile stewardship physics machine is agreed to for your agency.

Are you willing to provide me with a report describing the process that you intend to use to make the requisite recommendation to this subcommittee and the Congress prior to the Administration making any further expenditure of resources?

Answer. We reported our planning and review process for an advanced radiography facility in an interim report on Advanced Radiography and Hydrotest Requirements submitted to Congress this past February. As indicated in the report, we expect to complete trade studies and requirements studies for a proton radiography based facility by the end of fiscal year 2001 so that we can make a mission need determination (CD–0) during the first quarter of fiscal year 2002. A complete set of independent reviews will be part of our process for making any determination about mission need.

I have committed to submitting a final report to the Congress upon completion of these reviews, which I expect to occur in early fiscal year 2002. We have commissioned the JASONs to undertake a review of primary certification requirements, the role and conduct of hydrotesting, and the status of development of advanced radiography technologies and capabilities.

NNSA shares your concerns about the impact of encroachment on the long term viability of facilities and this is a significant factor in any site selection determination. The potential siting of an advanced hydrodynamic facility (AHF) was described in the Stockpile Stewardship and Management Final Programmatic Environmental Impact Statement (September 1996) and remains unchanged. Due to the nature of dynamic experiments and hydrodynamic testing to be conducted in the facility, AHF would probably be considered for location at the Nevada Test Site and Los Alamos only. Appropriate National Environmental Protection Act studies and completion of the conceptual design report are among the requirements to be completed prior to site selection.

TRITIUM

Question. What is the status of the tritium program?

Answer. The tritium program is on schedule to meet current requirements and remains within its baseline budget. DOE and TVA continue to implement the Interagency Agreement that went into effect in January 2000 for the irradiation of tritium-producing rods in TVA's Watts Bar and Sequoyah reactors. Regulatory review by the Nuclear Regulatory Commission of TVA's license amendment requests associated with the use of the DOE tritium rods are expected to be completed well in advance of the fall of 2003, when the initial irradiation of the rods would take place given current requirements.

Construction of the structural portions of the new tritium extraction facility at the Savannah River Site is underway, and detailed design of the balance of the facility will be completed as scheduled.

A contract has been signed with WesDyne, a subsidiary of Westinghouse, for fabrication of the tritium rods, and contracts with vendors for all components have either been signed or are in final negotiation. Finally, a Request for Proposals has been prepared, issued for comment by potential bidders, and will soon be issued in final form to acquire transportation services to take the rods from the TVA reactors to the tritium extraction facility.

Question. What about the APT program?

Answer. The APT program is proceeding with engineering development and demonstration and preliminary design activities planned for fiscal year 2001. This year, the program will document the status of preliminary design work on the APT plant. The program will also complete radio-frequency quadrupole beam halo experiments using the APT Low Energy Demonstration Accelerator. Consistent with Congressional legislation and funding for fiscal year 2001, the APT program is supporting the Department's efforts to establish a program for Advanced Accelerator Applica-

tions. If fully implemented, this program would conduct research and develop technologies for transmutation of spent nuclear fuel. If implemented, the AAA program would include the design and construction of an Accelerator Driven Test Facility that could be upgraded to produce tritium for the stockpile, if that is ever needed.

Due to funding constraints and priorities for the Stockpile Stewardship program, $1 million was requested for the APT program in fiscal year 2002. This funding level will not support continuation of APT project work beyond fiscal year 2001.

Question. I thought the license amendments were to be submitted to the NRC in March. Is there a technical issue that could delay irradiation in TVA's reactors?

Answer. We are on track to produce tritium by early 2006 and I do not believe there is any problem, technical or administrative, that will delay the irradiation of the tritium rods in the TVA reactors. The Watts Bar and Sequoyah license amendment packages have been completed, and with the exception a number of calculations that are being independently checked, the great majority of the analyses for Watts Bar was submitted to the NRC on May 1, to be followed in the next few weeks with a similar Sequoyah submittal. The NRC has committed to expedite the review of these license amendment requests.

We have awarded a contract for the production of the tritium rods and in July 2000, ground was broken for the new Tritium Extraction Facility (TEF) at the Savannah River Site. Construction of the facility is underway.

Question. When will the license amendments be submitted to the NRC now? Any impact on supplying tritium for the stockpile?

Answer. The Nuclear Regulatory Commission has now received the great majority of the license amendment submittal for Watts Bar, and will receive a similar package for Sequoyah within the next several weeks. The remaining calculations that are now being independently reviewed for both plants will be submitted when the reviews are completed and any necessary modifications made. The timing of these submittals will have no impact on our ability to supply tritium to the stockpile when required, and the NRC has committed to an expeditious review of the amendment applications.

PROGRESS ON THE ACCELERATED STRATEGIC COMPUTING INITIATIVE

Question. Describe the progress on the Accelerated Strategic Computing Initiative, and what is included in the fiscal year 2002 budget.

Answer. ASCI has, in fewer than five years, produced results that make it the most successful high-performance computing program in U.S. history. The world's four fastest computers are ASCI systems. These systems coupled with other ASCI accomplishments is such areas as scalable algorithms, programming techniques, and visualization capabilities have enabled unprecedented modeling and simulation achievements. In December 1999, the first-ever, three dimensional simulation of a nuclear weapon primary explosion was successfully completed and in April 2000 the first-ever three dimensional simulation of a nuclear weapon secondary explosion was successfully completed. At about the same time we completed the first-ever , three-dimensional computer simulations of a weapon system exposed to hostile radiation and blast environments. These simulations included the performance of the neutron generator in a radiation field. Only a few years ago, it would not have been possible to run these calculations. These accomplishments give us high confidence that all computational program goals and objectives can be achieved.

The requested 2002 budget continues the ASCI program at a slightly reduced pace. It provides for continued procurement of the 30 teraOPS machine for the Los Alamos National Laboratory and for the initiation of procurement activities for a 20 teraOPS machine for the Sandia National Laboratories and a 60 teraOPS machine for Lawrence Livermore National Laboratory. Final delivery of the 30T machine is scheduled for April 2002. The 20T and 60T machines are planned for delivery in fiscal years 2003 and 2004, respectively. No commitment can be made for the delivery date of the 100 teraOps machine pending completion of the strategic review. Development of the weapons performance and engineering codes will continue at the planned pace. Major deliverables from the code projects are the prototype three-dimensional full-system burn code due December 2001 and the completion of a three-dimensional safety simulation of a complex explosion-initiated scenario due in the fourth quarter of fiscal year 2002. The ASCI University Alliance program will be supported in fiscal year 2002 at the same level as in fiscal year 2001.

Question. Why do you need all those large and expensive machines since I understand that the laboratories aren't fully utilizing what they have?

Answer. ASCI computers currently at each of the weapons laboratories are being fully utilized. At present, about 50 percent of the time is devoted to directed stockpile work, about 25 percent is utilized for the ASCI milepost calculations, and the

remainder supports code development and validation activities. We receive and monitor monthly machine usage reports from the labs, and we poll the tri-lab resource allocation committee frequently. These reports indicate that not only are the machines fully utilized, they are oversubscribed as measured by the number of jobs waiting in queues in order to gain access to the machines. Some jobs wait many days to access these limited resources.

The supercomputers currently at the laboratories are helping us to meet the present needs of the stockpile stewardship program but larger systems are required, our scientists and engineers say in the 100 teraOps range, to fully simulate a nuclear detonation.

SUBCOMMITTEE RECESS

Senator DOMENICI. Okay. Thank you all. We stand in recess.

[Whereupon, at 11:19 p.m., Thursday, April 26, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

TUESDAY, MAY 1, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:06 a.m., in room SD–124, Dirksen Senate Office Building, Hon. Robert F. Bennett presiding.

Present: Senators Bennett, Craig, Reid, and Dorgan.

DEPARTMENT OF ENERGY

OFFICE OF POWER TECHNOLOGIES, ENERGY EFFICIENCY AND RENEWABLE ENERGY

STATEMENT OF DR. ROBERT DIXON, DEPUTY ASSISTANT SECRETARY

OFFICE OF SCIENCE

STATEMENT OF DR. JAMES DECKER, ACTING DIRECTOR

OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY

STATEMENT OF WILLIAM D. MAGWOOD, IV, DIRECTOR

OPENING STATEMENT OF SENATOR HARRY REID

Senator REID [presiding]. The subcommittee is called to order.

Senator Domenici is one of the busiest people around here and, as you know, Senator Domenici has the responsibilities to lead this subcommittee. And in addition to that, he has other responsibilities as one of the senior members around here. He is not here now, and he asked me to start this hearing.

I am not nearly as busy as Senator Domenici, but I also have other things to do. And as a result of that, this hearing will probably be a little bifurcated, to say the least.

Senator Domenici has also, I understand, been called to a meeting with the leader, Senator Lott, at 10:30. So be patient. This could take a little while today, according to what Senator Domenici wants. But he did give me permission to start this hearing, to get my statement out of the way.

Let me say that I have a complete statement. I would ask you gentlemen—we will submit a copy of it to you, each of you, and I would ask you to read it.

I simply want to say that we welcome you here this morning. We have looked at your statements.

The concern that I have—and Senator Domenici can speak for himself, but I think he may have some problems also, I think we have some real problems with these numbers here.

I am very, very concerned that we have these drastic cuts in programs that I think are so, so important.

And we are here today talking about the Office of Energy Efficiency and Renewable Energy, the Office of Science, the Office of Nuclear Energy. Every one of these is so important to the future of this country and to the future of the world, and to have these severe cuts is really unbelievable.

We know we need to have new clean energy technologies. They are emerging every day. We have to be involved in those. It simply will not happen unless there is a clear, unambiguous stamp of approval from Congress and the White House for a range of policies, mechanisms and funding to move forward.

We know the benefits of stronger commitments to renewable energy, to enhance national security due to reduced dependence on foreign sources of oil, enhance security of energy supply, revitalize and stabilize agricultural economy, new manufacturing and service jobs, increased export markets, cleaner air and water, and more sustainable use of productive lands and forests.

So I can certainly make my case by numbers. There is really no reason to do that. It is in my statement.

But we know that on average we throw away about two-thirds of the energy we use to generate electricity in the United States. The amount of heat energy that is sent up to cooling towers down rivers and otherwise wasted is equivalent to Japan's total annual energy use.

Modern combined heat and power plants can more than double the efficiency of electricity generation of fossil fuels, but without Federal R&D dollars, deployments of these types of technologies will be delayed, delayed, and delayed. We have to be involved.

We have heard many times that our nation, which has just 5 percent of the world's population, produces more than 25 percent of the CO_2 emissions. So no matter where one stands on climate changes, this is a percentage that should concern everyone, and renewable technologies to help us to drive this percentage down.

We have done so much better in the ability to produce electricity by wind. And it is a result of the research that has been done, stimulated by the federal Government. Prices have dropped 90 percent since 1980 to produce electricity by wind, 90 percent. As a result, electricity can now be generated more cheaply from wind than natural gas in the United States.

So I met with some power folks yesterday from Nevada and they were very enthused about what Bonneville is attempting to do; that is to solicit 1,000 megawatts of wind power for the energy-challenged Northeast. And this is a lot of electricity, hundreds of thousands of homes.

North Dakota and Texas, we are told, have enough wind there to supply most of the nation's power, just those two States, if they had adequate transmission capabilities, properly placed R&D investments.

Around the Nevada test site, we are told that there is enough sun there to generate enough solar electricity to take care of the whole United States.

Now, I know that covering this area of Nevada with solar panels is probably not very practical, but it shows what can be done. And right now in most of that area, there is nothing. That is where we have set off bombs.

But none of this is going to happen unless we do some research and development to continue that. I know that the Vice President, the Secretary of Energy, and the rest of the members of the present energy task force are some place, and they are trying to solve all these energy problems. And I think it is important that they are doing that.

But one of the places we have to start is right here with this subcommittee. And I think that you should all take the message back to the Administration that these cuts simply will not happen.

So each of you should go back to your offices and tell the Office of Management and Budget that you are going to get more money. And if they need to prove how you are going to spend it, that is fine. But you are going to have more money.

We are not going to stand by at a time when we are talking about blackouts, global warming and all the other things, to cut back on something this important.

Is Senator Domenici on his way, do you think?

STAFF. I believe he is on his way.

Senator REID. Senator Domenici is on his way, and you would be surprised what I have also. I have a Travel and Tourism matter at 10:15. I have got the Interior Committee, where we are going to hear from the head of the Forest Service at 10 o'clock. And then Senator Daschle has called me to a meeting in his office at 10:30. So I am sorry that we have all that.

STATEMENT OF DR. ROBERT DIXON

I would like Dr. Robert Dixon, Deputy Assistant Secretary, Office of Power Technologies, to proceed with your statement.

Dr. DIXON. Thank you, Mr. Chairman. We are submitting written testimony for the record. I would also like to offer an oral statement this morning. And we have made copies of the statement available for Members——

Senator REID. That will be made part of the record.

FISCAL YEAR 2002 RENEWABLE ENERGY BUDGET REQUEST

Dr. DIXON. Thank you, Mr. Chairman.

Mr. Chairman, good morning and thank you for the opportunity to present our fiscal year 2002 budget request for the energy and water development programs in Renewable Energy Resources.

I am Dr. Robert K. Dixon, Deputy Assistant Secretary for the Office of Power Technologies. I'm here today on behalf of our Acting Director, Dr. Abraham Haspel, who was called away, due to some serious health problems.

The energy investments proposed in our 2002 budget request address today's energy problems and provide the technology base for the next generation of energy needs. These investments can help reduce our dependence on imported energy sources, address the

critical need for expanded energy supply and upgrade the energy infrastructure in the electric power sector.

The 2002 budget request totals almost $277 million. This figure includes an amendment to our original budget request for a little more than $39 million. The Administration expects to submit this amendment in the next few days.

In an effort to control spending, it's always necessary to identify priorities and focus on the most critical activities. Because of their strategic importance, the Secretary has identified five programs to be funded at or near fiscal year 2001 levels.

These programs include bioenergy, hydrogen, hydropower, electric energy systems and the Renewable Energy Production Incentive program.

While we have adjusted the request for our other programs, the requested funding levels still maintain core competencies and allow a continued progress towards our national technology goals.

Mr. Chairman, I want to assure you that solar, wind and geothermal programs remain a vital part of our portfolio and are essential to implementing a balanced and robust national energy policy.

Next graphic, please.

[Presentation of a slide.]

NATIONAL ENERGY PROBLEM

Dr. DIXON. Mr. Chairman, clearly we are facing severe national energy problems. The President of the United States recently called the electricity crunch a national crisis.

If the worst-case electricity shortage scenarios occur, up to two-thirds of the 125 million American electricity users could be affected. We have developed an alternative energy R&D portfolio that is responsive to these national needs.

Next graphic, please.

[Presentation of a slide.]

Dr. DIXON. Mr. Chairman, we are working together. We have a window of opportunity to address national energy problems. The new national energy plan, which is being developed under the leadership of Vice President Cheney is expected to be released in the next several weeks and will contain important guidance for the future directions and priorities of our programs.

The Hydrogen Reauthorization Bill is before Congress. It lays the foundation for revitalization of the nation's energy infrastructure, a critically important undertaking in solving America's energy crisis.

Hydroelectricity, a vital resource today, could be significantly less important in the future if we do not streamline our re-licensing processes.

Creation of new rules of the game for utility markets and regulation is proving to be an extraordinarily complex undertaking. We can do better.

Our power generation, transmission and distribution infrastructure needs to be modernized. We need new power supplies and an up-to-date infrastructure to keep the lights on and the Internet humming.

The electricity intensity of the newly emerging E-commerce sector is placing great demands on our power system, and is spurring the transition from the analog to the digital age for power.

Mr. Chairman, this is truly a decade of decision for alternative energy R&D investments.

Next graphic, please.

[Presentation of a slide.]

RENEWABLE ENERGY R&D

Dr. DIXON. Mr. Chairman, this is our portfolio of technologies and programs. We invest in three areas: Renewable energy, distributed energy resources, and electricity system reliability and power quality.

I will highlight two of the Secretary's fiscal year 2002 R&D priorities, bioenergy and distributed energy resources, before I close my remarks.

Mr. Chairman, our proposed bioenergy activities focus on three elements: Biomass for electric power production, biomass for transportation fuels, and biomass for industrial feed stocks and products.

We are requesting almost $82 million for collaborative research and we are working hard to align our program to help carry out the Biomass R&D Act of 2000.

We are working very closely with our industrial and academic partners and with other Federal agencies, especially the U.S. Department of Agriculture.

Next graphic, please.

[Presentation of a slide.]

DISTRIBUTED ENERGY RESOURCES

Dr. DIXON. Mr. Chairman, our activities in distributed energy resources are an example of our 2002 budget directions and priorities.

Distributed energy is an important concept in a restructured utility market that focuses on energy technologies that can be installed on site, provide clean, affordable, reliable energy supplies directly to the consumers. Natural gas is an important fuel for the distributed energy systems of today and for tomorrow.

The nation needs a distributed energy system that can operate efficiently and safely in concert with the traditional power system. It needs to be integrated, optimized, seamless and able to incorporate emerging technologies.

For example, hydrogen energy is plentiful and clean and is compatible with existing distributed energy devices, such as fuel cells, engines and combustion turbines. Distributed energy resources provide new supplies and address the nation's aging transmission and distribution infrastructure.

Approximately 70 percent of the transmission lines, transformer banks, circuit breakers in the United States are over 25 years old. And we greatly need to work together to improve or upgrade or replace this equipment.

The proposed program, Electric Energy Systems, includes funding for high-temperature superconductivity, R&D for cables, motors, and transformers that have near-zero line losses.

Mr. Chairman, our distributed energy resources portfolio is responsive to our nation's near and long-term energy needs.

I would like to close my remarks by highlighting a few key points. The 2002 budget request provides for a robust portfolio of research and development programs in renewable and energy efficiency resources.

These Federal investments are critical to address America's energy needs, both today and in the future. Again our request is almost $277 million, this figure—and it includes an amendment for a little over $39 million, which will be submitted by the Administration in the near future.

The Secretary has identified five programs to be funded at or near the 2001 levels. These include bioenergy, hydrogen, hydropower, electric energy systems and the renewable energy production incentive activity.

Thank you, Mr. Chairman, for the opportunity to offer this presentation today. I stand ready to respond to your questions.

[The statement follows:]

PREPARED STATEMENT OF DR. ROBERT K. DIXON

Chairman Domenici, Senator Reid and members of the Subcommittee, it is a pleasure to be here today to discuss the Administration's fiscal year 2002 budget request for the Office of Energy Efficiency and Renewable Energy. Fiscal year 2002 is a transition year for our programs. Our budget supports the Administration's commitment to moderate discretionary spending while meeting critical national needs in energy security and environmental quality. Furthermore, our budget adjusts program requests to refine the Department's missions, and to allow the implementation of management strategies that will meet future challenges.

The Office of Energy Efficiency and Renewable Energy's budget also reflects two Administration themes: first, enhancing energy security—decreasing U.S. reliance on oil imports by increasing technology efficiencies and by increasing domestic renewable energy supplies; and second, enhancing electricity reliability—ensuring grid reliability and advancing small-scale, on-site power generation. While we have adjusted the requests for some of our programs, we are still presenting a strong portfolio of R&D activities in fiscal year 2002. Many of our programs such as Distributed Energy Resources, bioenergy, hydrogen, hydropower, electric energy systems, the Renewable Energy Production Incentive are held at or near fiscal year 2001 levels.

The beginning of this decade has already borne witness to the impending energy problems that face our nation and this planet. The Office of Energy Efficiency and Renewable Energy's mission of advancing clean energy technologies, including energy efficiency and renewable energy, will play an increasingly critical role in securing our energy future, improving our environment and maintaining our economic growth. EERE leads the nation in the research, development and demonstration of affordable, advanced energy efficiency and renewable energy technology and practices.

The Administration plans to send an fiscal year 2002 budget amendment to the Congress that reduces funding of $39.176M from the Partnership for a New Generation of Vehicles (PNGV) program (within the Interior and Related Agencies account) and increases several renewable activities. More detailed information is included in the following budget table.

Recently, the electricity situation in California and other western states have highlighted the effects of low capacity margins for electricity generation. Additionally, the National Electricity Reliability Council predicts that over 35 states will be operating with capacity margins under 10 percent by the year 2009. Another data point in the emerging energy crisis comes from the petroleum product price spikes in the Midwest and northeast last summer. I would offer that the results of our program like: superconducting wires, distributed power generation, and biofuels for cars and trucks, represent government programs that might make a difference. The Federal Government remains committed to helping develop renewable energy technologies to help relieve these problems.

Our Office of Power Technologies is leading research efforts to significantly improve energy reliability and power quality through the use of on-site distributed en-

ergy resources that reduce energy losses and increase stability of the national grid. Moving energy supplies closer to the point of end-use provides advantages in: load management, power quality, high efficiency and reliability.

FISCAL YEAR 2002 BUDGET REQUEST

The following table provides details of our fiscal year 2002 budget request. The sections following the table describe ongoing programs and our fiscal year 2002 budget request for renewable energy resources and program direction.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY—FISCAL YEAR 2002 REQUEST

[In millions of dollars]

Program	Fiscal year 2001 comparable	Fiscal year 2002 request	Amendment [1]	Request with amendment
Renewable Energy Resources	373,179	237,477	39,176	276,653
Biomass/biofuels Energy Systems	86,268	80,500	1,455	81,955
Geothermal Technology Develop	26,911	13,900	.....	13,900
Hydrogen Research	26,881	13,900	12,981	26,881
Hydropower	4,989	2,500	2,489	4,989
Solar Energy:				
Concentrating Solar Power	13,710	1,932	.....	1,932
Photovoltaic Energy	75,060	39,000	.....	39,000
Solar Buildings	3,911	2,000	.....	2,000
Wind Energy	39,553	20,500	.....	20,500
Electric Energy Systems & Storage	51,746	33,927	17,819	51,746
Renewable Support & Implementation:				
Departmental Energy Mgmt	1,984	1,000	.....	1,000
International Renewable Energy	4,949	.....	2,500	2,500
Renewable Energy Production Incentive	3,991	2,059	1,932	3,991
Renewable Indian Energy Resources	6,585	.....	.....	.....
Renewable Program Support	3,991	2,059	.....	2,059
National Renewable Energy Laboratory	3,991	5,000	.....	5,000
Program Direction	18,659	19,200	.....	19,200
Total, Renewable Energy Resources	373,179	237,477	39,176	276,653

[1] The amendment is expected to be submitted by the Administration in the next several weeks.

RENEWABLE ENERGY RESOURCES

Biomass/Biofuels and the Bioenergy Research and Development Initiative ($81.9M)

The Bioenergy Initiative provides an integrated framework for collaborative research and development to improve our Nation's ability to not only convert biomass into electric power, heat, and clean liquid transportation fuels, but also extract high-value biobased industrial materials such as chemicals, plastics, and building materials.

Developing this "home-grown" resource with multiple applications can provide significant near term benefits to many sectors of our economy, contributing to a healthier, more robust rural economy; improved environmental quality; and reduced oil imports. Our biomass activities in the Energy and Water Development account focus on two distinct elements: Biopower, which co-fires biomass with coal or gasifies biomass material that is combusted to generate power; and Biofuels, which converts agricultural products to ethanol. Combined, these core activities provide the underpinnings of our national effort to more effectively utilize a vast domestic resource. With the strong support from industry, government, academia, and the national laboratories, we believe that biomass holds great promise to help meet our future energy needs.

Biopower Systems ($37.8M)

The Biomass Power Systems Program works towards making biopower systems a significant contributor to the U.S. energy market by 2010, through collaboration with the private-sector and other Federal agencies, and by providing power in a va-

riety of settings, including utility and distributed applications. Biomass systems promise to help meet our national energy needs, while simultaneously strengthening conventional energy security, protecting our environment, and improving our rural economy. To meet these objectives, biopower R&D involves a combination of near-, mid-, and long-term activities. Biopower activities fall within five categories: Thermochemical Conversion ($4.0M); Systems Development ($26.6M); Feedstock Production ($3.5M); Regional Energy Biomass program ($1.2M); and Bioenergy ($2.5M).

Thermochemical Conversion.—This effort conducts basic and applied research, testing, and feasibility studies in the areas of biomass combustion and biomass gasification to provide the foundation for advanced and improved technology. Experimental research is conducted in the areas of biomass combustion and cofiring as well as on the coupling of biomass conversion devices to power generation equipment, including engines, gas turbines and fuel cells. Analytical studies are also conducted on the cost, performance, economic potential, and life-cycle emissions of existing, novel, and competing power generation technologies. In fiscal year 2002, the program will add research efforts that support systems integrated research and modeling efforts of gasification, including gas cleanup and conditioning.

Systems Development.—Within Systems Development the programs focuses on Cofiring with Coal, Biomass Power for Rural development, Small Modular Biopower and Gasification R&D. Our cofiring activities will continue developing co-firing coal and biomass by exploring advanced technologies that enhance system reliability, performance, and efficiencies including work with municipalities and rural electric cooperatives. Performance is monitored and verified by analyzing initial cofiring and feedstock production trials and establishing operation and maintenance protocols.

Biomass Power for Rural Development activities include the New York Salix Willow project that will produce 30–40 MW of generating capacity through cofired applications, and the Iowa Chariton Valley Switchgrass project that will utilize up to 50,000 acres of switchgrass dedicated to co-firing operations. Performance will be measured by completing two Biomass Power for Rural Development projects with more than 50 MW of new biomass power generating capacity.

The Small Modular biopower program continues its efforts to research and develop systems that integrate small scale gasifiers with advanced power generating components such as internal combustion (IC) engines, microturbines and fuel cells. Performance will be measured through field verification R&D of systems that are being developed under current contracts. This effort will be expanded to include other feedstocks, to increase the flexibility, applicability and reliability of these systems.

The Vermont Gasifier R&D project has been completed and the technology is being commercialized by the contractor (FERCO). Efforts will now focus R&D on technologies that produce product gas from a broad range of biomass feedstocks. These efforts will focus on gas production, hot gas cleanup, gas preparation, and innovative and productive uses of gasifier waste streams. This R&D will form the basis for future bio-refinery development.

Feedstock Production.—This program focuses on research to improve yields and reduce handling costs of herbaceous and woody crops produced on farms. We will continue efforts to create tools for evaluating viability of multiple bioenergy technologies, with an emphasis on Biopower, and their impact on feedstock demand. Performance will be measured by developing 3 high-yield willow clones which increase yields by at least 20 percent. A slight increase in fiscal year 2002 will be used to fund an assessment of the effects of variability in soil type and climate on feedstock characteristics relevant to combustion and gasification systems and on soil carbon sequestration processes, as well as yield variability.

Regional Energy Biomass Program.—The activity sponsors grants to State Energy Offices that enable technology transfer and industry support of activities to expand the near-term use of biomass conversion technologies and provide reliable information to potential biomass users. This funding continuation will sponsor grants to State Energy Offices and local industries for biomass power projects as well as to complete the integration of biomass resource assessments.

Biofuels ($44.8M)

The Ethanol Program funds research, development, and demonstration of technology to enable and support the expansion of an indigenous, integrated biomass-based industry that will reduce reliance on imported fuels; promote rural economic development; and provide for productive utilization of agricultural residues and municipal solid wastes. Ethanol activities are divided into five activities: Ethanol Production ($34.6M); Renewable Diesel Alternatives ($750,000); Feedstock Production

($3.5M); Regional Biomass Energy Program ($2.0M) and Integrated Bioenergy Research ($2.5M).

Ethanol Production.—The Ethanol Program has identified ethanol as the most promising near-term/mid-term liquid transportation fuels option. In the next several years, we expect industry to deploy ethanol by using underutilized agricultural components (e.g., corn fiber and stover), because they are readily available as low-cost feedstock materials. Energy crops are being developed for the long-term, as demand increases and as scientific and engineering advances make the growing, collection, and conversion of these feedstocks more affordable. We believe that many of the advances in reducing ethanol production costs depend on the development of cost-effective enzyme technology to break down cellulose to simple sugars. These sugars can be converted to ethanol and/or to other chemicals (lactic acid and levulinic acid, among others), which can be used in an integrated biorefinery of the future. Ethanol production activities are divided into Advanced Fermentation; Advanced Cellulase R&D; Pretreatment R&D; and Cellulose to Ethanol production facilities.

Our Advanced Fermentation activities collaborate with industry and academia to develop organism platforms with increased stability, robustness, and ability to ferment mixed sugars from cellulosic wastes, agricultural residues, and energy crops such as switchgrass, and to lower the cost of ethanol production from biomass. Increased funding of $2,000,000 will initiate yeast platform work by developing advanced genetic engineering tools and begin nine genetic manipulation of promising yeast strains. Performance will be measured by developing a yeast that can ferment the biomass-derived sugars, glucose, arabinose and xylose to meet cost goals for ethanol low blend markets. This yeast can also be the basis for the production of other high-value chemicals.

Our Cellulose to Ethanol production facilities effort will continue to support partnerships to demonstrate cost-effective conversion of corn stalks to ethanol. The use of corn fiber for ethanol production offers an opportunity for integrating cellulosic ethanol into existing commercial corn-derived facilities. Competitive solicitations will be conducted to support the integration of cellulosic conversion processes with existing commercial facilities. Performance will be measured by demonstrating feasibility of commercially producing ethanol and co-products from corn fiber stream, in partnership with a major ethanol producer. Decreased funding will reduce the number and require higher cost share by industry partners, in order to focus on core R&D (Advanced Organism R&D, Advanced Cellulase R&D, Pretreatment R&D) and integrated process testing.

Pretreatment R&D.—Increased funding of $2,400,000 in fiscal year 2002 will focus on developing and understanding fundamental principles of biomass depolymerizations, in collaboration with academia and industry, to aid in developing novel pretreatment systems to improve process efficiency and reduce costs.

The Feedstock Development Centers program conducts research and development of model energy crops and residues at integrated biomass feedstock development centers in the Southeast and Midwest/Plains States. Projects include residue management, breeding, physiology, advanced biotechnology, carbon sequestration and storage. The funding decrease eliminates research and development of model tree crops such as hybrid poplar and willow at the integrated biomass feedstock development centers, consistent with analyses indicating that agricultural residues and perennial grasses have better potential as feedstocks for ethanol and biobased chemicals production in the near and mid-term.

Geothermal Energy Technology Development ($13.9M)

The Geothermal Technology Development Program works in partnership with U.S. industry to establish geothermal energy as an economically competitive contributor to the U.S. energy supply. The Program sponsors research and development that will help the United States realize substantial economic, environmental, and energy security benefits. Technology improvements will reduce the levelized cost of generating geothermal power to 3 to 5 cents/kWh by 2010, as compared to 5 to 8 cents/kWh in 2000.

In helping to meet the priority needs of industry, the Program will focus primarily on exploration and drilling research. Better understanding of geothermal processes and improved analytical methods of exploration will enable industry to locate and characterize new geothermal fields. Advanced technology for drilling wells will provide access to deeper resources while lowering costs, thereby expanding the economic resource base. Program goals will be achieved with a balanced strategy of technology improvements in partnership with industry on cost-shared, competitively-selected projects.

The Geothermal program is divided into three activities: Geoscience and Supporting Technologies ($3.5M), Exploration and Drilling Research ($6.9M), and Energy Systems Research and Testing ($3.5M).

Geoscience and Supporting Research.—Two activities are funded within this category: Core Research and University Research. Within the Core Research program, the Department will continue to investigate complex natural geothermal processes and develop technology to facilitate producing geothermal resources in an economical manner. Research activities include improving reservoir models, studying fracture dynamics, developing tracers, and conducting geochemical research. The funding provides for a continuation of projects in reservoir management that promise to give industry reliable tools for reservoir analysis and production. Our University Research efforts will focus on earth science at studies universities to expand the geothermal knowledge base. Knowledge gained from this work will result in new and improved technology that will help meet cost goals. The decrease in funding reflects the completion, or termination, of multi-year grant awards and a realignment of project activities to complement core research. No funding is requested in fiscal year 2002 for Enhanced Geothermal Systems.

Exploration and Drilling Research.—We will continue cost-shared exploration projects initiated with industry in fiscal year 2000 to find and confirm new geothermal resources within the United States. We will also continue to conduct geophysical, geological, and geochemical exploration research. Work will continue on developing new drilling components, such as the Diagnostics-While-Drilling subsystem, for integration into an Advanced Drilling System that will reduce the cost of drilling geothermal wells by up to 50 percent, from $300 per foot in 2000 to $150 per foot by 2008.

Energy Systems Research and Testing.—Advanced heat and power systems activities seek to improve technology in heat conversion and power systems for application to a broad range of geothermal resources and environmental conditions. The subactivity involves laboratory research on innovative systems, including heat exchangers, air-cooled condensers, and other components, for both low and high temperature applications. The reduction in funding stems from the completion of work on advanced heat cycles and some condenser studies. Finally, no funding has been requested for the Geopowering the West initiative. Fiscal year 2001 efforts will be completed and information accumulated will be shared with the public.

Hydrogen Research ($26.9M)

The Hydrogen Program includes research and validation projects for the development of safe, cost-effective hydrogen energy technologies that support and foster hydrogen energy as an integral part of the energy economy. To enable a future that includes hydrogen energy, four strategies are pursued that will provide benefits in efficiency, environment and economy. (1) Expand the use of hydrogen by working with industry, including hydrogen producers, to improve efficiency, lower emissions, and lower the cost of technologies that produce hydrogen from natural gas. (2) Work with fuel cell manufacturers to develop hydrogen-based electricity storage and generation systems that will enhance the introduction and penetration of distributed, renewables-based utility systems. (3) Continue to coordinate with the Department of Transportation and EERE's Office of Transportation Technologies to demonstrate safe and cost-effective fueling systems for hydrogen vehicles in urban non-attainment areas and to provide on-board hydrogen storage systems. (4) Work with the National Laboratories to lower the cost of technologies that produce hydrogen directly from sunlight and water. The Hydrogen program is divided into three activities: Core Research and Development ($14.8M); Technology Validation ($9.0M); and Analysis and Outreach ($3.1M).

In fiscal year 2002 our emphasis in the Core Research and Development Program will be on thermal processes that improve the efficiency and lower the cost of fossil-based and biomass-based hydrogen production processes to achieve $12–$15 per million Btu for (5000 psi) pressurized hydrogen when reformers are mass produced; on photolytic processes that support research into biological systems and advanced semi-conductors which will directly split water to hydrogen and oxygen; on storage activities to develop and demonstrate safe and cost-effective storage systems for use in stationary distributed electricity generation and for stationary and vehicle applications in urban non-attainment areas; and utilization which is developing a technology blue print for new building codes and equipment standards for hydrogen technologies. By 2005, we expect to meet key milestones for engineering validation of several reversible fuel cell systems.

We will perform Technology Validation activities that include installing and operating a biomass to hydrogen conversion system as well as installing and testing an integrated wind/reversible hydrogen fuel cell system incorporating hydrogen storage.

An important outcome of these activities is to confirm their economic viability in remote and distributed applications. In order to understand the requirements and operation, by 2010, we expect to validate distributed hydrogen refueling systems for hydrogen electric vehicles in collaboration with state and local governments. The fueling system will show the use of high pressure storage systems. We will also explore hydrogen use in distributed energy systems.

Hydropower ($5.0M)

Working with industry and other Federal agencies, the Hydropower Program's R&D activities support the development of a new generation of more environmentally-friendly hydropower turbines. Current hydropower technology, while essentially emission-free, can have undesirable environmental effects, such as fish injury and mortality from passage through turbines, as well as detrimental changes in the quality of dissolved gases in downstream water. Advanced hydropower turbine technology could minimize these adverse effects and help preserve the Nation's ability to generate electricity from an important renewable resource. Fiscal year 2002 activities will focus on Biologically-Based Criteria Development, Advanced Turbine Pilot-Scale Testing, Low-Head/Low Power Testing and Mini-Hydro Research and Development.

Solar Energy Programs ($42.9M)

The fiscal year 2002 funding request for the Solar Energy Programs (Concentrating Solar Power, Photovoltaics, and Solar Buildings) is $42.9M. The program supports R&D that improves the performance and reliability while reducing the cost of solar technologies that can harness the sun's energy. With their inherent flexibility and scalability, the solar programs support a tremendous range of applications including large-scale power production, on-site electricity generation, and thermal energy for space heating and hot water.

Concentrating Solar Power—$1.9M.—This funding request provides for program close-out costs. After the installation and checkout of the 25 kW dish system at the University of Nevada has been completed, all program activities will be terminated.

Photovoltaics—$39.0M.—The Photovoltaics program is divided into three activities: Fundamental Research ($9.4M); Advanced Materials ($20.1M); and Technology Development ($9.5M).

Fundamental Research.—Within this account we will continue research to identify efficiency-limiting defects and advance the fundamental understanding of both PV materials and devices using state-of-the-art characterization techniques. We will continue university and industrial research in response to competitive solicitation issued in fiscal year 2000 for basic R&D on breakthrough, non-conventional PV technologies (Beyond the Horizon) and conduct research and analysis that improves the understanding of fundamental properties and performance of crystalline silicon, thin film materials and novel materials and cell devices. We will reduce High Performance Initiative to focus only on contracts that can lead to higher efficiency thin film technologies and will postpone contracts and research on 33 percent concentrator systems.

Advanced Materials.—We will re-compete the Thin Film Partnership Program in fiscal year 2002 and fund industry cost shared contracts that address near term advancements. Support will continue on high efficiency devices and silicon crystal growth methods but with a reduced emphasis. We will fully fund the 3-year cost shared contracts for a new competitive solicitation to develop in-situ process diagnostics and intelligent processing needed for integrated module manufacturing scale-up. All contracts will have 50 percent cost sharing. The Advanced Manufacturing R&D activity will focus on high throughput large area thin films and next generation high efficiency thin wafer silicon technologies.

Technology Development.—All manufacturing R&D and PVMaT activities under Technology Development will be completed in fiscal year 2001. These cost-shared contracts achieved manufacturing cost reductions of 50 percent from 1996 levels. More advanced R&D activities are being funded in Advanced Materials and Devices. The systems and reliability activity will refocus its efforts on the critical need to improve reliability of the entire PV system, including balance-of-system components such as inverters. This effort also supports development of standards and codes, and procedures for certifying performance of commercial systems. No funding is requested for the Million Solar Roofs program in fiscal year 2002. Commitments for installation of nearly a million "roofs" have already been received. This activity will be privatized in fiscal year 2002.

Solar Building Technology Research—$2.0M. In our Space Conditioning and Water Heating activity, we will build and field test prototypes of a low-cost solar

water heater, utilizing newly-developed polymers, in collaboration with industrial partners.

Wind Energy Systems ($20.5M)

The fiscal year 2002 funding request for the Wind Energy Systems Program is $20.5M. The program helps the United States attain the substantial economic, environmental, and energy security benefits of expanding the domestic and worldwide use of wind energy, and of fostering a world-class, domestic wind energy industry. The Program focuses on completing the research, testing, and field verification needed by U.S. industry to fully develop advanced wind energy technologies, and on coordinating with partners and stakeholders to overcome barriers to wind energy use. Over the last decade, wind has shown high promise for becoming a major supply of low cost, clean energy in the United States. However, wind is still contributing only a small fraction of its potential and faces many challenges to becoming a substantial contributor to U.S. energy supply, particularly in dynamic restructured markets for electric power. As a result of increased U.S. wind energy development, industry, states, and stakeholder partners are becoming more active in supporting activities to facilitate further introduction of wind energy. The Wind Energy program has three components: Applied Research ($8.4M); Turbine Research ($7.5M) and Cooperative Research and Testing ($4.6M).

Applied Research.—Continue research efforts in wind turbine aerodynamics, structures, materials, advanced components, and wind characteristics to support development of new or improved tools for advanced wind energy system design and applications, with a focus on enabling low wind speed turbine technology. Performance measures in fiscal year 2002 will include completion of one year of data collection under the Long-Term Inflow and Structures Test and completion of design code validation using wind tunnel test data obtained in fiscal year 2000. Reduced funding for fiscal year 2002 follows from completion of advanced control systems field testing and several activities for refinement and validation of design codes in fiscal year 2001.

Wind Partnerships for Advanced Component Technologies (WindPACT).—Conclude wind turbine system scaling analyses and prepare final reports. As a result of expanded industry interest and research capabilities, transition advanced drive train and rotor blade projects to industry partners. Prototype testing for a sub-scale advanced drive train system and proof of concept blade fabrication processes will commence at the end of fiscal year 2002

Turbine Research.—Our activities in the Next Generation Turbine research will focus on completing design and begin fabrication of final prototype turbines. Funding is decreased as industry partners begin assuming higher share of project costs. The Low Wind Speed Turbine activity is the follow on from the fiscal year 2001 Advanced Turbine Concepts activity. In coordination with the outcome of the WindPACT project, we will complete Advanced Turbine Concepts studies initiated in fiscal year 2001 to identify promising technology path(s) leading to cost-effective wind turbines for sites with annual average wind speeds of 13 miles per hour. Two industry partners will be competitively selected to continue WindPACT component technology research efforts and to commence a multi-year effort to develop cost-effective low wind speed turbines.

Cooperative Research and Testing.—Fiscal year 2002 funding will support laboratory testing and design review services in support of the U.S. wind turbine certification agent. We will continue to operate the National Wind Technology Center facilities at the National Renewable Energy Laboratory, and provide testing support to industry. In our Regional Field Verification activities we will complete development activities and commence field operation of projects selected in fiscal year 2001, and provide technical, data collection, analysis, and reporting support to cost-sharing project hosts. Project development reports will be completed by the end of fiscal year 2002.

Electric Energy Systems and Storage ($51.7M)

The request is $51.7M, level with fiscal year 2001 appropriations. The program is divided into three activities: High Temperature Superconducting R&D ($36.8M); Energy Storage Systems ($6.0M); and Transmission Reliability ($8.9M). The Electric Energy Systems and Storage programs conduct research and development of advanced technologies to enhance the reliability of electric power transmission and distribution and to significantly improve efficiency, reliability, capacity, and power quality of electric generation, delivery, and end-use in the United States. Energy Storage and Transmission Reliability program goals are to develop energy storage facilities with an energy density greater than 5kWh per square foot at a cost below $700/kWh; and improving the reliability of electric power generation and distribu-

tion system through the integration and interconnection of distributed energy resources (at least 20 percent of new installed capacity by 2012) and integrating real time measurement and control networks throughout the grid. The fiscal year 2002 request is $51.7M, level with fiscal year 2001 appropriations.

The successful, industry-led, Superconductivity Partnership Initiative supports aggressive projects to design advanced electrical applications such as generators, transformers, motors, transmission cables, current controllers, flywheel energy systems, and magnetic separation systems. The industry-led Second Generation Wire Development exploits breakthroughs at national laboratories that promise unprecedented current-carrying capacity in high-temperature superconducting wires. Several industry teams are now working with the national laboratories to scale-up the new discoveries. The strategic research component, led by the national laboratories, provides the underlying knowledge base needed for the success of these superconductivity projects. The goal of high-temperature superconductivity is to reduce energy losses by half and provide equipment half the size of current systems by 2010 through the use of high temperature superconducting wires to create super efficient generators, transformers, and transmission cables.

DOE's Energy Storage and Transmission Reliability are part of a portfolio of Distributed Energy Resources activities that work together to implement DER technology deployment strategies that address standards making, infrastructure, energy delivery, technical, institutional, and regulatory needs. Transmission Reliability research develops real-time measurement and control networks, and electric system models and tools. This research ensures reliable and efficient grid operations and markets while integrating distributed energy in the competitive marketplace. It also removes technical, regulatory and institutional barriers and develops interconnection standards for deployment of DER near the potential users. Energy Storage Systems funds the design of integrated systems, research on advanced storage components, and development of economic and performance models. The Department partners with EPRI, the National Rural Electric Cooperative Association (NRECA), the American Public Power Association (APPA), the electricity industry, National Laboratories and universities to implement research and development activities.

High Temperature Superconducting R&D.—The High Temperature Superconductivity (HTS) R&D program investigates the properties of crystalline materials that become free of electrical resistance at the temperature of liquid nitrogen. The lack of electrical resistance makes possible electrical power systems, super-efficient generators, transformers, and transmission cables, that reduce energy losses by half and allow equipment to be half the size of present electrical systems. Electrical wires from high temperature superconductivity ceramic materials will carry 100 times the amount of electricity compared to the same diameter conventional copper wires. Three activities comprise the High Temperature Superconducting R&D program: Superconductivity Partnership Initiative; the Second Generation Wire Initiative; and Strategic Research.

The Superconductivity Partnership Initiative funding provides for field testing and evaluation of cost-shared, competitively selected, major projects with industry to develop electrical systems demonstrating advances in efficiency and reliability from use of the latest high temperature superconducting wire.

Energy Storage, together with other distributed energy resources, provides the high nines of reliability required by the digital economy, telecommunication, and high tech manufacturing. While today's grid can at best give 3 nines of reliability, energy storage provides seamless power during micro outages, voltage sags, and frequency disturbances. Such disturbances are estimated to cost U.S. industry up to $150 billion per year. Energy storage systems, backed up by distributed generation, are the cost effective way to provide required reliability for the consumer. Fiscal year 2002 funding of $5.9M is at last year's levels.

Transmission Reliability.—Transmission Reliability will be implemented through National laboratory/electricity industry/university partnerships to conduct research on the reliability of the Nation's electricity infrastructure. Power System Reliability will develop advanced transmission technologies that promote competitive markets, ensure system reliability, increase network capacity for large scale, long distance power transfers, and promote the large scale integration of distributed energy resources into power system operations and competitive electricity markets. Fiscal year 2002 funding of $8.9M is at last year's levels.

Renewable Support and Implementation ($9.5M)

The Renewable Support and Implementation line item is comprised of several programs submitted in prior year budgets as separate line items: Departmental Energy Management; International Renewable Energy Program; Renewable Energy Production Incentive Program; Renewable Indian Energy Resources; and Renewable Pro-

gram Support. These programs collectively encourage the use of renewable energy technologies by state and local governmental entities, internationally in developing countries worldwide, non-profit electric cooperatives, residents in remote areas of the U.S. not served or under-served by the electric grid, and Native Americans both on Tribal lands and at Tribal colleges and universities. Renewable Support also includes activities which promote the use of renewable technologies, improved energy efficiency measures, and better management of utility costs at Department of Energy facilities throughout the country.

Departmental Energy Management Program (DEMP).—The fiscal year 2002 request is $1.0M. The Departmental Energy Management Program is administered by the Federal Energy Management Program's (FEMP) Departmental Utility and Energy Team (DUET). DUET targets FEMP services at DOE facilities to improve energy and water efficiency, promote renewable energy use, and manage utility costs in DOE's facilities and operations.

International Renewable Energy Program. Our fiscal year 2002 request for the International Renewable Energy Program (IREP) is $2.5M. The program supports diplomatic and technical assistance efforts to encourage the use of renewable energy technologies in economies in transition and developing countries worldwide.

Renewable Energy Production Incentive. Our fiscal year 2002 request for the Renewable Energy Production Incentive is $4.0M, equal to current levels. This program encourages state and local governmental entities (usually public power electric utilities) and non-profit electric cooperatives to acquire renewable energy generation resources by providing financial incentives comparable to production tax incentives or investment tax credits that are available to private sector power generators.

Renewable Indian Energy Resources.—No funding is being requested for the Indian Renewable Energy Resources Program.

Renewable Program Support.—The fiscal year 2002 request is $2.0M. The Competitive Solicitation Program obtains, analyzes, and disseminates essential cost and operational information needed to improve the efficiency and effectiveness of renewable energy projects, as well as to remove the perceptions of risk in selecting renewable energy and hybrid renewable energy generation systems for use in the competitive power market. The Electricity Restructuring activity provides Federal and State officials unbiased technical assessments of utility restructuring issues relating to energy efficiency and renewable energy. As the only national effort, the mission of the restructuring program is to work with states and the electric power industry to either maintain or expand energy efficiency and renewable energy, whether in states that have chosen to restructure their electric markets, or those that have not.

National Renewable Energy Laboratory (NREL) ($5.0M)

The National Renewable Energy Laboratory (NREL) leads the nation toward a sustainable energy future by developing renewable energy technologies, improving energy efficiency, advancing related science, and engineering, and facilitating technology commercialization. NREL's research efforts cover nearly 50 areas of scientific investigation including photovoltaics, wind energy, biomass-derived fuels and chemicals, energy-efficient buildings, advanced vehicles, solar manufacturing, industrial processes, solar thermal systems, hydrogen fuel cells, superconductivity, geothermal, and waste-to-energy technologies. Many of NREL's research achievements have been ranked among the Nation's most significant technical innovations by R&D Magazine, Discover, and Popular Science.

The funds requested support NREL's infrastructure needs including necessary repairs, maintenance, calibration, equipment replacement, new construction, and facility modifications. These expenditures protect the Federal Government's investment and support of the domestic renewable energy industry. In addition, the fiscal year 2002 budget request includes for the first time, facility project engineering design (PED) funding as directed in the fiscal year 2001 Energy and Water Development conference report. The envisioned Science and Technology Facility in Golden, CO is intended to relieve overcrowding at NREL's current Solar Energy Research Facility (SERF). That structure was designed for 160 persons, but now is accommodating over 200 researchers A lack of space is limiting participation by visiting professionals, industrial partners, and students at SERF. This overcrowding is also damaging worker productivity and discouraging the retention of high quality staff.

Program Direction ($19.2M)

Program Direction provides the Federal staffing resources and associated funding to support the management and oversight of the Renewable Energy Resources Programs. This activity includes all funding for support service contractors, equipment, travel, crosscutting activities, and Assistant Secretary initiatives. Program Direction

encompasses two principal activities: (1) Headquarters executive and program management; and (2) program operations at the Golden Field Office.

Mr. Chairman, I will be happy to respond to any questions you may have.

Senator REID. To all the panel members, we have some questions. I will submit mine in writing and would ask that you get them back to the subcommittee within 2 weeks, so we can prepare for the markup of this important legislation.

I apologize, but this committee will stand in recess pending the call of the Chair.

Senator BENNETT [presiding]. The committee will come to order.

I understand prior to Senator Domenici's being called away, Dr. Dixon, you had finished your testimony or you were in the midst of it?

Dr. DIXON. Yes. Mr. Chairman, I completed my testimony. Thank you.

Senator BENNETT. Okay. So we are with Dr. Decker.

All right. Let us move from right to left, as they say, Dr. Decker, we appreciate it and we look forward to your testimony.

STATEMENT OF DR. JAMES DECKER

Dr. DECKER. Thank you, Mr. Chairman. I appreciate having the opportunity to testify before you today on the fiscal year 2002 budget request for the Office of Science.

Before I begin, I would like to thank this Subcommittee for the strong support that it has shown for our research programs in past years.

I have submitted written testimony describing our $3.16 billion request, supporting the basic research that underpins the science, energy, environment and national security missions of the Department of Energy.

The Office of Science is a primary source of Federal support for fundamental research and physical sciences, which includes physics, chemistry and material sciences. In addition, my office plays a key role in the life sciences, environmental research, advanced computation and mathematics.

This important research is conducted by scientists at the DOE National Laboratories and at more than 250 universities located in virtually every State.

In funding this research, we develop the new scientific knowledge that helps support both the DOE missions and the nation's economy in the future, as well as helping to train the next generation of researchers.

The Office of Science also plays an essential role in the nation's scientific infrastructure by constructing and operating major scientific facilities, such as accelerators, synchrotron light sources and neutron sources.

This year, these facilities will serve more than 16,000 researchers from academia, industry and Federal laboratories. These facilities are essential to progress in virtually every scientific discipline.

The past year has been a very productive one for the Office of Science. A working draft of the human genome was completed, a major milestone in the human genome project, which the Office of Science initiated in 1986.

We developed many of the underlying technologies used by all of the institutions involved in the sequencing process as well as sequencing of three of the human chromosomes.

HIGH ENERGY AND NUCLEAR PHYSICS

In high energy and nuclear physics, experiments have both supported and challenged established theory.

Fermilab observed the Tau neutrino, the last of the leptons predicted by the Standard Model, while the so-called G minus 2 experiment at Brookhaven generated a new challenge to the Standard Model, as did strong evidence for neutrinos having mass.

At the same time the B Factory at the Stanford Linear Accelerator Center has been gathering evidence of so-called charged parity violation with implications for understanding why matter dominated over anti-matter in the universe.

And early results from the Relativistic Heavy Ion Collider at Brookhaven indicate the presence of a predicted state of matter—the quark-gluon plasma that existed shortly after the Big Bang.

Construction of the Spallation Neutron Source at the Oak Ridge National Laboratory is approximately 20 percent complete and projected to remain within budget and on schedule for completion in 2006.

The Spallation Neutron Source will be the world's most powerful pulsed neutron source producing six to ten times greater neutron flux than any existing source. It will provide a critical research capability in a wide range of areas including materials research, structural biology and development of drug design.

Our researchers have also made substantial progress in many other areas, such as understanding and controlling energy losses from magnetically confined plasmas due to turbulence, developing techniques for bonding wear-resistant ceramic surfaces to metals, a technique with great promise for improved artificial knees and hips, as well as energy technology applications requiring high levels of heat resistance and also investigating the effects of Ritalin on the brain through positron emission—positron emission tomography studies.

SPALLATION NEUTRON SOURCE

The President's budget request for fiscal year 2002 will fully fund the Spallation Neutron Source construction, continue operations of our existing scientific user facilities, support development of the next generation of high-performance computing and communications tools for science, continue research in support of DOE missions, and support our stewardship for those areas of science of which we are the predominant supporter, such as high energy and nuclear physics, nuclear medicine, catalysis and heavy element chemistry.

In my remaining time, I would like to briefly focus on three of the important areas in our budget request: Genomes to Life, Physics of the Standard Model and Beyond, and Nanoscience.

In each area, we are building knowledge and capabilities that have been created through sustained investments in the Office of Science programs.

GENOMES TO LIFE PROGRAM

The proposed Genomes to Life program is aimed at determining how the single cell and consortia of cells function. A single cell is an amazing, complex chemical factory. With our ability to sequence the genome of any living thing, today we can determine the instruction set for making the parts of the cell. However, we do not know what the parts are and how they function together.

We also do not have an understanding of how a consortia of cells, such as complexes of different microbes, work together. Eventually, we want to understand the behavior of more complex cellular organizations, including people.

We do know that these systems are so complex that the only way that we will be able to obtain a predictive capability is through computational modeling. So to successfully tackle this problem, interdisciplinary teams will have to be formed, and we will need many of the tools that we have developed over the years, including our Terra scale computers, our synchrotron light sources, our neutron sources, and our DNA sequencing capabilities.

Our initial focus is on microbes relevant to Department of Energy missions needs, including energy production, carbon sequestration, and environmental cleanup.

We also anticipate this effort will contribute to a better understanding of the health effects of various environmental toxins and will allow us to better understand the impacts of low doses of radiation.

HIGH ENERGY AND NUCLEAR PHYSICS

In high energy and nuclear physics, the Department of Energy laboratories are now the site of the most advanced experimental facilities in the world. The 2002 budget proposes a program to allow the Tevatron at Fermilab to explore the energy range where physicists now expect to observe the Higgs boson, believed to be the source of mass for the fundamental constituents of matter.

This proposed budget will also allow the B Factory to dramatically speed up its program of research into the asymmetry that led to the dominance of matter over anti-matter.

At Brookhaven the Relativistic Heavy Ion Collider will examine the qualities of a man-made quark-gluon plasma, addressing the question of why quarks are so strongly confined inside protons and neutrons, and shedding light on the evolution of the early universe.

The G minus 2 and neutrino experimental programs will continue to see if they have, indeed, found signs of new physics beyond our present understanding.

We are also exploring another scientific frontier, science at the nanoscale, where the physics of materials is governed by the interactions of individual atoms and molecules and is qualitatively different than at larger scales.

The promise for the future is immense. We are now entering a stage of research where structures can be designed atom by atom so that the desired characteristics and chemical activity can be controlled.

In the future, we should be able to design and synthesize new alloys, ceramics, chemical catalysts, and other materials, tailored

for specific tasks, leading to significant improvements in solar energy conversion, more energy efficient lighting, and stronger, lighter materials to improve efficiency in transportation.

The budget request of the Office of Science balances support for our existing programs, the facilities, with new investments such as Genomes to Life, and new tools such as the Spallation Neutron Source.

This provides a strong basis for scientific progress and all other disciplines that we support, while capitalizing on exciting new opportunities and new areas of research.

Mr. Chairman, that concludes my oral remarks. And I will be pleased to answer any questions that the subcommittee may have.

Senator BENNETT. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF DR. JAMES F. DECKER

Mr. Chairman and Members of the Subcommittee: Thank you for the opportunity to testify on the fiscal year 2002 budget request for the Office of Science (SC). This budget request, part of the Science appropriation, supports: Advanced Scientific Computing Research (ASCR), Basic Energy Sciences (BES), Biological and Environmental Research (BER), Fusion Energy Sciences (FES), High Energy Physics (HEP), Nuclear Physics (NP), Energy Research Analyses, Multiprogram Energy Laboratories-Facilities Support, Safeguards and Security, and Science Program Direction. The Technical Information Management budget request is located within the Energy Supply appropriation.

The Department of Energy (DOE) budget for fiscal year 2002 requests $3,159,890,000 in the Science Appropriation. This budget will support SC's unique scientific user facilities and continue our remarkable scientific achievements in the physical and life sciences, mathematics, computation, and environmental research. It will also permit continued investments in thousands of individual research projects at our national laboratories and at research universities across the Nation.

SC's diverse basic research portfolio, with its emphasis on sustained investments in knowledge creation that results in scientific discoveries that enable tomorrow's technologies, is a cornerstone of our Nation's efforts to maintain lasting economic prosperity. In a recent major economic address, the President emphasized the need for long-term planning when he said: ". . . lasting prosperity requires long-term thinking."

Our fiscal year 2002 basic research portfolio supports the President's goal of strengthening the U.S. scientific enterprise to ensure continued international leadership in scientific and technological innovation, and will advance the DOE missions in energy, environment, and national security.

In fiscal year 2002, SC will pursue new and challenging scientific opportunities in a wide range of areas of great importance to our Nation's future. It will:

—Continue operations and some enhanced capabilities for the large scientific user facilities that SC operates on behalf of the Nation's scientific and industrial research community, serving over 16,000 researchers annually.

—Support the "Genomes to Life" program, the next step in our Nation's effort to build on the extraordinary success of the Human Genome Project, begun by SC in 1986. "Genomes to Life" will combine biological research and the development of computational tools for a greater understanding of complex biological systems with promise of innovative solutions to some of the many complex challenges inherent in DOE's missions for energy, environment and science.

—Exploit a window of opportunity during which the U.S. will be the undisputed research center of the world's high energy physics community to continue the search for the elusive Higgs boson (believed key to understanding the origin of mass) and exploit the improved capabilities of the Stanford Linear Accelerator Center (SLAC) B Factory to determine the nature of the asymmetry between matter and anti-matter.

—Continue research programs in nanoscience to explore the potential for the development of nanoscale technologies that will revolutionize many areas of industry and medicine.

—Open enormous research opportunities in neutron sciences through construction of the Spallation Neutron Source (SNS) for basic research, applied research and technology development in the fields of condensed matter physics, materials

sciences, magnetic materials, polymers and complex fluids, chemistry, and biology. SNS is on time and on budget.

—Continue development of the scientific understanding necessary to effectively harness fusion energy as an environmentally benign, economically viable, and abundant energy source for future generations.

—Revolutionize the way science is conducted by building on dramatic advances in supercomputing power to develop large-scale scientific simulation as a tool for the solution of complex scientific problems of vital importance to DOE's missions and the Nation's scientific community.

OUR ACCOMPLISHMENTS AND RECENT SUCCESSES

As the Nation's primary supporter of fundamental research in the physical sciences (materials research, chemical sciences, physics, etc.), and one of the largest supporters of basic research in mathematics, computing and environmental sciences, SC is uniquely poised to make important contributions to our general scientific knowledge and to the U.S. industrial base. SC programs fund researchers at more than 250 colleges and universities located in 48 states, as well as thousands of world-class researchers at DOE's national laboratories.

SC provides the largest share of Federal support for major scientific user facilities, which together host more than 16,000 users annually from all research sectors. University-based scientists are among the principal users of these facilities, which provide powerful probes of matter at a range of scales from viral proteins to subatomic quarks—realms inaccessible by any other means.

Each year, hundreds of principal investigators funded by SC win dozens of major prizes and awards sponsored by the President, the Department, the National Academy of Sciences, the National Academy of Engineering, and the major professional scientific societies. Recent awards have included: the 1999 Nobel Prize for Physics, shared by SC researcher Martinus Veltman, for theoretical work that helped establish the Standard Model; Supercomputing (SC 2000) Awards for High-Bandwidth Applications and Infrastructure advances supported by SC; one of top 10 "Algorithms of the Century" announced by Computing in Science and Engineering magazine was developed by SC research; three of the 2000 "R&D 100 Awards" and two of the 2000 Discover magazine awards went to SC researchers in the national laboratories.

The following selected program highlights are illustrative of the broad range of research activities supported by SC. These highlights testify to the depth, diversity and importance of the research portfolio managed by SC, and the great impact that scientific discoveries can have on energy production and use, environmental sciences, the life sciences, and national defense, as well as the general creation of new knowledge that helps sustain other scientific disciplines.

Solving optimization problems easily and inexpensively.—Optimization applications range from designing circuits, to estimating the value of risk in environmental cleanup, to determining routing patterns on the Internet, to finding energy functions for molecular structures. Researchers at Argonne National Laboratory and Northwestern University completed a project to attack such problems successfully. The project involves development of a novel environment, called the Network-Enabled Optimization System (NEOS). NEOS allows users to solve optimization problems over the Internet with state-of-the-art software. The NEOS project recently gained considerable visibility with the release of a new portable version that can be run on various computers, Web servers, and email servers. Over the past year, the number of users has risen to an average of 2,600 problem submissions per month. NEOS is now used as an educational tool at universities worldwide.

Ion-implantation for strong metal-ceramic bonds.—Ceramics are hard and corrosion resistant, but fracture easily. Metals resist fracture, but are not as wear or corrosion resistant as ceramics. Coating a metal with a ceramic is a way to improve both. However, current coating technologies can degrade the performance of metals. A new approach has been successfully developed that employs ion-beam intermixing of the coating with the metal from collision cascades, which are microscopic (nanometer-sized) "hot-zones" formed along the ion track. Since the heating in collision cascades is very short and localized, macroscopic heating of the metal does not occur. A patent has been filed using this new approach to improve hip, knee, and dental prosthetic devices. This approach of bonding of ceramics to metals also has applications for energy technology metal surfaces that require resistance to high temperature, corrosive, and erosive environments

Genome sequencing named scientific advance of 2000.—In December 2000, Science magazine named genome sequencing, enabled by seminal SC contributions, as the top scientific advance of 2000. In addition to its contributions to current sequencing

technology, SC supports a wide variety of sequencing projects including its ongoing sequencing of the mouse and puffer fish (also acknowledged by Science magazine) to help understand human gene function, microbial genomes (more than 50 to date) and, previously, the fruit fly. SC also contributed to the sequencing of the human genome, fully sequencing 3 human chromosomes, which culminated in the publication of the draft human DNA sequence in Nature on February 15, 2001. The three human chromosomes sequenced by SC contain genes that contribute to a number of human diseases including, leukemia, colon, breast and prostate cancer, as well as kidney disease, Crohn's disease (an inflammatory bowel disease), asthma, deafness, diabetes, obesity, atherosclerosis (disease of the arteries in which fatty material is deposited in the vessel wall constricting blood flow), attention deficit disorder, schizophrenia, and mental retardation.

Making drugs safe for children and treating obesity.—Positron Emission Tomography (PET)/radiotracer studies sponsored by BER have demonstrated that Ritalin, a drug commonly used in the treatment of attention deficit disorder, when given orally will effectively block the dopamine transmitter system without putting the child at risk or causing a "high" as observed with addictive drugs. In addition, BNL scientists have used PET and specific radiotracers to demonstrate that the brain dopaminergic pathways are poorly developed in obese individuals. These data may enable alternative methods for treatment of obesity.

Tools created for controlling plasma turbulence.—The performance of tokamaks and other magnetic confinement systems are limited by turbulence. Researchers at MIT have discovered that radio waves are a powerful tool for creating and manipulating desired "internal transport barriers," which prevent unwanted turbulent heat leakage from magnetically confined fusion plasmas and dramatically increased plasma density. Scientists have discovered that, depending on the location of the resonant radio wave heating, the overall rotation of the plasma can be significantly slowed, or even reversed. Simultaneously with this change, a clear internal transport barrier developed, resulting in an extraordinary peaking of the plasma density, one that was at least two times greater than before. Similarly, experiments in Germany and at General Atomics in the United States have shown that fusion energy content and other properties in magnetically confined plasmas can be significantly improved by a relatively small amount of even higher frequency microwave power applied at precisely the right location, in the plasma.

Extraordinary tools for extraordinary physics.—This has been a period of great excitement in the Office of Science High Energy and Nuclear Physics program. Completion of the Relativistic Heavy Ion Collider (RHIC) and the upgrade of the Tevatron at Fermilab have made the U.S. the world leader in experimental facilities for high energy and nuclear physics. At the same time, while some experimental results have confirmed the predictions of the Standard Model, others have suggested new physics beyond the Standard Model. First measurements from RHIC indicate that its energy density—a measure of the energy deposited in the collision region by the colliding nuclei—is the highest ever achieved in a laboratory and is sufficient to create the long sought quark-gluon plasma, believed to be the state of matter of the universe shortly after the "Big Bang." Fermilab produced the elusive Tau neutrino (the last of the leptons predicted by the Standard Model) and capped a major American achievement: the discovery of all but one of the quarks and leptons in the Standard Model of elementary particles. (The first of the 12, the electron, had been discovered in England in 1897.) Another Fermilab team observed a B meson containing a charmed quark and measured its properties, completing the observations of the predicted family of B mesons, required by the Standard Model. Also at Fermilab, a team of university and laboratory scientists working on the KTeV experiment found the first convincing observation of direct Charge-Parity (CP) violation (manifestation of a subtle lack of perfect symmetry between particles and antiparticles believed responsible for the domination of matter over anti-matter in the modern universe). Physicists using HEP's new BaBar detector at SLAC's B Factory announced their first measurement of CP violation in the B-meson system in fiscal year 2000 and work is continuing to resolve the question of whether CP violation can be fit within the Standard Model. The g-2 experiment at Brookhaven National Laboratory, designed to study magnetic properties of the muon, has obtained the most precise measurement of the muon anomalous magnetic moment that does not appear to agree with the Standard Model, suggesting the possibility of new physics beyond the Standard Model.

LOOKING TO THE FUTURE—FISCAL YEAR 2002

The Office of Science's fiscal year 2002 budget request provides sustained support to U.S. university and national laboratory researchers working on enormously com-

plex scientific problems that will help to ensure our economic prosperity by advancing the mission of the DOE. The diversity of SC's basic research portfolio, combined with our traditional strengths in the operation of national scientific user facilities and support for multidisciplinary research, will prove vital to our national pursuit of the scientific challenges of fiscal year 2002.

"Genomes to Life" has the goal of using SC's 15-year investment in research on human and microbial genomes, it's expertise in computational modeling of complex systems, and it's unique suite of scientific facilities, to address DOE missions through a deeper understanding of the structure and function of microbes and microbial communities, and of the impact environmental toxins and radiation on human beings. The Genomes to Life program builds on the Microbial Cell Project, expanding it to (1) include characterization of life's multiprotein molecular machines and the genes' regulatory networks and processes that control those molecular machines; and (2) to include characterization of the overall functional capabilities of microbial communities—groupings of microbes that can work together to perform DOE missions—by understanding the "community genome" and how it influences performance.

Microbes have evolved for 3.8 billion years and have colonized almost every environment on Earth. In the process, they have developed an astonishingly diverse collection of capabilities that will help DOE meet its challenges in toxic waste cleanup, energy production, global climate change, and biotechnology. To use these capabilities to address our missions, however, will require the development of new technologies, analytical tools, and modeling capabilities. It will require the talents of academic, nonprofit, and industrial partners, as well as the scientific capabilities of our national laboratories. These capabilities include high-throughput genomic DNA sequencing, microbial biochemistry and physiology, imaging, and structural biology. National user facilities such as synchrotrons will play important roles, as will capabilities in high-performance computing. Interdisciplinary collaborations among biologists, chemists, physicists, engineers, and computer experts will also be critical to this effort.

The "Genomes to Life" program has four goals leading to its final objective:

—Identifying life's molecular machines, the multiprotein complexes that carry out the functions of living systems;

—Characterizing the genes' regulatory networks and processes that control life's molecular machines;

—Characterizing the functional repertoire of complex microbial communities in their natural environments; and

—Developing computers and other computational capabilities needed to model the complexity of biological systems.

This program has great promise, but faces great challenges. Biological systems, through evolution, have achieved levels of intricacy and subtlety that dwarf the complexity of the 20th Century's most sophisticated engineering feats. The eventual objective of the Genomes to Life program is to use the greatly increased computational capabilities of modern supercomputers to model and understand many of these systems. This promises solutions to many as yet intractable problems in DOE mission areas. For example, *M. jannaschii's* ability to produce methane may have implications for new fuel generation strategies. *Deinococcus radiodurans* has potential for cleanup of toxic mixed-waste sites containing radioactive waste, in addition to heavy metals and organic solvents, because it can survive extremely high levels of radiation and repair its own radiation-damaged DNA.

In addition, DOE has a need to protect its workers and the public from the health effects of energy production and use and from the low levels of radiation generated by weapon-related materials at DOE waste sites and those still in use at its laboratories. Because of their genetic makeup, some individuals may have a much greater health risk from exposures to these materials. A detailed understanding of how basic metabolic and regulatory pathways in microbial cells respond to environmental changes may offer insights into similar pathways in human cells. This knowledge can be used to help clarify the biological mechanisms responsible for adverse human responses and to develop the tools needed to identify individuals at greatest risk, information that is a key component of the Low Dose Radiation Research Program.

The search for the Higgs boson and the possibility of physics beyond the Standard Model presents an extraordinary opportunity for the U.S. high energy physics community, which receives 90 percent of its Federal support from the Office of Science, to demonstrate its continuing leadership in international physics research.

An excellent opportunity exists for U.S. researchers to identify the Higgs boson and measure its properties, which are believed key to understanding the source of mass for quarks and leptons, the fundamental constituents of matter. The Large

Electron-Positron Collider (LEP) experimental program at CERN (located in Switzerland) was terminated in November 2000, leaving behind a tantalizing hint of a Higgs boson with a mass of about 115 GeV, within reach of Fermilab's Tevatron accelerator, recently upgraded with the new Main Injector.

With protons and antiprotons colliding head-on at an energy of nearly one trillion electron volts (1 TeV), the Tevatron will be at the world's energy frontier for particle physics during the next five years. In order to find the Higgs, the Tevatron will need to run extensively and to increase its luminosity (and thus its data collection rate) as much as possible. Doing this will require progressive fine-tuning of collider operations and further equipment upgrades to increase luminosity by a factor of ten to be carried out from 2002 to 2004, interwoven with intensive data runs. The data taken in 2005–2007 should then be enough to find the Higgs if its mass is less than 165 GeV. Tevatron data will also give more information about the surprisingly heavy (170 times the mass of the proton) top quark discovered at Fermilab in 1995, and could reveal other important new particles that have been predicted by current theories (for example, supersymmetric particles).

Why is the universe made of matter instead of a balance of matter and antimatter or nothing at all? This question is being addressed intensively at the new B Factory facility at the Stanford Linear Accelerator Laboratory, which is now operating above its design luminosity (or collision rate). The study of CP violation at the B Factory during the next few years will shed light on the mysterious preponderance of matter over antimatter in the universe. However, the B Factory will need a progressive series of small upgrades in order to maximize its productivity.

Discovery and characterization of the quark-gluon plasma is about to be undertaken as the Relativistic Heavy Ion Collider (RHIC) begins its first run at full energy and approaches its design luminosity (or collision rate). Over 1,000 scientists, of which about one-half are from 18 foreign countries, participate in research with four detectors at RHIC, a $616.5 million facility (completed within budget and on schedule) located at Brookhaven National Laboratory. They are searching for a new state of nuclear matter, deconfined quarks and gluons, thought to have existed for a few microseconds after the "Big Bang." Discovery of the quark-gluon plasma is eagerly awaited by the physics community, in the hope that it will provide insights into the origin of confinement-why free quarks cannot be observed. The properties of this new state of matter will have far-reaching implications for cosmological theories of the expansion of the early universe.

The collider and detectors were commissioned last year. The subsequent brief run at a reduced energy from its design energy yielded tantalizing results of possible plasma formation, and several papers have already been published reporting on these early results. The discovery and characterization of the quark-gluon plasma is a key element in our understanding of the origin of the universe; a campaign to understand the detailed properties of the plasma is expected to take at least five years. We look forward to the upcoming run this year that will give us the first detailed information in this exciting quest.

Science at the nanoscale, creating materials and machines one atom at a time, is today's frontier in materials and the life sciences. The triumphs of science in the 20th Century, which benefit all Americans, included the discovery and characterization of the atomic building blocks of matter, of the elementary excitations in materials, and of the fundamentals of chemical reactivity.

We use this knowledge to design, synthesize, and characterize simple molecules and to combine them in a variety of ways to make alloys, ceramics, catalysts and other materials. We are now entering a more complex stage of research where structures can be designed atom-by-atom so that the desired characteristics and chemical reactivity can be predicted and controlled.

The Office of Science is forging a path into the world that Richard Feynman described in his now-famous 1959 lecture, "There is Plenty of Room at the Bottom—An Invitation to Enter a New Field of Physics." In it, he challenged his audience to envision a time when materials could be manipulated and controlled on the smallest of scales, when new materials could be fabricated and devices could be designed atom-by-atom. "In the year 2000," he said, "when they look back at this age, they will wonder why it was not until the year 1960 that anybody began seriously to move in this direction." In fiscal year 2001, SC began seriously to move in this direction. In fiscal year 2002, SC will continue to forge ahead—supporting innovative research and the design of centers for nanoscale science.

DOE's missions in science, energy, defense, and environment will benefit greatly from nanoscale research. Nanoscale synthesis and assembly methods, for example, are expected to result in significant improvements in solar energy conversion; more energy-efficient lighting; stronger, lighter materials that will improve efficiency in transportation; greatly improved chemical and biological sensing; use of low-energy

chemical pathways to break down toxic substances for environmental remediation and restoration; and better sensors and controls to increase efficiency in manufacturing.

But before we can reach the stage where nanoscale science begins producing these kinds of products, the basic researchers supported by the Office of Science must address some of the most formidable scientific questions of our age:

—Can we design materials having predictable and, yet, often unusual properties? This will require "bottoms-up" atomic and molecular design, the use of nanostructured materials having special properties, novel routes for materials synthesis and processing, and parallel fabrication approaches.

—Can we design and construct multicomponent molecular devices and machines having desired properties—optical, mechanical, catalytic, electrical, tribological? We have begun to use molecular building blocks to create self-organized structures. These might form the basis of systems such as nanometer-scale chemical factories, molecular pumps, sensors, and self-assembling electronic/photonic devices.

—Can we harness, control, or mimic the exquisite complexity of natural processes? Living organisms represent the most sophisticated use of the chemical processing of basic elements to create materials and functional complexes. Nature's achievements allow us to set goals for the development of materials and systems with incredibly enhanced properties, including the ability to self-assemble, self-repair, sense, respond, and evolve.

—Can we develop the tools to visualize and predict phenomena spanning the length scales and time scales of natural phenomena? Spatial scaling involves lengths ranging from that of the atom, to thousands of atoms (molecules), to the bulk phase (organisms) and, finally, to the macroscale (ecosystems). Temporal scaling involves times ranging from those of chemical reactions (femtoseconds) to geologic times (millennia).

Opening a new frontier in neutron science will be made possible by the commissioning of the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL), now scheduled for completion in 2006. When completed, SNS will be the world's most powerful accelerator-based, pulsed neutron source, producing 6–10 times more neutrons than any other such source. SNS will be used annually by 1,000–2,000 researchers from academia, national laboratories, and industry.

DOE and its predecessor agencies have been the major supporters of neutron science in the United States since the late 1940s. DOE has served as the prime steward of this field throughout the entire course of its development—from the earliest work of Clifford Shull and E. O. Wollan at ORNL's Graphite Reactor in the 1940s to the Nobel Prize in physics shared by Clifford Shull and Bertram Brockhouse in 1994 for their work on neutron scattering.

The importance of neutron science for fundamental discoveries and strategic research is universally acknowledged, and led France, Germany, Great Britain, Japan and other countries to aggressively pursue neutron science. By the early 1970s, new and upgraded European neutron machines were beginning to appear. This trend continued through the 1980s and 1990s without construction of U.S. counterparts—thus shifting the focus of neutron research away from the U.S.. The SNS will reverse this trend and will open new opportunities and capabilities for neutron research to U.S. researchers.

The information that neutrons provide about the hundreds of materials that we use every day has wide ranging impacts on our everyday lives. For example, neutrons can "see" light atoms, which are far more difficult or impossible to see with x-ray or electron probes. As a result, chemical companies use neutrons to make better fibers, plastics, and catalysts, and drug companies use neutrons to design drugs with higher potency and fewer side effects.

Neutrons also possess a tiny magnetic moment, making them one of the best probes for the study of magnetism. Research on magnetism using neutrons has led to higher strength magnets for more efficient electric generators and motors, and to better magnetic materials for magnetic recording tapes and computer hard drives.

Fusion energy research in the United States is managed by SC's Office of Fusion Energy Sciences (FES), which funds virtually all basic research conducted by U.S. scientists in the area of high energy density plasma physics. In addition, FES, in partnership with DOE's Scientific Stockpile Stewardship Program and the National Science Foundation, plays a role in all aspects of basic research in fusion and plasma science.

The major challenge today is to make fusion energy practical by further advancing our scientific understanding of high-temperature plasmas. The current U.S. fusion research effort integrates core capabilities in the national laboratories, universities, and industry and has been restructured to focus on science objectives. A 1999 review

by the Secretary of Energy Advisory Board concluded that the fusion challenge will be solved, and they endorsed the restructured fusion energy sciences program.

This science-based approach focuses on achieving a predictive capability based on detailed experimental campaigns, sophisticated modeling, and terascale computing. Dramatic advances in the scientific understanding of fusion plasmas led the National Research Council in 2000 to conclude: ". . . the quality of the science funded by the U.S. fusion research program in pursuit of a practical power source (the fusion energy goal) is easily on a par with other areas of contemporary physical science."

There are two distinct approaches to producing fusion energy: magnetic fusion energy (MFE) and inertial fusion energy (IFE). In MFE, plasma is confined by a magnetic field and held at the needed density and temperature. The fusion energy produced in a single magnetic confinement fusion experiment has risen by a factor of more than one trillion during the time period when computer speed has risen by a factor of one-hundred thousand. Along with this progress in fusion energy has come a much deeper understanding of the underlying plasma science.

To date, MFE has been the primary subject of research worldwide for fusion energy applications. Consequently, the U.S. program is highly leveraged against the more than $1 billion in magnetic fusion research performed by other nations. MFE research is an international effort in which experimental results are openly shared and in which collaboration on experiments is extensive.

With IFE, powerful lasers of particle beams are focused on a small pellet of fuel for a few billionths of a second. IFE research has been pursued primarily as a key component of the DOE's Scientific Stockpile Stewardship Program. Leveraging off of this large investment is an excellent opportunity for FES because IFE may also present a promising path to practical fusion power.

The science-based approach to fusion offers the U.S. an affordable path to practical fusion energy and is advancing our knowledge of plasma physics and associated technologies, yielding near-term benefits in a broad range of disciplines. Examples include plasma processing of semiconductor chips for computers and other electronic devices, advanced video displays and innovative materials coatings.

Scientific discovery through advanced computing brings together the Office of Science's 50-year investment in mathematics, computation, software development and multidisciplinary research in the quest to develop new tools that can be used by the U.S. research community to solve some of the most complex scientific questions of the 21st Century.

Scientific computing programs and facilities are already essential to progress in many areas of research critical to the nation. Major scientific challenges exist in all SC research programs that only can be addressed through advances in scientific supercomputing—designing materials atom-by-atom, revealing the functions of proteins, understanding and controlling plasma turbulence, designing new particle accelerators, and modeling global climate change, to name just a few.

Extraordinary advances in computing technology in the past decade have set the stage for major advances in scientific computing. Within the next five to ten years, computers 1,000 times faster than today's computers will become available. These advances herald a new era in scientific computing. Using such computers, it will be possible to dramatically extend our exploration of the fundamental processes of nature as well as advance our ability to predict the behavior of a broad range of complex natural and engineered systems.

To exploit this opportunity, these computing advances must be translated into corresponding increases in the performance of the scientific codes used to model physical, chemical, and biological systems. This is a daunting problem. Current advances in computing technology are being driven by market forces in the commercial sector, not by scientific computing. Harnessing commercial computing technology for scientific research poses problems never before encountered in supercomputing, in magnitude as well as in kind. This problem will only be solved by increasing investments in computer software—in research and development on scientific modeling codes, as well as on the mathematical and computing systems software that underlie these codes.

During fiscal year 2002, SC will continue a set of coordinated investments that focused on creating a Scientific Computing Software Infrastructure that bridges the gap between advanced computing technologies and its scientific research programs. The SC effort will:

—Create the Mathematical and Computing Systems Software to enable the Scientific Challenge Codes to take full advantage of the extraordinary capabilities of terascale computers.

—Create the Collaboratory Software Infrastructure to enable geographically-separated scientists to effectively work together as a team, as well as provide electronic access to both facilities and data.

—Create a new generation of Scientific Challenge Codes for terascale computers that can address the most critical scientific problems in SC's research programs

The Scientific Computing Software Infrastructure, along with the upgrades to the hardware infrastructure, will enable laboratory and university researchers supported by the Office of Science to solve the most challenging scientific problems at a level of accuracy and detail never before achieved. These developments will have significant benefit to all of the government agencies that rely on high-performance scientific computing to achieve their mission goals, as well as to the U.S. high-performance computing industry.

Creating the 21st century scientific and engineering workforce requires educational and training activities that are designed to ensure an adequate supply of talented American scientific, engineering and technical personnel. The Office of Science is uniquely positioned to assist in the creation of this workforce through the offering of research training opportunities at our scientific user facilities and world class national laboratories. During the past five decades, SC and its predecessor organizations have helped train tens of thousands of the best and brightest young students our Nation has produced.

An expanded effort in fiscal year 2002 will carry on that legacy of achievement. SC will support undergraduate research internships for undergraduate students from four-year institutions, community college students and pre-service teachers preparing to teach math, science or technology at the K–12 level. In addition, SC will support the work of thousands of graduate students and post-docs who are working side-by-side with DOE researchers on key research projects.

To attract a wider cross section of students, the Department of Energy has entered into a collaboration with the National Science Foundation (NSF). Students participating in NSF undergraduate programs will be encouraged to apply for SC undergraduate research internship opportunities. The partnership with NSF will be expanded in fiscal year 2002.

PERFORMANCE MEASURES

The Government Performance and Results Act (GPRA) requires accountability from all Federal programs. SC has always relied upon external peer review, independent construction management review, and regular program reviews to ensure the excellence and relevance of our research portfolio. These effective evaluation tools will continue.

In addition, SC has embraced the recommendations of the National Academy's Committee on Science and Engineering in Public Policy (COSEPUP) report "Science, Technology and the Federal Government: National Goals for a New Era," which calls for the U.S. to maintain a leadership position in key areas of science and to be "among the world leaders" in all areas of research. This enables the U.S. to quickly capitalize on breakthroughs in science worldwide. Therefore, the SC will evaluate its programs for scientific excellence, relevance to DOE mission areas, scientific leadership and management excellence. This will be accomplished through a variety of mechanisms, that may include: external review by peers, review of prizes and awards to SC's researchers, citation analysis, and a characterization of the significance and impact of the research as recognized at international conferences and Advisory Committee evaluations.

SC is widely recognized for its world-class research and for the construction and operation of major scientific facilities. Demand for these facilities has steadily increased and calls for new or improved facilities greatly exceed budgetary resources. To ensure that the proper balance is maintained between laboratory research and facility operations, and between new and existing facilities, SC relies upon the advice of external Advisory Committees, feedback from facility User Groups, and the results of the merit review process.

Critical to ensuring the excellence, relevance and leadership of SC's research is the human and physical infrastructure that enables world class science. SC will continue to evaluate the health and utility of its laboratory infrastructure through onsite institutional reviews, program reviews, and through merit evaluation. A continuing supply of talented researchers in critical subfields will be ensured through fellowships, support of graduate students within research grants, and through student use of research facilities.

All four of SC's global scientific performance measures were fully met in fiscal year 2000.

—At least 80 percent of all new research projects supported by SC will be peer reviewed and competitively selected, and will undergo regular peer review merit evaluation. In fiscal year 2000, 96 percent of new research projects supported by SC were peer reviewed and competitively selected.
—Upgrades and construction of scientific user facilities will stay within 10 percent, on average, of cost and schedule milestones. In fiscal year 2000, all scientific user facility construction projects were within 10 percent of baselines. As an average, weighted by total project cost, SC scientific user facility construction projects varied from cost and schedule baselines by about 3 percent.
—The SC scientific user facilities will be operated and maintained so that unscheduled operational downtime will be kept to less than 10 percent, on average, of total scheduled operating time. In fiscal year 2000, SC scientific user facilities operated, on average, 96 percent of the scheduled time.
—The Office of Science will ensure the safety and health of the workforce and members of the public and the protection of the environment in all SC program activities.

SCIENCE PROGRAMS—ADVANCED SCIENTIFIC COMPUTING RESEARCH

Fiscal Year 2001 Appropriation—$165.7M; Fiscal Year 2002 Request—$165.7M [1]

The Advanced Scientific Computing Research (ASCR) program's mission, which is primarily carried out by the Mathematical, Information, and Computational Sciences (MICS) subprogram, is to discover, develop, and deploy the computational and networking tools that enable scientific researchers to analyze, model, simulate, and predict complex physical, chemical, and biological phenomena important to the Department of Energy.

In fiscal year 2002, ASCR will continue to invest in research that advances the next generation of high performance computing and communications tools that are critical to the Department's scientific missions.

The MICS subprogram will support research in applied mathematics, computer science, electronic collaboratory tools and network research. Competitively selected partnerships will continue to work toward discovering, developing, and deploying key enabling technologies for scientific research. These partnerships, called Integrated Software Infrastructure Centers, play a critical role in providing the software infrastructure that will be used by the Scientific Discovery through Advanced Computing (SciDAC) applications teams. Other MICS investments include fundamental research in networking and collaboratory tools, partnerships with key scientific disciplines, and advanced network testbeds for electronic collaboration tools.

In fiscal year 2002 the Laboratory Technology Research subprogram will continue to support basic research at SC labs that will advance innovative energy applications.

In fiscal year 2000, a Federally-chartered advisory committee was established for the ASCR program that is charged with providing advice on: promising future directions for advanced scientific computing research; strategies to couple advanced scientific computing research to other disciplines; and the relationship of the DOE program to other Federal investments in information technology research. This advisory committee will play a key role in evaluating future planning efforts.

BASIC ENERGY SCIENCES

Fiscal Year 2001 Appropriation—$991.7M; Fiscal Year 2002 Request—$1,004.7M

The Basic Energy Sciences (BES) program is a principal sponsor of fundamental research for the Nation in the areas of materials sciences and engineering, chemistry, geosciences, and bioscience as it relates to energy. This research underpins the DOE missions in energy, environment, and national security; advances energy related basic science on a broad front; and provides unique user facilities for the scientific community.

For fiscal year 2002, a very high priority is the continuation of construction of the Spallation Neutron Source (SNS) to provide the next-generation, short-pulse spallation neutron source for neutron scattering. The project, which is to be completed in June 2006, is on schedule and within budget.

Enhancing U.S. research in neutron science, in preparation for the commissioning of the SNS, is also a program priority. A common finding among BES Advisory Committee studies has been the importance of establishing a large and well-trained

[1] A Pending Budget Amendment to transfer $10M to Fusion Energy Sciences from Advanced Scientific Computing Research ($2.7M), High Energy Physics ($5.0M), Energy Research Analyses ($0.3M), and Science Program Direction ($2.0M) will be submitted shortly.

user community by the time the SNS is fully operational in the 2008–2010 timeframe. To this end, funding will be provided for teams of scientists to participate in the development of neutron scattering instruments and for support for the neutron science/scattering programs at the host institutions of the BES facilities. Additional operations funds will be provided to High Flux Isotope Reactor (HFIR) and the Intense Pulsed Neutron Source (IPNS) to ensure that these facilities are available to the scientific community.

In the areas of nanoscale science, engineering, and technology (NSET) research, BES will continue the new research directions initiated in fiscal year 2001 and will explore concepts and designs for Nanoscale Science Research Centers (NSRCs). NSRCs will be user facilities similar in concept to the existing BES major scientific user facilities and collaborative research centers. They will provide unique, state-of-the-art nanofabrication and characterization tools to the scientific community. NSRCs will enable research programs of a scope, complexity, and disciplinary breadth not possible through the support of individual investigators or small groups. Significant partnerships with regional academic institutions and with state governments are anticipated.

The response of the scientific community to the fiscal year 2001 NSET initiative has been strong. University researchers submitted 745 pre-applications, 313 of which received encouragement letters from BES inviting the submission of full proposals. The DOE labs were restricted to four field work proposals per laboratory and 46 proposals were received. Proposals were also received for pre-conceptual design of NSRCs from ANL, BNL, LBNL, ORNL, and Sandia/LANL. All proposals will undergo peer review to determine which will be funded in fiscal year 2001.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Fiscal Year 2001 Appropriation—$482.5M; Fiscal Year 2002 Request—$443.0M

The Biological and Environmental Research (BER) program develops the knowledge needed to identify, understand, anticipate, and mitigate the long-term health and environmental consequences of energy production, development, and use.

As the founder of the Human Genome Project, BER will maintain a critical role in the International Human Genome Consortium that includes the National Institutes of Health.

A redirected effort entitled, "Genomes to Life," will support research and computational tools that will lead to an understanding of complex biological systems. It will incorporate research to develop a comprehensive understanding of the Microbial Cell that will be used to engineer microbes for DOE mission applications such as environmental cleanup. Understanding how complex biological systems respond to their environments also promises the ability to accurately predict the impact of low doses of radiation and environmental toxins on living organisms, including people. In fiscal year 2002, BER microbial research will provide DNA sequences for four additional microbes important in bioremediation, clean energy, global carbon cycling, and human health/low dose radiation research.

The Atmospheric Radiation Measurement (ARM) program will improve the models that track the radiation balance through the atmosphere, including cloud and water vapor effects, to reduce uncertainty in predicting the effect of greenhouse gases on future climates. Carbon cycle and sequestration research will help to assess current carbon sinks and to develop methods of enhancing natural processes for terrestrial and ocean sequestration of carbon. Ecological research will provide data to develop and test robust models to predict the effects of changes in climate and atmospheric composition on important ecological systems and resources.

BER will continue research in environmental bioremediation focusing on research at the Field Research Center in Oak Ridge, Tennessee. The Environmental Molecular Sciences Laboratory (EMSL), a national scientific user facility provides analytical and experimental capabilities to address the complex scientific barriers to restoring our environment. The EMSL computational facility will upgrade its computing capability by leasing a high performance computer in fiscal year 2002. This will enable the simulation of key environmental and molecular processes.

Medical sciences research will develop advanced technology and instrumentation to image single molecules, genes, cells, organs, and whole organisms in real time with a high degree of precision. These achievements will have a broad impact on biomedicine, in particular the fields of cell and developmental biology and on more accurate medical diagnoses and effective treatments.

The resources of the DOE national labs enable rapid advances in our programs in biophotonics (harnessing light and other forms of radiant energy for new biomedical research tools such as noninvasive diagnostic tools for the early detection of breast cancer), lasers in medicine, biological and chemical sensors, and advanced

imaging instrumentation. BER and the National Institutes of Health (NIH) have developed a partnership in which the advanced technologies, instrumentation, and computational modeling capabilities developed in the DOE national labs will be applied to specific biomedical problems of high importance in the NIH intramural program. This partnership will benefit both agencies since complex biosensors capable of detecting and discriminating among large classes of biomolecules could be important not only to biology and medicine but also to environmental sensing. Cooperation will facilitate rapid application of advances in the biophysical sciences to solve clinical problems of national importance.

FUSION ENERGY SCIENCES

Fiscal Year 2001 Appropriation—$248.5M; Fiscal Year 2002 Request—$238.5M [1]

The Fusion Energy Sciences (FES) program's mission is to advance plasma science, fusion science and technology. The program emphasizes the underlying basic research in plasma and fusion sciences, with the long-term goal of harnessing fusion as a viable energy source. The program centers on the following goals: understanding the physics of plasmas; identification and exploration of innovative and cost effective development paths to fusion energy; and exploration of the science and technology of energy producing plasmas, as a partner in international efforts.

In fiscal year 2002, the program will incorporate the recommendations of reports by the National Research Council, the Secretary of Energy Advisory Board and recommendations of the Fusion Energy Science Advisory Committee.

The fiscal year 2002 FES program includes basic research in plasma science in partnership with NSF, plasma containment research, and investigation of tokamak alternatives along with continued operation of DIII–D, Alcator C-Mod, and the National Spherical Torus Experiment. Research on alternate concepts is pursued to develop a fuller understanding of the physics of magnetically confined plasma and to identify approaches that may improve the economical and environmental attractiveness of fusion.

The inertial fusion energy activity will continue exploring an alternative path for fusion energy that would capitalize on the major R&D effort in inertial confinement fusion that is carried out by NNSA for stockpile stewardship purposes. Ongoing theory and modeling efforts, aimed at developing a predictive capability for the operation of fusion experiments, will continue as will enabling technology development.

HIGH ENERGY PHYSICS

Fiscal Year 2001 Appropriation—$712.0M; Fiscal Year 2002 Request—$721.1M [1]

The High Energy Physics (HEP) program's mission is to understand energy and matter at a fundamental level by investigating the elementary particles and forces between them. Until the Large Hadron Collider (LHC) at CERN is completed in 2006, the U.S. will be the primary center of activity for experimental research in the field of high energy physics. There is the potential for exciting new discoveries, and the program needs to position itself to take advantage of these opportunities.

The HEP program will concentrate on utilizing and upgrading its facilities, including direct support for research scientists. In fiscal year 2002, Fermilab will begin a five-year campaign to discover the Higgs particle (believed key to understanding mass) and other new particles predicted by current theories. The B Factory at SLAC will begin a three-year campaign to make important contributions toward understanding the preponderance of matter over antimatter in the universe.

A small HEP program continues at the Alternating Gradient Synchrotron (AGS). The muon g-2 experiment recently announced results that showed a higher magnetic strength for the muon than that predicted by the Standard Model. If confirmed, these findings could lead science into exciting new territory beyond the Standard Model.

Appropriately focused support for university and laboratory based physics theory and experimental research will be emphasized in fiscal year 2002. The experimental programs are performed by university (primarily) and laboratory based scientists. These scientists construct, operate, and maintain the detectors and analyze the resulting data as well as train the next generations of scientists.

An important element of the program is successful completion of construction and major capital equipment projects. Continued participation in the LHC is a high priority as is construction of the Neutrinos at the Main Injector (NuMI) project at Fermilab and its detector, MINOS. When NuMI/MINOS is completed in fiscal year 2003, it will provide a world-class facility to study neutrino properties and make definitive measurements of masses.

In partnership with NASA, the HEP program will continue two particle astrophysics projects—the Alpha Magnetic Spectrometer (AMS) and the Gamma-Ray

Large Area Space Telescope (GLAST). The experiments are expected to lead to a better understanding of dark matter, high energy gamma ray sources, and the origin of the universe.

Accelerator R&D is essential to the development of the next generation facility as well as to the future of the HEP program. Research continues on accelerator-related technologies aimed at reducing costs and improving performance.

NUCLEAR PHYSICS

Fiscal Year 2001 Appropriation—$360.5M; Fiscal Year 2002 Request—$360.5M

The mission of the Nuclear Physics (NP) program is to advance our knowledge of the properties and interactions of atomic nuclei and nuclear matter in terms of the fundamental forces and particles of nature.

The NP program is the major sponsor of nuclear physics research in the U.S., providing about 85 percent of Federal support. The program educates and enlarges the Nation's pool of technically trained workers and facilitates the transfer of knowledge and technology.

With the new Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory researchers have a unique opportunity to create and characterize the quark-gluon plasma, a phase of matter thought to have existed in the very early stage of the universe. Initial data from gold-gold collisions have yielded results that show aspects of possible plasma formation; the fiscal year 2001-fiscal year 2002 run will provide the first opportunity to explore this exciting new physics in depth.

New knowledge and insights on how quarks and gluons bind together to make protons and neutrons are being gained using high intensity electron beams from the Continuous Electron Beam Accelerator Facility (CEBAF) at the Thomas Jefferson National Accelerator Facility. In fiscal year 2002, the G0 Detector, a joint DOE–NSF project, will be completed and will provide an opportunity to map quark contributions to the structure of the nucleon.

Measurements of the solar neutrino flux by the Sudbury Neutrino Observatory (SNO), constructed by a collaboration of Canadian, British and U.S. supported scientists in a deep underground nickel mine in Ontario, Canada, will provide first results shortly on the "appearance" of oscillations of electron neutrinos into other neutrino flavors. Such evidence would confirm indications that neutrinos have mass, an observation that would force a re-evaluation of the existing Standard Model of particle physics.

The search for new super-heavy elements will continue in fiscal year 2002, focusing on the techniques developed in the recent discovery of elements 116 and 118 at Lawrence Berkeley National Laboratory. Future studies will focus on the search for neighboring elements and will work to understand the surprising observation of enhanced stability for these very heavy elements.

In fiscal year 2002, R&D activities will be supported for a proposed Rare Isotope Accelerator (RIA) facility. This facility would produce beams of highly unstable nuclei that can explore the limits of nuclear existence and measure reaction rates. These data are critical to computer modeling of the dynamics of supernovae explosions and other aspects of stellar evolution and to understanding the origins of elements.

MULTIPROGRAM ENERGY LABORATORIES—FACILITIES SUPPORT

Fiscal Year 2001 Appropriations—$30.2M; Fiscal Year 2002 Request—$30.2M

The Multiprogram Energy Laboratories—Facilities Support (MEL–FS) program's mission is to support the general purpose infrastructure of the five Office of Science multiprogram national laboratories by funding line item construction to rehabilitate, renovate and replace laboratory and office buildings, utility systems, and other structures. This support helps enable high technology scientific research that is conducted in a reliable, cost effective, and safe manner. Together, these laboratories have over 1,600 buildings (including 500 trailers) with 15.5 million gross square feet of space and an estimated replacement value of over $10 billion. The total DOE and non-DOE research program funding for these laboratories is over $3 billion a year.

In fiscal year 2002, MEL–FS will support Project Engineering and Design funding for the initiation of three new line item construction projects and construction funding for six ongoing line item construction projects.

The request also supports SC's landlord responsibility at the Oak Ridge Reservation and DOE facilities in the town of Oak Ridge, including Payments in Lieu of Taxes (PILT) at this and two other sites.

ENERGY RESEARCH ANALYSES

Fiscal Year 2001 Appropriation—$1.0M; Fiscal Year 2002 Request—$1.3M [1]

The mission of the Energy Research Analyses (ERA) program is to evaluate the excellence, relevance and international leadership of DOE research programs and projects. Fiscal year 2002 funding will support the development of performance measurement and evaluation tools that are utilized by SC programs and meet the requirements of the Government Performance and Results Act.

In addition, the overall value of SC's research efforts will be communicated to the public and other stakeholders, and original research will be conducted into the best management practices of publicly funded science organizations. This research will result in the identification of best practices in the management of science organizations that could be adopted by SC to improve overall management efforts.

SAFEGUARDS AND SECURITY PROGRAM SUPPORT

Fiscal Year 2001 Appropriations—$36.4M; Fiscal Year 2002 Request—$50.5M

The Safeguards and Security (S&S) program mission is to provide an appropriate level of protection of personnel, property, information, and nuclear materials in a technically sound and cost-effective manner. This program ensures that essential S&S services are provided at all SC facilities through a tailored approach according to risk.

The S&S program is concentrating on countering the vulnerabilities of the 21st Century. These vulnerabilities have been identified through program reviews as well as Inspector General (IG) and General Accounting Office (GAO) audits. In fiscal year 2002, S&S funding includes countermeasures for the ever increasing advances in and reliance on computer technologies. This request also supports the upgrading of aging physical security systems. Where applicable, these systems further advance our control of our small but vital national security interests.

The S&S program must maintain a sustained vigilance so that science and technology operations are not adversely effected. The benefits of an effective S&S program include: providing the public with confidence that the taxpayer assets are appropriately protected; a safe work place for employees; adequate protection of user facilities, operations and scientific research data; and an attractive security climate supportive of international collaborations and leading edge scientific projects. The protection of these research programs and projects helps maintain science's critical contribution to American competitiveness and lasting prosperity around the world.

SCIENCE PROGRAM DIRECTION

Fiscal Year 2001 Appropriation—$126.9M; Fiscal Year 2002 Request—$144.4M [1]

The Science Program Direction (SCPD) budget supports three subprograms: Program Direction, Field Operations, and Science Education. Program Direction is the funding source for SC's Federal staff responsible for managing and supporting the scientific disciplines. Field Operations provides funding for the daily operations and administrative functions performed at the Chicago and Oak Ridge Operations Offices that support the departmental programs, projects, laboratories, facilities, and grants under their purview. Science Education sponsors programs designed to promote interest in science, math, engineering and technology fields for college and university students and faculty.

In fiscal year 2002, SC will continue to focus on strategic human capital management and planning with the goal of building and sustaining a talented and diverse workforce. SC needs to attract, recruit and retain highly skilled employees to offset the existing and projected shortfall in the scientific and technical workforce, and to continue to manage its programs in a safe, efficient, and effective manner.

SC will also support the DOE Corporate R&D Portfolio Management Environment (PME) project, which will modernize and streamline the Department's R&D management processes. Process improvements and automation will enable electronic "cradle-to-grave" tracking of research projects that are critical to DOE corporate sharing and reporting of energy-related research across programs. In addition, SC will continue to standardize, integrate, and invest in information technology that will improve management processes and promote efficient use of resources among SC Headquarters and Field counterparts, e.g., increase remote accessibility to corporate systems, and enhance cyber security.

Beginning in fiscal year 2002, funding for safeguards and security functions at the Oak Ridge Operations Office is included in SCPD as part of congressional direction to align such functions with line management.

In fiscal year 2002, the Science Education subprogram will support research experiences at our national labs for a diverse group of competitively selected under-

graduate students. In collaboration with the National Science Foundation, an effort is underway to attract a wider cross section of students to this program and a system is being created to document student career paths. In fiscal year 2002, this partnership will be expanded.

The Office of Science also manages and supports the National Science Bowl© for high school students from across the country and provides the students and teachers a forum to receive national recognition for their talent and hard work. In fiscal year 2000, Saturday seminars on scientific topics were added to the National Science Bowl© weekend. In fiscal year 2002, students participating in the National Science Bowl© will be tracked to document the long-term impact on their academic and career choices.

ENERGY SUPPLY R&D PROGRAMS—TECHNICAL INFORMATION MANAGEMENT

Fiscal Year 2001 Appropriation—$8.7M; Fiscal Year 2002 Request—$9.0M

The Technical Information Management (TIM) program leads DOE's e-government initiatives for disseminating information resulting from the Department's R&D programs. The Office of Scientific and Technical Information (OSTI) manages the TIM program, providing electronic access to worldwide energy science and technical information to DOE researchers, industry, academia, and the public. The TIM program also coordinates technical information-related activities at sites throughout the DOE complex, which includes developing and implementing information exchange policies and standards; managing a 50-year archive of 1.1 million unclassified and 100,000 classified documents; maintaining a classified information program that collects, preserves and exchanges, in a secure environment, classified, sensitive and limited circulation documents; and serves as DOE's leader in the international exchange of scientific and technical information.

In fiscal year 2002, the TIM program will make DOE's scientific and technical journal citations, technical reports, and preprints searchable and retrievable through e-government systems.

CLOSING

The fiscal year 2002 budget request for the Office of Science illustrates how long-term research is vitally connected to our Nation's lasting prosperity. Advances in life science, materials science, computation, fusion research, and other scientific disciplines supported by SC have made significant contributions to our economy and our national standard of living during the past 50 years. Future investments in SC-sponsored research at our Nation's universities and national laboratories will provide similar returns during the coming decades.

On behalf of the Administration and the Department, I am pleased to present this budget for the Office of Science and welcome the challenge to deliver results.

This concludes my statement. I would be happy to answer your questions.

STATEMENT OF WILLIAM D. MAGWOOD

Senator BENNETT. Mr. Magwood.

Mr. MAGWOOD. Thank you. Mr. Chairman, Senator Craig, I am Bill Magwood. I am Director of the DOE's Office of Nuclear Energy, Science and Technology. I am pleased to appear before you today to discuss our fiscal 2002 budget request. I will submit a written statement for the record.

NUCLEAR POWER PLANTS

When we met at this time last year, I told you that we were seeing the early signs of a turnaround in prospects for nuclear energy in the United States. At that time, U.S. nuclear power plants were setting new records in producing inexpensive and reliable electric power. The utility industry was moving forward with the relicensing of its nuclear power plants, and utilities were beginning to talk about the possibility of building new nuclear power plants in the United States.

This year, evidence of this turnaround is even greater. Nuclear power set even higher generation records last year. Nearly all U.S.

nuclear power plants are now expected to receive NRC license renewals. Utilities are now actively engaged in developing the business cases for specific nuclear power plant projects in this country. We expect that next year we will be able to report even greater progress.

It is difficult to measure the degree to which the government encouragement and support fosters this renewed interest. Clearly, industry makes its decision based on the economics and business factors, but you cannot underestimate the impact of having the Vice President of the United States, as he did yesterday, articulate the clear national interest in building new nuclear power plants in the United States.

You also cannot underestimate the impact of renewed Federal funding for nuclear research and development. Since our R&D budget hit essentially zero in fiscal year 1998, the Department has received slightly more resources each succeeding year. We have set these resources to support both near-term National needs for increased power production and long-term strategic interests in advanced nuclear technology for the future.

NUCLEAR ENERGY TECHNOLOGIES PROGRAM

I would first like to thank the Subcommittee for its leadership and vision in providing funds for the Nuclear Energy Technologies Program. While very small in comparison to many of the DOE programs, its impact has already been huge.

GENERATION IV

At its core is the Generation IV Technology Roadmap. This roadmap has become a large international project, involving nearly 150 experts from 10 countries.

We have established a new international collective known as the Generation IV International Forum, or GIF, through which the United States and other nuclear experienced nations will be able to work together, to set the goals, establish the programs and collaborate in the research that will lead to the next generation of nuclear energy systems.

I am pleased to report that since last year, the Department has—with very limited funding and staff—reasserted a U.S. leadership position that many thought was long dead.

Generation IV Technology goals have been drafted by a Subcommittee of the Nuclear Energy Research Advisory Committee (NERAC) with input from U.S. industry, laboratories, universities.

These goals, now essentially complete, have been accepted by the international community through the GIF and through the International Atomic Energy Agency and are at this very moment being presented to the full NERAC for final review.

The GEN IV goals set very aggressive targets for future technologies, such as eliminating the need for offsite emergency planning, and ensuring the economy of proliferation resistance of future nuclear systems.

Now, international teams based mostly in the United States, but a few also overseas, all under the guidance of the NERAC, will evaluate a large number of concepts against the Generation IV

goals and agree on a small set of technology concepts, around which the international R&D community will rally.

The roadmap should be complete by the end of next year and we have requested $4.5 million in fiscal year 2002 to complete this historic work.

Other portions of this program have enabled us to work with the NRC and industry to address the technical and regulatory issues that could slow the deployment of advanced light water reactors and gas-cooled reactors in the United States.

Our work in these areas has been important and has encouraged the industry to move forward with their planning for new nuclear power plants.

ADVANCED ACCELERATOR APPLICATIONS PROGRAM

We have also made significant progress in the Advanced Accelerator Applications program. When we last discussed this program, the Department has made tremendous progress in defining the parameters for a potential project to build the necessary facilities and establish the research to explore the transformation of nuclear waste into less toxic and in smaller quantity forms than untreated spent fuel.

We have worked very closely with the NERAC Subcommittee on Advanced Nuclear Transformation Technology chaired by Professor Burt Richter, former Director of SLAC, to define the technical issues and set appropriate paths forward.

Yesterday, Professor Richter reported to the NERAC that we were on the right track, and that the prospect for international collaboration toward building a major facility in the United States is very real, if the United States makes a clear commitment to the project.

I can validate this prediction. Soon, we will sign an agreement with the French CEA to share costs in performing a series of experiments over the next few years. The French are very interested in joining an activity in the United States to build an accelerator driven test facility in this country.

Should such a project proceed, the support of the CEA, the Swiss Paul Scherrer Institute and other organizations, would be absolutely essential, as the United States is a relative newcomer to this area of study, and other countries have made important progress in many relevant areas.

For this initiative, as well as most other aspects of our R&D portfolio, the fiscal year 2002 budget request reflects a need to pause and reflect on the direction of our research. With the entry of President Bush's Administration, it is appropriate to assess the energy needs of our Nation and consider the DOE's activities in that light.

As you know, the Vice President is leading a task force to review these issues. Once these priorities are clearly identified, the Department will be in a better position to recommend future directions for research and development and to request appropriate funding for the new initiatives.

UNIVERSITY RESEARCH REACTORS

Finally, I would like to inform you of an urgent matter discussed at the NERAC meeting yesterday. NERAC is very concerned about the potential closure of essential university research reactors in the United States and a continued decline in university nuclear engineering programs.

Faced with the likely closure of important facilities at Cornell, MIT, and the University of Michigan, NERAC formed a task force, chaired by Bob Long, former Senior Vice President of GPU Nuclear and a former professor at the University of New Mexico.

This task force has recommended that the Department provide a near-term influx of funds to keep these three facilities in operation and set up a longer term structure to assure the continued operation of a limited number of nationally significant university research reactors. The Department will soon announce specific actions we plan to take in response to the NERAC recommendations.

With that, I will end my oral remarks and would be pleased to answer any questions you may have.

Senator BENNETT. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF WILLIAM D. MAGWOOD

Mr. Chairman and members of the Subcommittee, I am pleased to present the Department of Energy's fiscal year 2002 budget request for the Office of Nuclear Energy, Science and Technology (NE). We are proposing a $223 million investment during fiscal year 2002 to conduct vital nuclear research and development programs; to enhance the Nation's science, technology and education infrastructure; and to manage NE's Federal nuclear facilities and materials. We believe that, by supporting nuclear energy technology, the U.S. can achieve a balanced and sustainable energy supply, reestablish its international leadership in nuclear technology development, promote national security, and attain environmental goals.

The Administration is currently developing a new national energy strategy. Secretary of Energy Abraham, speaking in March to a National Energy Summit, stated the essence of the new review:

"Our national energy policy will stress the need to diversify America's energy supply. It will be founded on the understanding that diversity of supply means security of supply . . . and that a broad mix of supply options—from coal to windmills, nuclear to natural gas—will help protect consumers against price spikes and supply disruptions."

The review will provide the guidelines of a new, comprehensive strategy to deal with our Nation's near-term energy challenges and put the technical ingenuity of our universities, laboratories, and industry to work to assure that we have long-term sources of energy to power the United States in the longer-term future.

THE REVITALIZATION OF THE NUCLEAR POWER OPTION

The last few years have truly been an exceptional period for nuclear power in the United States. With demand for electricity at record highs, the Nation's nuclear power plants have been producing a record amount of power—up 3.7 percent to 755 billion kilowatt-hours last year. The nuclear share of electricity generation in 2000 (almost 23 percent of the total) also set a record. U.S. nuclear power plants exceeded peak operating performance records set over the last few years, increasing plant capacity to nearly 90 percent. Meanwhile, the costs of producing electricity from nuclear power hit a record low in 2000, leading nuclear power plants to surpass coal-fired plants—for the first time in more than a decade—as the leader in low-cost electricity production.

In addition, the industry is aggressively and successfully moving forward with plant relicensing to extend operation of the existing fleet of plants for another twenty years. Last spring, the Nuclear Regulatory Commission (NRC) approved license extensions authorizing five nuclear units at two nuclear sites (Calvert Cliffs in Maryland and Oconee in South Carolina) to operate another 20 years. NRC is pres-

ently reviewing five other applications at three nuclear sites and the applications for thirty other units are pending. Today, industry and government alike expect that nearly all of the 103 U.S. nuclear plants will extend their licenses another 20 years.

Furthermore, the consolidation that has been taking place in the utility industry over the last several years has created a cadre of utilities with the experience and resources to operate nuclear units efficiently and effectively, and the ability of undertaking construction of new baseload electrical capacity in time to meet national needs.

After decades without any orders for new nuclear power plants in the United States, U.S. utilities are demonstrating a renewed interest in this technology. The factors that came together in the 1970's to make nuclear power less attractive than other energy sources, such as an over-supply of electricity and high interest rates, are no longer applicable. Today, we are facing rapidly rising natural gas prices, increasing reliance on imported oil supplies, and growing concerns about air pollution.

As a result of this changing environment, in March, nuclear industry representatives indicated that one or more U.S. utilities were on the verge of filing applications for approval of sites for potential construction of nuclear power plants. Following NRC approval of these applications, the utilities could return to the NRC at a later date to ask for a combined construction and operating license (COL) for a pre-approved nuclear power plant design. We are pleased with these recent developments since the Department has worked long and hard as a partner with the industry to achieve these milestones and is continuing to support demonstration of the NRC early site permit and COL processes. In addition, utilities are beginning to look at new nuclear power plant designs that may be attractive in the current market. For example, Exelon Corporation has invested in the Pebble Bed Modular Reactor (PBMR) project currently under development in South Africa with the goal of exploring its feasibility for the U.S. market. The DOE Nuclear Energy office is leading discussions with the NRC on requirements for gas-cooled reactors such as the PBMR and the Gas Turbine Modular Helium Reactor (GT–MHR). Further, interest in advanced light water reactor technologies such as the AP–600/1000 and Advanced Boiling Water Reactor remains high among U.S. utility decision-makers.

With interest in building new nuclear power plants higher today than at any point in three decades, the Department is focusing its efforts to assure that Government is an appropriate partner to industry and not an obstacle. We are focusing on removing unnecessary barriers and leading the development of new technologies. In this way, the Department can best support the national need for clean and economic supplies of electric power for the near and long term.

The Office of Nuclear Energy is also pursuing advances in nuclear medical technologies through our Medical Isotope Program. This program promotes vital U.S. research into the use of isotopes to treat and diagnose cancer and other illnesses. Radioisotope therapy has the potential to become standard medical treatment for a number of cancers that are major causes of death in the United States, including breast, prostate, and bone cancer. Our budget request for the Medical Isotope Program will support advanced research and assure that reliable supplies of these lifesaving therapeutic and diagnostic isotopes will be available. Human trials of new isotope-based treatments often require the administration of multiple doses of radioisotopes over a period of time, and disruptions in supply may spell the difference between life and death for critically ill patients.

Many of the most important radioisotopes have short half lives and cannot be stockpiled against vagaries in facility operation. The importance of a reliable supply of radioisotopes was driven home for us last summer when the Cerro Grande fire temporarily shut down operations at Los Alamos and threatened the security of our facilities there. The need for reliability of supply requires that we maintain, and upgrade as necessary, the facilities at which radioisotopes are produced, and our efforts this year include upgrading a facility to help ensure that availability.

The Department also has an essential role in enabling the United States to explore space. Our Advanced Radioisotope Power Systems program provides critical support to our nation's efforts to better understand the universe in which we live. NASA's space exploration program requires reliable, long-term supplies of electricity and heat to power spacecraft and to maintain a suitable environment for people and equipment. For some missions, particularly long-term, deep space missions, radioisotope power systems are the only possible sources of power. Conventional sources of energy would require too much fuel, and solar power simply will not work for missions that extend to the outer portions of the solar system and beyond. The same types of systems that support space exploration are also used for national security missions of the Department of Defense (DOD). Our role, for both NASA and DOD, is to provide the radioisotope power systems that meet their mission needs. This requires that we maintain a sufficient supply of plutonium-238 to meet the schedules

and energy demands of upcoming missions of both agencies, as well as the infrastructure to build and deliver the needed systems on time. We also support research and development on advanced systems to assure that we can meet future needs, which may call for longer operating times and higher powers. Our research is also driven by the current limitations in the supply of plutonium-238; we are simultaneously working on options for additional supplies. NASA and DOD provide funding for mission-related activities, while DOE is charged with maintaining the infrastructure to meet the NASA and DOD needs.

Finally, I want to bring to your attention another important function of the Office of Nuclear Energy: the support of the infrastructure that makes all these efforts—development of new reactors to meet future energy needs, production of life-saving isotopes, and support of space exploration—possible. By infrastructure, I mean not only the hardware, but also the people, and not only the government facilities, but also the other facilities that support critical training needs. To these ends, the Office of Nuclear Energy both supports operations at the remaining reactors and related facilities at our national laboratories and provides a variety of types of support to the academic infrastructure that supports the training of future scientists and engineers. Regarding the national laboratory facilities, one problem we are facing is that we are operating an aging infrastructure, and continued operation of these important facilities requires not only the normal operating expenses, but also significant expenditures to maintain aging structures and to bring facilities into compliance with modern standards of electrical and fire safety. The university reactor infrastructure, which is used for DOE and NRC sponsored research, is also at risk. With tightening university operating budgets, some universities are very near to shutting down some of the most important university reactor facilities. This will impact ongoing DOE and NRC research. We are working with the universities to identify ways to prevent such shutdowns, and have chartered a special subcommittee of our advisory committee, the Nuclear Energy Research Advisory Committee (NERAC) that will be presenting its recommendations at the end of April.

In the meantime, we are trying to assure that the funding we provide for reactor upgrades and other reactor support is as effective as possible in meeting critical, near-term needs. We are also continuing to support students and faculty at the universities to the extent possible through scholarships, fellowships and research funding, and have been heartened this year to note an apparent reversal of the previous declining trend in enrollments in nuclear engineering departments. We believe this to be a result of both our sustained, though modest, support for the academic community, and of the new level of excitement about a future for nuclear power.

In accomplishing its program mission, the Office of Nuclear Energy, Science and Technology will engage research institutions in industry, U.S. universities, national laboratories, international organizations, and other countries in cooperative and collaborative efforts. The major program elements that contribute to the mission are: Advanced Radioisotope Power Systems, Medical Isotope Program, University Reactor Fuel Assistance and Support, Research and Development (includes Nuclear Energy Plant Optimization, Nuclear Energy Research Initiative, Nuclear Energy Technologies), Infrastructure (includes Test Reactor Area Landlord, Fast Flux Test Facility, and Argonne National Laboratory-West), Nuclear Facilities Management, and Program Direction.

The following table summarizes the fiscal year 2002 request for Nuclear Energy programs:

Nuclear Energy Fiscal Year 2002 Budget Request

[In thousands of dollars]

Program Element	*Request*
Energy Supply:	
Advanced Radioisotope Power Systems	29,094
Medical Isotope Program	18,177
University Reactor Fuel Assistance and Support	11,974
Research & Development	27,079
Infrastructure	81,279
Nuclear Facilities Management	30,457
Program Direction	25,062
Total, Energy Supply	223,122

RESEARCH AND DEVELOPMENT

Accelerating Technology Innovation

I would now like to discuss in more detail the drivers for nuclear energy research, how we have structured and improved our processes for conducting research, our major accomplishments, and how our fiscal year 2002 budget request helps position the Nation to take full advantage of exciting new developments in nuclear technology.

Over the past several years, we have reinvented the Federal role in nuclear energy research and development. Recognizing the realities of today's fiscally constrained environment, we have reorganized how we conduct research to focus on accelerating innovation and assuring the best return on the investment for the Nation. We have returned to a more focused Federal role in conducting R&D—that is, investing most of our research portfolio on long-term, higher risk basic research aimed at reducing or eliminating significant barriers to future use of nuclear energy. This is research that typically is not within the shorter-term planning horizon of industry. Our R&D programs are designed to promote innovation and breakthrough technologies while limiting both the rate and duration of Federal investment—making good decisions on when to expand research that is promising, when to hand off successful projects to the private sector, and when to terminate projects that fall short.

The Department obtains advice on the direction of its nuclear energy R&D activities from the NERAC. NERAC, a formal Federal advisory committee, provides expert advice on long-range plans, priorities and strategies for the nuclear technology R&D and research infrastructure activities of our office. NERAC has several active subcommittees examining various aspects of nuclear technology R&D. Reports issued by these subcommittees that address the future of nuclear energy include the Long-Term Nuclear Technology Research and Development Plan, to guide nuclear energy research out to the year 2020, and the Nuclear Science and Technology Infrastructure Roadmap. NERAC is also providing expert advice to help guide development of the Generation IV Technology Roadmap. In addition, NERAC provides recommendations regarding government-industry cooperative research in support of the Nation's 103 operating nuclear power plants.

As I think most of us would agree, in order for nuclear energy to expand in the long-term, we must successfully deal with issues such as plant economics, waste, and proliferation. For example, in the longer term, by changing the way we design and manage commercial nuclear fuel, we may be able to address proliferation concerns, making it more difficult to use nuclear power systems to advance nuclear weapons programs. Technology may be able to reduce or even eliminate the production of plutonium in spent fuel. By exploring such advanced technologies as modular reactors with long-life cores and thorium-based fuel cycles, we may find technology-based solutions to one of nuclear power's most significant long-term challenges.

The Long-Term R&D Plan, developed by NERAC with significant input from the wider research community, recommends that R&D budget levels be increased in order to enable the Nation to realize further value from our currently operating nuclear plants; provide for economic technologies and approaches to build improved advanced reactors in the United States; complete a design for a Generation IV nuclear energy system; and support a range of enduring missions within the Department. NERAC has established a goal of conducting $240 million in nuclear energy research by 2005.

The Department initiated the Generation IV Nuclear Energy Systems Project in January 2000 by convening a meeting of senior policy officials from interested countries. Representatives of nine countries participated in this initial discussion and considered the long-term interest of the countries in the application of nuclear energy, the international interest in advanced nuclear technologies, the barriers that might prevent the future expansion of nuclear energy, and the interest of the representatives in exploring potential multilateral research projects to explore and develop new technologies. These representatives agreed to a Joint Statement regarding the importance of the nuclear energy option to the future and informally committed to a process to explore further cooperative activities.

As a result of this meeting, and subsequent meetings, the nine nations that first came together in January 2000 are planning the formal creation of a Generation IV International Forum (GIF) to pursue multilateral coordination and cooperation with the goal of identifying and developing Generation IV technologies that could address the factors impacting the expansion of nuclear energy internationally: economic competitiveness of building and operating nuclear energy systems; remaining concerns regarding nuclear safety and proliferation; and the challenge of minimizing and dealing successfully with nuclear wastes.

Our research and development initiatives remain the cornerstone of the Department's nuclear energy, science and technology program. These initiatives are undertaken on the basis that nuclear science and technology will continue to provide important technological benefits and advancements for the Nation in the 21st century.

The Nuclear Energy Research Initiative (NERI), a competitive, peer-reviewed research and development selection process to fund researcher-initiated R&D proposals from universities, national laboratories, and industry, has reinvigorated the Nation's nuclear energy R&D organizations. Focused on research to address the potential long-term barriers to expanded use of nuclear power—economics, safety, proliferation resistance, and waste minimization—the NERI program is yielding innovative scientific and engineering R&D in nuclear fission and reactor technology. Initiated in fiscal year 1999, this program signaled the return of the United States to nuclear R&D, but a return that reflected important lessons learned and a new appreciation for harnessing outside expertise to focus the research. NERI has, despite its limited funding, gone a long way to reinvigorate nuclear R&D in this country.

The goals of NERI are to develop revolutionary advanced concepts and scientific breakthroughs in nuclear fission and reactor technology to: address scientific and technical barriers to the long-term use of nuclear energy; advance the state of nuclear technology to maintain a competitive position in overseas and future domestic markets; and promote and maintain the nuclear science and engineering infrastructure to meet future technical challenges. The program is managed to promote collaboration between U.S. research institutions and information exchange with international organizations.

In fiscal year 2001, the Department launched an international version of NERI, the International Nuclear Energy Research Initiative (I–NERI), to sponsor innovative scientific and engineering research and development conducted by joint teams of U.S. and foreign researchers. Established as a cost-shared R&D program, the program objectives of the I–NERI program are to: promote bilateral and multilateral collaboration with international agencies and research organizations to improve the development of nuclear energy; and promote and maintain the U.S. nuclear science and engineering infrastructure to meet future technical challenges.

We are in the final stages of signing I–NERI agreements with France and South Korea. We are negotiating agreements with Japan and South Africa, which we hope to conclude this year. We also expect to conclude I–NERI agreements with the Nuclear Energy Agency of the Organization for Economic Cooperation and Development and with Euratom. When implemented, these agreements will magnify modest U.S. investments in R&D with great benefit to both the United States and our research partners. In addition to accelerating innovation and leveraging costs, I–NERI provides to the United States and the Department a key seat at the table in international policy discussions on the future direction of nuclear energy.

Our request of $18.1 million for NERI in fiscal year 2002 will allow continuation of the NERI and I–NERI research projects currently underway. The fiscal year 2002 request, however, reflects the Department's decision not to initiate new energy research activities until the Vice President's Task Force issues its national energy policy recommendations; therefore, no funding is being sought in fiscal year 2002 budget request for new research projects. During fiscal year 2002, the Department will complete 43 NERI research projects awarded in fiscal year 1999, and continue the 10 NERI research projects awarded in fiscal year 2000 and the 15 NERI projects expected to be awarded in fiscal year 2001. In fiscal year 2002, the Department will continue the bilateral international projects initiated in fiscal year 2001.

The Nuclear Energy Plant Optimization (NEPO) program plays a vital role in ensuring that current nuclear plants can continue to deliver reliable and economic energy supplies up to and beyond their initial 40-year license period by resolving open issues related to plant aging, and by applying new technologies to improve plant economics, reliability, and availability. The NEPO program is cost-shared with industry through the Electric Power Research Institute (EPRI) and is conducted in close cooperation with the NRC. The research conducted under the NEPO program is identified, prioritized, and selected with broad input from utilities, national laboratories, NERAC, and other stakeholders. With about a dozen projects underway, this program demonstrates the Department's ability to lead without massive funding: about 60 percent of NEPO funding is provided by industry and the suite of projects focuses on areas that industry would not have pursued on its own-projects that look at the long-term and focus on the need for a stable, reliable, non-polluting electricity source for the United States. We are requesting $4.5 million in fiscal year 2002 for NEPO research to improve existing plant operations, safety and reliability.

In fiscal year 2002, our NEPO program will sponsor several high-priority research projects, based on the critical R&D needs identified in the Joint DOE-Electric Power Research Institute Strategic R&D Plan to Optimize U.S. Nuclear Power Plants. This

comprehensive strategic R&D plan, developed jointly by the Department, industry, and a subcommittee of NERAC, includes near-term R&D that industry is doing on its own; long-term R&D in which the Federal investment is leveraged with industry to apply the unique infrastructure or expertise of DOE; and R&D that is needed to accelerate solutions to generic technical problems affecting existing nuclear power plants. The research projects conducted in the NEPO program address technical issues associated with a range of topics, including materials fatigue, fuel performance, component inspections, in-service inspections and testing, stress corrosion, and digital instrumentation and control.

New in fiscal year 2001, the Nuclear Energy Technologies (NET) program is enabling the Department to begin to work on the development of the next generation of advanced reactor technologies. We are currently developing a Generation IV Technology Roadmap to evaluate a variety of advanced nuclear energy system concepts using rigorous technology goals developed by NERAC and the international community and to define the needed research activities for the most promising concepts. The Generation IV goals include the ability of the designs to successfully compete in all markets with the most cost-efficient electricity production technologies available while further enhancing nuclear safety, minimizing the nuclear waste burden, and further reducing risk of proliferation.

The Generation IV Technology Roadmap project is drawing on a wide array of researchers, designers, and operators from industry, academia, the national laboratories, and the international community. Together, approximately 150 senior, experienced engineers and scientists from at least 10 countries will work together to create the Generation IV Technology Roadmap. We have found that U.S. leadership has been essential to this process and that without the Department's initiative, this type of effort would not have been possible. Moreover, our leadership in this area has proven to be a very important element in achieving our overall foreign policy and national security objectives. The Generation IV Technology Roadmap will also provide additional detail and focus to the Department's long-term R&D plan for nuclear technology. The fiscal year 2002 budget request of $4.5 million includes funding to complete the roadmap, which will be submitted to Congress by fall 2002.

Finally, in fiscal year 2001, the Department initiated the Advanced Accelerator Applications (AAA) program to pursue research and development on an accelerator technology with the potential to significantly reduce the radioactive toxicity and volume of civilian spent nuclear fuel, as well as to produce electricity to help offset the life cycle costs of the program. As part of this effort, the Department established a new "AAA University Fellowship" program and plans to award ten fellowships to support Masters Degree studies in areas related to the AAA program. Awards are planned to be given out within the next 60 days. As required by the fiscal year 2001 Energy and Water Appropriations legislation, the Department has prepared a ten-year program plan for management and execution of the AAA program, exploring the potential of this new type of research facility to meet U.S. needs in the 21st Century. However, for fiscal year 2002, the Department has requested no new funds for the AAA program. The Administration is reviewing U.S. energy policy and related research priorities. Until these priorities are clearly identified, the Department will not request funding for major new energy initiatives.

UNIVERSITY REACTOR FUEL ASSISTANCE AND SUPPORT

Investments in Education

Government, industry, and academia face similar challenges today as we seek to preserve the aging but highly developed science and technology infrastructure that the United States has developed over the last 50 years. This infrastructure is vital to delivering current and future mission-critical technologies and products to the nation. Similarly, preserving the human and research facility infrastructure at our universities and colleges remains key to preparing tomorrow's nuclear scientists and engineers. More trained personnel will be required to ensure an adequate knowledge base to support innovation and technological advancement.

The University Reactor Fuel Assistance and Support program carries out the Department's commitment to maintain U.S. leadership in nuclear research and education. For fiscal year 2002, we are requesting $12 million in total for this program, an amount equivalent to previous years. By supporting the operation and upgrade of university research reactors, providing fellowships and scholarships to outstanding students, and providing Nuclear Engineering Education Research Grants, the program helps maintain domestic capabilities to conduct research. The program also helps to maintain the critical infrastructure necessary to attract, educate and train the next generation of scientists and engineers with expertise in nuclear energy technologies.

Our efforts to attract students to nuclear engineering careers continue to be a major focus of our education support programs. NE's Nuclear Engineering Fellowship and Scholarship Program provides fellowships and scholarships to students enrolled in nuclear science and engineering programs at U.S. universities. This activity also pairs minority-serving institutions with nuclear engineering degree-granting institutions with the aim of increasing the number of minority students entering the field of nuclear engineering, while simultaneously strengthening the infrastructure of nuclear engineering education. In fiscal year 2001, we expect to fund three minority/majority partnerships, and plan to increase the number to six partnerships in fiscal year 2002.

In fiscal year 2001, and proposed in fiscal year 2002, the Department will provide 18 or more grants under the DOE-Utility Matching Grants Program to support education, training and innovative research at participating universities, in 50–50 cost-shared partnership with industry. We provide grants of up to $60,000 to each participating university. We also expect to award up to 50 scholarships and 24 fellowships this year and next. The fiscal year 2002 request also supports the Nuclear Engineering Education Research (NEER) program to stimulate innovative research at U.S. universities, at a level of $5.0 million. This investigator-initiated, peer-reviewed research program is vital to attracting and retaining faculty and students in nuclear engineering programs. This year, with well over 100 proposals received from universities, we will award 19 NEER grants and, with continuation of existing grants, increase the total number of research projects underway to 50.

In fiscal year 2002, Nuclear Energy will continue a program to support nuclear engineering education by teaming with a professional society with expertise in nuclear science and technology to provide information to high school teachers and students. This program will help ensure a highly informed group of students are available to enter university nuclear engineering programs and related scientific courses of study. We also will make new radiochemistry awards for the first time since fiscal year 1999. The three-year awards provide faculty support and student fellowships to help educate a new generation of radiochemists to address the technical challenges associated with radioactive wastes and contaminated sites.

University research reactors in the U.S. form a vital component of the nuclear science and technology and education infrastructure in this country. These facilities are an important source of neutrons supporting research that is critical to national priorities such as health care, materials science, environmental protection, food irradiation, and energy technology. Currently, there are 29 operating research reactors at 27 campuses in 20 states. However, many U.S. universities are currently considering the future of their reactors and some are contemplating the closure of their research reactor facilities. The Department is concerned about these developments, as is the NRC.

In response to this situation, the Department has asked NERAC to establish a special task force to recommend the most appropriate action for assuring that university-based facilities vital to our national infrastructure remain in operation. The task force has been conducting an intensive review and will report its findings and recommendations later this month.

This year, and proposed in fiscal year 2002, we will continue to supply fresh fuel to and transport spent fuel from university research reactors and to fund reactor equipment upgrades. Also, under the reactor sharing initiative, this year, and proposed in fiscal year 2002, we will continue to pair 23 institutions with research reactors to those institutions without research reactors to increase their opportunities for training, education and research in nuclear science and technology.

ADVANCED RADIOISOTOPE POWER SYSTEMS

Enabling Space Exploration and Discovery

When the astronauts first walked on the moon over 30 years ago, they placed radioisotope power systems on the surface to power through the long lunar night the experiment packages they left on the surface. The images of the outer planets Neptune and Jupiter that have thrilled the general public were made possible by the radioisotope power systems that powered these scientific spacecraft. Future exploration of the outer planets and their moons will continue to require nuclear power systems as scientists search to find answers on the origins of our solar system and even of how life began. Long time robotic exploration of Mars to pursue the potential of finding water or past life forms and eventual human exploration will also be made possible by radioisotope power systems and eventually by space reactors.

The Advanced Radioisotope Power Systems program is our Nation's only program for providing the capability to develop and build advanced nuclear power systems for deep space exploration and national security applications. The program supports

and funds DOE activities related to sustaining the unique infrastructure that allows the Department to develop, demonstrate, test, and deliver power systems to the National Aeronautics and Space Administration (NASA) and other Federal agencies. In fiscal year 2002, the Department is requesting $29.1 million for this program, which is the minimum amount required to sustain the basic capability.

Critical national security activities and NASA missions to explore deep space and the surfaces of planets could not occur without these systems. To date, DOE has provided over 40 radioisotope power systems and heater units for use on a total of 26 spacecraft. Previous NASA missions that have used DOE-built power systems include the Apollo lunar scientific packages, Pioneer, Viking, Voyager, Galileo, Ulysses, Mars Pathfinder, and Cassini. As we consider the American enterprise in space in the first decades of this new century, it is clear that DOE's advanced power technology will continue to be indispensable if we are to continue our exploration and advance human understanding of the universe. Clearly, there will be future missions and there will be a need for these systems.

In supporting these missions, consideration is being given during fiscal year 2002 to both a Small Radioisotope Thermoelectric Generator and a new, more efficient, Stirling engine conversion technology. The Stirling technology would require a lesser amount of plutonium-238, the heat-producing isotope that is used for all radioisotope power systems. Efforts will also proceed in support of providing Radioisotope Heater Units for two Mars Lander missions in 2003. This effort includes safety and environmental analyses to support both NASA's environmental documentation and the Department's preparation of Safety Analysis Reports, which are required to seek launch approval.

The expanding needs of our Nation's national security missions will require delivery of several radioisotope power systems over the next decade. We are currently developing a new, more efficient thermoelectric generator for these national security applications. In fiscal year 2002, we will continue testing the thermoelectric element, proceed with design, and initiate fabrication of an engineering unit of this new generator.

For the Department to be able to continue to support these important uses of radioisotope power systems, there must be an adequate supply of the radioisotope plutonium-238 that is the heat producing isotope upon which these systems are based. There is a finite U.S. supply of this isotope and the existing U.S. capability to produce the isotope is being shut down. Because of the projected long term need for this isotope to support future space missions, the Department evaluated the option of reestablishing a domestic production capability as part of a Programmatic Environmental Impact Statement (PEIS) on the Department's nuclear Infrastructure. The Record of Decision on this PEIS included a decision by former Secretary Richardson to reestablish this domestic capability. Funding for the initial planning for this capability is included in the fiscal year 2002 request.

The Department is also trying to position itself so that it can support future space exploration that will require higher power levels than can realistically be provided by radioisotope power systems—this requirement leads to the need for some type of space fission reactor. A space-based reactor will have to meet stringent requirements for reliability, size and weight. Therefore an assessment of potential space fission reactor technologies and concepts that could meet such requirements is a necessary first step in a space reactor program. Such an effort was begun in fiscal year 2001 will continue in fiscal year 2002 at a modest level. The assessment will focus on refining selected concepts and on evaluating programmatic factors such as cost, safety and schedule that would be associated with their potential development and delivery. NASA is an integral partner in this assessment and has provided the preliminary requirements upon which the assessments are based.

MEDICAL ISOTOPE PROGRAM

Harnessing Nuclear Technology to Save Lives

Medical isotopes save lives and reduce health care costs. Furthermore, accurate nuclear medicine diagnoses can enable physicians and patients to precisely target therapies, thus, in many cases, avoiding surgery or other debilitating treatments. The vast majority of these procedures use technetium-99m, an isotope first developed for medical applications in the 1960s at the Department's Brookhaven National Laboratory. Today, ground-breaking human clinical trials at Memorial Sloan Kettering Cancer Center are demonstrating that alpha-particle-emitting isotopes being produced at the Oak Ridge National Laboratory may be extremely effective in treating Acute Myelogenous Leukemia. Alpha-emitting isotopes work well when targeted to cancers because they provide high-intensity radiation over an extremely short dis-

tance. Thus, the cancer cells are destroyed with very little damage to surrounding tissues.

The Medical Isotope Program takes advantage of the Department's unique infrastructure, including DOE's research reactors and particle accelerators, to provide a reliable supply of stable and radioactive isotopes used in medicine, industry and research. Support of research applications that use isotopes is the Medical Isotope Program's primary focus. The program achieves this by providing peer-reviewed grants for medical research and education through the Advanced Nuclear Medicine Initiative (ANMI), by producing the low-volume, high-cost "boutique" isotopes that are needed for research, and by maintaining the unique Department of Energy infrastructure that is needed to produce isotopes.

The Department's fiscal year 2002 request for the Medical Isotope Program is $18.2 million. In fiscal year 2002, the Department will continue its emphasis on isotope-based research by applying $2.5 million to the Advanced Nuclear Medicine Initiative, a program that applies the Department's unique expertise to advance the state of U.S. medical research, diagnosis and treatment. We believe that, as in the example of alpha isotopes, advanced isotope-based therapies may hold the key to creating safe and efficient treatments for many types of cancer. The isotope program provides isotopes to researchers across the country and remains indispensable to the conduct of advanced research in the United States where isotopes are needed. In addition, the ANMI supports the development of science and technology programs at U.S. universities and colleges to address the critical need to train experts in fields relevant to nuclear medicine such as radiochemistry and radiopharmaceuticals.

The ANMI uses a peer-review process in which members of the NERAC and other prominent experts judge the scientific merits of projects proposed by universities, hospitals, and the national laboratories for funding. I am pleased with the results to date. In September, 2000, nine research grants were made. Recipients of these grants include the Garden State Cancer Center, Oak Ridge National Laboratory, Regents of the University of Michigan, University of Chicago, University of California Davis, University of Washington, Westinghouse Electric Company LLC, and two awards to the Curators of the University of Missouri. Five educational grants to support nuclear medicine disciplines at universities and colleges were made in March 2001 to Washington University, Purdue University, University of New Mexico Health Sciences, Regents of the University of Wisconsin System, and Washington State University. With the $2.5 million requested in fiscal year 2002, we propose to continue the research projects and assistance to students provided this year.

A total of $11.0 million will go toward maintaining core personnel and operating capabilities at the four Isotope Production and Distribution sites, and $250,000 toward improving the quality of isotope products and production processes. The fiscal year 2002 program will continue to serve its customers through the production and distribution of stable and radioactive isotopes necessary for medical, industrial, and research purposes. The Department is continuing its effort to exit commercial markets and to encourage new isotope production ventures by selling or leasing its facilities to the private sector, where possible.

However, we must reinvest in the production of isotopes to support the Nation's researchers. One of our most important projects in this area is the construction of an Isotope Production Facility (IPF) at Los Alamos National Laboratory which will maintain the Government's ability to produce short-lived isotopes required for some of the most important medical research underway in the United States.

During the past year, we became aware of some issues arising in the project to construct the IPF. Changes in the operating schedule of the LANSCE accelerator at the laboratory, increased costs for design and construction, and other issues were uncovered during reviews last year. We convened a special expert review to assess the situation and make recommendations about the continuation of the program. The primary charge to the review committee was to evaluate the IPF project team's revised cost and schedule estimate for completeness and credibility by analyzing the following: technical progress relative to the scientific requirements for the instrument; completeness of the scope; proposed budget, cost and schedule profile, including the commitment of funds and personnel and its adequacy to complete the project on schedule and within budget; proposed budget, cost and schedule profile for the instrumentation and controls on the new accelerator beam line and target handling system; whether the contingency is adequate for the project at this stage of its development; adequacy of management structures, including the relationships to the LANSCE mission organization, to deliver the IPF within specifications and budget and on time; and proposed budget, cost and schedule profile for the development, review and approval of the safety basis documentation and performance of the required readiness review.

With the help of this review, we have established a new, high-confidence bottom-up cost estimate of the remaining work. Our request of $2.494 million for the IPF in fiscal year 2002 is being submitted to enable the project to be completed in September 2003.

The Office of Nuclear Energy, Science and Technology is disappointed that these problems have occurred. In response to the problems that have developed in this project, oversight of the project will be strengthened by establishing an expert project review capability at the site which will report directly to the Office of Nuclear Energy, Science and Technology. We also plan to issue a competitive procurement for a separate subcontract to complete portions of the work on the IPF instrumentation and control system, an area where the current contractor's initial estimate proved to be extremely problematic. The current project request incorporates corrections to reflect actual costs and revised estimates deemed necessary to complete the project successfully.

Another key initiative of the Medical Isotope Program is the processing and extraction of alpha-emitting isotopes from residual uranium materials stored at the Oak Ridge National Laboratory. Researchers throughout the United States are assessing alpha-emitting radioisotopes that can destroy cancer cells and reduce tumors. Alpha-emitters such as Bismuth-213 have been demonstrated to be successful for cancer therapy. In an effort to meet increased demand to support human clinical trials, the Department is expanding its processing to achieve a 30 percent increase in supply over the next year. For the long term, the Department plans to double the supply of Bismuth-213 by 2002. However, this will require installation of a new processing line at ORNL. As additional supply is made available, researchers will increase human clinical trials and develop treatments for other serious cancers including cancer of the pancreas, kidneys and other organs.

Finally, as you know, this program operates under a revolving fund as established by the fiscal year 1990 Energy and Water Development Appropriations Act (Public Law 101–101), maintaining its financial viability with Congressional appropriations and revenues from the sales of isotopes and services. The last few years' efforts to privatize production and distribution of commercially viable isotopes, though successful, have placed additional pressure on the program's working capital. Commercial revenues, which contribute to the infrastructure fixed costs, are no longer available and, as a result, we are unable to invest in maintenance and upgrades needed for our infrastructure—an infrastructure which is vital to providing isotopes to our research customers. To that end, the Department will have to make capital investments in new, replaced, or enhanced processing equipment and infrastructure to improve production and processing of isotopes to meet current and anticipated future increases in demand.

INFRASTRUCTURE/NUCLEAR FACILITIES MANAGEMENT

Managing Federal Nuclear Facilities and Materials

The Office of Nuclear Energy, Science and Technology also is responsible for facilities and materials associated with current and past missions of the Office. In this capacity, NE serves as landlord at Argonne National Laboratory-West and the Idaho National Engineering and Environmental Laboratory's Test Reactor Area (TRA), both of which are in Idaho. Nuclear Energy is also responsible for the safe shutdown of the Fast Flux Test Facility (FFTF) in Hanford, Washington. As part of our stewardship over these facilities, we are responsible for the management and disposition, where appropriate, of nuclear materials.

The fiscal year 2002 budget request for Nuclear Facilities Management—$30.5 million—supports Experimental Breeder Reactor-II shutdown activities; the disposition of spent fuel and legacy materials; and research on, and development of, various waste disposition technologies. The activities of the Infrastructure program are focused on maintenance of the Argonne National Laboratory-West nuclear infrastructure, the TRA Landlord program, and the Fast Flux Test Facility (FFTF) shutdown and deactivation. A funding level of $81.3 million is proposed for this program in fiscal year 2002.

Under the Nuclear Facilities Management program, in March 2001, the Department completed the processing of the EBR–II secondary and primary sodium and the Fermi reactor sodium, in compliance with the Idaho National Engineering and Environmental Laboratory Treatment Plan, two months ahead of schedule. In fiscal year 2002, we will complete the engineering and technical efforts supporting the deactivation of the EBR–II and directly related facilities. The deactivation of EBR–II is currently on schedule to be completed by March 2002. We are requesting $4.2 million to complete EBR–II deactivation.

We will continue to carry out the disposition of spent fuel at ANL-West in accordance with the Record of Decision on the treatment and management of stored sodium-bonded fuel. Also, we intend to continue research that supports NRC approval of the disposal of metal and ceramic waste forms from the demonstration project in a geologic repository, and continue repackaging and removal activities for spent nuclear fuel that remains from an earlier fuel burn-up development program and is now stored by a commercial entity at ANL-West. These activities account for $16.3 million of the fiscal year 2002 request.

Finally, we are requesting $10.0 million for waste disposition technology activities, including R&D of process refinements to ensure proper treatment of EBR–II fuel rods; a development and test effort on waste stream treatment process equipment of a scale suitable for inventory treatment; long-term waste characterization tests; improvements to existing process equipment; and development of zeolite columns and other equipment refinements to reduce waste volume and improve process efficiency.

Within the Infrastructure program, the TRA Landlord program ensures reliable support for TRA activities, such as naval reactor fuel and core component testing at the Advanced Test Reactor and privatization of production of isotopes for medicine and industry. The program also funds operations, maintenance and upgrade activities for common site facilities and utilities and ensures environmental compliance at the Test Reactor Area, including identification of legacy waste and mitigation in accordance with State regulations and DOE agreements with the State of Idaho. In fiscal year 2002, we are requesting $8.7 million for these TRA-related activities.

The permanent deactivation of the Fast Flux Test Facility (FFTF) was directed in a Record of Decision (ROD) issued by the Department in January 2001. The fiscal year 2002 NE budget request reflects the investment required to continue FFTF deactivation, and to reach milestones crucial to an expeditious completion of deactivation activities in subsequent fiscal years. Experience gained from the deactivation of the Experimental Breeder Reactor-II (EBR–II) is being applied to the deactivation planning and execution for the FFTF. In fiscal year 2002, Argonne National Laboratory engineers will continue to work closely with deactivation staff at FFTF to ensure that lessons learned are imparted to the extent practicable. This engineering and analytical support is anticipated to result in efficiencies, and, in some cases, such as sodium processing, direct application of state-of-the-art technology developed specifically for deactivation purposes.

The remainder of the Infrastructure budget request is for Argonne National Laboratory-West Operations, for which we are requesting $34.1 million in fiscal year 2002. This funding will provide the engineering, technical, operator and technician support for maintaining the nuclear facilities at ANL–W in compliance with DOE Rules and Orders, environmental and industrial safety requirements, and good management practice. It will also support conceptual design activities for the Remote Treatment Facility project, which is needed for disposal of mixed transuranic waste stored at ANL–W. Construction on this facility is scheduled to begin in fiscal year 2005, with operations commencing in fiscal year 2009.

PROGRAM DIRECTION/ORGANIZATIONAL ISSUES

Continuing to Refocus the U.S. Nuclear R&D Program

NE represents the Federal Government's core expertise and capability in a wide range of civilian nuclear technologies. NE is one of the most diverse organizations in the Department. It is a research and development program that crosses many fields of application, all unified by its expertise and experience in the application of nuclear science and technology. The previous sections illustrate the breadth of our efforts.

During the past year, two nuclear-related activities were moved to other offices. The fiscal year 2001 appropriation language transferred Uranium Programs and related personnel funding from NE to the Office of Environmental Management (EM) in recognition of the fact that the bulk of activities in Uranium Programs fell closely under the areas of expertise and effort covered by EM. This change will assure that NE activities are strongly focused on research and development. Therefore, the fiscal year 2002 budget request for NE does not seek funding for any Uranium Program activities or personnel expenses. In addition, the Department decided in fiscal year 2001 that safeguards and security activities within the DOE complex are so important that they should be direct-funded programs rather than be funded as an indirect cost of doing business. Therefore, all of the funding included in the fiscal year 2002 NE budget request for safeguards and security activities reflects the transfer of funds to other program offices for carrying out these activities.

In the Program Direction category for fiscal year 2002, NE is requesting $25.1 million for salaries, travel, support services and other administrative expenses for headquarters and field personnel providing technical direction to NE programs. Our Program Direction funding also supports the many intensive activities of the NERAC.

As part of the Department's objective to maintain a highly skilled workforce, NE must hire additional staff to replenish critical technical expertise such as that required to assure the safe operation of the Department's various reactor facilities and to carry out new responsibilities such as the Nuclear Energy Research Initiative (NERI) and the Nuclear Energy Plant Optimization (NEPO) programs. In addition, NE is faced with another issue concerning the aging workforce. The average age of NE employees is 49, and there are many employees who will soon be eligible to retire (25 percent by December 31, 2001). Over 50 percent of the current organization could turn over within just a few years. Staffing levels have reached the point where some augmentation is necessary to be able to maintain a core staff of knowledgeable, competent, and experienced scientists and engineers to meet the growing responsibilities now being placed on the Office. NE is currently recruiting several entry-level engineering and scientific positions to replace senior, experienced technical staff expected to retire in the near future.

CONCLUSION

Over the last three years, the Nuclear Energy program has made great strides. We have launched three new research initiatives, and have successfully demonstrated a major technology for treatment of spent fuel. The budget we are proposing for fiscal year 2002 would provide for more focused international collaboration and leveraging of the Federal investment in nuclear energy R&D, and would sustain our enduring role in support of space exploration, would ensure the continuing supply of medical and research radioisotopes, and would provide for ongoing safe stewardship of our Federal nuclear facilities and materials.

As I said at the beginning of my testimony, we have a historic window of opportunity today to begin planning the next several decades of innovation. The decisions we collectively make today can significantly influence energy supply options and the environmental outcomes over the next 50 years. I look forward to working with you and the Subcommittee as we embark on preparing the technologies needed for this new century.

Mr. Chairman, this concludes my prepared statement. I would like to thank you and the Subcommittee members for your continuing support of the Nuclear Energy program. I will be happy to answer any questions.

Senator BENNETT. Senator Craig, do you have some questions or comment?

Senator CRAIG. I do.

Senator BENNETT. You are recognized.

Senator CRAIG. And if you have to go——

Senator BENNETT. No. You go ahead, and then we—we both have to go at 11:00.

Senator CRAIG. Oh, okay.

Senator BENNETT. We—we have—yes.

Senator CRAIG. All right. Well, then I will—then we will move right along.

Senator BENNETT. Yes, we have a vote.

GENERATION IV TECHNOLOGIES

Senator CRAIG. Gentlemen, thank you all for your testimony. I am pleased to hear your discussion about what is moving forward with nuclear energy and the concern, because I agree with you, Mr. Magwood, that where we are and where we need to be is—is very critical.

The Department of Energy has named the Idaho National Engineering and Environmental Laboratory and Argonne National Laboratory-West as lead laboratories for advanced nuclear reactor development. The budget request, as you mentioned, includes $4 mil-

lion for Generation IV advanced nuclear activities. What would DOE do—or what do you plan to do with that level of funding?

Mr. MAGWOOD. With that level of funding, we will be able to complete the Generation IV Technology roadmap. That roadmap is being administered and run largely by Idaho National Engineering Laboratory and Argonne National Laboratory. And they have been coordinating with the entire international research community to perform this effort.

Without them, quite frankly, it would not be possible to do this, so much of those resources are being used by Argonne and Idaho to pursue the technology roadmap, and we should complete it on schedule by the end of next year.

NUCLEAR ENERGY RESEARCH INITIATIVE

Senator CRAIG. Of course we understand that the budget request was cut by—well, there was an $18 million initiative there, the National Research—the National Energy Research Initiative, and that was cut down.

What are the implications of this reduction—reduced funding level for ongoing multi-year proposals, and will the program be able to fund any new research proposals?

Mr. MAGWOOD. The Nuclear Energy Research Initiative (NERI) is down from last year, down to about an $18 million request for fiscal year 2002.

We will not be able to support new proposals for 2002 with that funding level. This is somewhat of a concern to the research community obviously because we have been building some momentum with that program.

However, I think it is appropriate that we not make commitments for new programs unless we are certain that NERI will continue. Until the Department sets its priorities based on the Vice President's analysis, we would not want to make any promises we could not keep.

INFRASTRUCTURE

Senator CRAIG. Okay. I am concerned that funding requested for Argonne West in nuclear facilities management and—and infrastructure accounts is insufficient to meet the EBR2 spent fuel treatment deadlines and adequately maintain Argonne West's facilities as agreed to by DOE.

At the requested funding level, will DOE be able to meet the fuel treatment deadlines and also maintain Argonne West facilities?

Mr. MAGWOOD. For fiscal year 2002, the answer to that is yes. We are able to meet our commitments. It is clear, however, that in the future we will require more funding to meet all the commitments, particularly for treating spent nuclear fuel, but for 2002, we would have sufficient funds to continue to work where necessary.

UNIVERSITY NUCLEAR SCIENCE AND ENGINEERING PROGRAM

Senator CRAIG. Okay. You mentioned the need to keep university reactors up and the emergency situation there. I recently co-sponsored a bill with the Chairman of this subcommittee, Senator Domenici, and others, to provide other $30 million for support to

university nuclear science and engineering programs to address the critical need to educate the next generation of nuclear experts.

The budget request is only $12 million for these programs. Do you feel the level of funding will adequately address the university needs, and does that fit into this emergency situation you are speaking to?

Mr. MAGWOOD. Clearly, the budget was structured long before we had clear recommendations from NERAC as to what actions the Department should take.

We have now received those recommendations from NERAC, just yesterday. And while NERAC has not provided us with a specific target, it is clear that the current funding levels would not be adequate to respond to the need that NERAC has foreseen.

We clearly have to look closely at the NERAC's recommendations. They recommended we hold a workshop among the university community this summer. And after that, we would be in a position to better estimate what the need would be. But it would be more than the current $12 million budget.

ADVANCED SCIENTIFIC COMPUTING LEGISLATION

Senator CRAIG. Thank you.

Mr. Decker, I just happened to have come from the Commerce Committee where I testified on climate change. And a week ago, I was sitting with Dr. Charles Canal, who is the head of the National Research Council arm of the National Science—National Science Foundation as it relates to this overall study.

We were talking about the need of coordinating Federal resources to get to the business of building a major computer model for us to determine our future and our policy as it relates to climate change.

I think a lot of us forget that the Department of Energy is really a premiere science agency in many respects. And, of course, you have mentioned the human genome and the advanced computing applications worked on by DOE scientists. It is that computer capability that we need.

We do not need to go out and acquire new super computers. We simply need to be able to work, to schedule accordingly—and that may well be an approach that comes from this Administration and others. We are all counciling together now to see where we can get as it relates to bringing our science and our scientists together.

There is lots of good science out there. The question is the application, how it is analyzed, how it is peer-reviewed, and how it is applied. And it—probably from a regional and global standpoint, it is going to take a modeling that we are satisfied with compared to what we have been using.

Are you aware of Senate Bill 193, and are you supportive of it?

Dr. DECKER. No, sir, I am not aware of that bill.

Senator CRAIG. This would deal with—this is legislation related to advanced scientific computing programs within the DOE, within the Office of Science. I was just curious whether you were sensitive to that.

Dr. DECKER. I remember that there was some work being done on drafting a bill, but I do not think I have seen a recent version.

Senator CRAIG. Well, my guess is we are going to be working even more closely. I do not know how much all of this will come together, but it is very possible that in the near future a great new project for the supercomputers will be working to help shape a model.

Do I have time for one more question, or do you have some?

Senator BENNETT. Go ahead. Surely. Go ahead.

Senator CRAIG. Okay.

And this is for you, Mr. Dixon. Within the Office of Energy Efficiency, there is a program called Industries of the Future, which funds energy efficiency research and development divided by industry sector.

One of the industry sectors involved in the program is the mining industry. This program funds projects related to advanced mining equipment and technologies aimed at improving the safety and the productivity of mining and processing operations.

A total of only about $9 million has been spent on this program from fiscal year 1999 to 2001. Although the budget request for this program is only about $2 million in fiscal year 2002, this program is strongly supported by the National Mining Association and by mining programs at colleges around the country, such as the University of Idaho.

Do you feel the amount requested in the budget for the mining industry program is adequate? Is $2 million sufficient to continue funding an ongoing multi-year—or the ongoing multi-year proposal?

Dr. DIXON. Senator Craig, thank you for that question. The Industries of the Future's program is outside my specific jurisdiction, but I would be happy to take your question back to the Department and provide you an answer for the record.

Senator CRAIG. If you would do that and we will help direct it, we appreciate that. Thank you very much.

Dr. DIXON. Thank you, sir.

Senator CRAIG. Mr. Chairman, thank you.

[The information follows:]

MINING INDUSTRY OF THE FUTURE PROGRAM

The fiscal year 2002 congressional budget request of $2.11 million for the Mining Industry of The Future (IOF) program is an appropriate level. It will be used to maintain the funding of existing cost shared research programs targeted to increase cross cutting technologies in the coal and hard rock mining industries. It will also fund start up, costs shared, projects for mining industry wide processing research. These projects are aimed at energy savings while developing new, innovative, technologies that produce higher quality products at lower costs and protecting human health and the environment.

Mining Industry of The Future research and development projects, supported by the Department of Energy laboratories, are displaying improved energy conservation, while improving industry visions of advanced technologies that produce higher quality products and enhance the United States mining industry as the world leader in mining and mineral processing. The processing roadmap projects that are initiated will develop new outreaching technologies that will continue to advance the mining industry.

NUCLEAR POWER PLANTS

Senator BENNETT. Thank you.

Mr. Magwood, long before I came to the Senate, as a private citizen, I supported an increased use of nuclear power in the United

States. It simply made sense to me. Now, as a Senator, the more I get into it, the more sense it makes to me, particularly in view of the California situation and the difficulties that we are facing with respect to power. So your comments are very welcome and very optimistic.

My question is an unfair question, but we ask unfair questions all the time, and are asked unfair questions by the press all the time. How realistic is it?

Do you really sense that the political atmosphere is such in this country now that we can, in fact, build a new nuclear plant; or do you think that the appeals, the protests, the pickets, the rest of the folklore that has been built up around nuclear power will still be so strong that, in fact, we cannot build a new nuclear plant regardless of what the science says?

Mr. MAGWOOD. I think it is very realistic and I will give you the best reason why. When you talk to people across the country, there are obviously a variety of views about nuclear power: however, the people who are generally most familiar with nuclear power and the most accepting of nuclear power are these who live in communities around existing nuclear power plants.

They are very well informed due to the kinds of communications that take place with the utility. They reflect very high numbers in the polls when asked, "Would you like to see more nuclear power plants built in the United States?"

These communities would accept and have accepted the relicensing of existing nuclear power plants at existing sites. We believe that most utilities that are thinking about new nuclear power plants would build these new plants at existing sites.

So instead of breaking ground at a greenfield site, they would add to the nuclear power plants at a site that is already in operation. I think that the public around those plants are finding that very acceptable. And utilities are having those conversations and are thinking about that very carefully right now.

Senator BENNETT. Well, I hope you are right. I am afraid that the protestors very often do not live anywhere near the site that they are protesting.

I have had that experience in my own State. The Southern Utah Wilderness Alliance is made up of people who do not live in Southern Utah and, indeed most of them have never set foot in the State of Utah, but they are—I will not go down that road anymore. I am sorry.

RECYCLING SPENT NUCLEAR FUEL

Let us talk about recycling spent fuel in less toxic ways. You mentioned that in your opening statement. Bring me up to date on where the science is and how—how close we are to—to getting nuclear waste to a much more benign state.

I know you cannot ever reduce it completely to common dirt, but you can at least lower it from what it used to be. And just kind of go there for a little—for a little while with me.

Mr. MAGWOOD. Sure. It is an interesting subject, obviously over the last several years, it has been very difficult to have much of a conversation in the country about it. There was not really a polit-

ical environment to have a discussion about the possibility of recycling spent nuclear fuel.

Currently there is policy on the books that would prohibit the recycling of spent nuclear fuel. I think this is something that needs to be evaluated.

Senator BENNETT. Is that a Congressional mandate, or is an executive——

Mr. MAGWOOD. There is an executive order.

Senator BENNETT. Executive order, okay.

Mr. MAGWOOD. Rather Presidential decision directive, number 13, I believe.

We have had significant conversations with other countries, particularly the Japanese and the French, about advanced recycling technologies and also the use of high energy accelerators to transmute nuclear waste into less toxic forms.

I was talking to Burt Richter, the chairman of our NERAC Subcommittee, about this just yesterday. He told me that his calculation is that compared to spent nuclear fuel, which has a life of about 300,000 years, he believes that after going through recycling and transmutation, the resulting waste would last only about 3,000 years.

He also said that is just about the lifetime of the pyramids, so obviously we can deal with that. That was his quick analysis.

PUREX REPROCESSING TECHNOLOGY

There are clearly a lot of technical issues that remain. We would not want to see a vast expansion of the Purex reprocessing technology, which is practiced in Europe.

It creates a significant amount of separated plutonium. It also creates large amounts of high-level waste that would need to be dealt with. But there are prospects for more advanced technologies, such as accelerator transmutation to address these situations.

While I think we are not there yet, I certainly think that over probably about a 10-year period we could find technologies that would enable us to deal with nuclear waste. As you know the Department recently submitted a 10-year plan to Congress on the potential of using accelerators to transmute nuclear waste.

Senator BENNETT. That is encouraging, because aside from the waste issue—and I do not mean to minimize the waste issue—nuclear power is the cleanest and safest—I guess with the exception of hydroelectric.

But there is great opposition also to the building of dams. Indeed, there are those who say we must take down the dams that we currently have.

But nuclear power has the best safety record of any power plant that we operate. Is that not true or—is that hyperbole that I have heard that needs to be corrected?

Mr. MAGWOOD. Well, I have never heard of anyone killed by a solar cell. But I think that it is clearly true that——

Senator BENNETT. I do not know, sun cancer.

NUCLEAR SAFETY

Mr. MAGWOOD. I think it is clearly true that when you look at the fuel cycle of any source of electricity, be it coal, or natural gas,

that there have been, injuries and deaths associated with these industries.

However, in the United States, I do not think that anyone has ever been killed from the use of nuclear power. But there is a little hyperbole there, because there is, of course, with nuclear power the need to carefully manage the materials, to make sure the spent fuel is dealt with appropriately.

Senator BENNETT. Yes.

Mr. MAGWOOD To make sure that the plants are operated safely. As long as these things are done, nuclear power is very safe, and in this country it has an excellent record that we are very proud of. So I would conclude that nuclear power is very safe.

Senator BENNETT. Yes. I am glad to have you add that caveat, because we need to, "in this country."

Obviously, the specter of Chernobyl is there for the problems of nuclear in places where they do not do the kinds of things that you have described and that your office is involved in.

Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you very much. I regret I had two other hearings and another meeting this morning, so I missed the——

FISCAL YEAR 2002 BUDGET REQUEST FOR RENEWABLE ENERGY

Senator BENNETT. We understand, because we have all been cycling through here.

Senator DORGAN. I missed the testimony, but I have reviewed it. And I would like to ask a couple of questions, especially about renewable energy, if I might.

The renewable energy budget request for solar, wind, biomass, hydrogen, geothermal, hydropower, and so on, research and development is $237.4 million or a cut of 36 percent. I am very disappointed by that.

Obviously, we are facing very serious energy issues that we have to deal with. We are talking about increased production needs, increased conservation needs and so on. In my judgment, part of the solution is to continue to work to make renewable commercial and acceptable and to have it contribute to our energy supply.

Now, Dr. Dixon, you indicated there would be a budget amendment, and that is helpful, but it will still leave us far short of what we had last year and where we ought to be, in my judgment.

Let me just run through a couple of numbers. A $135 million cut, or a 36-percent cut from last year in renewables. The wind energy program is $20.5 million. Last year, the budget request was $50.5 million. That is a dramatic cut in support from the Administration.

Last year it was a substantial increase. This year, it is a dramatic request for a cut. Last year, we appropriated $39.5 million for wind. This year, you are asking for a cut nearly in half for wind energy. It seems to me like you are moving in exactly the opposite direction in this budget.

Can you tell me what the basis would be for taking the renewable section and gutting it?

Dr. DIXON. Thank you, Senate Dorgan. I believe your summary of the—the historical budget information is correct.

Just for the record, our 2002 budget request will total almost $277 million with a $39 million amendment, which is finding its way up to Capitol Hill.

I would like to refer you to the Secretary of Energy's statement when the President's budget was announced about 3 weeks ago. The Secretary of Energy specifically identified the hydrogen, high-temperature superconductivity, geothermal, and wind energy research programs, that they were maintained at levels that provide a launching point for new initiatives following the release of the Vice President's energy development task force report.

Senator DORGAN. What does that mean?

ENERGY POLICY REPORT

Dr. DIXON. The report will contain a number of chapters which address a variety of energy sources including renewable energy, and we have all been working together on the report. And we understand that our input is being considered and that there will be recommendations with regard to all energy sources in the future, development of those energy sources, including renewable energy.

So the wind energy program would be well positioned to be launched, pending the recommendations of that report.

Senator DORGAN. Do you know something? I do not have any idea what you just said, Dr. Dixon. I admire your public service but I just do not understand. You dig a hole and then talk about positioning for a launch.

Wind energy, which in my judgment has significant promise for this country. Let me just deal with wind for a moment. The efficiencies of the new wind turbines are very substantially improved. The capabilities for wind energy to be commercial and provide substantial opportunities for this country are enormous, and it looks to me like the proposal, even with the add-back is to cut wind energy by 50 percent. That does not make any sense to me.

I think you are saying, "Well, maybe, when the Vice President comes out with his program, we are going to launch something new," but, you know, you do not launch from a hole. And you are digging a hole here.

I do not mean to diminish what you just said. I just do not understand it. Any way to be more clear?

Dr. DIXON. Well, I think we need to wait for the recommendations of the Vice President's task force——

Senator DORGAN. Do you think that that is——

Dr. DIXON [continuing]. And hopefully that will provide some clarity with regard to the future priorities and directions of these programs.

Senator DORGAN. Is there some hope among this panel that the Vice President's task force will recommend at least equivalent funding, if not increased funding from last year with respect to wind energy, solar, biomass, hydrogen, geothermal, et cetera?

Dr. DIXON. Well, again, I would refer you to the Secretary's statement in which he specifically identified the wind energy program as being well positioned to be launched based upon the recommendations of the report.

Senator DORGAN. But that, of course, is at odds with the budget recommendation. So let me try again.

Are you saying that there is some possibility that when the Vice President announces his program that we may actually see wind energy funded at least at last year's level and perhaps an increase? Does that possibility exist in your judgment?

Dr. DIXON. That possibility exists.

Senater DORGAN. Can I call you?

Dr. DIXON. Yes.

Senator DORGAN. Let me just say that I think this is an awful time to be cutting these areas. I guess when you do your add-back here in 2 weeks, you are going to submit a budget amendment. And that amendment excludes, as I understand it, wind energy. The budget amendment is going to add to some renewables. But it will still come up far short.

You are saying in addition to this adding back, which represents a judgment that we are short, the Vice President will probably add back even further in some areas. Why would the 2-week add-back not include the Vice President's recommendations?

Dr. DIXON. Well, of course, the report is still a work in progress. And the amendment that is finding its way up here would address those priorities of the Secretary of Energy.

And we are hopeful that, in fact, the recommendations provide a clear list of priorities, and investments would be aligned with those priorities.

WIND ENERGY

Senator DORGAN. Last year, 54 Senators joined me in sending a letter to the Chairman and the Ranking Member supporting the renewables program. These 54 members of the U.S. Senate signed up to say, "Yes, we think this is really important." It is much more important this year, given what we see with respect to our energy problem.

We have to do a lot of everything. We have to find more, produce more. We have to conserve more. We have to do a lot of everything.

In my judgment, because I am a big fan of these areas, we especially have to find ways to bring renewable technologies into the commercial sector through research and development.

We are making great progress in doing that. Again, I have spent some time on the issue of wind energy myself and I am mightily impressed by the new technology in wind turbines.

The last thing we ought to do is slip and slide back on this issue. And that is what the budget does.

The add-back excludes wind; would you agree with that?

Dr. DIXON. Yes.

Senator DORGAN. Okay. So we have about a 50-percent cut in wind energy and you are going to have an add-back that excludes wind and I am to leave here hoping that we have dug a hole we are going to launch from when the Vice President offers his advice on renewables.

Well, I have got your phone number, Mr. Dixon, and you and I will chat again. I did want to at least come here and say that I think this energy issue we have is an abiding issue. It is a very difficult issue.

Some say, "We will drill in ANWR, and that is the solution." Some others say, "Renewables," but we are not going to get our

way out of this very quickly. And we have not had a decent energy policy under any administration, Republican or Democrat.

We are trying to find our way to do a lot of things, some of them very difficult. I am not a big fan of nuclear energy, I might say.

But, you know, I understand all the discussion about all these things, because this country is in a bind on energy. And we need to do a lot of things and do them right.

And included in that, at least from my little perspective here, is renewables. And I am terribly disappointed in the budget and very much hope that there would be good news coming from the Vice President's recommendations. But I must tell you that in the discussions that I have been privy to, I have heard talk about things other than renewable in a substantial way.

Mr. Chairman, we have a vote.

Senator BENNETT. Yes.

Senator DORGAN. Thank you for indulging me, even though I was late.

Senator BENNETT. No, no, not at all.

Senator DORGAN. Thank you very much.

ADDITIONAL COMMITTEE QUESTIONS

Senator BENNETT. Senator Domenici's opening statement will be included in the record, and his questions will be submitted in the record.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED TO THE OFFICE OF POWER TECHNOLOGIES, ENERGY EFFICIENCY AND RENEWABLE ENERGY

QUESTIONS SUBMITTED BY SENATOR HARRY REID

WIND

Question. The fiscal year 2001 Wind Energy Systems appropriation directed $100,000 to be provided to the Turtle Mountain Community College in North Dakota for a wind turbine for educational purposes. What is the status of this activity?

Answer. The Department's Wind Energy Systems Program has authorized this funding to the Golden Field Office, and negotiations are currently underway for the award of a grant to the College. We look forward to helping Turtle Mountain Community College make this project a successful experience for educating themselves and their community on the many benefits of wind energy.

GEOTHERMAL

Question. Why has the Department chosen to close out all Geothermal systems field verification projects?

Answer. Funding has already been provided under the existing field verification contracts for completion of preliminary engineering designs. The documentation of those designs will provide a useful basis for decisions regarding future power plant developments and may be sufficient to attract the private sector investment needed to complete the current projects.

Question. What is the status of the $2,000,000 Congressional earmark for the Lake County Basin 2000 Geothermal Project in California?

Answer. The Department's Idaho Operations Office has established a grant for the Lake County Sanitation District as a result of the $2,000,000 Congressional earmark. The funds will be used to complete the second phase of a pipeline project to transport treated wastewater to The Geysers geothermal steam field for power generation activities. The Department is pleased the project will provide benefits to Lake County residents and help maintain stable power production.

HYDROGEN

Question. How much funding are you prepared to provide to the Nevada Test Site to develop the fuel cell locomotive and front-end loader?

Answer. In fiscal year 2001 Congress appropriated $2 million for the development of a PEM fuel cell powered front-end loader for underground mining applications. This vehicle is intended to be refueled and tested in an underground mine in Nevada.

The goal of this fuel cell project is to develop and validate an articulated front-end loader capable of operating in deep mines without any of the emissions normally produced from diesel engines. This project will demonstrate the ability of the fuel cell to provide the power density necessary for a single shift operation, and interface dynamically with the rest of the mining equipment with the advantages of a longer-term storage system than a battery system. This technology offers application opportunities for both U.S. and Canadian mines. The Canadian government is also providing cost share funding.

A solicitation was issued for the design, development and manufacture of a locomotive and front-end loader for Nevada mines, and responses were received on March 1, 2001. The proposals are in the process of being evaluated. Provided there is a favorable review by the merit review committee and the proposal meets programmatic factors for a technology validation project, there should be a procurement decision shortly.

The Department expects to expend the entire two million dollars that has been allocated for this project in fiscal year 2001.

SUPERCONDUCTIVITY

Question. There was an increase in the fiscal year 2001 appropriation to accelerate development on the "second generation" of HTS (high temperature superconductivity) wires. What has resulted?

Answer. The funding increase was used to accelerate cost-shared research with several private sector companies and to better equip Los Alamos and Oak Ridge national laboratories to effectively work with U.S. industry to develop the "second generation" of HTS wires.

The funding has been used at Los Alamos to hire three new staff members and to purchase state of the art research equipment for a new 10,000 square foot laboratory in the Industrial Research Park now under construction at the LANL site. The research park will host joint laboratory/industry research for accelerated HTS wire development. Dedication of the new laboratory will take place this summer.

The funding has also been used at Oak Ridge to equip a renovated 2,300 square feet laboratory space where research previously conducted in several separate laboratories has been consolidated. The new laboratory was dedicated on April 19, 2001 in a ceremony attended by House Science Committee staff. A new permanent Oak Ridge staff member and two post-doctoral research fellows have been hired to staff the laboratory.

BIOMASS

Question. What is the status of the Iowa switchgrass project and are you requesting funds for the continuation of this project?

Answer. The Iowa Chariton Valley switchgrass project was awarded on a Rural Development competitive solicitation to demonstrate closed loop biomass co-firing with coal. This project has great potential to successfully verify the co-firing of switchgrass with coal and the potential for establishing a new alternative energy crop that can provide financial benefits to the farm economy. The cooperative agreement is a three-phased arrangement. Phase 1 is defined as: Integrated system development, engineering, and environmental permitting and licensing; Phase 2 as a demonstration phase is comprised of the establishment of the biomass crop, facility construction, and testing of both the supply system and the conversion facility; and Phase 3 as a commercial operation phase in which the integrated biomass production and conversion facility will be functioning in a commercial operations mode without Federal funds.

We are currently negotiating the advancement of the project from Phase 1 to Phase 2 which will use fiscal year 2001 appropriations and the work will be completed as part of each Phase. The program has planned for up to $3 million of the fiscal year 2002 requested budget to be directed toward this project, however, this is dependent upon the results of the aforementioned ongoing negotiations.

SOLAR

Question. For the last several years, your office has been extolling the virtues of PV—now you are reducing the PV budget by about 50 percent. What changed your mind about the benefits of PV?

Answer. We have not changed our mind. We will continue core research and development in photovoltaics. The reduction in funding reflects the early achievement of agreements to meet the goals of the Million Solar Roofs program. In addition, the Administration will be examining other options for expanding the use of solar power.

Question. Do you still believe in the technology?

Answer. Yes, but the Nation needs a balance of clean and reliable near-term and long-term energy options; if our new National Energy Policy is to succeed, we will need to make adjustments in funding for programs based on overall National priorities.

Question. How will reduced funding impact our U.S. industry?

Answer. The photovoltaic industry in the United States is growing rapidly. For example, U.S. photovoltaic manufacturing has increased by about 20 percent per year for a decade. The Administration will continue to examine other avenues besides R&D funding to ensure that this industry will continue to grow.

MILLION SOLAR ROOFS

Question. You have not requested funding for the Million Solar Roofs Initiative. What happened to these activities?

Answer. The Million Solar Roofs Initiative (MSRI) served as an organizing impetus for more than 50 state and local community solar partnerships, which include people and groups with a broad range of interests and expertise in solar. These partners have already committed to seeing that more that one million solar energy systems are installed on homes and buildings across the nation in these communities by 2010. We regard the mission of this program successfully completed.

Question. What was accomplished with these funds?

Answer. The Million Solar Roofs Initiative (MSRI) provides direct technical and information service to the more than 50 state and local community solar partnerships which volunteered to promote the use of solar technologies in their communities. No funding was used for subsidizing or purchasing equipment. The bulk of the 6.8 million dollars in funding from fiscal year 1999–2001 was distributed as small grants to community partnerships to be used for planning and implementing community based activities meant to encourage solar energy deployment. The partnerships benefit from the information outreach and barrier reduction tools (such as training programs, web based information, informational brochures) that were developed under the program. All program milestones were met ahead of schedule.

RELIABILITY

Question. What is Reliability?

Answer. The long-held definition of electric reliability is that the power system is able to provide a secure and adequate amount of electric power to meet customer demand. "Secure" means that reserve system capacity is maintained to meet unexpected contingencies like a sudden loss of a large generator or transmission line, and "adequate" means that sufficient generation and transmission capacity is available to supply the projected load. Normally, system operators maintain reserve capacity for a contingency that is equivalent to the loss of the largest generator or transmission line in the system. Adequate power is the amount needed to serve the peak load for the coming year, usually caused by air conditioning load during extended periods of extreme heat, plus reserves for contingencies. If these conditions are not met, system operators are likely to institute voltage reductions and rolling blackouts rather than risk damage to equipment or system voltage collapse that could result in extended wide spread outages. Reliability can be compromised by either inadequate generation or transmission.

A variation of reliability is the high power quality required in today's digital economy. Highly sensitive digital equipment used in process controls, internet routers, and e-commerce requires an extremely stable and continuous voltage and power supply. This power quality is being supplied today by combinations of multiple utility feeds to these customers as well as distributed generation and energy storage incorporating high speed power electronic switching sited near the sensitive load.

Question. What is this program doing to support the Western Situation?

Answer. The Transmission Reliability (TR) program is engaged in research and development activities to address both the generation and transmission problems on the Western electric power system.

The Transmission Reliability program is supporting installation of a voltage monitoring system that includes enhanced visualization to allow California's transmission operators to view the health of the system in real time and take pro-active steps to avert emergency situations. Other prototype reliability tools capable of tracking generator outputs and power flows throughout the Western system will be available this year. The TR program is also working with California regulators and system operators to adapt existing interruptible load programs to allow loads to respond to system emergencies and high prices. The Program is also supporting the development of advanced composite conductors that can be used to replace existing conductors to carry two to three times the power, and relieve transmission bottlenecks.

On the generation side, strategically located distributed generation can also relieve transmission bottlenecks, provide capacity, and enhance power quality to sensitive customer loads. While economic incentives for conventional generation are provided through competitive markets, TR program support is being directed to help clear the regulatory, technical, and institutional barriers to the deployment of significant numbers of small distributed generation and storage technologies sited near the customer load. The Program is supporting the accelerated development of standards to interconnect distributed generation, along with energy storage, into the system and developing models to optimize their penetration into the distribution system to provide highly reliable energy and power quality services into competitive markets. Planning is underway for distributed generation test beds at various locations, including the Nevada Test Site, to evaluate and certify these interconnection standards and system models.

RENEWABLES

Question. We need to increase energy supply and reduce demand. How does cutting the renewables program help the nation increase its supply of energy, a supply that doesn't pollute the air and water?

Answer. Renewable energy resources provide a comparatively small, but still important, percentage of energy in the United States today. Depending upon water availability for hydroelectric production, renewables provide between nine and twelve percent of our Nation's electric power. Two to three percent of this electricity comes from non-hydro and non-wood renewable resources today. Since the U.S. demand for energy continues to climb, the Department believes the most responsible course of action is to focus its energy production R&D dollars on those technologies with the greatest potential for providing affordable electricity, heat, and liquid fuels for the American public. Research in renewables is only part of the solution to the energy supply program. We will also strive to ensure that these technologies do not compromise our shared goals for a clean environment.

Question. The OPT strategic plan calls for a tripling of U.S. capacity of non-hydroelectric renewables by 2010. That's a change from 3.5 percent today to about 10–11 percent in 2010. How will that be accomplished with the reductions in funding for renewable R&D? Is all the technology in place to triple the renewable supply? By the way, EIA predicts U.S. renewable capacity will remain essentially flat through 2010.

Answer. First to clarify, the OPT strategic plan referred to the tripling of non-hydroelectric, non-biomass "new" renewable electricity generation. It excluded from the 1997 baseline traditional biomass electricity generation such as the pulp & paper industry's use of wood waste to generate electricity with a relatively low efficiency boiler/steam turbine configuration. Thus, the baseline in 1997 was 8,300 MW (according to EIA's Annual Energy Outlook). A tripling of this would be 25,000 MW, which our Fiscal Year 2001 Government Performance and Results Act (GPRA) metrics indicated we could reach by 2010, assuming flat fiscal year 2001 funding into the future and no policy change. We used this analysis last spring to support the goal stated in the strategic plan. In contrast, 10–11 percent of EIA's projected 2010 capacity would be 93,000–103,000 MW, which is larger than this 25,000 MW goal.

Our preliminary GPRA estimate for the requested fiscal year 2002 budget is that the tripling of non-hydroelectric "new" renewables would now be achieved by about 2015. (See p. 266 of the budget request) However, our estimate does not take into account the effect of the removal or reduction of non-funding barriers like siting and permitting, or the addition of financial incentives.

To date, we have only one detailed technology analysis—for the Wind Program—of the impact of the fiscal year 2002 amended request, assuming flat fiscal year 2002 funding into the future and no policy change. This analysis indicates that we do have the technology "in place" for wind's contribution to tripling the renewable supply by the delayed goal year of 2015—mainly by exploiting class 6+ (high average wind speed >15 mph) winds. Longer term goals to tap more abundant class 4 winds (moderate average wind speed of 13 mph) will be pursued on a slower track, because the funding changes could affect the advances in applied R&D and slow market penetration. Increased market incentives would help class 6 wind technology enter the market more quickly, but would have less impact on class 4 wind technology which requires more R&D. We are working on detailed estimates for all OPT technologies with major changes in funding levels in fiscal year 2002 relative to fiscal year 2001.

Question. It's nice to see funding for the "hydrogen" program held constant, but it should increase. To prevent pollution, hydrogen must come from splitting water (i.e., electrolysis) using a renewable or clean energy source—and not from cooking a hydrocarbon source. So, why are we cutting renewables that should be the primary source to generate hydrogen.

Answer. The Department strongly supports the Hydrogen R&D program and has structured a balanced approach for pursuing the development of hydrogen production, storage, infrastructure, and utilization technologies. Substantial progress toward achieving the much-discussed "hydrogen economy" may be possible within the next twenty to forty years. In the near term, our approach is to cost-effectively produce hydrogen from existing resources as cleanly as possible, with longer term goals of cost-competitively producing hydrogen from renewables or other clean sources. With regards to the former, within the DOE Hydrogen program itself today, we are studying innovative methods for extracting hydrogen from readily available fossil fuels and sequestering the carbon so that it does not enter the atmosphere. We are also funding research on photobiological methods for producing hydrogen, using specialized bacteria as the hydrogen production source. Finally, cost-effective hydrogen may also someday be produced by using excess electric production from renewable energy technologies to split water into hydrogen and oxygen during non-peak times. This opportunity may well help enable certain renewable energy technologies achieve better cost profiles and enter the marketplace faster due to their expanded product capabilities. However, it is important that these renewable energy technologies also attain significant marketplace value in their own right. The Department continues to fund renewable energy research and development at adequate levels.

Question. It sounds fantastic, but a 100 mile by 100 mile photovoltaic array placed in Nevada today could actually meet the entire country's energy needs. Why, then, are we cutting solar renewables by more than 50 percent ?

Answer. The Department's current Solar Energy Technologies program focuses on three principal areas: Concentrating Solar Power, Photovoltaics, and Solar Buildings technologies. Research on Concentrating Solar Power has pursued three types of applications—power towers, solar troughs, and dish/engine systems. DOE's power tower R&D and analysis was completed in fiscal year 2000. Commercial power tower systems are currently being developed in Spain, with Morocco and Egypt also actively considering use of these systems. While this generation of technology is not generally considered cost-competitive for use in the U.S. at the present time, one could reasonably expect that industry will continue to make incremental technology and operating and maintenance improvements that may one day allow their introduction into the U.S. market in appropriate locations. Solar troughs have been operating in the U.S. Southwest for a number of years. Substantial federal funding leading to big improvements in operating and maintenance cost reductions and the potential for new thermal storage techniques to increase energy efficiencies suggest that it is time for Federal R&D on this application to end. Finally, DOE research has led to the development of several sizes of solar dish/engine systems that can provide onsite, village, or even utility scale electric power. While these dish/engine systems require a modest amount of additional R&D, we believe that the private sector partners can be encouraged to carry out any further efforts.

In Solar Buildings, research and testing on new polymers for key components of an advanced solar hot water (SHW) system that cuts costs in half and weighs 50 percent less is entering the final phases of R&D. Thus the portion of the request pertaining to SHW development is less than in prior years. Additionally, the funding in this area maintains the core of other solar buildings research.

Finally, the reduction in funding requested for photovoltaics reflects the early achievement of agreements to meet the goals of the Million Solar Roofs program and refocusing of the rest of the program on essential R&D.

Question. Nevada is the Saudi Arabia of geothermal and can develop 2500–3700 MW by 2010, meeting a significant fraction of the State's energy needs. Why are we cutting geothermal renewables in half, especially since these resources are in the West?

Answer. The budget will maintain an adequate level for the Geothermal Program. The Program will focus at exploration and resource characterization and plans on providing technical support to better define the resource potential. We agree that Nevada possesses substantial geothermal resources. But a sizeable fraction of those resources has not been well defined or characterized to allow development. To the extent possible, the Program will work with industry to develop and provide the tools and information needed by Nevada and other states to explore and characterize the potential of their geothermal resources. In addition, the Administration will look for ways to reduce regulatory and siting barriers to increased geothermal use—key priorities of the industry.

Question. If we added $135 million to the EE/RE budget, where would you put it?

Answer. Based on recommendations in the National Energy Policy, the Office of Energy Efficiency and Renewable Energy has been asked to begin a strategic review of its programs' current funding and historic performance. The National Energy Policy also calls for such a review of the Renewable Energy program. Based on this review, we will propose appropriate funding of those research and development programs that are found to be performance-based and are modeled as public-private partnerships. We will be able to make more specific recommendations as our program reviews progress.

Question. What would the impact be on the solar, geothermal and wind industries and their potential to supply additional clean power in the near future if this budget request goes through?

Answer. The benefits to our Nation's energy portfolio from these domestic energy technologies will be impacted but in varying degrees as each has a different time frame for R&D needs.

The main constraint impacting the near-term supply of photovoltaic (solar electric) energy systems is limited manufacturing capacity. Reduced Federal spending on photovoltaic R&D may potentially affect progress in expanding manufacturing capacity; the private sector will have to increase its investment in R&D to address this problem. Reductions in longer term research will not impact the near term potential for photovoltaics to supply electricity, but will result in slower progress toward the next generation of photovoltaics and manufacturing technology.

In the geothermal industry, the slower pace of research and development to decrease costs will extend the time-frame for potential new geothermal facilities to be installed. Geothermal technology goals leading to commercialization of the next generation systems will be extended.

Technologies presently under development by the DOE wind energy program, in conjunction with the U.S. wind industry, can enable a twenty-fold or more expansion of usable wind resources and make wind energy economically viable without the need for Federal incentives.

DOE wind and geothermal programs will turn over to industry the efforts to characterize resources and identify technical and market barriers to supply.

Question. What is the Department's goal for renewable energy's share of electricity generation.

Answer. The official DOE renewable energy goal as published in the April 2001 DOE Performance plan states: "The Department's research, development and deployment efforts (past as well as current) will help contribute to[1] nearly 25,000 megawatts of non-hydroelectric renewable[2] generating capacity by 2015." The Energy Information Administration estimates that total U.S. electricity generation capacity in 2015 will be 994,400 MW. Thus, DOE's tripling goal for non-hydro, non-wood renewables would translate into an estimated 2.5 percent of total electric generation capacity by 2015.

Question. Why is the Indian renewable resources program zeroed out?

Answer. All projects presently being undertaken by this program are scheduled to either be completed or are assumed to be continued by private sector partners. No further funding is being requested in fiscal year 2002 in order to support higher priorities within Renewable Energy Resources programs.

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[1] Other factors other than the OPT program such as production tax credits for renewables, state renewable portfolio standards, international (especially European) programs also contribute to this goal.

[2] This also excludes electricity generated with pulp & paper industry by-products.

Question. What portion of the EE/RE budget, if any, is intended to help satisfy our commitment to reduce greenhouse gas emissions?

Answer. None of the EE/RE budget is undertaken specifically and solely to reduce greenhouse gas emissions. Instead, the EE/RE programs address a wide variety of public interests-including reducing energy costs for consumers, reducing local, regional, and global environmental burdens and impacts, reducing oil consumption, and maintaining U.S. leadership in energy science and technology. At the same time, virtually all of the EERE programs support RD&D on or the deployment of technologies that reduce greenhouse gas emissions, either through reducing the use of fossil fuels or by substituting renewable energy for fossil fuels—and most renewable energy produces no or very small amounts of net greenhouse gas emissions. EERE programs have particular value because they provide these multiple benefits simultaneously.

Question. What impacts will these proposed cuts have on achieving the petroleum displacement and renewable energy production (and consumption by Federal facilities—FEMP) goals in the Energy Policy Act of 1992?

Answer. The reduction in the 2002 budget of the Federal Energy Management Program will not have a direct impact on the Federal energy reduction goal in the Energy Policy Act of 1992. The EPACT goal called for a 20 percent reduction in Federal building energy by 2000 compared to 1985 when measured on a Btu-per-square-foot basis. This goal was achieved in fiscal year 1999 with a reduction of 20.7 percent and preliminary data for fiscal year 2000 indicates a reduction of greater than 21 percent.

Question. What is the current electricity bill for Federal facilities? How much of the that could be met using renewables? What's the average price per kilowatt hour paid in DOE regions?

Answer. During fiscal year 1999 (the latest year for which finalized data is available), the Federal Government spent $3.033 billion for 54,057.3 gigawatt-hours of electricity. This translates into a national average price per kilowatt hour of $0.056. Average prices by DOE region of Federal Government purchased electricity is unavailable because Federal agencies do not report energy consumption and cost data on a state by state basis.

Using national generation data from the Energy Information Administration, we estimate that approximately 10 percent of electricity consumed by the Federal Government is already generated from renewable sources as part of the conventional electrical distribution system (i.e., including large-scale hydropower).

Excluding electricity from hydropower, the Government is working toward a goal of using the equivalent of 2.5 percent of facilities' electricity consumption from new renewable energy sources by 2005. Using 1999 Federal energy consumption data as the basis for calculations, the 2005 goal translates to 1,351 gigawatt-hours of electricity annually that will come from new renewable sources. A preliminary analysis conducted last year found that 173 GWh (0.3 percent of total consumption) of new renewable energy was either already in use or available under contract in the Federal sector. In addition to purchasing renewable electricity, agencies are pursuing renewable energy in the form of solar thermal applications and distributed energy resources that use photovoltaics, wind power, and biomass, among other renewables. We believe these activities will result in meeting that goal. The Department will continue to monitor and report progress by Federal Government agencies in meeting the Executive Order 13123 goals which implicitly includes the renewable goal.

Question. If Federal facilities were required to purchase at least 7 percent of their electricity from generators using renewable energy sources, what would the avoided pollution benefits be? What is the current percentage?

Answer. Using national average generation mix and carbon coefficients from the Energy Information Administration, a renewable electricity purchase of 7 percent of the Federal facility total would represent emissions of approximately 600,000 metric tons of carbon equivalent annually.

Using national generation data from the Energy Information Administration, we estimate that approximately 10 percent of electricity consumed by the Federal Government is already generated from renewable sources as part of the conventional electrical distribution system (i.e., including large-scale hydropower).

ENERGY EFFICIENCY

Question. How much money has industry saved as a result of energy efficiency programs? Isn't there a huge return on investment?

Answer. As a result of DOE research and development partnerships with industry, over 140 technologies have successfully reached the marketplace since 1980. The documented cumulative energy savings of these technologies and other Office

of Industrial Technologies (OIT) programs was approximately 1.6 quads through 1999. Using an industrial energy price of $6.3 billion per quad (source: Energy Information Agency), the cumulative energy cost savings to industry to date is over $10 billion; in 1999 the savings in that year alone was $1.2 billion.

It is difficult to accurately calculate the return on investment, since the technologies developed are usually the result of multi-year research and program efforts with substantial contributions from industry. The cumulative savings of $10 billion from these technologies and programs was achieved with the cumulative fiscal OIT budgets over that time of less than $2 billion. However, this comparison includes neither the private sector cost share nor the investment that is required to commercialize and deploy these technologies, and where technology was replaced, no allowance was made for competing technology efficiency. On the other hand, the comparison does not include the significantly larger cost savings over the expected future life of the technology nor from the productivity, environmental, and safety benefits of these technologies. It also does not include the indirect cost benefits from OIT programs, such as knowledge transferred through workshops, case studies, grants, information clearinghouses, decision tools, and cooperative programs with state and local agencies. These integrated efforts facilitate the adoption of best energy practices in industrial facilities and accelerate the development of other advanced technologies.

Question. Doesn't it make better sense to promote energy efficiency? Isn't it cheaper to save fuel than to buy fuel.

Answer. We cannot simply conserve our way out of our current energy needs. Consumers can invest in more energy efficient appliances and equipment when it makes economic sense for them to do so, and energy efficiency is certainly a vital component of the recommendations made by Vice President Cheney's National Energy Policy report. But while energy efficiency will continue to improve, our growing population and economy, plus new energy uses, will add to our overall energy needs. A healthy economy requires that we have sufficient, affordable, and reliable domestic energy resources to meet those energy needs.

Question. Now that the Administration has chosen to relax the energy efficiency standard for central air conditioners—a matter of great concern to Nevadans—how are we going to make up for all that lost energy?

Answer. By 2030, the standards (13 SEER) for residential central air conditioners and heat pumps that was issued in January 2001 are projected to save 4.2 quads. The proposed 12/12 SEER standard for residential central air conditioners and heat pumps is projected to save 3 quads by 2030. The proposed standard of a 13 SEER is the subject of a legal challenge, which questions the validity of that rule due to a potential detrimental impact on consumers. The new energy policy under development will address additional opportunities to save energy.

Question. How much of your budget will be devoted to updating existing appliance efficiency standards? Are any major rules for new standards expected this fiscal year? Or are there any more relaxations/rollback/revisions coming up? How many standards?

Answer. In fiscal year 2002 approximately $5.1 M will be devoted to updating existing appliance efficiency standards. There are no major rules expected in fiscal year 2002. Having completed 5 final rules in fiscal year 2000 and fiscal year 2001, we are just initiating three standard rulemakings. Because it takes approximately three years to complete a rule, we anticipate some final rules in fiscal year 2003. We do not anticipate any more relaxations/rollback/revisions. We will be reopening the rule on residential central air conditioners and heat pumps and expect that the rule will be finalized some time this year.

Question. Does the Administration intend to maintain the Executive Orders on bioenergy and energy efficiency? If so, how does this budget request comport with the requirements of those Orders?

Answer. Public Law 106–224, Title III—Biomass Research and Development Act of 2000 established the Biomass Research and Development Initiative. The Initiative is to stimulate collaboration in all aspects of biomass processing, strengthen the intellectual resources of the United States in the field of biomass processing, and promote integrated research partnerships among colleges, universities, national laboratories, Federal and State research agencies, and the private sector. The Act superceded the Executive Order in the establishment of the Interagency Council and the Advisory Committee and created the Biomass Research and Development Board and the Biomass Research and Development Technical Advisory Committee. Both the Executive Order and the Act specify broad cooperation and coordination in biomass research and development to leverage the Federal investment, specify research and development to allow biomass to provide national benefit for sustainable resource supply, the reduction in greenhouse gas emissions, healthier rural economies,

improved strategic security and trade balances, and continue to support the Federal investment in research that will support the biobased industry. The Biomass Research and Development Act of 2000 provides the launching point for continued investment, coordination, and leveraging of efforts across the Federal structure, and significant benefit to the Nation from biobased products and bioenergy. The fiscal year 2002 budget request provides near-level funding for biobased products and bioenergy including $5 million new integrated research and development projects, and will allow these important activities to go forward strongly.

The Administration intends to maintain Executive Order 13123, Greening the Government Through Efficient Energy Management. The Energy Policy Act of 1992 required that Federal buildings reduce their energy consumption by 20 percent from 1985 levels by 2000. Executive Order 13123 builds on these goals by requiring Federal agencies to reduce energy use in Federal buildings by 35 percent from 1985 levels by 2010. As the President indicated with the new directive on Federal energy conservation, this Administration is committed to smart energy management in our Federal facilities. We are working not only to reduce energy use in general, but also to reduce peak demand in key areas and thereby help prevent power outages. FEMP plays an important role in providing technical assistance and information to agencies on how to best implement energy conservation projects. FEMP also helps agencies access private sector financing to undertake many of these projects. We encourage Federal agencies to use energy savings performance contracts and utility contracts to help save energy and money.

QUESTION SUBMITTED BY SENATOR PATTY MURRAY

Question. Mr Dixon, the President's budget has significant cuts in Renewable Energy Budgets—roughly 30–35 percent. Can you provide a rationale as to how these cuts can be defended at a time when we have a significant energy supply shortage in the west, including the Pacific Northwest.

Answer. Given both the many public and programmatic responsibilities of the Department—as well as our obligation as stewards of taxpayer resources—DOE's fiscal year 2002 budget request outlines a new approach to meeting our Nation's most near-term energy needs and lays a foundation for meeting longer term priorities. For example, significant funding is requested for electric energy systems R&D that is critical to meeting our Nation's growing need for highly reliable and responsive power delivery systems. Our inability to deliver power from points where supply is ample to regions experiencing a shortage is severely hampered by our aging and constrained current system. We have also requested nearly level funding for Biomass research and development to provide new sources of electric power, liquid fuels, and high-value products. If one considers that nearly 20 percent of last year's appropriations for Biomass R&D were earmarked, the request for this line item as it stands would actually increase funds available for key biomass research as requested by the Department. Additionally, several programs are either at a point in their development where industry should begin to take on funding responsibilities and the Federal role should be phased out.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

WORKING WITH NNSA LABS

Question. The National Nuclear Security Administration started operation as a semi-autonomous agency with the Department last year. The NNSA labs of Los Alamos, Sandia and Lawrence Livermore have a long tradition of supporting a broad range of scientific initiatives beyond weapons activities. As the NNSA was created, I emphasized the importance of the NNSA labs continuing their multi-program support of the Department and other federal agencies.

The enabling legislation, in Section 3264, states that: "The Secretary, in consultation with the Administrator, shall establish procedures to provide for the use . . . of the national security labs by elements of the DOE not within the Administration . . . ."

Despite the legislation, I am concerned that the NNSA labs will not continue to receive high priority funding from the Department.

Will each of you assure me that you will continue to aggressively fund projects within the NNSA labs?

Answer. The Office of Science funds over $150,000,000 in research at the three National Nuclear Security Administration (NNSA) national laboratories at Livermore, Los Alamos, and Sandia. The Office of Science programs use both prospective

and retrospective merit or peer review in evaluating proposals for new science and in managing on-going research programs at all of the Department's laboratories, including the NNSA laboratories. The programs take into consideration the results of these reviews in making decisions on what future research to fund and which ongoing meritorious projects to continue within available research budgets.

A recent review by the Office of Science of the research activities at the NNSA laboratories concluded that the current process is working well and that no new barriers have arisen to our ensuring effective management of the Office of Science research programs at the NNSA laboratories. Therefore SC expects that with outstanding merit and peer reviews, and adequate research funds from the congress, to be able to continue to support excellent research at the NNSA labs.

Question. Have discussions been initiated between your Office and NNSA to define mechanisms to maintain close collaborations, both for NNSA lab support to your Office and for your labs to support NNSA as required?

Answer. As you know, many of the NNSA laboratories work in partnerships with the Office of Science laboratories to achieve the most outstanding and cost effective results for SC and DOE research projects ranging from the construction of the Spallation Neutron Source, to operation of the Human Genome Center; and even participating in NNSA partnerships with the private sector, like the recent Extreme Ultraviolet Cooperative Research and Development Agreements (CRADA). Using the existing outstanding core competencies of all of the laboratories in the Department's system, we are able to avoid duplicating outstanding capabilities that already exist.

The Department, including NNSA and the Office of Science, is committed to ensuring that this cost effective laboratory complex approach will continue to thrive within the new organizational framework and ensure the most effective use of all of the DOE laboratories. SC and NNSA have discussed our commitment to this approach at the Quarterly Laboratory Directors Meetings with all of the major laboratories, and there is broad support for its continuation.

General Gordon held a series of Science Day celebrations at the three NNSA laboratories, in partnership with the Office of Science, where both discussed their commitment to close collaboration and support for each others needs, as required.

The Office of Science uses the annual Institutional Planning process to review regularly on-going work and new initiatives of all of the programs at its laboratories in the context of a five year plan and a 15-year projection of each laboratory's overall vision. These plans are reviewed by all of the program users of the laboratory and the plans and initiatives are discussed at an on-site meeting at the laboratory with participation by representatives from the DOE programs supporting research there. This process is one way to ensure that the close collaboration with NNSA continues and that any problems that arise are addressed on a regular basis and resolved.

Question. Do you foresee any barriers to maintaining close working relations between your Office and the NNSA?

Answer. No. In fact, our relations are closer than they were before the creation of the NNSA.

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Despite the legislation, I am concerned that the NNSA labs will not continue to receive high priority funding from the Department.

Will each of you assure me that you will continue to aggressively fund projects within the NNSA labs?

Answer. Work with the NNSA will continue as appropriate to expertise and available funding. Several of these labs have critical expertise to our programs and should continue to provide support as defined by the overall goals of the programs they support.

Question. Have discussions been initiated between your Office and NNSA to define mechanisms to maintain close collaboration, both for NNSA lab support to your office and for your labs to support NNSA as required?

Answer. We have not begun any new discussions with NNSA. We continue to honor our ongoing collaborations. The goal has been to utilize the best expertise available and this goal will continue to be the basis for ongoing or new work with these labs.

Question. Do you foresee any barriers to maintaining close working relations between your Office and NNSA?

Answer. No, we do not anticipate any barriers.

BIOMASS V. SOLAR

Question. Dr. Dixon, the Renewables budget was cut substantially in the request. However, I note that biomass programs were largely funded at last year's level, while solar programs are almost cut in half.

How do you account for the great disparity in the treatment between solar and biomass?

Answer. Both these programs are important. Biomass power has great potential to impact near term emissions from existing coal plants when it is co-fired with coal. As our country will continue to rely heavily on coal power for electricity generation, making that process as clean as possible is a critical national need. DOE's integrated biomass R&D efforts also address the need for clean domestic liquid transportation fuels and high-value chemical feedstocks and other products that are often derived from imported oil.

Solar's greatest potential is longer term. As a small but rapidly growing technology, it holds great promise for very large future public benefits. We are attempting to support both these technologies. We have attempted to place priority on the projects in both these programs that have the clearest, near term benefits to the public in return for their financial support.

The Solar R&D funding request maintains an adequate level of effort. Additionally, the Administration recently sent a budget amendment to the Congress that reduced funding for the Partnership for a New Generation of Vehicles by $39.1M and allocated the funds to selected renewable energy technologies.

Question. What is the reason behind your decision to close-out the Concentrating Solar Power research effort?

Answer. While some research remains to be done on this technology, we are reprioritizing our Federal energy research efforts as described above.

RELIABILITY

Question. In Senate report language for the current year, the Department was urged to begin a research program to develop solutions for grid reliability issues through the use of advanced computer simulations capabilities available within the national laboratories.

What has the Department done in this area?

Answer. The Pacific Northwest National Laboratory (PNNL) is leading a project to use real time data to validate existing models in the Western electric power system, and establish specifications and standards for data sharing and communications for real time control systems. PNNL and the Oak Ridge National Laboratory are investigating the integration of on-line and off-line security analysis software tools to manage security assessment and congestion management in a grid that is becoming increasingly complex. The Department also supported discussions with Los Alamos National Laboratory concerning their capabilities in computer simulation and power system analysis for possible participation in the program.

Question. Does DOE have any plans to increase its leadership in the area of understanding policies and issues related to power grid reliability?

Answer. The Department recognizes that reliable power system operation depends on the availability of sufficient reliability related (or ancillary) services to the system operator. Under electricity restructuring, electric energy and ancillary services will be acquired through market-based approaches. Therefore, in collaboration with electricity industry stakeholders, the Department's Transmission Reliability program defined and initiated a reliability and markets activity that takes a science-based approach to the analysis of evolving market structures and institutions to assess the market's efficacy in maintaining reliability. Projects in the reliability and markets activity include: load as a reliability resource; experimental market simulations to assess market participant behavior under alternative market structures; tools to reveal in advance how system constraints affect markets; and the evaluation of emerging markets on reliability. Proposed market structures were subjected to the experimental market simulation, and the results communicated to a Blue Ribbon panel examining market issues in that State. The Department is also increasing

its emphasis on the evaluation of issues surrounding transmission system congestion relief.

HIGH TEMPERATURE SUPERCONDUCTIVITY CENTER

This year the committee added more money to accelerate the development, commercialization, and application of high temperature superconductor technologies through joint efforts of Oak Ridge and Los Alamos National Labs.

Question. Please provide an update of this effort and describe the types of commercial possibilities that exist?

Answer. DOE funding specified for the Accelerated Coated Conductor Initiative (ACCI) has been used to increase cost-shared research at several private companies. It has also enabled the acquisition of additional capital equipment and technical staff at both Los Alamos and Oak Ridge national laboratories that will greatly accelerate development of the next generation of superconducting wire. The effort has already accomplished a great deal. A January 2001 two-day workshop with over 100 industry, government and academic experts produced an R&D roadmap for research activities and respective government/industry roles that will guide activities over the period through 2010. Los Alamos will use their additional equipment and staff in a 10,000 square foot laboratory being constructed for joint laboratory/industry projects in the new Industrial Research Park on the LANL site. Dedication will take place this summer. Oak Ridge has purchased equipment and added staff for a 2,300 square foot refurbished laboratory space for joint research with private companies that allows consolidation of activities previously spread throughout the laboratory.

Question. In order to achieve commercial success, what level of investment should be made in R & D over what period of time?

Answer. Commercial possibilities include cost-effective, high performance power cables, transformers, motors, generators, and other equipment that will strengthen the US electric power system.

At fiscal year 2002 funding levels, we believe we can produce and field a precommercial High Temperature Superconductor power transformer by 2005 and produce a 100 meter second generation cable capable of carrying 2,000 amps by 2006.

QUESTIONS SUBMITTED TO THE OFFICE OF SCIENCE

QUESTIONS SUBMITTED BY SENATOR HARRY REID

FUSION ENERGY SCIENCES

Question. If Japan and Europe proceed with the next phase of International Thermonuclear Experimental Reactor (ITER), is there any problem if the US is just a bystander and does not contribute to this effort?

Answer. If Japan and Europe, and Russia proceed with the next phase of ITER, which would be construction, and the U.S. is a bystander, the U.S. would miss an excellent opportunity to be involved in a meaningful way in highly relevant fusion research. The science and technology to be gained from a burning plasma fusion facility like ITER are important to the scientific understanding of the fusion process as well as to the future development of fusion energy. The Secretary of Energy Advisory Board, the National Research Council, and the Fusion Energy Sciences Advisory Committee have all recently emphasized that study of burning plasmas is an essential next step in understanding the science of the fusion process, and the U.S. scientific community would be eager to participate in the research experiments to be conducted in such a facility.

Early involvement in the construction phase of this project would allow the Department and U.S. industry to benefit from the technology development inherent in construction of a state of the art scientific facility. There are also specific subsystems, such as the diagnostic instruments that measure and record the phenomena occurring in the plasma during experimental runs, in which the U.S. has world class design capabilities and could contribute significantly to the eventual success of the project. Finally, early involvement would place the U.S. program in a better position to influence details of the design, to ensure that the scientific needs of our program are met.

Question. We keep hearing we are entering another "energy crisis" and we have been hearing about fusion for many years. Should we still be funding Fusion research?

Answer. Fusion remains an important element in the Nation's long-term energy supply portfolio. The Secretary of Energy Advisory Board, in the report of its 1999

review of the fusion program, stated " . . . in light of fusion's potential and the risks arising from increasing worldwide energy demand and from eventually declining fossil energy supply, it is our view that we should pursue fusion energy aggressively."

There has been great progress in fusion energy development in the past decade. It is now the consensus of the fusion community in the United States, in Japan, and in Europe, that we can now design and build a large fusion device capable of producing a large net power output for brief periods. The challenge today is to more fully develop our scientific understanding of the behavior of high temperature plasmas, as well as needed fusion materials and technologies, to allow us to design and build fusion devices that can meet the utility industry's need for economically viable power plants.

The results of fusion research also continue to contribute to our economy in other ways. The fusion program has been the driving force behind the development of plasma science, which is key to such innovative technologies as plasma processing of semiconductor chips, new forms of lighting, state-of-the-art video display screens, fiber optic communications systems, and pollution control devices.

GENOMES TO LIFE

Question. This "Genomes to Life" program looks interesting. Why isn't this a National Institutes of Health (NIH) program? How does DOE funding of Genomes to Life help DOE's mission?

Answer. Genomes to Life is about the future of biology now that the potential for and value of doing genome-scale science has been so clearly demonstrated by the ongoing success of the Human Genome Project. Genomes to Life has its origins in the wealth of recently acquired DNA sequence information from a growing number of organisms (from humans to microbes). The Human Genome Project is about decoding the basic set of instructions, the DNA sequence, for human life. Genomes to Life is about developing the next level of technologies and knowledge needed to understand how that basic instruction set is converted into living organisms—whether a human or a microbe. While there are clearly differences between humans and microbes, many of the fundamental "rules of life" for the conversion of DNA sequence information into life will be common among all forms of life.

DOE is a logical agency to initiate this research program for two reasons. First, DOE has unique multi-disciplinary resources and capabilities in high throughput biology and in the mathematical, computational, engineering and physical sciences all of which will be needed to systematically tackle questions about critical life processes. Second, DOE facilities and research supported at its national laboratories and in premier academic institutions that played key enabling and scientific roles in the genomics revolution will also be needed for Genomes to Life. From the initiation of the Human Genome Project and the Microbial Genome Program to the development of key enabling technologies and resources, DOE already has a strong record of "kick-starting" various aspects of the biotechnology revolution. DOE is again poised to make important contributions to this next revolution in biology.

Other agencies, including the National Institutes of Health (NIH), will play central roles in using and expanding the technologies and information generated in Genomes to Life. NIH has an interest in pathogenic microbes which are not a focus of this program while DOE's focus, and the focus of Genomes to Life, is on microbes that can be used to address DOE needs. In addition, there are subtle differences in the strategies used to fund research at these different agencies, including DOE. These differences make the funding of new, high risk, technologically intensive research more likely at DOE than at NIH, an observation repeatedly made by many NIH-funded scientists and both current and former members of NIH advisory committees. A strength of the U.S. research enterprise is its diversity of funding sources, organizational strategies, and management styles. The initiation of this new initiative, Genomes to Life, by DOE is an excellent example of the value of this diversity.

The fundamental knowledge acquired in Genomes to Life about the multiprotein molecular "machines" that make living things come alive, about the on/off switches and rheostats that control these machines, and about the functional capabilities of complex microbial communities will address DOE mission needs. Having this information will enable scientists to develop new biologically based strategies for energy production, mitigating the long-term impacts of climate changes, cleaning up the environment, and reducing the threat of biological terrorism. This understanding of complex biological systems will also help protect people from adverse effects of exposure to environmental toxins and radiation by leading to an increased understanding of genetic factors that determine individual susceptibility to these agents.

ATTRACTING SCIENTISTS

Question. Are you having problems attracting scientists to your labs given that some of them are 50 years old and in deteriorating condition?

Answer. We have anecdotal comments from Lawrence Berkeley, Brookhaven and Oak Ridge National Laboratories that scientists are, in fact, declining job offers based on the quality of working space. Their concerns range from quality of facilities and equipment and appearance to location and amenities. At the Oak Ridge National Laboratory, they are having difficulty recruiting, even in the very "hot" field of genomics, due to the current state of the existing labs.

Recruitment of new staff is particularly critical at this time as the generation that helped build the labs retires and the labs compete in the job market to replace them. While it is always difficult in hot new areas like genomics and nanoscience, decaying facilities and sites, lack of adequate housing for post-doc and graduate students, and salary gaps are making recruitment even more difficult. I should add that retaining the current staff is not easy either.

PROJECT MANAGEMENT ENVIRONMENT

Question. What is this new Project Management Environment (PME) system? Is this another DOE computer system? How will PME improve things at DOE?

Answer. The Corporate R&D Portfolio Management Environment is the technology infrastructure, information integration methodologies, and process enhancements that will enable cradle-to-grave tracking of research projects, information sharing across programs, and "corporate" snapshots of the Department's R&D.

It is a corporate, distributed information management system that enables the electronic assembly of R&D project management data from existing heterogeneous systems from across the DOE complex and where needed, provides the information management modules that enable electronic capture of critical data elements necessary to have a complete e-government solution to track research projects from the point of proposal submission to the Department, through reviews, funds distribution, tracking and reporting back to the Department (e.g., progress, highlights, publications, funds expended) to completion.

Fully implemented the environment will: (1) streamline the proposal submission significantly reducing the burden (by eliminating the need to submit proposals in multiple formats for different program offices) on the researchers; (2) streamline the funds instructions and distribution process to enable an earlier start on projects (in some cases, 30–60 days) after completion of the review process; (3) reduce reconciliation, copying, and redundant data entry costs across the complex; (4) enable the Department to track and report, on a routine basis, on R&D efforts using a consistent approach for a "corporate" perspective; (5) enable program managers to work together to make strategic R&D investments; (6) reduce the burden on the program managers, and hence the field, for ad hoc queries and data collection efforts; (7) enable the Department to better report to Congress, OMB, and OSTP in a consistent manner not previously possible; (8) change the culture to make R&D tracking and reporting an integrated, team effort across the Department with standards and methodologies to help guide the development of future systems across the DOE complex; and (9) move the Department toward R&D project management best practices and better alignment with applicable laws.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

ENVIRONMENTAL MOLECULAR SCIENCES LABORATORY

Question. Mr. Decker, the Science budget contains all of the funding for Pacific Northwest National Laboratory's Environmental Molecular Sciences Laboratory (EMSL), as well as a variety of research programs. Will the funds in the Administration's budget accomplish the goal of a $10 million equipment upgrade for EMSL?

Answer. In fiscal year 2001, the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) received capital equipment funds of $4,450,000 to ". . . expand the user capabilities of EMSL to include high-throughput functional genomics and structural biology." The fiscal year 2002 President's Request includes $5,461,000 to ". . . lease and operate a 2 to 3 teraflop high performance computer for the EMSL to replace its current ¼ teraflop computer . . ." The fiscal year 2001 capital equipment funds are expected to increase the number of EMSL users conducting structural biology research by 10 percent over the fiscal year 2000 level of 590. The fiscal year 2002 funding for the high performance computer will allow

EMSL to increase the number of users conducting "grand challenge" computational projects by 10 percent over the fiscal year 2001 level of 750.

GENOMES TO LIFE

Question. Mr. Decker, the Science budget also includes the funding for the initiative called "Genomes to Life" (GTL). This is the new program that seeks to build upon the information from the human genome to understand proteins and how they work in organisms. What are the long term plans for the Department's Genomes to Life initiative?

Answer. Whereas the Human Genome Project has focused on DNA, Genomes to Life will focus on proteins, the action molecules of living systems. Proteins are the motors, pumps, chemical catalysts, detectors, signals and signalers, structural units, gatekeepers, dismantlers, assemblers, and garbage handlers of living systems. Proteins rarely work alone. They assemble into larger multi-protein complexes often referred to as molecular machines. Understanding the nature and regulation of these molecular machines is a major goal of Genomes to Life. Similarly, microbes of potential importance for DOE's energy and cleanup missions rarely work alone in nature and are often found as part of complex, and poorly understood consortia of many different types of microbes. Understanding these consortia is another major goal of Genomes to Life.

The scientific plan of Genomes to Life is to identify life's molecular machines, the multiprotein complexes that carry out the functions of living systems; characterize the gene regulatory networks and processes that control these multiprotein molecular machines; characterize the functional repertoire of complex microbial communities in their natural environments; and develop computers and other computational capabilities needed to model the complexity of biological systems.

These scientific goals, and the broader context for Genomes to Life, are described in detail in the recently completed Genomes to Life "roadmap." This document is available in hard copy and at http://www.doegenomestolife.org/. The Genomes to Life roadmap describes a very broad outline for 10 years of research to address the fundamental scientific goals outlined above. It includes estimates of time for broad program goals. The Genomes to Life roadmap was prepared in response to a report of the Biological and Environmental Research Advisory Committee (BERAC).

Although the use of the new resources and technologies developed in Genomes to Life by scientists in the public and private sector will eventually involve funding that dwarfs investments in Genomes to Life, the Biological and Environmental Research Advisory Committee (BERAC) recommended sustained funding of $200,000,000 per year for Genomes to Life for 10 years.

QUESTION SUBMITTED BY SENATOR PETE V. DOMENICI

BUDGET FOR SCIENCE

Question. What is your view of the impact of a relatively flat Science budget and what is your view of the imbalance of investment between the life sciences and the physical sciences?

Answer. Over the past decade, the Office of Science has been faced with relatively flat budgets. This has resulted in below optimum utilization of some large scientific facilities, and prioritization of our research to focus funding on areas with the greatest promise. In this environment, we have continued to make significant contributions to both the DOE mission and to the advance of science more broadly. We have also made our unique suite of state-of-the-art large scientific user facilities available to a user community that has grown significantly, even if the operation of some facilities was not funded at desired levels. Nevertheless, we have not been able to take full advantage of many research opportunities.

The substantial increases in funding for life sciences during this same period have been justified by the scientific advances in this area, and their potential contributions to both the health of our citizens and the growth of the economy. I believe that the physical sciences are now faced with equivalent opportunities in many areas. For example, nanoscience promises a revolutionary impact on our lives comparable to that following the development of semiconductors, and has profound implications for the future of medicine and the life sciences generally.

FACILITY OPERATIONS

Question. With the increased number of new facilities and an increasing proportion of the Science budget going to facilities support at the expense of the R&D budget, what are the impacts of this trend and what dangers are lurking if it is not corrected?

Answer. The Office of Science is the world's premier organization for the planning, construction, and operation of major scientific user facilities for physics, high performance computing, materials sciences and related disciplines, and environmental sciences. More than 16,000 users perform experiments at these facilities each year, producing seminal results in all fields. This collection of facilities is a remarkable success story, and it is the envy of the world.

Yet, at the same time, funding for research in the physical sciences—and in particular for the Office of Science—has not kept pace with scientific inflation for more than a decade. The survey done last summer on staffing levels throughout the SC laboratory system showed that, during the past decade, research staffing levels had declined by 15 percent or more at most of the laboratories in virtually all SC program areas. The situation in the university community is similar—fewer principal investigators and students are supported. The situation is further exacerbated because several of the laboratories are now in the process of redressing past salary imbalances with respect to local and national competition.

This flat funding for the physical sciences will continue to erode staffing levels at the DOE laboratories and in the universities. Within a decade, these losses will likely impact U.S. industrial competitiveness, since virtually all of this Nation's advances in communications, information technology, and other high tech industries and products had their origins in the physical sciences.

GENOMES TO LIFE

Question. The Office of Science really provided enormous positive press for the DOE with its outstanding contribution to the completion of the human DNA sequence. The follow-on program designed to understand how genes function is called "Bringing the Genome to Life." This program is very important now that we have the genetic blue-print in hand.

How do you see this new program working within the national laboratories?

Answer. Genomes to Life will fund research at national laboratories, universities, and research institutions and in partnership with the private sector. Within the national laboratories, DOE has unique multi-disciplinary resources and capabilities in high throughput biology and in the mathematical, computational, imaging, engineering, and physical sciences all of which will be needed to systematically tackle questions about critical life processes. DOE facilities and research supported at its national laboratories and in premier academic institutions that played key enabling and scientific roles in the genomics revolution will also be needed for Genomes to Life. While research funded as part of Genomes to Life will only be funded following our normal process of rigorous peer review, we anticipate that the success of this new program will depend on all of these various national laboratory capabilities.

Question. What role will the NNSA laboratories have in this program?

Answer. The role of the NNSA laboratories will be the same as that of the other DOE laboratories. The NNSA laboratories provide some of the key capabilities that serve as the foundation for Genomes to Life such as unique multi-disciplinary resources and capabilities in high throughput biology and in the mathematical, computational, imaging, engineering, and physical sciences all of which will be needed to systematically tackle questions about critical life processes. For example, Lawrence Livermore and Los Alamos National Laboratories are key members of DOE's Joint Genome Institute that will certainly play an important role in the DNA sequencing components of Genomes to Life. The recently signed CRADA between Sandia National Laboratory and Celera Genomics is an example of the kind of computational investments that will be needed for Genomes to Life to which NNSA laboratories will make key contributions.

INFRASTRUCTURE AT THE SCIENCE LABS

Question. The infrastructure problems in the defense nuclear weapons complex have received a lot of attention lately. But the infrastructure problems at the DOE are not exclusive to the weapons complex. DOE has failed to properly invest in its facilities throughout.

Dr. Decker, how serious is the infrastructure problem in the Science Labs?

Answer. The Science infrastructure problem is very serious. Nearly 41 percent of the SC laboratories space was built in the 40's and 50's and another 27 percent was built in the 60's. Together, this is a whopping 68 percent that is 30 years or older. And, over the last ten years as the full effects of aging were hitting our facilities and the need to repair and replace facilities became more urgent, our infrastructure budget has remained level as the overall Science budget has remained level. The infrastructure funds that we have received have been directed primarily toward environmental, safety and health needs and utility systems because they have a high-

er, immediate priority compared to most building renovations. At our current budget levels, we cannot provide the significant funds needed to address the projected modernization needs of our Office of Science laboratories without significantly reducing our scientific research activities.

We have determined in our recent planning efforts that the shortfall of unfunded backlog of capital investment needs to modernize the Science laboratories is $1.3 billion. Capital investment needs include general purpose facility line item construction, general plant projects and general purpose equipment. New scientific research facilities such as accelerators or user facilities are not included. This figure is based on a total "projected" modernization cost of $2 billion over the next 10 years less the current projected funding level of $730 million for the same period. It is our strong view that a modern, effective and efficient physical infrastructure is of critical importance to maintaining the capability of the Science laboratories to continue America's world-class scientific research into the twenty first century.

Question. How are the infrastructure problems affecting your mission?

Answer. Mission activities are affected in many ways. We have many outdated facilities that are not fully utilized because of design and layout issues. Facilities are unable to support next-generation equipment. Ventilation systems and environmental controls are inadequate for modern sensitive equipment. Utility systems are noncompliant with current regulations and approaching end of service life. The removal of excess facilities is proceeding very slowly due to funding and priority issues in DOE's cleanup program. Deferral of excess facilities removal requires continuing expenditures for surveillance and maintenance along with associated liabilities of these facilities. High operating, maintenance, and utility costs for older facilities (both active and excess ones) are driving up the overall cost of R&D. Decaying facilities also make recruiting and retaining scientific staff much more difficult.

Question. Have you completed a comprehensive assessment of the infrastructure problems and how do we fix the problem?

Answer. Yes, we have completed a survey of the projected modernization needs as mentioned and briefly described above. The Strategic Facilities Plans that the laboratories submitted and our summary survey report are available on our web site: "http://www.sc.doe.gov/production/er-80/er-82/labs21/index.htm".

Our strategy for fixing the problem includes: increasing our capital investment rate to a level more consistent with the size, age and condition of our facilities; pursuing third party financing (such as we are doing at Oak Ridge National Laboratory); increasing the use of Energy Savings Performance Contracts and Utilities Incentive Programs to address energy efficiency issues; increasing laboratory maintenance and facilities retirement funding; and, addressing the clean-up and removal of excess facilities. Additionally, we plan a much stronger focus on facilities management throughout the Science complex and a better understanding of the true cost of doing the Science research business.

SPALLATION NEUTRON SOURCE

Question. The Department has requested $276 million in construction funding for the Spallation Neutron Source in Tennessee. There has recently been a change in the leadership of that project.

Is that project on cost and on budget?

Answer. Yes, the SNS project is on cost and on schedule.

Question. Was anything lost in the transition from the project team led by David Moncton to the project team now led by Thomas Mason?

Answer. The leadership transition from Dr. David Moncton to Dr. Thomas Mason was smooth. There was no loss in project momentum, largely because Dr. Mason had been associated with the SNS project in a senior leadership position for several years.

Question. Are there any technical, engineering, management or scientific issues that remain that could impact on the successful completion of this project?

Answer. At present there are no high-risk technical, engineering, management, or scientific issues. Monthly earned value reporting by the project and semi-annual reviews of cost, schedule, technical scope, and management by the Office of Science ensure that future issues that may arise will be addressed quickly.

RESEARCH ON BRAIN IMAGING

Question. The National Foundation for Functional Brain Imaging has been operating in New Mexico, Massachusetts, and Minnesota for three years. It has compiled a superb record of research on the integration of magneto-encephalography or MEG and functional MRI into systems enabling dramatically new vistas into brain function.

Please explain the rationale for zeroing funding for this Foundation after the first three years of its planned five year funding cycle?

Answer. The National Foundation for Functional Brain Imaging is not an Administration initiative. It was established by Congressional Direction in fiscal year 1999. The National Foundation for Functional Brain Imaging received $9,617,000 in fiscal year 1999, $9,660,000 in fiscal year 2001, and $10,544,000 in fiscal year 2001 by Congressional mandate. Given other priorities in the Biological and Environmental Research (BER) program with large potential impacts on human health, energy production, and environmental cleanup, no funding was requested in fiscal year 2002.

Question. Do you concur that this Foundation has begun to make significant contributions to improved understanding of brain function and that integration of different modalities of imaging can provide important new insights?

Answer. The clinical programs in functional brain imaging supported by the Foundation have made a significant contribution. Funding has been used to develop an infrastructure for the Foundation, develop computational capabilities, purchase imaging equipment, and initiate scientific and clinical programs. In general, the clinical applications go beyond the programmatic goals of the BER program. BER imaging technology programs conduct basic biological and physical sciences research to develop instrumentation and computational tools used in medical imaging. We do not fund clinical studies on the medical applications of these technologies.

NANOTECHNOLOGY RESEARCH

Question. I've been briefed on the promise of nanotechnology to address a wide range of new projects. It seems to have immense and most exciting potential.

I understand that the Department is developing plans to create several new centers focused on nanotechnology research. I know a consortium involving the University of New Mexico, and the two New Mexico national labs is preparing a proposal for such a center.

Please describe your plans to create nanotechnology centers?

Answer. Nanoscale Science Research Centers (NSRCs) will provide facilities for advanced synthesis, processing, and fabrication at the nanoscale in the same location as the existing Basic Energy Sciences (BES) user facilities and will make this combination widely available to the scientific community in the same way as are the BES user facilities. NSRCs will involve conventional construction of a simple laboratory building or equivalent, usually sited adjacent to or appended to an existing user facility. Contained within NSRCs will be clean rooms; chemistry, physics, and biology laboratories for nanofabrication; one-of-a-kind signature instruments and other instruments e.g., nanowriters and various probe microscopies; and beamlines at the host synchrotron light source or neutron scattering facility.

NSRCs have been proposed by Argonne National Laboratory, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, Oak Ridge National Laboratory, and Sandia/Los Alamos National Laboratory/University of New Mexico. Selection of NSRCs will be based on peer review of the proposed centers. Fiscal year 2002 budget authority is requested for Project Engineering Design (PED) to provide Title I and Title II design-only funding for Nanoscale Science Research Centers (NSRCs) to assure project feasibility, define the scope, and provide estimates of construction costs and schedules.

Question. Please outline some of the ways in which nanotechnology may impact future products and processes?

Answer. Nanotechnology is the creation and utilization of materials, devices, and systems through the control of matter on the nanometer-length scale, that is, at the level of atoms, molecules, and supramolecular structures. The essence of nanotechnology is the ability to work at these levels to generate larger structures with fundamentally new molecular organization.

The DOE is currently making a broad range of contributions in these areas. For example, the enhanced properties of nanocrystals for novel catalysts, tailored light emission and propagation, nanocomposites and supercapacitors are all being explored. Nanocrystals and layered structures offer unique opportunities for tailoring the optical, magnetic, electronic, mechanical and chemical properties of materials, and DOE researchers have synthesized layered structures for electronics, novel magnets, and surfaces with tailored hardness.

The principal missions of DOE in science, energy, defense, and environment will benefit greatly from developments in these areas. For example, nanoscale synthesis and assembly methods will result in significant improvements in solar energy conversion; more energy-efficient lighting; stronger, lighter materials that will improve efficiency in transportation; greatly improved chemical and biological sensing; use

of low-energy chemical pathways to break down toxic substances for environmental remediation and restoration; and better sensors and controls to increase efficiency in manufacturing.

UNDERGROUND SCIENCE AT THE WASTE ISOLATION PILOT PROJECT

Question. Is the Office of Science prepared to encourage development of scientific experiments utilizing the underground environment of WIPP?

Answer. The DOE Office of Science (SC) has been made aware by the scientific community of the unique underground characteristics of WIPP and its potential for accommodating various experiments for particle and nuclear physics. The possible science looks very interesting and SC would certainly like to seriously explore the possibility of implement these experiments. The priority of these experiments will depend upon the priority that the science of these experiments is given in the long range planning exercises in which both the High Energy and Nuclear Physics communities are presently engaged, the merit and feasibility of the specific proposed experiment and, of course, the availability of resources to pursue these new initiatives.

Question. It is my understanding that the Environmental Management programs of the Department are fully cooperating with the Office of Science to make the WIPP facilities available. Is my understanding correct or is additional cooperation required from the EM Office?

Answer. The DOE Office of Environmental Management (EM) has fully cooperated with the Office of Science in assessing the conditions under which scientific research could be performed in the WIPP facility. Certainly, a strong incentive for researchers is that WIPP infrastructure, when not needed to support the EM mission, could be available to support the scientific research teams. EM has proceeded on your request for an evaluation of the impact and costs on repository performance of creating a lower horizon for experiments with a draft report, to be shared with the Environmental Protection Agency, scheduled to be completed July 2001.

LOW DOSE RADIATION EFFECTS PROGRAM

Question. Three years ago, Congress created a program, anticipated to require ten years to provide a better scientific basis for the radiation standards used for low doses of radiation. Last year, the GAO completed a study that noted that the scientific basis for such standards is woefully inadequate. When DOE started the program, a program plan was carefully developed by the Department, which calls for about $25 million in fiscal year 2002.

The Department requested only $12,700,000 for fiscal year 2002.

That same GAO report noted that hundreds of billions of dollars in costs, much of it focused on cleanup of DOE facilities, are directly driven by these radiation standards. The cost of the research, which may provide better standards, is trivial compared to these expenditures.

Why is the Department not following its own program plan for this critical research program?

Answer. The fiscal year 2002 President's request for the Low Dose Radiation Research Program does represent an increase of $1,000,000 relative to the fiscal year 2001 request but is substantially below the $25,000,000 recommended by the Biological and Environmental Research Advisory Committee (BERAC) program plan and below the fiscal year 2001 appropriation that included $8,453,000 of Congressionally added funds. The amount requested was balanced relative to the other priorities in the BER program with equally large potential impacts on energy production, environmental cleanup and even to radiation standards through new understanding of genetic factors that affect susceptibility to low dose of radiation. Scientists may also apply to BER's Genomes to Life or Instrumentation programs for Low Dose-relevant research funds.

PUBSCIENCE

Question. What is the Agency's justification for creating PubSCIENCE and using taxpayer dollars to support a project which duplicates products already available within the private sector?

Answer. PubSCIENCE is a modernization of the journal coverage that DOE and predecessor agencies have been providing since 1948. Such coverage has been continuous throughout this 53-year period, and information products have descended in a direct line to PubSCIENCE. All these dissemination products have been developed by the same organization operating out of the same dedicated building since 1948.

Prior to 1974, DOE's predecessor agency was the Atomic Energy Commission (AEC), which focused on nuclear technology, rather than fossil energy, renewable energy, or other energy sources. Nuclear Science Abstracts (NSA) began in 1948.

The cataloging mission, of which PubSCIENCE is the most recent manifestation, began with NSA. Throughout its history, DOE and predecessor agencies used the technology of the day to deliver citation information and, as appropriate, the corresponding full text.

From the 1970s until the present time, DOE's bibliographic needs were addressed by the Energy Database (EDB). The EDB was designed to meet DOE's bibliographic needs, both journal literature and gray literature. PubSCIENCE is designed to meet these same bibliographic needs for journal literature. In conjunction with the DOE Information Bridge for gray literature, PubSCIENCE is in essence a web version of EDB.

As the scope of DOE's bibliographic needs has changed little over the last few years, there is little difference between the scope addressed by EDB with its old technology and the scope addressed by PubSCIENCE with its new technology. Both products cover all forms of energy and related disciplines.

Legislation makes it clear that government has an affirmative responsibility for promoting energy science and technology through the free exchange of ideas. PubSCIENCE addresses this need while supporting commercial entities through the agreements DOE has with 45 publishers of research articles.

DOE has the statutory mandate to disseminate scientific and technical information to encourage scientific and industrial developments related to energy sources and technologies. DOE also has mandates to provide information to the public on various energy resources "through use of mass communication" (Energy Reorganization Act of 1974, Title 42 U.S.C. Sec. 5813 (7)) and to assist in education and training activities in institutions of higher education. Additionally, the Paperwork Reduction Act of 1995 requires all agencies to "provide information resources management, increased program efficiency and effectiveness and improve integrity, quality and utility of information to all users within and outside the agency, including capabilities for ensuring dissemination of public information (Title 44 U.S.C. Sec. 3506(b)(1)(B)(C).

Question. What steps did DOE take prior to the development of PubSCIENCE to comply with existing laws governing agency responsibilities to provide notice to the public before initiating new information services?

Answer. PubSCIENCE is the application of Web technology to an information dissemination function that has been in operation for over 50 years. PubSCIENCE represents not a new role but a more cost-effective way of doing business. PubSCIENCE retains the same purpose and scope of predecessor products and reflects modifications only in the delivery technology. PubSCIENCE was introduced in October 1999 following on the Web model established by the National Institutes of Health (NIH) with PubMed.

Through web technology, PubSCIENCE offers a number of advantages over EDB (the pre-Web predecessor product), not least of which are advantages that are functional in nature, rather than in scope. PubSCIENCE's functional benefits over EDB include: more convenient access, ease of use, desktop access, and increased timeliness to information. Such advantages are driving all agencies toward electronic government, with strong encouragement from the Office of Management and Budget.

The Paperwork Reduction Act of 1995 as amended, 44 U.S.C.3501–3520, requires agencies to provide adequate notice—when initiating—significant information dissemination products. Id. 3506(d)(3). This requirement is echoed in OMB Cir. A–130 at para 8.a.6.j. In its analysis of these provisions, OMB explains that agencies are responsible for having "an active knowledge of, and regular consultation with, the users of their information dissemination products . . . [and that] Consultation with users might include participation at conferences and workshops, careful attention to correspondence and telephone communications . . . or formalized user surveys." Consistent with guidance from OMB Circular A–130, public forum presentations, discussions, and publicly available articles about the development of PubSCIENCE began one year before the product was introduced. Throughout fiscal year 1999, more than 7 speeches, 3 published articles, 2 demonstrations and beta tests, and Congressional Testimony by Dr. Martha Krebs, then Director, Office of Science, before the Subcommittee on Energy and the Environment, Committee on Science, U.S. House of Representatives, announced the initiative to develop PubSCIENCE. These were the more formal communications, and do not include informal working discussions held in various forums with potential users. In addition to these communications, telephone interviews about this product to discuss opportunities for partnership were held with approximately 90 representatives from the primary, secondary, society, and university publishing communities. Other federal agencies with scientific and technical information management missions were also notified of the development of PubSCIENCE through periodic meetings and communications. Special communication efforts with GPO resulted in their partnership with the Department

to provide public access to PubSCIENCE through the GPO Access system. OMB Circular A–130 guidance also says that "In all cases . . . determination of what is a significant information dissemination product and what constitutes adequate notice are matters of agency judgment." We believe that the Department took appropriate steps to make the user and publishing communities aware of this information resource.

Question. What is the Agency's justification for creating PubSCIENCE and using taxpayer dollars to support a project which duplicates products already available within the private sector?

Answer. PubSCIENCE is a modernization of the journal coverage that DOE and predecessor agencies have been providing since 1948. Such coverage has been continuous throughout this 53-year period, and information products have descended in a direct line to PubSCIENCE. All these dissemination products have been developed by the same organization operating out of the same dedicated building since 1948.

Question. In general, what is the Department's policy regarding creation of services that represent direct competition with the private sector?

Answer. The Department's policy is to not create new services outside the scope of its mission and not supported by legislation. Those are not the conditions relative to PubSCIENCE. Journal titles included in PubSCIENCE are selected due to their relevance to DOE's R&D mission. The Department's enabling legislation and a number of other laws require that DOE make energy science and technology information accessible to the public. PubSCIENCE promotes energy science and technology through the free exchange of ideas both within the DOE scientific community and the public at large. PubSCIENCE is not a new service but a modernization of a longstanding service to fulfill this requirement. Rather than a competition with the private sector, it represents a strong partnership with over 40 commercial publishers in the private sector.

PubSCIENCE does not duplicate any single commercial system. In fact, PubSCIENCE is designed to mimic the Department's R&D portfolio. Systems that present bibliographic information have a broad range of characteristics. Most commercial systems are typically geared to institutional subscribers, rather than the individual researcher or science-attentive citizen. Some systems are free to the user, while others require that each institution pay start up fees of hundreds of thousands of dollars, an amount comparable to the entire annual operating costs of PubSCIENCE; some are narrow in the scope of disciplines covered, while others are broad in scope; some are comprehensive within their disciplines, while others are less so; some offer any of a wide variety of value-added features, e.g., citation counting, targeted to specific user communities; some host abstracts, while others focus on authors and titles; some re-host primary publishers—full-text, while others link to publishers—servers and are thus especially compatible with electronic subscriptions or site licenses for full text. Internet technology is causing systems to evolve extremely rapidly so that generalizations applicable today may become outdated soon.

Many other federal R&D agencies also capture and make available citations to journal articles on the Internet at no charge. The National Institutes of Health's PubMED is one such example; PubSCIENCE was modeled after PubMed. Through PubSCIENCE, researchers and the public are able to identify articles of concern to them, which then leads to commercial transactions with publishers to obtain the full-text information. Thus, PubSCIENCE fulfills its legally-mandated mission to advance energy science and technology through the free exchange of ideas, while facilitating private sector commercial transactions.

QUESTIONS SUBMITTED TO THE OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY

QUESTION SUBMITTED BY SENATOR HARRY REID

GENERATION IV NUCLEAR ENERGY SYSTEMS INITIATIVE

Question. Please give an update on the Generation IV international forum and how it relates to the Generation IV technology roadmap.

Answer. The Generation IV International Forum (GIF) is currently comprised of nine countries: Argentina, Brazil, Canada, France, Japan, the Republic of Korea, the Republic of South Africa, the United Kingdom, and the United States. The Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA) are permanent observers. Additional countries, such as Switzerland, and organizations such as the European Commission are interested in becoming members. We expect

that the nine countries participating in this activity will sign a charter formally constituting the GIF during May or June 2001.

The participating countries have demonstrated serious intent to pursue collaborative research and development (R&D) to develop one or more advanced reactor designs that could be deployed commercially by 2030. The GIF provides them a forum and clearing house to organize R&D collaborations with similarly interested nuclear research institutions in other countries. We expect these collaborations to result in innovative approaches and to permit the leveraging of scarce R&D dollars.

The GIF is participating in the development of the Generation IV Technology Roadmap—a comprehensive R&D plan for advanced reactor development. It is our belief that, in the current world energy environment, reactors developed for deployment in the United States will also have to be attractive to purchasers elsewhere in the world if they are to be economically successful. Consequently, the Office of Nuclear Energy, Science and Technology has invited GIF member participation in development of the roadmap.

GIF members will participate in each of the Generation IV Technology Working Groups (TWG), i.e., light water, liquid metal, gas cooled, and non-classical design TWGs. They will also participate on a working group that will examine fuel cycle issues and on another cross-cutting working group that will develop and compare methods for evaluating one technology against another. Together, over 100 U.S. and foreign scientists are supporting this DOE-led activity.

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

GENERATION IV NUCLEAR ENERGY SYSTEMS INITIATIVE

Question. Last year, this Subcommittee led the way in creating a new R&D program in Nuclear Energy Technologies. Among other things, the DOE was directed to use the funding to develop a road map for the commercial deployment of a next generation power reactor that would have superior economics, no possibility of a core melt-down, substantially reduced production of high level waste, proliferation resistant fuel and waste, and much greater efficiencies. Please update the Committee on the status of the Generation IV activities. Please give an update on the Generation IV international forum and how it relates to the Gen IV technology roadmap.

Answer. The Office of Nuclear Energy, Science and Technology is leading an international effort to establish a comprehensive research and development program for the next generation of innovative nuclear energy systems. The Generation IV Technology Roadmap will evaluate nuclear energy concepts, select the most promising concepts for further development, and define the research and development (R&D) needed to bring these concepts to maturity for potential commercialization. The Roadmap, which is being developed over a period of approximately two years by U.S. and international experts from industry, national laboratories, and academia, will identify those technologies that will successfully address the factors impacting the expansion of nuclear energy: economic competitiveness of building and operating nuclear energy systems; remaining concerns regarding nuclear safety and proliferation; and the challenge of minimizing and dealing successfully with nuclear wastes.

A plan for developing the roadmap, including management, staffing, and schedule for completion, has been established. In addition, we have established Technical Working Groups (TWG) to collect information on and evaluate four broad classes of nuclear energy system concepts: water cooled reactors, gas cooled reactors, liquid metal cooled reactors, and non-classical reactor systems. Additional crosscutting groups will be established as necessary to conduct comparative assessments of specific technology areas.

We have also recently completed the process of defining technology goals that capture sustainability, safety and reliability, and economic goals for energy production for Generation IV technologies. The technology goals for Generation IV nuclear energy systems were developed by a subcommittee of the Department's independent Nuclear Energy Research Advisory Committee (NERAC) in close cooperation with the U.S. and international nuclear energy research community. After multiple reviews by U.S. and international experts, the goals are now widely endorsed as an appropriate basis for development of advanced nuclear energy technologies.

The Generation IV International Forum (GIF) is a consortium of a small number of countries with an active interest in working together to plan and conduct research and development on innovative, next generation nuclear energy system designs. The GIF is currently comprised of nine countries: Argentina, Brazil, Canada, France, Japan, the Republic of Korea, the Republic of South Africa, the United

Kingdom and the United States. The Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA) are permanent observers. Additional countries, such as Switzerland, and organizations such as the European Commission are interested in becoming members. We expect that the nine countries participating in this activity will sign a charter formally establishing the GIF during May or June 2001.

The GIF member countries have demonstrated serious intent to pursue collaborative research and development (R&D) to develop one or more advanced reactor designs that could be deployed commercially by 2030. The GIF provides a forum and clearing house to organize R&D collaborations with similarly-interested nuclear research institutions in other countries. We expect these collaborations to result in innovative approaches and to permit the leveraging of scarce R&D dollars.

At the invitation of the U.S., the GIF is participating in the development of the Generation IV Technology Roadmap—a comprehensive R&D plan for advanced reactor development. It is our belief that, in the current world energy environment, reactors developed for deployment in the United States will also have to be attractive to purchasers elsewhere in the world if they are to be successful. Consequently, the Office of Nuclear Energy, Science and Technology invited GIF member participation in the development of the Roadmap.

GIF members will participate in each of the Generation IV Technology Working Groups (TWGs). They will also participate on a working group that will examine fuel cycle issues and on another cross-cutting working group that will develop and compare methods for evaluating one technology against another. Together, over 100 U.S. and foreign scientists are supporting this DOE-led activity.

Concurrent with the long-term-focused Roadmap effort, a near-term review of the regulatory, technical, and institutional issues that need to be addressed to support the deployment of new reactors in the U.S. within the next ten years is well underway. This review will be incorporated into the roadmap to give it both near- and long-term vision.

ADVANCED ACCELERATOR APPLICATIONS PROGRAM

Question. The Department just delivered to Congress the required report on future plans for AAA program. That report painted a picture of major contributions from AAA, with study of improved nuclear waste strategies, demonstration of tritium production, and support for the nation's nuclear engineering research. Yet the Department zeroed the program. Do you share the enthusiasm which I have for this program? What funding level would be required in fiscal year 2002 to continue the AAA program?

Answer. The Department is very interested in this technology and its potential for reducing the toxicity of high level waste and thus, significantly reducing the quantity of this waste that must be disposed of in a geologic repository. As you know, at the Congress's request, the Department has been exploring this technology over the last year with the assistance of the Los Alamos National Laboratory and the Argonne National Laboratory. In March 2001, the Office of Nuclear Energy, Science and Technology provided a Ten Year Plan to Congress that provides more detail on mission need, objectives, research and development needed for proof of performance, and with preliminary cost estimates for the initiative. As contemplated in this report, year two of the AAA program would cost about $120 million.

The Administration's fiscal year 2002 request does not include funds for this initiative. As you know, under the Vice President's leadership, the Administration is conducting a comprehensive evaluation of energy policy and related research priorities. Until these priorities are clearly identified, the Department will not request funding for major new energy initiatives. However, with its completion, I look forward to working with you and other Members of Congress on the research priorities and the funding requirements to support the Administration's priorities.

STATUS OF NUCLEAR ENGINEERING PROGRAMS

Question. Specialists in Nuclear Engineering and related disciplines are essential for our nuclear energy programs, as well as cleanup of the DOE complex and the nation's national security programs involving nuclear technologies.

Enrollment in these programs is at very low levels. Some schools are considering dropping their programs and closing research reactors. What is your assessment of this critical part of the infrastructure? What would be your recommendations, both in the short and long terms to address the problem? Should the Government consider directly supporting university research reactors? What would it cost to cover the operations of all 29 university research reactors?

Answer. The Department believes the U.S. nuclear engineering university programs are vital to the Nation's current and future energy security, environmental stewardship, and national security programs. As such, we have been very concerned about the U.S. nuclear engineering education infrastructure for the past several years. We have instituted a variety of programs to assist the university community in attracting students, improving the facilities—particularly the university research reactors, providing research funding, and attracting and supporting new faculty. To date, we have made some progress in increasing the number of students, especially at the undergraduate level, but university research reactors continue to be in need of more upgrading than current funds allow and many are laboring under a financial strain as universities try to support emerging fields of study. Several studies initiated and/or supported by DOE recently have made recommendations to the Department on how best to address the issues confronting nuclear engineering education.

The two most recent studies; the Blue Ribbon Panel on the Future of University Nuclear Engineering Programs and University Research and Training Reactors headed by Dr. Michael Corradini of the University of Wisconsin and the Nuclear Energy Research Advisory Committee (NERAC) University Reactor Panel chaired by Robert Long, formerly of GPU and the University of New Mexico, provided recommendations in the University Reactor Task Force Report on how to address both the short and long term issues confronting nuclear engineering education. The Blue Ribbon Panel recommends large increases in the amount of support we provide for fellowships and scholarships, faculty support (especially junior faculty), nuclear research through the existing Nuclear Engineering Education Research program, research reactor upgrades, increased exchanges between universities and national laboratories, a national outreach and communication programs with local communities. We agree that all of these would be beneficial to nuclear engineering education in the U.S.

The University Reactor Panel reported its findings on April 30, 2001. Its primary area of interest was the university research reactors, especially the Massachusetts Institute of Technology, University of Michigan, and Cornell University reactors which are facing an uncertain future due to funding shortfalls for operations and other problems such as shortage of staff. The two-tier (short and long term) approach recommended by this Panel would provide near term operating support for the three reactors to assist them over the next year or so. In the longer term, support would be made available to university research reactors based on a peer review of proposals submitted by each institution and centers of excellence would be established at those reactors that are most suitable for research and training. This increased funding, over and above a base level that every reactor would receive, would permit the upgrading of these facilities to make them more useful to the research community and better able to sustain themselves financially. These recommendations were endorsed by the full NERAC committee on April 30, 2001.

The exact cost to cover the operating expenses of all 29 U.S. university research reactors is very difficult to determine given the various accounting systems at each university, but we are aware of estimates ranging from $5 million to $10 million.

REPORT TO CONGRESS ON THORIUM FUELED REACTOR ASSEMBLIES

Question. The Energy and Water Appropriations Bill for the current year required a report from the Department by March 1, 2001, on approaches for disposition of weapons-grade plutonium in thorium-based fuel assemblies in light water reactors. The request noted that work funded under the Initiatives for Proliferation Prevention Program, accomplished jointly with the Kurchatov Institute in Russia, showed extremely promising disposition rates for this approach, with potentially important benefits for non-proliferation. I understand that the Nuclear Energy Office was tasked to prepare this report. The report is now over two months late. When will it arrive? The Report was completed by the Nuclear Energy Office, but the Non-Proliferation Office has held up its release. Staff understands that the NN office feels the report is too critical of its current MOX program. Congress should be provided with the opportunity to review the report it requested and draw its own conclusions.

Answer. The Office of Nuclear Energy, Science and Technology is working closely with the Office of Defense Nuclear Non-Proliferation (NN) on the Report to Congress titled, "Alternative for the Disposition of Surplus Weapons Plutonium in Existing Light Water Reactors." We believe that most of the concerns raised by NN have been resolved and that the report is nearly ready for final approval within the Department. We hope to transmit this report to Congress by the end of May 2001.

BUDGET DEVELOPMENT

Question. Mr. Magwood, in reviewing the budget request for nuclear energy R&D, it appears you have at best requested money to continue existing research projects, but have requested virtually nothing to begin new research projects. Why such a substantial cut, given the incredible long-term importance nuclear energy may play in our future energy strategy?

Answer. The investments that the Department proposes to make in nuclear energy are driven by the recognition of the important role that nuclear energy serves in providing reliable, affordable and environmentally sustainable electricity. These investments are based on the recognition that nuclear energy is and will remain an important component of the Nation's energy mix today and in the future. The Department's proposed fiscal year 2002 budget request of $223.1 million is focused on enabling us to meet our most critical needs—for research, for training and educating of the next generation of engineers and scientists and for maintaining the Nation's nuclear science and technology infrastructure. Our future investments in energy and energy technologies will be informed by the Vice President's National Energy Policy Development Group's review of energy policy, currently underway. The Department will assess its long-term research and development portfolio once the review is issued.

NATIONAL NUCLEAR SECURITY ADMINISTRATION LABS

Question. The National Nuclear Security Administration started operation as a semi-autonomous agency within the Department last year. The NNSA labs of Los Alamos, Sandia and Lawrence Livermore have a long tradition of supporting a broad range of scientific initiatives beyond weapons activities. As the NNSA was created, I emphasized the importance of the NNSA labs continuing their multi-program support of the Department and other federal agencies.

The enabling legislation, in Section 3264, stated that: "The Secretary, in consultation with the Administration, shall establish procedures to provide for the use . . . of the national security labs by elements of the DOE not within the Administration . . . ."

Despite the legislation, I am concerned that the NNSA labs will not continue to receive high priority funding from the Department. Will each of you assure me that you will continue to aggressively fund projects within the NNSA labs?

Answer. The National Nuclear Security Administration (NNSA) Act allows the NNSA laboratories to continue to perform significant research for all Department of Energy programs, for other federal agencies and non-federal organizations. It also permits the Department to continue the important role the NNSA laboratories have as part of the integrated laboratory system. The Department recognizes that non-defense research is important to maintain the vital overall science and technology base and core competencies of the NNSA laboratories. The Department remains committed to encouraging and supporting the diversity of work performed by the Department's national laboratory complex, including the laboratories that report to the NNSA.

The Office of Nuclear Energy, Science and Technology (NE) continues to work closely with the NNSA laboratories in research and other programmatic activities of our office. As part of NE's Isotope Program, Nuclear Energy Research Initiative program, Advanced Accelerator Applications program, and our space power systems program, we are engaged in a number of important research and other mission-related activities with the NNSA laboratories, including Sandia National Laboratory, Lawrence Livermore National Laboratory, and Los Alamos National Laboratory. We are committed to continuing to work closely with these laboratories as we accomplish the mission of NE.

Question. Have discussions been initiated between your Office and NNSA to define mechanisms to maintain close collaboration, both for NNSA lab support to your Office and for your labs to support NNSA as required?

Answer. An Implementation Plan for the NNSA was issued last year. This implementation plan provides maximum flexibility for both NNSA and non-NNSA laboratories, to continue to perform the type of research that they do best and to allow the initiating program sufficient control over their research. The Implementation Plan is structured to ensure continued utilization of the national laboratory complex by all parties. It allows the NNSA laboratories to continue to perform significant research for all DOE programs and to work together with the non-NNSA laboratories efficiently and effectively to complement each others' expertise in important scientific collaborations that can benefit all Departmental programs, including the NNSA. For example, NE and NNSA are finalizing a Memorandum of Understanding (MOU) on the joint management of the Advanced Accelerator Applications Program.

The MOU combines the Accelerator Production of Tritium Program with the Accelerator Transmutation of Waste Program, integrating the two programs and enabling the use of the Low Energy Demonstration Accelerator at Los Alamos as well as assuring a tritium backup capability if needed to meet national security requirements. The MOU should be finalized by the end of May 2001.

Question. Do you foresee any barriers to maintaining close working relations between your Office and the NNSA?

Answer. No. The Implementation Plan for the NNSA adequately addresses the concerns you raise, and the Department is committed to maintaining a culture that permits the laboratories to continue this effective relationship.

SUBCOMMITTEE RECESS

Senator BENNETT. And we thank you all for coming. The subcommittee is recessed.

[Whereupon, at 11:36 a.m., Tuesday, May 1, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

TUESDAY, MAY 15, 2001

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:36 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Bennett, Craig, Reid, and Murray.

Also present: Senator Crapo.

DEPARTMENT OF ENERGY

OFFICE OF ENVIRONMENTAL MANAGEMENT

STATEMENT OF CAROLYN L. HUNTOON, PH.D., ACTING ASSISTANT SECRETARY

STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. Senator Reid has indicated we should proceed. He will get along here shortly, he said. So let us get started. I have a brief opening statement, after which I will yield to you, Senator Craig, and then we will ask you, Senator Crapo, for your comments. You are welcome to either join us here or there, whichever you prefer.

Senator CRAPO. This will be fine.

Senator DOMENICI. Today we meet to review the Department of Energy's 2002 budget request for environmental management programs and the Office of Civilian Radioactive Waste Management, otherwise known as Yucca Mountain. We will hear today from Dr. Carolyn Huntoon, Acting Assistant Secretary for Environmental Management, and Mr. Lake Barrett, Acting Director of the Office of Civilian Radioactive Waste Management.

Today's hearing will complete our series of hearings to specifically review the 2002 budget requests for programs within this subcommittee's jurisdiction. We will continue to have oversight hearings as appropriate during the remainder of the year.

For environmental management programs at the Department of Energy, the administration has requested $5.914 billion for next year, $348 million less than the current year appropriation. That is a 6 percent reduction in just that account. The environmental management programs are the largest part of the DOE's budget

outside of the NNSA, representing about one-third of the total DOE budget.

The program's mission is primarily focused on cleanup of sites involved some way in the production of nuclear weapons. These programs are very important to the country and are of the utmost importance to those Senators who have major sites within their State.

The administration has proposed drastic cuts in the environmental management. One example from my own State is the budget for waste isolation pilot plant. That is the only United States effort to take care of transuranic, low level transuranic wastes, on a permanent basis. That complex that handles the shipments will be reduced by 13 percent. This cut should not stand and we should restore money clearly for this purpose.

In your written statement, Dr. Huntoon, that you submitted to us you state that Secretary Abraham has directed a top to bottom management review of the EM program with the goal of identifying efficiencies and speeding up cleanup efforts. I commend you in this endeavor, but I must raise a few concerns.

For example, the management review is supposed to identify steps to strengthen project management. That is, identify steps to strengthen project management. That is in parentheses. But the budget request actually increases the time line for current projects, which ultimately leads to increased costs and greater project uncertainty. At least that is how we see it.

The management review is supposed to implement better contracting strategies, but the budget request does not adequately fund the new performance-based contracts that you have negotiated, that we have negotiated in the past few years.

The management review is supposed to lead to greater use of technologies to reduce cleanup costs, but the budget request proposes a 27 percent cut to EM science and technology department.

There may be answers to all of these. From what I can tell, they are not very good answers. While I remain optimistic that the management review will identify areas for improvement, clearly we have been trying to do that for quite some time. You may have better good fortune at it than we have had in the past in determining new ways to solve these very long and costly cleanup operations.

For the Office of Civilian Radioactive Waste Management, the administration has requested $445 million for next year, an increase of $45 million or 10 percent over current year level. This budget should allow the Department to transition towards the potential licensing of Yucca Mountain once the Department makes an onsite recommendation to the President the end of this year.

A 10 percent increase in the Yucca Mountain budget is quite remarkable, given that the administration proposed deep cuts in almost every other account of the Department of Energy for fiscal year 2002. Mr. Barrett, you probably deserve both condemnation and warning. We will do what we can the support the President's request and I look forward to working with the new administration on spent fuel management issues.

Today we are going to proceed, as I indicated before, by yielding first to Senator Craig and to Senator Crapo. Then, Dr. Huntoon, you will follow. Senator Craig.

STATEMENT OF SENATOR LARRY E. CRAIG

Senator CRAIG. Well, Mr. Chairman, first of all thank you for your leadership in this area and the work you have done.

What I think the record has to show today is the importance to me and to my colleague Senator Crapo of the commitment that DOE has made to the people of Idaho regarding the cleanup of nuclear contamination and waste at the Idaho National Engineering and Environmental Laboratory. This is an issue that we have discussed with the Secretary of Energy, Secretary Abraham, on numerous occasions, both prior to and since his confirmation. It is an issue that I have raised with the nominees for the key Department posts at Energy as they have appeared before us.

The reason why this issue is so important is that States such as Idaho which have hosted the DOE sites for decades need to have confidence in the ability of DOE to keep its promises. It will not sit by while communities such as those in southeastern Idaho are penalized, if you will, for their patriotism and their role in winning the Cold War by being told, do not worry, DOE will get around to you some day, maybe next year, maybe decades from now, and maybe never; and if we decide that we do not need to clean up your site or we are finding it more challenging than we thought or more expensive, we are just going to tell you that we cannot do it, it is your problem.

Now, Ms. Huntoon, you know that we have a good program going. There are substantial milestones that have been made. To stop now or to substantially cut back now does not make any sense. To analyze what we are doing and to examine it in light of the efficiencies that the chairman spoke of that may be there, that is good business. But the kind of cuts that we are talking about in my opinion is very bad business. A budget that cannot address DOE's cleanup commitments is the same as saying to Idaho Falls in Idaho and Pocatello in Idaho: Maybe some day we will finally get around to you and address the waste and potential environmental contamination problems that were created in your State, but right now it just is not a priority.

Well, Mr. Chairman, these are the sentiments that I have heard expressed in my State, and I am sure that my colleague Senator Crapo has heard them, too. These concerns are the reasons why I visited with you earlier. We talked about these needs. You have worked very closely with us to see where we can resolve this and find the additional funding for DOE's environmental management program. I want to acknowledge this publicly now, that you have worked very hard with us.

In the 4 years that I have served on this subcommittee, we have consistently kept on line these programs and we will work to continue that consistency.

Mr. Chairman, I thank you for that tremendous support.

Now then, we need an additional billion dollars. In a trillion dollar budget, that sounds like a manageable task, or a trillion plus. But what I am talking about is a system-wide commitment that deals with Idaho and deals with Hanford and deals with Paducah and all of those areas that have been well understood and well designated to have problems, environmental problems.

While I am working with the chairman here, we are working with the chairman of the full committee, Senator Stevens, and yesterday he clearly gave his commitment to working to resolve these kind of things. Additionally, I must acknowledge the hard work, obviously, of the witnesses before. I have recognized you, Dr. Huntoon. Tomorrow another committee on which I serve, the Energy and Natural Resources Committee, will hold confirmation hearings for the person that President Bush has nominated to fill your shoes, Jessie Robertson, and we have already had that discussion. I have met with her and we have discussed the issue, and I know that you are working to prepare her for the responsibilities that she is going to be facing.

This may be my best chance to speak to you and I sincerely want to acknowledge the hard work and the dedication of service that you have provided to the Department and to our lab in Idaho and the work that you have undertaken and in many ways accomplished.

Finally, I have mentioned him, but let me recognize my colleague Mike Crapo. We have worked together to fight for this issue and for the additional funding necessary for years. Those of us in the Senate who represented the States with DOE sites have been somewhat loosely joined at times in alliances to support environmental cleanup. Now we have a formalized alliance, if you will, of the Nuclear Waste Cleanup Caucus. I thank both Doc Hastings in the House and Senator Crapo here for their leadership in organizing that and working with us to make sure that this happens, and it must happen, Mr. Chairman.

We have a responsibility and a commitment to the States involved and to the citizens involved and to our country that when we initiate these programs we work to complete them in the end. 50 years of defense activity can oftentimes not be walked away from lightly. Again, I will work to find the efficiencies necessary, but with your commitment, Mr. Chairman and others, we will also work to fund the programs across the country. You cited one in your State that is critical to my State, the WIPP facility where our transuranic waste is now moving to.

Cutbacks and slowdowns are certainly not a solution to a problem at a time when you and I are both wanting to see nuclear in a commercial sense lead and also deal with that particular waste problem that is generated for the sake of energy for this country.

Again, Mr. Chairman, thank you very much for your support in this effort. I think collectively we will get there.

Senator DOMENICI. Thank you very much, Senator.

Senator Crapo, would you like to make a statement?

STATEMENT OF SENATOR MIKE CRAPO

Senator CRAPO. Yes, thank you, Mr. Chairman. Mr. Chairman, Senator Craig, and members of the subcommittee, I would like to thank you for allowing me the opportunity to speak briefly to you on the need to provide adequate funding for the Department of Energy's environmental management program.

As Senator Craig has said so well, he and I have been working aggressively for the last few years to make certain that adequate funding is available to make clear that the Department of Energy

will meet its commitments, not only in Idaho, but throughout the Nation and the DOE complex.

I come before the subcommittee as the co-chairman of the Senate Nuclear Waste Cleanup Caucus and as a Senator with a major DOE lab and a cleanup facility near my home town, Idaho Falls. On March 8 Senator Craig and Senator Murray and I asked interested colleagues to join our informal caucus to raise awareness of the challenges facing the DOE complex as it tries to clean up the wastes left over from nuclear weapons production and nuclear reactor development.

At present, 14 Senators have joined the caucus, including four members of this subcommittee, Senators Murray, Craig, McConnell, and Hollings. Today at DOE facilities across the country in States such as Ohio, Washington, Tennessee, South Carolina, Idaho, New Mexico, Nevada, Colorado, and New York, the DOE is working to safely store, treat, and process large volumes of high-level liquid wastes, mixed wastes, trans-uranic waste, low-level waste, spent nuclear fuel, and contaminated soils and water.

All of this waste, which is the result of important national missions, requires careful handling to protect public health and the environment. Much of the work and progress being made cleaning up waste at DOE sites is driven by commitments made by the Federal Government under the Federal Facilities Compliance Act. Under this law, enacted in 1992, the Federal Government waived its right of sovereign immunity and entered into legally binding agreements to bring Federal facilities into compliance with existing environmental laws.

This process lifted the veil of secrecy that surrounded many DOE sites and it gave communities and States a promise that cleanup commitments would be kept. Mr. Chairman, as members of this subcommittee know better than others, the DOE cleanup program is a very complicated, long-term, and a costly endeavor. In the not too distant past, this program has suffered from poor management, poor contracting, and poor performance. But in recent years the program has turned the corner and real progress is now being made on the ground.

Indeed, the progress can be seen most clearly in the opening of the WIPP facility and the safe shipment of waste to this permanent disposal facility.

Unfortunately, the DOE cleanup budget proposed by the administration will change that picture and slow or halt some of the critical progress being made in cleaning up waste across the DOE complex. On the surface, the proposed fiscal year 2002 budget appears to reduce DOE EM accounts by about $350 million. But on closer scrutiny, the major cleanup accounts—defense closure projects, defense environmental restoration and waste management, and non-defense environmental restoration and waste management—are reduced by over $450 million from the fiscal year 2001 appropriated level.

When the proposed cuts in the cleanup budget are matched against legally binding compliance agreements and requirements, the shortfall approaches $1 billion. The reductions proposed for the fiscal year 2002 DOE cleanup budget will increase risks to the environment and increase the long-term cost to complete the EM pro-

gram. In addition, the proposed budget cuts will result in contracts being cancelled, enforceable milestones being missed, and thousands of workers being laid off.

The proposed budget cuts are much deeper than they appear because as projects are stopped, milestones missed, and workers laid off, the States will impose fines and penalties, contractors and subcontractors will be paid termination costs, and displaced workers will receive severance packages and worker transition assistance.

Congress needs to keep the commitments made to communities across the country to clean up DOE facilities and bring them into compliance with current environmental laws. In order to meet these commitments, additional funding is needed. That is why Senator Craig and Senator Murray and I authored the successful amendment to the budget resolution adding $1 billion to the DOE cleanup program. Mr. Chairman, in your capacity as chairman of the Senate Budget Committee, I appreciated your support for this same amendment and I look forward to working with you to identify opportunities during consideration of the supplemental appropriations bill or during the 2002 appropriations process to provide these additional funds to the EM program.

If the Federal Government breaks its word and reneges on its commitment to clean up existing DOE facilities in a timely manner, how will we ever be able to convince State governments, regulators, and stakeholders, and the public that the U.S. government will responsibly handle waste generated from today's national defense and energy programs? Who will believe today's promises if the Federal Government breaks promises made just a few years ago regarding the cleanup of nuclear waste?

Mr. Chairman, I want to thank you for giving me a few minutes to urge members of this committee to do everything they can to support adequate funding for the DOE cleanup program. I know the members of the Senate Nuclear Waste Cleanup Caucus stand ready to work with you on this effort. The members of the Senate Nuclear Waste Cleanup Caucus also stand ready to assist Secretary Abraham in his review of the DOE cleanup program, but we do not support making cuts in the budget before efficiencies are identified.

Mr. Chairman, speaking of caucuses, I want to thank you for your leadership in creating the Senate Nuclear Caucus, which seeks to promote a balanced evaluation of the contribution of nuclear energy, that it can make to our national energy strategy. In that regard, I am pleased to be an original co-sponsor of S. 472, which will ensure that nuclear energy remains a viable component of our national energy strategy.

Mr. Chairman, I look forward to working with you to increase the role of clean and reliable nuclear energy in our national energy strategy, and I thank you and Senator Craig for your strong and consistent work in this area.

Senator DOMENICI. Thank you very much, Senator Crapo.

Senator CRAPO. Mr. Chairman, I might also ask to be released. I have got to preside on the floor in about 5 minutes.

Senator DOMENICI. You are. If you are finished with your statement, you are released, because that is all we want to hear from you.

Senator CRAPO. Thank you very much.

Senator DOMENICI. Now we are going to proceed to you, doctor. I can recall when you took this job we talked a long time and on at least two occasions as to the nature of it and why in the world you would want it. You said you wanted the job very badly and that you would work very hard to make some real progress.

I want to just open by saying there are a couple things about this account that make it very difficult. The first is that it is defense money. Money for this program comes predominantly from the Department of Defense. Now, that is a commitment. That is the way we have been appropriating it. That is the way they are supposed to be budgeting it. So it is not really the Department of Energy's money. It is the Department of Energy manages the money given to them by the Department of Defense to do this work.

I think, Senator Craig, you and I have discussed on a number of occasions that makes it pretty difficult, because it is a very big ticket item each year, and when it comes out of the defense budget if they feel they have got a tight budget, it is pretty hard for them to figure out why they should give so much to this activity if they think some of their requirements of the military are being short-changed.

But the message is coming across this year loud and clear that if these programs have to be redone, if they have to be improved, reformed, changed, better management, you cannot do it by short-changing them this year in the manner suggested in the President's budget. You need to have time to do that and you have to have time to sit down and work on these problems.

Some of the projects are too expensive and have lasted too long. I do not think I put your project, Senator Craig, in that category.

In any event, we would like to hear from you now and we have a few questions. This is our last chance to say thank you. You took a hard, hard job when you decided to do this in compliment you and thank you for your effort.

Now, your statement will be made a part of the record. If you would please summarize it, we would be glad to hear from you.

STATEMENT OF CAROLYN L. HUNTOON

Dr. HUNTOON. Thank you, Senator Domenici and Senator Craig. It is a pleasure to be here today to talk about the budget. I am here to ask you to support our environmental management budget for fiscal year 2002. As you mentioned, the 50-year legacy that we are trying to clean up left profound environmental contamination. I am talking about the trillions of gallons of contaminated ground water, millions of cubic meters of contaminated soil, millions of gallons of highly radioactive liquid waste, and thousands of contaminated buildings across our country.

CLEAN UP PROGRESS

Although progress in addressing these problems was initially slow, I believe we have turned a corner and we are making real tangible progress. For example, we have cleaned up 71 of the 113 sites, or 66 percent, and 3 more will be done by the end of this year. We have completed cleanup at over 4,900 of the nearly 10,000

release sites. We have stabilized 57 percent of our nuclear material residues and 12 percent of the plutonium metals and oxides.

At the Hanford site in Washington State, we are moving spent nuclear fuel from the K basins to a safe dry storage. At Oak Ridge in Tennessee, we completed the cleanup of gunnite tanks 10 years ahead of schedule by using innovative technologies. At Paducah in Kentucky, we completed the removal of the infamous Drug Mountain ahead of schedule. At the Savannah River site in South Carolina, we have produced over 1200 canisters of vitrified high-level waste and we have disposed of over 1500 cubic meters of transuranic waste at WIPP.

We are doing so well at Rocky Flats now that 2006 is moving from being a vision to being a realistic goal. In short, we have accomplished a lot, but we still have a lot to do. We have been doing it safely.

BUDGET PRIORITIES

For fiscal year 2002 we are requesting, as you mentioned, $5.91 billion for this program. This may not be as much as we would like, but $5.91 billion is still a lot of money and I believe we can make progress. The budget continues to place the highest priorities on protecting the health and safety of our workers, the public at all the DOE sites, and continuing to work to mitigate our highest risks. We will ensure nuclear materials are properly managed and safeguarded and we will maintain compliance as the priority, but, given the demands of this budget, it will be a challenge at many of our sites.

We have given priority to several key projects that will reduce high risk, provide significant reduction, or are key to completing activities at other sites. These projects include keeping Rocky Flats and Fernault in Ohio on track to meet their accelerated closure schedules, continuing progress to design and construct a vitrification plant to immobilize high-risk highly radioactive waste at Hanford, vitrifying the highly radioactive waste at Savannah River and selecting a technology to pretreat a portion of that waste, we almost double the shipments of transuranic waste to WIPP, to support closure or compliance requirements at other sites, including Idaho, Rocky Flats, Savannah River, and Argonne Laboratory East in Chicago.

We are going to be stabilizing spent nuclear fuel or moving it from wet storage into dry safe storage at a number of our sites. We are going to continue progress on disposing of waste and cleaning up sites. We are completing active cleanup at Weldon Springs in Missouri and we are developing a long-term stewardship program to monitor and maintain remedies across the complex after cleanup is done.

The budget continues to fund development and deployment of new technologies that can help reduce cleanup costs and schedules.

The fiscal year 2002 request also funds high priority new responsibilities that EM has been given: turnover of the uranium enrichment plant at Portsmouth, Ohio, and activities required to keep it safe and operable; design and construction of the depleted uranium hexafluoride conversion plants at Portsmouth and Paducah; and acceptance of some excess facilities from the National Nuclear Secu-

rity Administration and the Office of Science for decontamination and decommissioning.

EFFICIENCY GOALS

The Secretary has challenged every program in the Department to become 5 to 10 percent more efficient. In addition, he challenged us to reduce the schedules and cost of completing cleanup. The EM budget reflects this challenge. The Secretary has asked me to initiate a top to bottom assessment of the program that will be completed by my successor. The goals here are to strengthen our project management, reduce contractor overhead, employ effective contracting strategies, ensure that we are performing work as efficiently as possible and in the proper sequence, and ensure that our decisions are based on sound science.

In implementing this approach, EM will continue an open dialogue with the Federal and State regulators. The Secretary has invited the governors of the States that host our sites and EPA Administrator Whitman to work with him to find more efficient ways to do business and improve our compliance framework.

PREPARED STATEMENT

By working together with our Federal partners and our contractors and with your support of this budget, we can develop solutions to achieve our shared environmental goals.

Thank you for your continued support of this program. I will be happy to answer any questions.

[The statement follows:]

PREPARED STATEMENT OF DR. CAROLYN L. HUNTOON

Mr. Chairman, and Members of the Subcommittee, I appreciate this opportunity to appear before you to discuss the Department of Energy's Environmental Management (EM) program and its fiscal year 2002 budget request.

The Department of Energy's fiscal year 2002 request of $19.2 billion fulfills President Bush's commitment to responsible discretionary spending while meeting critical requirements and priorities in the national security, energy, science and environmental quality programs the Department administers. We faced some tough choices for all of the Department's programs, but the end result is a balance among the critical national priorities in the programs administered by DOE.

The Environmental Management program constitutes nearly a third of the Department's budget, second only to our national security activities, illustrating the scope and complexity, as well as the challenge, of the cleanup we face. Our budget request of $5.913 billion for fiscal year 2002 for the EM program will enable DOE to continue the cleanup of the contamination and wastes that resulted primarily from nuclear weapons research and production over the past 50 years. The request seeks $5.771 billion in traditional budget authority and $142 million in budget authority to support privatization projects. Detailed information on site activities covered under this account are attached to this testimony.

The level of funding in our request reflects the Department's priorities for the EM program. These priorities are, first and foremost, to ensure the safety of the workers and the public at all our sites. The request supports critical safety programs for the protection of workers who carry out cleanup activities across the DOE complex. Our request supports activities needed to address high risk wastes and nuclear materials to ensure they are safe and secure and that progress continues to reduce risks. It keeps us on track to meet accelerated closure schedules at Rocky Flats in Colorado and the Fernald site in Ohio. It supports many key projects, including the development of a waste treatment plant at Hanford to immobilize high-level waste, increased waste shipments to the Waste Isolation Pilot Plant, and stabilization of spent nuclear fuel and plutonium materials at the Savannah River Site in South Carolina. It supports the completion of cleanup at the Weldon Spring Site in fiscal year 2002. Our budget request continues efforts to develop and deploy innovative

technologies that can reduce the cost and schedule of cleanup. While the budget addresses the major cleanup problems covered by compliance agreements and other essential requirements across the complex, Energy Secretary Abraham also has directed a top-to-bottom management review of the EM program with the goal of identifying efficiencies and speeding up our cleanup efforts.

The Secretary has challenged every program in the Department to become five to ten percent more efficient and the EM review will focus on meeting this challenge. Under this management review, the program will work to identify steps to strengthen project management, implement contracting strategies that help reduce costs and schedules, make greater use of new technologies, and sequence work more effectively. We must be sure that we are spending our cleanup dollars on the right problems and that we are addressing cleanup problems as effectively as possible.

Critical to the success of these efforts is the involvement and support of our state and federal partners. The Department is firmly committed to conducting the cleanup safely and in compliance with applicable laws and regulations. It is critical, however, that we are conducting the cleanup in the best and most practical way possible. Accordingly, the Secretary has invited the governors of the States that host our sites and EPA Administrator Christine Todd Whitman to work with us to improve the compliance framework that governs much of the cleanup work at our sites. We need to review our cleanup work to ensure it promotes on-the-ground results, makes use of technologies that are efficient, and reflects the lessons and technical understanding developed over the past decade. I am confident that, working cooperatively, we can find ways to achieve our shared environmental goals more efficiently.

INTRODUCTION

Before discussing the specifics of our fiscal year 2002 budget request, I would like to provide an overview of our program, as well as highlight some of our accomplishments in the past year and our planned achievements for the current fiscal year.

MEETING THE CHALLENGE OF THE ENVIRONMENTAL LEGACY

The Environmental Management program is responsible for managing and cleaning up the environmental legacy of the nation's nuclear weapons program and government-sponsored nuclear energy research. A common theme among the very diverse facilities across the country where the EM program is conducting cleanup is the challenge presented by the magnitude and complexity of the task we face in managing large volumes of nuclear wastes, safeguarding materials that could be used in nuclear weapons, and remediating extensive surface and groundwater contamination.

In total, we are responsible for addressing an estimated 1.7 trillion gallons of contaminated groundwater and 40 million cubic meters of contaminated soil and debris. EM is responsible for safely storing and guarding more than 18 metric tons of weapons-usable plutonium, enough for hundreds of nuclear weapons. Our inventory includes over two thousand tons of intensely radioactive spent nuclear fuel, some of which is corroding. EM is also responsible for storage, treatment, and disposal of radioactive and hazardous waste, including over 340,000 cubic meters of high-level waste stored at the Hanford, Idaho, New York and Savannah River sites; and for deactivation and decommissioning of about 4,000 facilities that will no longer be needed to support the Department's mission. The EM program also is responsible for critical nuclear non-proliferation programs to accept and safely manage spent nuclear fuel from foreign research reactors that contain weapons-usable highly enriched uranium.

Completing the cleanup of the legacy from nuclear weapons production will meet our obligations to those communities and states that supported our national defense effort and helped win both the Second World War and the Cold War. Completing this cleanup will allow us to turn lands and facilities to other public uses and allow the Department to focus on its science, security, and energy missions.

ACCOMPLISHMENTS AND PROGRESS IN FISCAL YEAR 2001

I am pleased to report that EM is making significant progress around the country. Our accomplishments reflect the program's continued commitment to performance-based management, establishing goals and performance measures that demonstrate our progress in on-the-ground environmental cleanup and meeting our goals. For example:

1. In fiscal year 2000, EM completed its cleanup work at two more sites—the Battelle Columbus-King Avenue site in Ohio and the Monticello site in Utah. We plan to complete cleanup of the Grand Junction site in Colorado, General Atomics

in California, and Argonne-West in Idaho by the end of fiscal year 2001. This will bring the number of completed sites to 74, with 40 sites (including the Moab site in Utah) remaining that require active cleanup.

2. The rate of shipments of transuranic waste for disposal at the Waste Isolation Pilot Plant (WIPP), the world's first deep geologic waste repository, continues to increase. WIPP received 58 shipments in fiscal year 2000 and plans to receive an additional 381 shipments by the end of fiscal year 2001, which will bring the total number of shipments to 471 containing over 3,000 cubic meters of waste since WIPP began operations in March 1999. We are receiving waste from Rocky Flats, Los Alamos National Laboratory in New Mexico, Hanford, and the Idaho National Engineering and Environmental Laboratory (INEEL), and made the first shipment from the Savannah River Site last week.

3. We continue progress toward the ambitious goal of closing Rocky Flats by 2006. In February 2000, we put in place a new "closure" contract that provides incentives to the contractor to meet the December 2006 target date for site closure. We completed the demolition of Building 779 in January 2000, eight months ahead of schedule. This is the first plutonium facility of its size and complexity in the nation to be decommissioned and demolished. Shipments of waste continue, including 249 cubic meters of transuranic waste to WIPP in fiscal year 2000 with another 1,000 cubic meters scheduled for fiscal year 2001. And we are removing nuclear materials from the site—we completed shipments of plutonium scrub alloy to the Savannah River Site in fiscal year 2000 and will complete shipments of classified metals to Los Alamos and the Savannah River Site in fiscal year 2001.

4. In December 2000, we awarded a "closure" contract for the Fernald site in Ohio, which includes incentives to the contractor to accelerate closure ahead of the 2010 closure date in the site's current baseline. We continue to stay on track for closure by deactivating and decommissioning facilities, disposing of contaminated soils and waste, and shipping nuclear materials off-site.

5. We produced a total of 241 canisters of vitrified high-level waste in fiscal year 2000 at the Savannah River Site in South Carolina and at West Valley in New York. In fiscal year 2001, we expect to produce 220 more canisters at the Savannah River Site facility and to complete five or more canisters at West Valley.

6. At INEEL, we recently finished moving Three Mile Island spent nuclear fuel debris to a newly constructed dry storage facility, almost two months ahead of the milestone in the Idaho Settlement Agreement. Construction of the Advanced Mixed Waste Treatment Project started in fiscal year 2000 under a privatization contract. This facility will treat up to 65,000 cubic meters of stored waste. Transuranic waste shipments to WIPP continue in support of the Settlement Agreement with the State.

7. At the Oak Ridge Reservation in Tennessee, we completed the cleanup of all eight "Gunite" tanks containing highly radioactive sludge in fiscal year 2000, eight months ahead of schedule and ten years ahead of the original baseline. We began shipments of low-level waste to the Nevada Test Site for disposal, which allowed the resumption of off-site shipments of waste to the Toxic Substances Control Act (TSCA) Incinerator under an agreement with the State. In fiscal year 2001, we will begin construction of a new on-site disposal facility for remediation wastes, as well as the construction of a transuranic/alpha waste treatment facility which will prepare Oak Ridge waste for shipment to WIPP.

8. At the Hanford site in Washington State, we continue to make significant progress in reducing the urgent risks associated with the 177 underground high-level waste tanks, some of which have leaked to the surrounding soils threatening groundwater and the nearby Columbia River. We are successfully resolving tank safety issues—in fiscal year 2001 we will resolve an issue related to flammable gas safety, the last of high priority safety issues, and remove all remaining tanks from the "Watch List." We continue interim stabilization of single-shell tanks, transferring free liquids in the tanks to more secure double-shelled tanks. We began pumping free liquids from four single-shelled tanks in fiscal year 2000 and will begin pumping another six tanks in fiscal year 2001, meeting all milestones in the Consent Decree with the State of Washington. In December 2000, a new performance-based contract was awarded ahead of schedule for construction of the treatment facility that will immobilize a significant portion of the high-level tank waste.

9. Also at Hanford, in December 2000, we began moving spent nuclear fuel from the K-West basins to safer, dry storage away from the Columbia River. We plan to remove, dry, and transport 116 metric tons heavy metal of spent nuclear fuel in fiscal year 2001. We are also continuing the stabilization of plutonium-bearing liquids and materials in the Plutonium Finishing Plant, completing about 50 percent of solutions and nine percent of the containers by the end of fiscal year 2001. In fiscal year 2001, we will dispose of more than 490,000 tons of contaminated soil and debris in the on-site disposal facility.

10. In December 2000, we completed the removal and packaging of "Drum Mountain," a pile of thousands of crushed contaminated drums, at the Paducah site in Kentucky.

11. In fiscal year 2001, we will complete construction of the Decontamination Waste Treatment Facility at the Lawrence Livermore National Laboratory in California. This facility will provide new, state-of-the-art technology for treatment of Livermore waste.

12. At the Los Alamos National Laboratory, we began full operation of our sealed source program in fiscal year 2001 to recover radioactive sources that exceed the U.S. Nuclear Regulatory Commission's upper limit for commercial disposal and therefore currently have no approved disposal pathway. This program removes unwanted radioactive sources from the private and public sector and places them in safe storage at Los Alamos. We have brought 1100 private sector sealed sources to Los Alamos for storage and expect to recover over 2000 sources by the end of fiscal year 2001.

In support of non-proliferation goals, we have completed a total of 19 shipments to date of spent nuclear fuel from foreign research reactors in 25 countries since the start of the acceptance program, including three shipments in fiscal year 2001 from Argentina, Chile, Germany, Italy and Japan. All told, these 19 shipments effectively removed from commerce an amount of uranium equivalent to over 20 crude nuclear weapons. This program is crucial in supporting U.S. policy to reduce and eventually eliminate the use of highly enriched (nuclear weapons-capable) uranium in civil commerce world-wide.

All EM sites achieved full implementation of Integrated Safety Management (ISM) by the end of fiscal year 2000. ISM is a "common sense" approach to safety management that defines the necessary safety structure for any work activity that could affect the safety of the public, the workers, or the environment.

Our on-the-ground use of new innovative technologies continues to increase, many of which contributed to or resulted in the accomplishments described above. During fiscal year 2000, DOE sites used EM-sponsored innovative technologies 210 times in cleanup activities. For example, a breakthrough technology (LASAGNA™) that uses buried electrodes to produce a flow of groundwater and dissolved contaminants toward "in situ" treatment zones was deployed at the Paducah Gaseous Diffusion Plant to treat trichloroethylene and technetium contamination in the ground. During the next two years, this technology is expected to reduce the level of contamination in the soil to a level that presents no threat to groundwater.

Also in fiscal year 2000, 30 innovative technologies were made available for use for the first time. One such technology is the Vadose Zone Characterization System which measures contaminants that have leaked from high-level waste tanks into the groundwater. We also initiated 37 full-scale demonstrations of innovative technologies, including the Fiber Optic Tritium Detector and Quantifier, which enables tritium measurements to be made safer, faster (real time), better and cheaper than traditional liquid scintillation-based techniques.

During fiscal year 2001, the sites expect to deploy new technology at least 60 times in cleanup activities. For example, we plan to deploy a new technology recommended by the fiscal year 2001 "blue ribbon panel" on alternatives to incineration at Hanford to treat organic hazardous and radioactive mixed waste.

THE FISCAL YEAR 2002 REQUEST

The fiscal year 2002 budget request of $5.913 billion will enable EM to continue making progress in cleaning up its sites. The request supports the Department's key priorities needed to meet the environmental management mission. Our request:

—protects the health and safety of the workers and the public at all our sites as our first priority;

—ensures the safety and security of high risk wastes and nuclear materials and continues the progress in addressing our high-risk cleanup problems and addresses critical needs across the DOE complex;

—keeps the major sites on track for meeting accelerated closure goals;

—continues investments in science and technology to find safer, less expensive and more efficient solutions for cleanup problems;

—provides for long-term stewardship responsibilities after cleanup is done.

In addition, the budget request for fiscal year 2002 reflects an increased scope of responsibility from previous requests, including:

Turnover of the Portsmouth Plant.—In June 2000, the U.S. Enrichment Corporation (USEC) announced its intention to cease uranium enrichment operations at the Portsmouth Gaseous Diffusion Plant in Ohio. The Department must take steps to keep the facilities in a safe and operable standby condition to ensure, if necessary,

that U.S. energy security and nuclear fuel commitments can be met; mitigate the impact of the cessation of enrichment activities on workers; and transition the facility from USEC operation to DOE stewardship.

Uranium Programs.—The Energy and Water Development Appropriation for Fiscal Year 2001 consolidated funding for Uranium Programs and cleanup activities and authorized the transfer of federal personnel from the Office of Nuclear Energy, Science and Technology to EM to carry out the associated responsibilities. With this transfer, EM is now the landlord at the gaseous diffusion plant sites, responsible for the management and disposition of 680,000 metric tons of depleted uranium hexafluoride, among other activities associated with the gaseous diffusion plants now leased to USEC.

Remediation of the Moab Site.—The National Defense Authorization Act for Fiscal Year 2001 directed the Department to undertake the remediation of the uranium mill tailings site in Moab, Utah, a site previously owned and operated by a now-bankrupt private company.

Transfer of Excess Facilities.—Beginning in fiscal year 2002, EM will resume for the first time since 1996 accepting excess contaminated facilities, on a limited basis, from other DOE program offices for eventual deactivation and decommissioning.

I would like to highlight some of the critical activities supported in the fiscal year 2002 request and our plans for the Environmental Management program.

SAFETY FIRST

The safety of our workers is paramount in all we do. We expect outstanding safety performance as a matter of course, demand this from ourselves and our contractors, and accept nothing less. Full and continued implementation of Integrated Safety Management is our way of achieving and sustaining a safe and healthful cleanup. The fundamental principle of Integrated Safety Management is that all accidents are preventable and that safety requirements must be consistent and defined at all steps of planning and conducting work. We recognize that safety culture flows down from actions by the senior management of an organization. These actions enforce the belief at every level that constant attention to safety has an incremental beneficial effect. The Office of Safety, Health and Security was created to track safety and to assist our managers, programs and sites in meeting their safety responsibilities.

We influence workers' approach to doing a job by instilling a safety culture; ensuring that workers have the proper knowledge, qualifications, training and equipment; identifying areas for improvement and verifying that safety deficiencies are corrected, and measuring progress and disseminating lessons learned.

We also have a new initiative to more formally assure that new technologies are developed with the safety of the worker using them as a primary consideration. New technologies, however cost effective, will not be developed and deployed unless they can be used safely. Our goal is develop technologies that are safer to use, and make cleanup safer.

Our enhanced focus on safety has begun to pay off. Currently, the total recordable case rate (a measure of occupational injuries and illnesses, more serious than those requiring first aid) for EM contractors and federal employees was 1.7 compared to the overall DOE rate of 2.0 and the private industry average of 6.7, despite the fact that the construction type work employed in EM activities is considered to be among the most hazardous. We have, in fact, reduced the EM total recordable case rate by 25 percent since 1999. There has also been considerable progress in closing out corrective actions in response to independently-observed safety deficiencies. There is every indication that workers are committed to the principles of Integrated Safety Management and are taking an active role in making it a part of workplace culture. We are driving safety performance to new levels of excellence, and are developing new ways to safely manage the risks associated with cleanup. Our fiscal year 2002 request fully funds the safety systems and processes that ensure our workers are protected.

GIVING PRIORITY TO THE HIGHEST RISK MATERIALS AND WASTES

Moving spent nuclear fuel to safe storage at Hanford.—In December 2000, we began removing spent nuclear fuel from K-West Basins at the Hanford Site in Washington as part of our ongoing effort to protect the Columbia River. This project is a first-of-a-kind technical solution to move 2,100 metric tons of corroding spent nuclear fuel from at-risk wet storage conditions in the K-East and K-West basins into safe, dry storage in a new facility away from the river. Our fiscal year 2002 request of $163 million for the Spent Nuclear Fuel Project at Hanford allows this critical project to continue on schedule, supporting the transport of 662 metric tons

of spent nuclear fuel from K-West Basin and the completion of modifications to K-East Basins.

Stabilize Plutonium at Hanford and the Savannah River Site.—We are reducing risks by stabilizing plutonium-bearing materials at Hanford and the Savannah River Site, consistent with our commitments to the Defense Nuclear Facilities Safety Board. At Hanford, our request provides $73.8 million to continue stabilization activities at the Plutonium Finishing Plant, where we will complete stabilization of the remaining 4,300 liters of plutonium-bearing solutions and polycubes and continue stabilization and packaging of plutonium oxides and residues. These stabilization activities are a critical step in the deactivation of Plutonium Finishing Plant, which will significantly reduce "mortgage" costs at Hanford.

At the Savannah River Site, our request of $357.6 million will continue operations in the two chemical processing canyons to stabilize nuclear materials, including plutonium residues and plutonium metals and oxides, as well as plutonium alloys from Rocky Flats. Stabilization of these "at risk" materials is critical in resolving health and safety concerns surrounding these liquid or unstable radioactive materials; in supporting closure goals at Rocky Flats; and in responding to Defense Nuclear Facilities Safety Board recommendations. By the end of fiscal year 2002, with stabilization of sand, slag and crucible plutonium residues, we will complete processing of all nuclear materials currently planned to be stabilized using the PUREX process in F-Canyon.

Safely Manage and Treat High-Level Waste in Underground Storage Tanks at Hanford.—The River Protection Project at Hanford includes the safe storage, retrieval, and treatment of 53 million gallons of high-level waste now stored in 177 underground tanks near the Columbia River. In fiscal year 2002, we will continue interim stabilization of the tanks, i.e., pumping liquid waste from single-shelled tanks, which are at or beyond their design life or do not conform to current design codes, into more reliable double-shelled tanks. We will initiate pumping of four additional single shell tanks, staying on track to meet our commitment to complete interim stabilization of all single-shell tanks in 2004.

Fiscal year 2002 is a critical year in developing the facility to vitrify the high-level tank waste, one of the most critical, complex and costly projects in the DOE complex. The fiscal year 2002 request provides $500 million to develop treatment facilities to vitrify at least 10 percent by volume and 25 percent of the radioactivity of the 53 million gallons of high-level tank waste. Initially being developed under a privatization approach, the privatized contract was terminated in May 2000 because of price and management concerns, and a new contract using a cost-reimbursement approach was awarded in December 2000. The new contract contains incentives tied to performance, encouraging the contractor to meet or exceed cost and schedule goals. The request provides funds to initiate construction of high-level waste pre-treatment and low-activity vitrification facilities and continues the design and installation of waste retrieval systems that will provide waste feed to the treatment facilities.

Treat High-Level Waste and Begin Construction of Salt Processing Pilot Plant at Savannah River Site.—The fiscal year 2002 request includes $110.6 million to support continued vitrification of high-level waste at the Defense Waste Processing Facility that has produced more than 1,080 canisters of vitrified waste. By the end of fiscal year 2002, we will complete about 22 percent of the expected lifetime total of 6,025 canisters. The request also supports development of a technology to separate the high-activity and low-activity fractions of the salt waste, in order to minimize the amount of waste that must be vitrified and disposed of in a deep geologic repository. The Department is scheduled to identify a preferred alternative technology or technologies in June 2001 to replace the In-Tank Precipitation technology, which was terminated in 1998 because of excessive benzene generation. Two of three technology options currently being considered are a result of the EM science program—without this work, Savannah River Site would have had to begin development of new alternatives, creating a further delay of at least six years. In fiscal year 2002, we will begin construction of a pilot plant that will provide design and operational information for a full-scale salt processing plant.

Complete Construction of the Advanced Mixed Waste Treatment Project at INEEL.—The request includes $40 million in budget authority for the Advanced Mixed Waste Treatment Project (AMWTP) at INEEL, a privatization project that will greatly increase the INEEL's capability to prepare 65,000 cubic meters of waste for disposal at WIPP. In fiscal year 2002, we will complete construction of the facility, and we will be on track to begin operations in 2003 in accordance with the agreement with the State.

In response to a lawsuit and community concerns, the Department put the incineration component of the AMWTP on hold pending an expert review of alternative

technologies to incineration that can meet legal standards. The "blue ribbon panel" of experts, in a December 2000 report, identified several promising technologies. The request provides $5 million to explore several of these technologies, which may eliminate the need for the incinerator that had been planned for AMWTP.

Increase Shipments to WIPP.—The request of $164.6 million plus $2.6 million for safeguards and security for the Waste Isolation Pilot Plant will allow us to increase shipments of contact-handled transuranic waste to WIPP in fiscal year 2002. We will continue critical shipments from Rocky Flats to support the closure schedule and from INEEL to meet its agreement with the State, as well as limited shipments from other sites. The WIPP facility remains critical to meeting our closure and completion goals at other sites.

Begin Construction of a Pilot for "Melt and Dilute" Technology.—The Savannah River Site has been developing a cost-effective path forward for spent nuclear fuel that does not require stabilization for health and safety reasons. This research and development effort is helping us identify technologies to manage spent nuclear fuel and other nuclear materials without chemical separation. Our efforts to develop the "melt-and-dilute" process have been so successful that we selected it as the preferred technology to prepare aluminum-based spent nuclear fuel for geologic disposal. Construction of a pilot plant that will test real spent fuel to demonstrate the viability of the melt and dilute process will be completed this fiscal year, and the $4 million requested in fiscal year 2002 will support operations of the pilot plant. This will provide a firm basis for the design and construction of the full-scale facility to prepare and store this spent nuclear fuel prior to final disposition in a geologic repository.

SUPPORTING THE CLOSURE OF MAJOR SITES

Staying On Track to Close Rocky Flats.—The fiscal year 2002 budget request of $628.6 million plus $35.4 for safeguards and security, or a total of $664 million, supports the closure of Rocky Flats by December 15, 2006, the closure date targeted in the contract. The Rocky Flats site is the largest site challenged to accelerate site cleanup and achieve closure in 2006. To date, significant progress has been made toward making this goal a reality. A key ingredient for closing Rocky Flats is being able to ship nuclear materials and waste off-site, which requires that other sites—often DOE sites—are available and prepared to accept the materials. Our request also provides the necessary funds to other sites, such as Savannah River Site, Oak Ridge, Nevada Test Site, and WIPP, to support their part of the Rocky Flats closure effort. The coordination and support of these planned shipping campaigns to the receiver sites demonstrates the Department-wide commitment to the goal of achieving accelerated closure of Rocky Flats.

Accelerating the Closure of the Fernald Site.—Our request of $285.3 plus $4.7 million for safeguards and security also funds efforts to complete cleanup and close the Fernald site in Ohio. The site is currently scheduled to close in 2010, but the new closure contract for Fernald awarded last November includes incentives to the contractor to accelerate the completion date to 2006. Fiscal year 2002 efforts build on past years' cleanup progress, including stabilization of liquid uranium solutions, off-site shipment of low level radioactive wastes, disposition of excess nuclear materials, and decontamination and demolition of several large industrial buildings at Fernald. We will continue these activities in fiscal year 2002, including completing shipments of uranium materials to the Portsmouth site in Ohio for disposition, and beginning the full-scale remediation project for Silos 1 and 2 that contain radium-bearing residues generated from the processing of high-grade uranium ore.

MEETING NEW RESPONSIBILITIES

The budget request for fiscal year 2002 reflects an increased scope of responsibilities assigned to EM as a consequence of Congressional action in last year's legislation or internal initiatives. We have incorporated these new requirements into our request and prioritized the necessary activities in consideration of existing requirements of the Environmental Management program.

Turnover of the Portsmouth Plant.—In June 2000, the United States Enrichment Corporation (USEC) announced its intention to cease uranium enrichment operations at the Portsmouth Gaseous Diffusion Plant in Ohio and to return the plant to DOE. The EM program is responsible for placing and maintaining the plant in cold standby condition and for other critical transition-related activities, as well as eventual decontamination and decommissioning of the plant.

A total of $125 million requested in fiscal year 2002 supports activities to winterize the facilities, place the facilities in cold standby, and mitigate the impacts on the workforce. Some of these funds will be used to replace some of the funding

sources for an fiscal year 2001 reprogramming for transition activities now pending before Congress. In fiscal year 2002, this will allow us to complete the winterization of the plant, an activity we must begin this year. It will fund actions needed to place those portions of the plant needed for production of enriched uranium in a condition that would allow for restart of the operations within 18 to 24 months, should that become necessary in the future. And it allows us to selectively begin deactivating other parts of the plant and structures at the site that are no longer needed in order to reduce the surveillance and maintenance costs.

Uranium Programs.—The Energy and Water Development Appropriation for fiscal year 2001 consolidated funding for Uranium Programs and cleanup activities, and authorized the transfer of federal personnel from the Office of Nuclear Energy, Science and Technology (NE) to the Environmental Management program. With this transfer, EM became responsible for a number of additional activities, including safely managing 680,000 metric tons of depleted uranium hexafloride (DUF_6) now stored at three gaseous diffusion plant sites and the design, construction and operation of DUF_6 conversion facilities at Portsmouth and Paducah. We also are responsible for maintenance and cleanup of facilities not leased to USEC, management of DOE Material Storage Areas in and around USEC buildings, and for pre-existing liabilities arising from law or agreement after the transfer of the uranium enrichment operations to USEC.

The fiscal year 2002 request places priority on actions needed to ensure safety, including maintenance of the DUF_6 cylinders. We also will continue to work with the Commonwealth of Kentucky regulators to undertake actions needed to resolve the notice of violation issued by Kentucky concerning hazardous waste identified in the DOE Material Storage Areas at Paducah. The request also keeps the development of the DUF_6 conversion facilities on track to begin construction in January 2004, consistent with the schedule provided in Public Law 105–204.

Transfer of Excess Facilities.—The Department has a number of aging facilities that are no longer needed to support mission work. The costs to maintain these facilities so that they do not become a safety or contamination hazard can be significant, costs which can increase as facilities degrade over time. EM currently manages the majority of the Department's excess contaminated facilities. Since 1996, due to concerns about funding and increasing the scope of EM responsibilities, facilities that became excess to the needs of other programs have been managed by those programs. However, consistent with a new DOE order, beginning in fiscal year 2002, EM will, on a limited basis, begin accepting excess contaminated facilities from other DOE program offices for eventual deactivation and decommissioning.

In fiscal year 2002, ten facilities or facility complexes, located at Brookhaven, Oak Ridge, Pantex Plant in Texas, and the Savannah River Site, will transfer to EM from the National Nuclear Security Administration, the Office of Science, and the Office of Nuclear Energy. We are requesting funds for surveillance and maintenance to enable EM to manage these newly transferred facilities safely, based on a budget transfer from the DOE program that currently "owns" the facility. Since these excess facilities constitute new work scope for the EM program, we are requesting the funding in a separate program account to enable DOE and the Congress to track the cost and progress associated with the excess facilities transferring in fiscal year 2002. We also plan to include facility transfers in future years in this account.

CONTINUING THE INVESTMENT IN SCIENCE AND TECHNOLOGY

Developing and using more effective technologies in our cleanup continues to be a critical element of our strategy to reduce the cost and the pace of cleanup. Since its inception, EM's Science and Technology program has made approximately 280 innovative technologies available for use. Yet we have seen an increase in the needs for technological solutions reported by the sites. This is due to a large degree to better problem definition and a better understanding of project requirements, uncertainties, and costs. More than two-thirds of the EM life-cycle cost estimate occur after 2006, so the need for Science and Technology investments continues.

The fiscal year 2002 request of $196 million for the Science and Technology program activities will support the Department's near-term needs for technical solutions while allowing us to work toward solutions for the more intractable environmental problems.

Over the past several years, Environmental Management's Science and Technology program has concentrated not only on technical achievements, but also on ensuring its activities are directly linked to solving specific problems identified by project managers in the field and enhancing the program's management practices. I am pleased to report today that both technical advances and management processes for the Science and Technology program are solidly on track:

On-the-ground Successes.—In fiscal year 2000 alone, there were more than 200 innovative technologies used for the first-time in a project or site across the complex, demonstrating that EM's Science and technology program is successfully meeting real cleanup needs. For example, an innovative phytoremediation process was activated at the Mixed Waste Management Facility at the Savannah River Site. Tritium-contaminated water is pumped above ground and sprayed onto the roots of selected trees where it is evapo-transpired into the atmosphere at safe concentrations. This process, which is already making improvements in downstream water quality, will prevent contaminants from flowing into Fourmile Creek and the Savannah River Site.

At Hanford, the In Situ Redox Manipulation process, a 1998 R&D Magazine R&D 100 Award recipient, is being used on the highest-concentrated portion of a chromium VI groundwater plume. This process replaces expensive pump-and-treat with a permeable treatment zone that immobilizes chromium traveling through it.

And over 30 technologies were used as an integrated system to remediate the Oak Ridge Gunite and Associated Tanks, some of DOE's oldest tanks. Retrieval operations were completed in fiscal year 2000, ten years ahead of schedule and at a savings of $350 million.

Technical and Deployment Assistance.—While furnishing innovative technologies is the cornerstone of our activities, the program also provides scientific and technical support to EM cleanup decisionmaking. In response to public concern about incinerator emissions, last year a Secretarial "blue ribbon panel" studied emerging alternatives to incineration, which resulted in recommendations on emerging technologies that hold greatest promise for further development. EM's Science and Technology program led the effort to provide technical data for this effort.

The Science and Technology program is also supporting the development of an alternative technology to in-tank processing for cesium removal from high level waste. The Tanks Focus Area, one of five teams that address DOE's major environmental problem areas, is performing much of the testing and will continue to work with the site to develop and pilot the selected technology. It will also continue development of an alternative until the primary technology has successfully completed pilot-scale tests on actual waste.

Deployment assistance teams were sent to the Paducah Gaseous Diffusion Plant and the Pantex Plant last year to perform technical reviews of their groundwater, soils and surface water contamination. Based on the teams' recommendations, innovative technologies are being deployed at both sites.

Also, a first-ever textbook of reference material related to contamination of the vadose zone, a major problem for DOE sites, was compiled and published. This is an exhaustive compendium of information from multiple agencies and the private sector.

Basic Research.—Research sponsored by the Environmental Management Science Program (EMSP) is yielding beneficial results. To date, this work has been documented in 576 publications and has resulted in 28 patent disclosures and applications. Promising EMSP work is using tobacco and rice plants by a University of Georgia team to detoxify ionic mercury. This method could be applicable to mercury-contaminated soils at shallow depths, such as at Oak Ridge. Also a new technology being pursued at Sandia National Laboratory in New Mexico acts as a molecular "sponge" by capturing and storing radioactive strontium from liquid hazardous waste. Heat turns the sponge into a stable material that shows promise of being suitable for disposal.

With the requested $32 million, EMSP will complete research begun in fiscal year 1999 on scientific problems associated with the vadose zone, subsurface contamination, and groundwater issues to support initiatives at sites such as Hanford. Also, the first full year of research will be completed on projects awarded in fiscal year 2001 to improve the effectiveness of tank cleanup and decontamination and decommissioning processes.

MEETING LONG-TERM STEWARDSHIP RESPONSIBILITIES

As the Department completes stabilization, cleanup and disposal of waste, we must consider the next and final stage in the cleanup process: meeting our enduring environmental protection obligations through long-term stewardship at sites that are unable to be cleaned up sufficiently to allow for unrestricted use. DOE's cleanup efforts have resulted in substantial risk and maintenance cost reductions across the complex. However, at most sites, cleanup will make the land available for other industrial uses, but not necessarily unrestricted use. Like private sites or other federal facilities, cleanup to levels allowing for unrestricted use often cannot be

achieved for economic or technical reasons, including the presence of residual contaminants or deliberate entombment of waste or facilities.

The Department has a legal and moral responsibility to ensure the protection of human health and the environment after cleanup is complete. The goal of long-term stewardship is the sustainable protection of human health and the environment after cleanup, disposal or stabilization is complete. The long-term stewardship program allows the Department to provide safe and effective long-term stewardship while optimizing future land and resource use. Good project management, applying the best science and technology to manage residual hazards, and increasing public confidence through effective involvement of state and local governments, Tribal Nations, and stakeholders is essential to a successful long-term stewardship program. A reliable long-term stewardship program can also provide confidence to regulators and the public that non-removal remedies are acceptable because the Department can be trusted to care for the sites after the waste is contained in place. These needs are not unique to the Department of Energy—while EM's Office of Long-term Stewardship may be the first office addressing these issues in the federal government, I would suggest to you that it will not be the last.

In January 2001, DOE reported to Congress on the Department's long-term stewardship responsibilities, in response to the fiscal year 2000 National Defense Authorization Act (NDAA). The report provides the best available information on the cost, scope, and schedule of DOE's current and future long-term stewardship. It concludes that DOE currently carries out such activities at about 30 sites and may eventually be responsible for stewardship at 129 sites.

Recently, we designated the Idaho Operations Office as the lead field office for our long-term stewardship program. The Grand Junction Office, which is currently conducting stewardship at sites that have completed cleanup, has been transferred from the Albuquerque Operations Office to the Idaho Operations Office to provide for continuity of critical operations and to coordinate policy and guidance development.

The fiscal year 2002 request maintains funding for long-term stewardship activities at $8 million. In addition, $5.4 million in funding for Grand Junction also supports its stewardship activities. The number of sites moving from active cleanup to stewardship is expected to grow from 30 sites in fiscal year 2001 to 35 sites in fiscal year 2002, with an additional 33 sites transitioning into long-term stewardship in the next five years.

The request also supports INEEL and Headquarters activities to address complex-wide long-term stewardship challenges. Our emphasis in fiscal year 2002 will be on resolving issues that interfere with, or potentially delay, the transition of sites through closure and into long-term stewardship. We also continue investments in science and technology to help ensure that the protections provided by our remedies can be maintained as cost-effectively as possible for the necessary duration.

ENSURING WE USE RESOURCES EFFECTIVELY

The cleanup facing DOE is perhaps the most complex and challenging environmental challenge in the world. And it is one of the most costly, currently estimated to cost about $200 billion to complete. It is critical that we manage the program well and employ strategies that will help us continue progress and meet our commitments more efficiently and at a lower cost. The comprehensive, top-to-bottom assessment of the Environmental Management mission that the Secretary has directed be conducted will help identify opportunities to optimize the use of cleanup funds. Strategies to achieve this include:

—implementing sound project management practices;
—achieving efficiencies through innovative performance-based contracting approaches that provide financial incentives for performance;
—working closely with state and federal regulators, tribal nations, and other stakeholders at our sites; and
—linking sites through integration.

IMPROVING PROJECT MANAGEMENT

Sound project management is fundamental to cost effective and timely completion of EM's massive clean-up effort. EM has accomplished significant improvements in the past several years in planning and execution of project baselines, but certainly more work remains. In particular, we need to improve our up-front planning and our project risk management practices. The latter is particularly important given the high degree of uncertainty associated with many of our first-of-a-kind projects.

EM's Office of Project Management, created in August 1999, is charged with bringing state-of-the-art project management tools and training into the EM pro-

gram to enable us to better manage our projects. We work closely with the Office of Engineering and Construction Management (OECM) in the Office of the Chief Financial Officer, the unifying organization for project management for DOE. We learn from and compare our performance with the standards and practices of external organizations such as the Construction Industry Institute, the Project Management Institute, and the National Aeronautics and Space Administration.

Over the past year, EM has significantly improved project management practices by taking an aggressive approach to implementing the new DOE project management order, Program and Project Management for the Acquisition of Capital Assets, which mandates that industry standard processes and reporting be incorporated into DOE project management. We have recently identified over 70 discrete, well-defined projects (referred to as Capital Asset Projects) that will be subject to the comprehensive project management requirements laid out in the new DOE order.

A sample of the other changes made to promote better project planning and reduce overall program costs include:

1. We are increasingly using a comprehensive project planning tool similar to that used by the Construction Industry Institute across the complex. We expect its use to result in near term project cost and schedule improvements.

2. We have instituted quarterly performance reviews for key projects and formalized a "critical decision" approval process using the expertise of DOE's Energy Systems Acquisition Advisory Board (ESAAB). These internal and external independent project reviews are the independent "eyes and ears" assist us in making sound decisions.

3. We have begun to make use of "state-of-the-art" cost estimating models for environmental remediation and decontamination and decommissioning projects. We plan to extend these models to all types of EM projects.

4. We are putting together Integrated Project Teams to provide more effective intra-site communication. These teams are charged with expanding technology transfer and reducing project risk associated with cross site waste transfers.

5. We are developing the project management career ladder to ensure that future project managers have the right training and experience to mange the large complex environmental management projects to come.

EM is taking project management "off the drawing board" and putting it into practice. Both headquarters and field offices are making changes needed to promote effective project management. While we will certainly face challenges ahead, we also anticipate substantial project management improvement, and more success stories in the coming years.

IMPROVING CONTRACT MANAGEMENT

The EM program accomplishes its work largely through facility management contracts that provide for management and operations at each site. EM site managers have oversight responsibility for eleven facility management contracts. Managing performance under these contracts is key to successfully carrying out the EM mission and to reducing costs.

To ensure we get what we pay for and that we get what we need, we have moved away from traditional cost-plus-award-fee contracts and are applying performance-based contracting and management principles to all our facility management contracts, as well as to our support service contracts. This contracting approach uses objective performance metrics to define and measure contract performance, tying the contractor's fee to achievement of these specific performance measures. Innovative performance metrics developed and used by EM sites include multi-year performance incentives, "gateway" provisions requiring the contractor to complete previous performance requirements before earning fee in a performance area, and "stretch" and "super-stretch" goals in which the contractor uses cost savings to fund unfunded work.

In the past few years, we awarded new cost-plus-incentive-fee "closure" contracts for the Rocky Flats and Fernald sites tied to completing the closure of the site. The contracts identify a target closure and include incentives for accelerated completions and reductions in fee for any delay beyond this targeted date. The contracts also include cost and schedule incentives focused on ensuring the cleanup is conducted safely and compliantly. We also negotiated new or extended contracts for operation of the Waste Isolation Pilot Plant, the Richland Operations Office and the Office of River Protection at Hanford, and the Savannah River Site that tie fees to performance.

To further enhance contract reform objectives, EM is taking an increasingly active role in defining performance expectations, ensuring that these expectations are consistent with the Department's strategic plan, reviewing results, and holding both

site managers and contractors accountable for producing results. In fact, site managers now have very specific elements in their annual performance plans concerning contract management.

WORKING WITH OUR REGULATORS AND OTHER STAKEHOLDERS

We have found that performing good technical work is not enough. Getting the job done requires coordination with regulators and others outside of DOE that have a stake in our actions. By working cooperatively with regulators, stakeholders, local communities and the Tribal Nations, we have improved the efficiency of the EM program and have made progress in meeting our regulatory commitments in a more efficient and cost-effective way.

Critical to the success of our efforts to improve the efficiency of this program and the cleanup results is the involvement and support of our state and federal partners. We believe this is an opportune time to examine the compliance framework that guides cleanup at all our major sites to ensure it reflects the experience gained over the past decade when many agreements were put in place. Accordingly, the Secretary has invited the governors of the States that host our sites and EPA Administrator Christine Todd Whitman to work with us to review our cleanup work to make sure it promotes on-the-ground results, and reflects the lessons and technical understanding that have developed. I am confident that, working cooperatively, we can find ways to achieve our shared environmental goals more efficiently.

Our request supports public participation through continued relationships with states, site-specific and national advisory boards, and Indian tribes potentially affected by our activities. We will encourage an open and frank dialogue with our regulators to ensure that we are pursuing the most efficient and most cost effective solutions to cleanup and compliance needs, as well as the most appropriate sequencing of work.

LINKING SITES THROUGH INTEGRATION

While each DOE site has its own objectives and milestones for cleanup and closure, no site can complete its mission without help from other parts of the EM program. Making use of the unique capabilities for managing and treating nuclear wastes and materials at our sites and sharing information and expertise is critical to our success. Through integration, we seek to use available capacity rather than construct new facilities; apply innovative technologies at multiple sites; and apply lessons learned and site successes complex-wide. We work to address common problems and challenges across the DOE complex through a corporate approach.

The contribution of other sites to the closure of Rocky Flats continues to illustrate the importance of integration. Our ability to close Rocky Flats depends on the acceptance of waste and materials by other DOE sites, including the Savannah River Site, Los Alamos, Pantex Plant, Lawrence Livermore National Laboratory, and the Nevada Test Site. Rocky Flats is in the process of formulating an Integrated Closure Project Baseline that integrates the Department's contractual commitments to provide items and services with activities to be carried out by the site contractor. The Integrated Closure Project Baseline highlights that the closure of Rocky Flats is truly a complex-wide project, requiring the support and careful coordination of a number of Departmental sites and programs. It has improved our ability to integrate complex-wide activities, schedules and resources.

We are working to develop disposition pathways for surplus nuclear materials throughout the DOE complex, including orphan materials (i.e., those with unclear programmatic ownership), and wastes that cannot be disposed of in their current forms. This requires that the Department has a full understanding of the surplus materials inventories and corresponding disposition plans prior to termination of facility capabilities. For example, EM recently completed the "Savannah River Site Canyons Nuclear Material Identification Study" (February 2001) to determine which materials would potentially require the use of the Savannah River canyons. Such disposition studies often identify the need to transfer materials and wastes between DOE sites in preparation for ultimate disposition. To support one particular transfer, EM recently revised DOE's 3013 Storage Standard for surplus plutonium, accelerating Rocky Flats closure by allowing metals and oxides stored there to be packaged for shipment off-site. We are also working to develop a cost-effective disposal approach for the classified waste currently stored at Rocky Flats.

Finally, the transport of radioactive waste and material between sites is critical to the success of our integration priorities. Our national transportation program, which has successfully moved spent nuclear fuel containing U.S. enriched uranium from research reactors around the world to the U.S. for safe storage, is applying its success to other DOE shipments. For example, EM is working with other DOE pro-

gram offices and with the sites to develop a national packaging strategy that will improve the availability of certified casks for unique types of DOE shipments, is working with NNSA to ensure the availability of Transportation Safeguards System for shipping special nuclear materials from Rocky Flats, and is developing the option of shipping waste to WIPP via rail. Our efforts will enable us to identify future packaging and transportation needs, to support aggressive shipping schedules, and to utilize our transportation assets more efficiently.

PROVIDING EFFECTIVE FEDERAL OVERSIGHT

Critical to successfully managing the cleanup program and to identifying and implementing more efficient ways of doing business is having the Federal workforce in place to provide effective oversight of the contractors that compete for and carry out the actual cleanup work. Federal employees establish the program and project goals; they provide the direction to the contractors; and they monitor contractor performance to ensure we are getting the results we need, at the quality and cost promised, and that work is done in a safe and compliant manner. Our initiatives to reduce the costs and schedules of the cleanup depends on having an effective Federal workforce to keep the pressure on the contractor to find more innovative and efficient ways of doing business.

The Federal workforce performs essential tasks that it would be inappropriate to have contractors perform. These include formulating the annual budget and outyear projections; managing contractors, including contract negotiations, oversight, and accountability; representing the Department in its dealing with regulators; analyzing and formulating program policy and planning; and integrating activities and information across sites.

Our request for Program Direction, which funds Federal salaries as well as travel and administrative and technical support services, is $355 million. However, our request reduces support services and travel funds by almost half, while essentially maintaining the funds for Federal salaries. The request supports 2,708 Full-time Equivalents (FTEs)—about 84 percent of which are in the twelve DOE field and operations offices—and includes increases in the Carlsbad Field Office and the Office of River Protection to reflect increased requirements. Overall, the Program Direction account has been significantly reduced from earlier years. The number of Headquarters FTEs, for example, is 45 percent less than when at its highest point in 1995. The request for Program Direction in fiscal year 2002 is about 15 percent less than in fiscal year 1997, the year these activities were consolidated into a single account.

The Department continues to place a high priority on workforce management to provide a stable workforce with the right skill mix and technical capabilities to accomplish our mission, now and into the future.

CONCLUSION

In conclusion, the Department is making progress in cleaning up the legacy of contamination left from the nuclear weapons production process. We are giving priority to reducing our most serious risks, accelerating cleanup at our major sites across the country, safely storing and safeguarding weapons-usable nuclear materials, and reducing the long-term costs of the program. We will continue to use science and technology to reduce costs and schedules, improve our project management, make the most effective use of our unique resources across the DOE complex, and maintain our focus on worker safety. We pledge to continue to work closely and cooperatively with the Congress to ensure that this progress continues and that we can meet the challenges ahead in the most effective way.

SUMMARY OF THE FISCAL YEAR 2002 BUDGET

The total fiscal year 2002 budget request for the Department of Energy's Environmental Management Program is $5.913 billion, including $142 million of privatization funding. The fiscal year 2002 appropriation will fund cleanup at sites across the Nation. Five sites receive almost three-fourths of Environmental Management funding—the Hanford site in Washington (including Richland Operations Office and Office of River Protection), the Savannah River Site in South Carolina, the Rocky Flats site in Colorado, the Idaho National Engineering and Environmental Laboratory in Idaho, and the Oak Ridge Reservation in Tennessee.

Our fiscal year 2002 budget proposal provides details on each project, including performance measures, which we use to hold managers accountable, and expect to be held accountable by Congress. Summaries of budget accounts and the fiscal year 2002 request by State and Operations Office are attached. In addition, information on each of following sites can be found immediately after the budget summaries.

1. Hanford Site, Washington—Office of River Protection—Richland Operations Office
2. Savannah River Site, South Carolina
3. Rocky Flats Environmental Technology Site, Colorado
4. Idaho National Engineering and Environmental Laboratory, Idaho
5. Oak Ridge Reservation, Tennessee
6. Fernald Environmental Management Project, Ohio
7. Portsmouth Gaseous Diffusion Plant, Ohio
8. Waste Isolation Pilot Plant, New Mexico
9. West Valley Demonstration Plant, New York
10. Paducah Gaseous Diffusion Plant, Kentucky
11. Nevada Test Site and Operations Office, Nevada
12. Los Alamos National Laboratory, New Mexico
13. Miamisburg Environmental Management Project (Mound), Ohio
14. Weldon Spring Remedial Action Project, Missouri
15. Brookhaven National Laboratory, New York
16. Sites in the State of California

Hanford Site, Washington—Fiscal Year 2002 Request

[In thousands of dollars]

Office of River Protection:	
Defense ER&WM, Post 2006–ORP	812,468
Defense ER&WM, Site/Project Completion	2,000
Defense ER&WM, Program Direction	23,386
Total	837,854
Richland Operations Office:	
Defense ER&WM, Site/Project Completion	419,586
Defense ER&WM, Post 2006 Completion	164,642
Defense ER&WM, Program Direction	53,342
Non-defense EM, Site/Project Completion	1,485
Total	639,055
Defense ER&WM, Science & Technology	36,844
Defense ER&WM, Safeguards & Security	51,544
Total (Hanford Site)	1,565,297

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Hanford Site in Washington State remains the Department's greatest cleanup challenge. The 560-square mile site was carved out of a broad curve of the Columbia River during World War II. It is now the nation's largest former nuclear weapons production site, and the cleanup of the Hanford Site is the largest, most technically complex, environmental cleanup project yet undertaken. The site contains large amounts of spent nuclear fuel, unstable weapons grade plutonium, 177 underground tanks containing 53 million gallons of high-level radioactive waste, and more than 100 square miles of contaminated ground water. The Hanford Site remediation activities are regulated by the Tri-Party Agreement which was signed by the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology. In addition to cleanup of the site, the EM program provides critical infrastructure activities and service at the site, referred to as "landlord" activities.

The Hanford site mission is carried out by two independent organizations, the Richland Operations Office and the Office of River Protection (ORP). ORP was established in December 1998 following Congressional direction in the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 and is responsible for all aspects of the River Protection Project (formerly the Tank Waste Remediation System), which includes safe storage, retrieval, treatment and disposal of the high-level radioactive tank waste. Richland Operations Office responsibilities include all aspects of treatment, storage and disposal of legacy radioactive and hazardous wastes; safe and secure storage of nuclear materials and spent nuclear fuel; and the decontamination and decommissioning of facilities associated with the production of nuclear materials during the Cold War. The Richland and ORP managers report di-

rectly to the Assistant Secretary for Environmental Management, and their budgets (with the exception of integrated safeguards and securities and science and technology budgets) are separate. The ORP Manager has been delegated authority for contracting; financial management; safety; and general program management equivalent to other DOE Operations Offices.

Office of River Protection

ORP works closely with the Richland Operations Office to protect the health and safety of the public, workers, and the environment and to control hazardous materials to protect the Columbia River. ORP manages the River Protection Project located on the central plateau (200 Area) of the Hanford Site. The River Protection Project uses two major contracts for the storage, retrieval, treatment and disposal of the high-level tank waste. A 10-year contract to design, construct and commission a new Waste Treatment and Immobilization Plant (WTP) was awarded to Bechtel National, Inc. on December 11, 2000. The goal is to treat and immobilize approximately 10 percent of the waste by mass and 25 percent by radioactivity by 2018. The award of this contract follows a privatization effort to design, build, and operate a WTP that resulted in an unacceptable proposal submitted by the privatization contractor and termination of the privatization contract. However, as a result of the privatization effort, DOE acquired a robust technical design for the WTP that has been independently verified. In addition, the contract for maintenance and operations of the tank farms, which will provide waste feed to the WTP, is with CH2M Hill and was recently extended through 2006.

Management of the underground high-level waste tanks remains one of the biggest challenges at Hanford. In fiscal year 2001, we made significant progress in reducing the urgent risks associated with these tanks. The issue of the rising level of tank SY–101 was resolved by dissolving the crust on the surface of the waste through a series of waste transfers and back dilutions. Elimination of the crust reduced the retention of flammable concentrations of gas in SY–101 and permitted us to resolve the flammable gas safety issue for this tank and to remove the tank from the "Watch List" established by the National Defense Authorization Act for Fiscal Year 1991. During fiscal year 2001, we expect to resolve the flammable gas safety issue for the remaining 24 tanks that are affected and to remove those from the Watch List. Once this action is complete, there will be no tanks remaining on the Watch List. The Department signed a Consent Decree with the State of Washington that established a schedule for interim stabilization of the single-shell tanks. To date, we have met all Consent Decree milestones, which includes declaring seven of 29 single shell tanks to be interim stable. The two unstabilized single shell tanks that are suspected of having leaked in the past will be pumped during fiscal year 2001.

For fiscal year 2002, we will continue improving tank safety by transferring free liquids from single shell tanks to double shell tanks in accordance with the Consent Decree schedule. In addition, design and construction will continue on tank farm retrieval systems and other infrastructure improvements necessary to support future waste feed delivery to the treatment facility and eventual removal of all waste from the single shell tanks. Several of these upgrades are adapted from technologies developed under the EM Science and Technology Program. For example, we have procured a variant of the Houdini robotic platform for confined slucing of sludge waste and are planning to test an adaption of the fluidic sampler technology in solid waste retrieval.

In fiscal year 2001, we will continue termination activities associated with the privatization contractor, including purchase of the pilot-scale melter, and acquisition of the appropriate intellectual property rights associated with the pilot-scale melter and with the WTP design completed under privatization. In addition, we will continue the design and engineering of the WTP, and begin site preparation activities to support WTP construction, including site clearing and grading, installation of site utilities, and construction of equipment laydown areas. In fiscal year 2002, the requested $500 million in funding will be used to maintain momentum on WTP design, proceed with long lead project procurement, begin facility construction, and manage the project.

Richland Operations Office

Over the past year, Richland has formulated an outcome-oriented version of the Hanford Site's future that embraces priorities of regulators, stakeholders, and area Tribal Nations, while recognizing the absolute need to make visible progress in the near-term. The three elements of that vision are: (1) to restore the Columbia River corridor; (2) complete the transition of the Central Plateau to long-term waste management; and (3) prepare the remainder of the site to contribute to the future wel-

fare and well-being of its neighboring communities. This focus on outcomes has resulted in a new contract strategy and a revised project baseline. In December 2000, DOE negotiated an extension to the current site operations contract through 2006 for transitional work in the Central Plateau and the Spent Nuclear Fuel Project. We are currently exploring awarding a closure-type contract for the River Corridor.

In December 2000, we began moving spent nuclear fuel from K Basins, which are leak-prone underground wet storage pools located 400 yards from the Columbia River that hold roughly 2,100 metric tons of fuel, some of which is corroding. This first-of-a-kind, technically complex project entails loading the fuel elements while still underwater into a multi-canister overpack using robotic arms, drying it in the nearby Cold Vacuum Drying Facility, and transporting the fuel for dry storage to the newly-built Canister Storage Building, 12 miles from the river. Moving the fuel to safer storage safeguards the health of workers and the surrounding communities, and reduces the risks to the health and vitality of the Columbia River. By the end of fiscal year 2001, we will remove 116 metric tons of spent fuel from the K-West Basin. We will also begin design work for the K-Basin sludge and debris removal system and the sludge pre-treatment system. Our fiscal year 2002 request supports continued transport of spent nuclear in K-West Basin to dry storage.

The Department is continuing to remediate waste sites and dispose of the contaminated soil and debris in the Environmental Restoration Disposal Facility (ERDF). In fiscal year 2000, ERDF received approximately 639,000 tons of contaminated soil and debris from cleanup sites along the Columbia River Corridor, and completed construction of cells 3 and 4. In fiscal year 2001 ERDF will receive over 490,000 tons of contaminated soil and debris. We plan to complete remediation of nine waste sites in the Hanford 100 and 300 Areas, and send up to 461,000 tons of contaminated soil and debris to ERDF in fiscal year 2002.

In fiscal year 2000, we began operating three additional furnaces at the Plutonium Finishing Plant (PFP) for thermally stabilizing plutonium-bearing materials. We completed stabilization of 574 containers of plutonium metals and oxides, and began stabilizing plutonium solutions via magnesium hydroxide precipitation. We also began packaging stabilized plutonium materials using the Bagless Transfer System and the Pipe-n-Go system for packaging residues. In fiscal year 2001, we will stabilize 2,190 liters of plutonium bearing solutions and 527 containers of plutonium metals and oxides at the PFP. We will also complete brushing and packaging of plutonium metals and initiate startup of the outer container packaging system at PFP. Stabilization activities will eliminate the risk posed by the plutonium-bearing materials and is a critical step in the deactivation of PFP, which will significantly reduce mortgage costs at Hanford. In addition, we will continue stabilization of plutonium oxides and residues, and complete stabilization of plutonium-bearing solutions and polycubes at PFP in fiscal year 2002.

We continue to decommission the reactor facilities in the 100 Area through the Interim Safe Storage Project. In fiscal year 2000 and 2001, decommissioning activities continue at the DR and F reactors as well as at the 233–S Plutonium Concentration Facility.

In fiscal year 2000, we made our first shipment of Hanford transuranic waste to the Waste Isolation Pilot Plant (WIPP) for final disposal, completing three shipments totaling 18 cubic meters, and we plan to complete at least five shipments of 42 cubic meters of transuranic waste to WIPP in fiscal year 2001. In fiscal year 2002, we will treat more than 500 cubic meters of mixed low-level waste in accordance with Tri-Party Agreement milestones, dispose of more than 6,700 cubic meters of low-level waste, process over 200 million gallons of radioactive and hazardous effluents, and complete treatment of 265 cubic meters of mixed low-level waste at a contract facility.

In fiscal year 2002, the Hanford Site Groundwater/Vadose Zone Integration Project will implement the highest priority science and technology activities identified in fiscal year 2000.

Savannah River Site, South Carolina—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Site/Project Completion	391,401
Defense ER&WM, Post 2006 Completion	585,989
Defense ER&WM, Science & Technology	17,526
Defense ER&WM, Excess Facilities	700
Defense ER&WM, Safeguards and Security	94,225

Savannah River Site, South Carolina—Fiscal Year 2002 Request—Continued

Defense ER&WM, Program Direction	52,731
Total	1,142,572

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Savannah River Site is a 310 square mile site near Aiken, South Carolina with an on-going defense mission. In addition to cleanup of the site, the EM program provides critical infrastructure activities and services at the site, referred to as "landlord" activities.

One of the critical EM responsibilities at the site is the stabilization of nuclear materials resulting from its mission to produce strategic isotopes for national security purposes during the Cold War. In fiscal year 2001 and fiscal year 2002, we will continue to operate the two canyons as well as FB-Line, and HB-Line, to stabilize "at risk" plutonium-bearing materials and spent nuclear fuel covered by Defense Nuclear Facilities Safety Board Recommendations 94–1 and 2000–1. The Savannah River Site also continues it critical role in supporting the accelerated closure of Rocky Flats, receiving and stabilizing surplus plutonium-bearing materials from Rocky Flats. By the end of fiscal year 2002, more than 25 percent of plutonium residues at Savannah River will have been stabilized. In addition, surplus plutonium metal and oxides from Rocky Flats packaged in DOE–STD–3013 containers will be received and stored in the K-Area Material Storage area until they can be permanently dispositioned. The fiscal year 2002 budget request also supports continued construction of a process to vitrify americium/curium solutions, which have very intense radiation fields and require heavy shielding to protect workers and the public.

The fiscal year 2002 budget request continues support for receipt and storage at the Savannah River Site of spent nuclear fuel from domestic and foreign research reactors in support of national and international non-proliferation goals. In fiscal year 2002, we expect to receive 22 casks of spent nuclear fuel from foreign sources and another 31 casks from domestic sources which will be safely stored at the Savannah River Site's basins. By the end of fiscal year 2001, we expect to have received almost one-third of the spent fuel assemblies that we know other countries plan to return.

The Savannah River Site has been developing a cost-effective technology for preparing spent nuclear fuel that does not require stabilization for health and safety reasons for disposal. This work is helping us identify an approach to stabilize spent nuclear fuel and other nuclear materials without chemical separations. Last August, we selected the "melt-and-dilute" process as the preferred technology to prepare aluminum-based spent nuclear fuel for geologic disposal. The fiscal year 2002 budget provides $4 million for operation of the L-Area Experimental Facility to demonstrate the viability of the melt-and-dilute process. This will provide a firm basis for the design and construction of the full-scale facility to prepare and store this spent nuclear fuel prior to final disposition in a geologic repository.

Much of the EM work at the Savannah River Site that will be completed after fiscal year 2006 involves management of approximately 38 million gallons of high-level waste in 49 tanks, including vitrifying waste for final disposal and removing waste from storage tanks so the tanks can be closed. Two tanks have already been closed and, in fiscal year 2000, we produced 231 canisters of vitrified waste in the Defense Waste Processing Facility (DWPF). As of the end of April 2001, we had vitrified a total of 1,096 canisters of high level waste. We expect the DWPF to produce at least 150 canisters in fiscal year 2002, which will bring the total DWPF canister production level to about 22 percent of its expected lifetime total of 6,025 canisters.

Due to the long-term nature of this project, there are significant potential payoffs if we are able to develop and apply innovative technologies. We are currently moving forward with technologies that will make it easier to retrieve waste, to improve the way we decontaminate our canisters once they are filled, to reduce worker exposure through use of high efficiency filters that can be regenerated and reused, and to increase the amount of waste in each canister. These advances will allow DWPF to operate more efficiently and ensure that our goals for increasing canister production and reducing life cycle costs are realized.

In-Tank Precipitation operations were terminated in January 1998 because we were unable to successfully pre-treat the waste and limit the levels of benzene generation in the tanks to safe and manageable levels while maintaining production levels for DWPF. Pre-treatment of the waste is necessary to separate the high-activity and low-activity wastes, in order to minimize the amount of waste that must be

vitrified and disposed in a deep geologic repository. We undertook a systems engineering analysis, which was reviewed by a panel of independent experts, to evaluate all possible alternatives and have narrowed them down to three. We will select a preferred technology for treatment of the salt component of the high level waste this June, and the fiscal year 2002 budget request supports continued construction of a pilot plant for that technology. The design and operational data gathered from this pilot project will support the design and engineering of the full scale Salt Processing Project facility by providing a research and development test bed.

The first shipment of Savannah River Site transuranic waste to the Waste Isolation Pilot Plant occurred in May 2001, followed by three more shipments in fiscal year 2001, with shipping rates increasing to about one a month during fiscal year 2002. Storage, treatment and disposal operations of low-level, mixed low-level, and hazardous wastes will continue, including on- and off-site recycling activities.

We will also continue to aggressively pursue the use of new technologies to characterize and clean up contaminated release sites and groundwater plumes. We are using the Vadose Zone Monitoring System to determine how fast and in what concentration contaminants are traveling to the groundwater. This approach provides sensitive early warning of aquifer contamination from the E-Area shallow disposal trenches. At the mixed waste management facility, we have begun using a phytoremediation system to remove tritium from groundwater by the process of "evapotranspiration" using trees and other indigenous vegetation. In fiscal year 2002, we expect to complete key closures at the K-Area Burning Rubble Pits and in the L and P Area Bingham Pump Outage Pits. We will complete remediation of five release sites, bringing the total count of sites remediated to 300, nearly 60 percent of the 515 release sites needing remediation. We will also operate eight groundwater treatment systems in six of eleven groundwater plumes at the site to remove and control contamination.

Rocky Flats Environmental Technology Site, Colorado—Fiscal Year 2002 Request

[In thousands of dollars]

Defense Closure, Site Closure	628,577
Defense Closure, Safeguards & Security	35,423
Defense ER&WM, Science & Technology	3,000
Defense ER&WM, Program Direction	23,199
Total	690,199

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The accelerated closure of the Rocky Flats Environmental Technology Site is one of the Department's key initiatives. As the first major weapons-related facility to be cleaned up and closed, this project will offer a wealth of lessons-learned that will be applied to other sites in the complex. Similarly, the closure of Rocky Flats requires the implementation of innovative approaches and resolution new project and policy issues.

One of the innovative approaches we have applied is the use of a cost-plus-incentive-fee closure contract. In January 2000 we awarded Kaiser-Hill, L.L.C. a closure contract valued at approximately $4 billion (excluding incentive fee payments) to complete the closure of the site. The contract identifies a target closure date of December 15, 2006, and includes incentives for accelerated completions and reductions in fee for any delay beyond this targeted date. In addition, the contract includes cost and schedule incentives focused on ensuring the cleanup is conducted safely and compliantly.

We are continuously working to ensure that safety is not compromised in our efforts to complete the cleanup scope as quickly and cost effectively as possible. The Department's Integrated Safety Management System (ISMS), an integral part of the closure contract, was implemented at Rocky Flats in January 2000. Since January 2001, both the Rocky Flats Field Office and Kaiser-Hill have been working to strengthen the site's safety posture. The site manager requested assistance reviews by the Office of Environment, Safety and Health, which were recently completed. The contractor has also recently completed a site-wide, ISMS-based safety improvement plan.

The contract also formalized DOE's commitment to site closure in that it identified specific activities contractually required by the Department to support closure. These activities are referred to as government-furnished services and items and largely include activities necessary to ship special nuclear materials and wastes off-

site. For this reason, we are approaching the execution and management of this contract as a complex-wide project, and this has required us to develop some new management tools. During this first year of the contract execution, we have been working to "projectize" the activities required by the Department through the formulation of the Integrated Closure Project Baseline. This integrated baseline will provide the formality and structure necessary to ensure the Department meets its contractual commitments, as well as improve our means of managing the contract. The Integrated Closure Project Baseline highlights that the closure of Rocky Flats is truly a complex-wide project, requiring the support and coordination of a number of Departmental sites and programs. The effort has been fully supported by the contractor and the other programs and sites, and has received significant attention from external stakeholders, including the General Accounting Office (GAO).

In February 2001, GAO published their follow-on report assessing DOE's ability to complete the closure of Rocky Flats in 2006. Overall, the report provides a thorough assessment of the challenges facing us, and also demonstrates the progress we have made towards closure. Whereas the initial assessment indicated a one percent chance of achieving site closure in 2010 (1999 report), this follow-on report concluded there is a 15 percent chance of reaching site closure in 2006 and a 98 percent chance of closure in 2008. As such, the GAO assessment is a powerful validation of the progress realized to date. The report also recognizes the value of the Integrated Closure Project Baseline, and provides useful recommendations for formalizing the responsibilities and authorities necessary to resolve any inter-organizational resource issues.

A key ingredient for closing Rocky Flats is being able to ship nuclear materials and waste off-site. This requires not only the preparation of the materials and waste for shipment, but ensuring the receiver sites and the necessary transportation services are available. We have made some very significant progress to date. We recently completed the shipment of classified plutonium metals to the Savannah River Site and Los Alamos National Laboratory. We also began operation of the Plutonium Stabilization and Packaging System, which packages plutonium metals and oxides into approximately 2,000 containers. These containers will be shipped to the Savannah River Site for storage beginning in June 2001. The disposition paths for the remaining nuclear material streams are being finalized through the integrated baseline development. We plan to ship certain weapons components to the Lawrence Livermore National Laboratory and, pending necessary NEPA review, highly enriched uranium either contaminated or associated with plutonium to the Savannah River Site. With the proper coordination of receiver site preparation and transportation services (provided by Defense Programs), we hope to complete all nuclear material shipments by the end of calendar year 2002.

We have also made significant progress in the disposition of waste. In March 2001, we made our 100th transuranic waste shipment to WIPP. Rocky Flats to date has disposed of over 650 cubic meters of transuranic waste, more than any other site in the DOE complex. Currently, the site is completing an average of four shipments per week, and by year end will be nearing an average of nine shipments per week. In total, nearly 15,000 cubic meters of transuranic waste and about 100,000 kilograms of plutonium residues will be packaged and sent to WIPP. In fiscal year 2000, we also nearly doubled our planned shipments of low-level waste for disposal.

The recent reconfiguration of the site's Protected Area is another significant accomplishment because it provides considerable productivity improvements. All special nuclear material on-site has been consolidated within Building 371, enabling us to close material access areas in the other major plutonium facilities. This has reduced the security requirements in those facilities, improving access for the workers performing the decontamination and decommissioning (D&D) in those buildings. This reduces safeguards and security requirements, increasing the total funding available to support actual cleanup activities.

DOE has also clearly made enormous progress in reducing risks at the site. About 80 metric tons of plutonium residues have been stabilized and/or repackaged to date. This represents 79 percent of the total. We have also completed the draining of 32 and removal of 30 liquid piping systems.

We continue to make progress in deactivating and decommissioning buildings. Early in fiscal year 2000 we completed the demolition of Building 779, one of the five major plutonium facilities. Given that this facility once contained 133 contaminated gloveboxes, this achievement marked a significant milestone for the complex. We continue to apply the lessons learned from that demolition to the ongoing activities in the four remaining plutonium facilities. We have deployed an innovative technology called plasma-arc cutting for glovebox size reduction. This technology provides a significant reduction in worker risk and improved efficiency.

In the area of environmental remediation, we are using another innovative technology, a horizontal drilling technology, to characterize the contamination located under the buildings. This characterization information helps us coordinate remediation plans with the facility cleanup schedules to support the 2006 closure date. We continue to work closely with the regulators and stakeholders to refine the details of site cleanup. We expect the regulators will reach a decision on the final soil action levels late this calendar year. Through our integrated stakeholder focus group, we are working to address all the cleanup issues in an integrated fashion to ensure the aggregate impact to the project schedule and costs is considered.

The fiscal year 2002 budget request supports the closure contract and the closure activities we have identified as necessary for accelerated closure, including many of the complex-wide activities required to provide the government-furnished services and items. It is important to note that activities included in other sites' and programs' budgets are also needed to support Rocky Flats closure—including the nuclear materials transportation services provided by Defense Programs, the storage operations at the Savannah River Site, waste treatment operations at the incinerator at Oak Ridge, waste disposal operations at the Nevada Test Site, and the availability of transuranic waste containers and trailers from WIPP.

Our fiscal year 2002 request for Rocky Flats enables us to:

1. Complete the stabilization and packaging of the plutonium residues;
2. Continue the packaging and shipment of plutonium metals and oxides to Savannah River Site (620 containers);
3. Ship over 25,000 cubic meters of radioactive waste for off-site disposal; and
4. Complete the decontamination and decommissioning of 18 work sets.

Idaho National Engineering and Environmental Laboratory, Idaho—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Site/Project Completion	52,105
Defense ER&WM, Post 2006 Completion	276,551
Defense ER&WM, Science & Technology	18,407
Defense ER&WM, Safeguards & Security	34,346
Non-Defense EM, Site/Project Completion	5,080
Defense, Privatization	89,332
Subtotal	475,821
Use of Prior Year Balances (Defense)	(36,770)
Total	439,051

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Idaho National Engineering and Environmental Laboratory (INEEL), a multiprogram national laboratory with a significant cleanup mission, occupies 890 square miles of the eastern Snake River Plain in southeastern Idaho. INEEL combines a significant environmental and nuclear operations component with basic and applied research and development supporting the Department's four mission areas: Environmental Management, Energy Resources, National Security, and Science. INEEL operates under the sponsorship of EM, and has been designated a lead laboratory as well as a lead field site on long-term stewardship. The EM program provides critical infrastructure efforts at the site, referred to as "landlord" activities. In addition, the INEEL continues to serve important national security functions by receiving spent nuclear fuel from the Navy, and spent fuel from foreign research reactors that may contain weapons grade nuclear materials.

In total, most EM activities at the INEEL are regulated by enforceable agreements like the Idaho Settlement Agreement, the Federal Facility Agreement and Consent Order, the Site Treatment Plan and a 1999 Voluntary Consent Order. The Idaho Settlement Agreement guaranteed the government access to the INEEL for national security missions such as spent nuclear fuel examination and storage, in return for meeting specific waste treatment and disposal milestones. To date, the INEEL has met every milestone in the Idaho Settlement Agreement.

INEEL has approximately 65,000 cubic meters of waste contaminated with transuranic radionuclides that must be removed from the State of Idaho under the terms of the 1995 Settlement Agreement. This waste originated from weapons production at the former Rocky Flats Plant in Colorado. We continue to make progress in char-

acterizing, certifying, and shipping the transuranic waste to the WIPP for disposal. A significant effort is underway to meet the Settlement Agreement milestone to ship the initial 3,100 cubic meters of transuranic waste out of the State of Idaho by the end of 2002. In fiscal year 2000, we shipped 103 cubic meters of transuranic waste to the WIPP, exceeding our goal, and plan to ship 1,160 cubic meters in fiscal year 2001 and 1,483 cubic meters in fiscal year 2002. Progress also continues on the Advanced Mixed Waste Treatment Project, a privatization project that will greatly increase the INEEL's processing capability for this waste. Construction began in fiscal year 2000 and will continue in fiscal year 2001 and fiscal year 2002. The facility is expected to begin operations in fiscal year 2003. We are requesting $40 million in the fiscal year 2002 privatization budget for this project.

INEEL plays a key role in meeting non-proliferation goals by providing safe storage and management of spent nuclear fuel from foreign research reactor and domestic sources, and currently manages more than 50 percent by volume of the spent nuclear fuel in the entire DOE complex, constituting about 250 specific fuel types. We are actively improving storage conditions at the site, transferring fuel from wet to dry storage, or from aging facilities to modern, state-of-the-art facilities. For example, we have transferred all spent nuclear fuel in wet storage in the CPP–603 South Basin to improved storage facilities well in advance of the Idaho Settlement Agreement milestone date of December 31, 2000. We completed movement of Three Mile Island spent nuclear fuel and core debris from wet storage at Test Area North to dry storage at the Idaho Nuclear Technology and Engineering Center (INTEC) six weeks ahead of the June 1, 2001, Settlement Agreement milestone. DOE also awarded a privatization contract last year for the design, licensing, construction, and operation of a facility for the packaging and safe dry storage of other spent nuclear fuel at the INEEL. The contractor is now proceeding with the facility design and is scheduled to submit its license application to the Nuclear Regulatory Commission in fiscal year 2002.

The fiscal year 2002 budget request supports the management of high-level waste at INEEL including about 1.2 million gallons of liquid sodium-bearing waste stored in 11 underground tanks, and about 4,300 cubic meters of calcined mixed high-level waste in separate robust temporary storage bin sets. As of June 2001, the volume of liquid sodium-bearing waste will be reduced by 250,000 gallons through evaporation and consolidation of tank contents. A draft environmental impact statement (EIS) for high-level waste treatment alternatives has been issued, and a final EIS and Record of Decision are planned for the end of 2001. We have deployed the Light Duty Utility Arm in two high-level waste tanks, one of a suite of innovative technologies that can inspect, sample, and retrieve waste remotely through openings in the tank dome. In this case, we visually inspected the tank interior and obtained samples of the tank waste. We are moving forward in fiscal year 2002 to inspect and obtain samples from two additional tanks. In addition, we continue to treat and dispose of low level and mixed low level wastes in compliance with regulatory commitments with the State of Idaho.

One of the most complex challenges at INEEL is the remediation of buried wastes, contaminated release sites, contaminated soils, and ground water, which is governed by the Federal Facilities Agreement/Consent Order. A key goal is to eliminate the threat these contaminants pose to the Snake River Plain Aquifer, a sole-source aquifer underlying the site that provides drinking water to a quarter of a million people and serves as a critical source of irrigation water for Idaho's agricultural industry. Our environmental restoration program continues to make progress in assessing and remediating these areas of contamination. The INEEL made progress on the Pit 9 buried waste project, with the insertion of 43 probes into the pit. These and other probes will provide data for the comprehensive study that will support selection of a final cleanup remedy for all the buried waste in the Subsurface Disposal Area.

We are applying bioremediation techniques at Test Area North to clean up the ground water plume at the injection well and continuing pump-and-treat operations for the extended plume. At the Test Reactor Area, we will complete remediation of all identified release sites in fiscal year 2001, two years ahead of schedule. At INTEC, with the signing of the Record of Decision in fiscal year 1999, we are undertaking the complex process of remediating soil and groundwater release sites while continuing to operate INTEC for spent fuel storage and waste management missions. In addition, we will continue design and construction of the Idaho CERCLA Disposal Facilities for the storage/treatment and disposal of contaminated soils generated in the cleanup of INTEC and other contaminated sites at the INEEL.

The INEEL will continue to perform world-class scientific research and development, technology demonstration and deployment, and systems analysis and integration in fiscal year 2002. The goal of this effort is to ensure a sound scientific basis

for decision-making and full integration of science and technology into INEEL and EM operations. To date, INEEL has deployed nearly 100 technologies in its cleanup operations, leading to reduced cost, improved worker safety, schedule acceleration, and lower risks. In fiscal year 2002, deployments are planned to support each major cleanup program at INEEL.

Oak Ridge Reservation, Tennessee—Fiscal Year 2002 Request

[In thousands of dollars]

Defense EM, Privatization	36,876
Defense ER&WM, Post 2006 Completion	244,102
Defense ER&WM, Science & Technology	10,695
Defense ER&WM, Safeguards & Security	11,476
Defense ER&WM, Excess Facilities	500
Defense ER&WM, Program Direction	18,740
Non-Defense EM, Excess Facilities	141
Uranium Facil Main & Rem, Other Uranium Activ	12,809
Uranium Facil Maint & Rem, UE D&D Fund	65,538
Uranium Facil Maint & Rem, UE D&D–DUF_6	10,000
Total	410,877

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Oak Ridge Reservation (ORR) is comprised of three facilities—the Y–12 Plant, the East Tennessee Technology Park (ETTP) (formerly the Oak Ridge K–25 uranium enrichment facility), and the Oak Ridge National Laboratory (ORNL). Funding for EM activities at Y–12 and ORNL is primarily funded in Defense accounts, funding for the cleanup of ETTP comes from both the Defense and the Uranium Facilities Maintenance and Remediation accounts.

At ORNL, we continue the decommissioning of the Molten Salt Reactor Experiment, an experimental nuclear reactor designed to use a fuel of highly-reactive uranium-233 blended with a molten salt coolant. After four and a half years of operation, the reactor was shut down in December 1969. We have made substantial progress, with input from the National Academy of Sciences, in stabilizing and deactivating this reactor. For example, we have installed and continue to operate a system to remove reactive gases from the reactor tanks and keep the reactor systems below atmospheric pressure until the fuel salt can be removed. In fiscal year 2001, we completed fabrication and testing of uranium conversion equipment, and completed the planning, major equipment design and documentation for fuel salt removal. In fiscal year 2002, we will continue conversion of uranium captured in the sodium fluoride traps to a stable oxide for repackaging and storage, and will begin flushing and fuel salt removal.

In fiscal year 2001, we completed transferring waste from eight highly radioactive waste storage tanks, called the "Gunite Tanks," at ORNL. The tanks were built in 1943 and were used for waste from chemical separations operations until the late 1970's. The tanks vary in size, with most having a capacity of 170,000 gallons (approximately the size of a 4-bedroom house). The estimated cost of the project is now $80 million, less than half the original estimate of $200 million. A key factor in the accelerated schedule has been the development of a variety of remote remediation technologies, such as the "Houdini" vehicle and a robotic arm that provides access to the tank interior. This remotely operated equipment eliminated the need for workers to be placed at risk while performing cleanup, while allowing the work to proceed more efficiently. The robotic equipment will be reused to enhance the cleanup of similar tanks at other sites. In fiscal year 2002, we plan to continue stabilization of the Gunite tank shells.

The request supports continued operation of the incinerator at Oak Ridge, which is permitted by the State to treat mixed radioactive and hazardous wastes regulated by the Resource Conservation and Recovery Act and by the EPA to treat PCB-contaminated wastes regulated under Toxic Substances Control Act (TSCA). This facility offers unique existing treatment capability for the DOE complex and is a vital DOE treatment asset. In addition to treating wastes generated by Oak Ridge facilities, it has also been used to treat wastes from other DOE sites. It provides a cost-effective and integrated approach to reducing the risk and managing these wastes.

The fiscal year 2002 request supports two privatization projects at Oak Ridge. Construction of facilities to prepare transuranic waste to prepare waste for disposal at WIPP and for low-level waste at the Nevada Test Site began in fiscal year 2001

and is scheduled to be completed in November 2002, allowing operations to begin in fiscal year 2003 will be the first year of operation of the facility. The Environmental Management Waste Management Facility is an on-site disposal facility with a capacity up to 2 million cubic yards of contaminated soils and debris resulting from cleanup and D&D actions at the site. Construction is currently scheduled to be completed late in fiscal year 2001.

In fiscal year 2002, the Department will continue its effort to reindustrialize facilities in Oak Ridge, particularly at ETTP. The goal is to clean up ETTP as quickly and as safely as possible so that the site can be reused as an industrial park. As of December 2000, about 6,300,000 square feet of space have been leased to 35 private companies in a total of 71 separate leases. In some cases, the Department has conducted cleanup of the building and, in other cases, the private company is undertaking the cleanup. Overall, we estimate that this strategy will save $182 million in life-cycle costs.

We are making good progress on the Department's largest ever decommissioning project at ETTP. Cleanup of K–33, the first DOE uranium enrichment facility to be decommissioned, is already 60 percent complete as of March 2001. This first building will be finished in fiscal year 2002 and will then be readied for private sector reuse. The K–33 building and two other buildings are being decommissioned under a fixed price contract with BNFL, Inc. The project has turned the corner, and is currently making up for previous schedule delays. The largest supercompactor in the United States is now operating and is helping to minimize waste disposal volumes.

The Department's moratorium on releasing into commerce recycled metals from radiological areas remains in effect, continuing to impact the BNFL project cost. These restrictions are expected to remain pending decisions made after completion of an Environmental Impact Statement. DOE has minimized impacts by purchasing metals destined for recycling and storing them for possible future release.

Our fiscal year 2002 request for Uranium Programs at ETTP supports surveillance and maintenance of the inventory of 4,700 cylinders of depleted uranium hexafluoride (DUF_6) and 2,500 other surplus uranium cylinders at ETTP. We are managing the cylinders at ETTP and the other gaseous diffusion plants in Ohio and Tennessee consistent with the consent agreements with the affected states and with Defense Nuclear Facilities Safety Board's Recommendation 95–1, which was closed in December 1999 when the Board determined the Department had met all of the relevant commitments.

The fiscal year 2002 request includes $10 million in the Oak Ridge Account to proceed with the project to chemically convert the Department's inventory of DUF_6 into a more stable form that would make it acceptable for reuse, if applications for the material are found, or for disposal. Early in fiscal year 2001, the Department issued the final Request for Proposals to design, construct and, for the first five years, operate conversion facilities at Paducah and Portsmouth. Initially scheduled to be awarded at the end of fiscal year 2001, we now expect to award the contract early in fiscal year 2002 due to the number of proposals received and the complexity of the technical and business evaluations. In fiscal year 2002, DOE is requesting $10 million for the conversion project and plans to allocate an additional $12 million to this amount from funds obtained under Memoranda of Agreement (MOA) with USEC. The Department is committed to keeping this project on track to begin construction by January 2004, consistent with the schedule provided in Public Law 105–204.

Fernald Environmental Management Project, Ohio—Fiscal Year 2002 Request

[In thousands of dollars]

Defense Closure, Site Closure	285,299
Defense Closure, Safeguards & Security	4,701
Defense ER&WM, Science & Technology	255
Total	290,255

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Fernald site, encompassing approximately 1,050 acres near Cincinnati, produced uranium for nuclear weapons from 1951 to the end of the Cold War in 1989. Nearly 40 years of uranium production at Fernald resulted in soil and groundwater contamination, a large backlog of wastes, including some unstable liquids, as well as stored nuclear materials such as depleted and enriched uranium. Several years of cleanup progress have included stabilization of liquid uranium solutions, off-site

shipment of low level radioactive wastes, on-site disposal of contaminated soils and debris, and deactivation, decontamination and demolition of several large industrial buildings at Fernald.

Achieving the closure of its two major sites, the Fernald and Rocky Flats sites, is a high priority for the Department. At Fernald, the Department entered into a closure contract with Fluor Fernald on November 20, 2000, whereby the contractor is given incentives to complete site cleanup before the current completion date in the baseline of December 31, 2010. The contractor can earn incentive fees by achieving closure by December 2006. Long-term stewardship, including continued groundwater remediation and long-term institutional controls, will be necessary after active cleanup is completed.

Our record at Fernald demonstrates that we will not compromise safety in our efforts to complete the cleanup quickly and cost effectively. In January 2001, DOE's Office of Environment, Safety and Health awarded the Fernald Environmental Management Project STAR recognition status in the Voluntary Protection Program. This DOE program promotes safety and health excellence through cooperative efforts among labor, management, and government at DOE sites. Contractors that meet the requirements for outstanding performance receive STAR recognition. STAR status is the highest safety performance and program honor that can be achieved.

New technology deployments at Fernald are resulting in significant project cost and schedule savings. For example, a variety of technologies are being used to provide real-time identification of radioactive contaminants in the soil. This rapid characterization reduces the amount of soil excavated and improves worker productivity. These technologies are estimated to reduce remediation costs by over $30 million. And a groundwater re-injection demonstration project has accelerated cleanup of the Great Miami Aquifer. Current analysis indicates that the re-injection technology will reduce treatment time from 27 to 10 years, resulting in a cost savings of an estimated $14 million.

The On-site Disposal Facility allows for accelerated disposal of contaminated soil and debris resulting from cleanup and building demolition at a significant cost savings. In fiscal year 2000, we disposed of more than 255,000 cubic meters waste, contaminated soil, and debris in the facility, including the completion of waste placement in Cell 1 and start of waste placement in Cell 3. In fiscal year 2001, the placement of a permanent cap on Cell 1 will be completed, and approximately 45,000 cubic meters will be placed in Cells 2 and 3. In fiscal year 2002, the disposal facility will continue to be monitored and maintained.

The Silo 3 pre-operations/treatment activities continued in fiscal year 2000, and the design and initial construction of the Tank Transfer Area/Waste Retrieval System, and Radon Control Systems was completed. In fiscal year 2001, pre-operational activities for Silo 3 remediation will continue, operations of the Radon Control System will begin, and the Silo 4 mock-up testing of the Waste Retrieval System will be conducted. In fiscal year 2002, Silo 3 operations will begin, construction of the Silos 1 and 2 Tank Transfer Area/Waste Retrieval System and Radon Control System will be completed, and the Silos 1 and 2 full-scale remediation project is expected to begin.

Removal of wastes and materials from the site is critical to closure. We are shipping uranium to the Portsmouth Gaseous Diffusion Plant in Ohio, with 62 shipments containing about 83 metric tons of uranium transferred to date. We are currently on schedule to complete the disposition of all nuclear product material by June 2002. We are also shipping waste off-site for disposal. As of January 2001, thirty-two unit trains of rail cars loaded with treated waste have left the Fernald site for disposition at a permitted commercial disposal facility.

We continue to make great progress in the demolition of deactivated and decontaminated industrial buildings. Approximately 90 of the over 250 structures that require decontamination and demolition have been completed. We will complete cleanup of the Plant 6 Complex in fiscal year 2002, and begin work on the Multi-complex and Lab/Pilot Plant Complex. In addition, the facility shutdown of the non-nuclear facilities onsite will continue in fiscal year 2001 and fiscal year 2002. Facility shutdown includes disconnecting utilities on process equipment and structures; and removing and dispositioning of residues, process material, and equipment as required.

As remediation proceeds at Fernald, we are carrying out natural resource restoration projects and demonstrations using plantings similar to what historically and naturally occurs in the area, and incorporating a diverse variety of vegetation to promote wildlife colonization. Through fiscal year 2000, 31 acres were restored, and an additional 40 acres are planned for fiscal year 2001. In fiscal year 2002, the Area 1 Phase III Northern Woodlot/Wetland Mitigation project will be completed, restoring 103 acres, the largest land restoration project to be completed to date.

Portsmouth Gaseous Diffusion Plant, Ohio—Fiscal Year 2002 Request

[In thousands of dollars]

Defense, Privatization	2,000
Uranium Facil Maint & Rem/UE D&D Fund	113,905
Uranium Facil Maint & Rem/Other Uranium Activ	87,191
Defense ER&WM, Safeguards & Security	7,449
Total	210,545

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

Initially constructed to support the Federal government's uranium enrichment program for defense purposes, the Portsmouth Gaseous Diffusion Plant has been leased to the U.S. Enrichment Corporation (USEC), a private corporation, to provide uranium enrichment services to commercial nuclear power plants.

In June 2000, USEC announced that it would cease operations of the Portsmouth enrichment facilities. We are working toward a smooth transition from USEC operations to DOE stewardship. The Department intends to place the facilities in a safe and operable condition, or "cold standby" status, in the event of a significant disruption of the supply of enriched uranium that threatens the ability of the U.S. producer to meet its contractual commitments to utilities in both the U.S. and U.S. strategic allies. An immediate need is "winterization" of the facilities, which requires development of a new source of heat for the facilities, currently heated as a byproduct of the enrichment process operations. A total of $125 million requested in fiscal year 2002 supports activities in fiscal year 2001 and fiscal year 2002 to winterize the facilities, place the facilities in cold standby, and mitigate the impacts on the workforce. Some of these funds will be used to replace funding for some of the sources for a fiscal year 2001 reprogramming for transition activities now pending before Congress.

EM has historically been responsible for the cleanup of existing environmental contamination at the site and management of legacy waste. Primary environmental problems include cleanup of contaminated areas around the site, remediation of several old landfills, disposition of legacy waste, and containment and remediation of groundwater contaminated with both radioactive and chemical contaminants. There is no off-site contamination, and ground-water contamination is contained within the shallow aquifer bedrock. With the requested funding in fiscal year 2002, EM plans to complete active remediation by fiscal year 2003 and all legacy waste disposition by fiscal year 2006.

In addition, the Energy and Water Development Appropriation for fiscal year 2001 consolidated funding for Uranium Programs and cleanup activities and authorized the transfer of federal personnel from DOE's Office of Nuclear Energy, Science and Technology to the Office of Environmental Management to carry out the associated responsibilities. With this transfer, EM gained additional responsibilities, addressed in the fiscal year 2002 request, including management and disposition of the depleted uranium hexafloride (DUF_6) inventory.

In fiscal year 2000, we completed the capping of the last former landfill and transitioned from investigation and interim actions to implementing groundwater contamination technologies. During fiscal year 2001, we are focusing on closure of the remaining hazardous waste units; containment and contaminant removal of onsite groundwater plumes; and disposal of legacy waste. We are also evaluating several alternatives for remediation of both soil and groundwater contamination, which include the use of innovative technologies such as oxidant injection and vacuum enhanced recovery with phytoremediation, steam stripping, oxidant recirculation, and groundwater extraction and bioremediation. The Record of Decision (ROD) will be issued in the Fall of 2001. We will initiate construction of the final remediation technology for groundwater plumes and construct caps on several landfills located in the southern portion of the site. We will initiate final remedial action for the X–701B groundwater plume and continue removing contaminated soils from areas associated with this plume. We will also initiate final remedial action for the groundwater plume located in the vicinity of the main process buildings for completion in fiscal year 2002. We will characterize approximately 12,500 containers of low-level waste, mixed hazardous and low-level waste, and PCB-containing low-level waste for disposal.

In fiscal year 2002, off-site disposal of low-level and mixed low-level wastes will continue. We will operate the ongoing ground-water treatment facility and conduct long-term surveillance and maintenance of remedial action units and decontamina-

tion and decommissioning facilities. We will complete disposal of the remaining 2,600 tons of scrap metal on the X–747 scrap metal project, continue final remediation of ground-water plumes in Quadrant I, and initiate the final remedial action in Quadrant II for the X–701B soil and ground water.

Our fiscal year 2002 request also supports maintenance of facilities and surplus uranium, and surveillance and maintenance of the inventory of approximately 16,000 DUF_6 cylinders and 2,000 cylinders containing other surplus uranium at Portsmouth. We are managing the cylinders at Portsmouth and the other gaseous diffusion plants in Kentucky and Tennessee consistent with the consent agreements with the affected states and with Defense Nuclear Facilities Safety Board's Recommendation 95–1, which was closed in December 1999 when the Board determined the Department had met all of the relevant commitments.

The fiscal year 2002 request includes $10 million in the Oak Ridge Reservation account to proceed with the project to chemically convert the Department's inventory of DUF_6 at Portsmouth and elsewhere into a more stable form that would make it acceptable for reuse if applications for the material are found, or for disposal. Early in fiscal year 2001, the Department issued the final Request for Proposals to design, construct and, for the first five years, operate conversion facilities at Paducah and Portsmouth. The Department is committed to keeping this project on track to begin construction in January 2004, consistent with the schedule provided in Public Law 105–204.

The President's fiscal year 2002 budget request also includes $7.2 million for pre-existing liabilities at the Portsmouth Plant, which are those liabilities that by law or agreement the Department retained after the transfer of the uranium enrichment activities to USEC. Pre-existing liabilities consist of post-retirement life and medical benefits for retirees and employees that existed prior to the time of transfer to the USEC (for that portion attributed to service prior to privatization for these retirees).

Waste Isolation Pilot Plant, New Mexico—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Post 2006 Completion	164,570
Defense ER&WM, Safeguards & Security	2,550
Defense ER&WM, Program Direction	8,510
Total	175,630

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

Operating WIPP is a key element of the Department's strategy to provide for the permanent disposal of the Department's inventory of radioactive waste. WIPP is critical to achieving site closure at the Rocky Flats Environmental Technology Site by December 2006 and to the closure or cleanup of 26 other sites in the DOE complex that store or generate transuranic waste. The total volume of transuranic waste currently managed by DOE (stored and projected) is estimated to be 171,439 cubic meters, of which 167,412 cubic meters is contact-handled (CH–TRU) transuranic waste and 4,027 cubic meters is remote-handled (RH–TRU) transuranic waste. By shipping this waste to WIPP for disposal, the Department will be able to reduce the number of sites where this type of waste is stored, reduce the management costs of this waste, and reduce the long-term risks to the public and the environment.

On March 26, 1999, WIPP began operations, receiving its first shipment of transuranic waste from Los Alamos National Laboratory, subsequently followed by shipments from the Idaho National Engineering and Environmental Laboratory (INEEL) and Rocky Flats. The State of New Mexico issued the final Hazardous Waste Facility Permit, with an effective date of November 26, 1999, enabling WIPP to receive mixed hazardous and transuranic waste, and all five of the major shipping sites (Rocky Flats, INEEL, Hanford, Savannah River Sites, and Los Alamos) are certified under the permit to ship transuranic waste to WIPP. The Hanford Site began shipments in fiscal year 2000, and began shipments from the Savannah River Site in fiscal year 2001. As of the end of April 2001, there have been 214 shipments to WIPP totaling about 1,500 cubic meters of waste.

The Department currently transports CH–TRU waste in Nuclear Regulatory Commission certified packages called TRUPACT–II's. To support increased shipping requirements, DOE is procuring additional TRUPACT–II's. The Department is also pursuing the development of a new container called the HalfPACT to transport heavier-than-average drums of CH–TRU waste under the current TRUPACT–II fabrication contracts. RH–TRU waste requires a shielded cask for safe transportation.

The Department will transport the RH–TRU waste in a certified cask called the RH–72B. Contracts were awarded in August 2000 to two vendors to fabricate a total of 12 casks. The Department will use fiscal year 1999 privatization funds to procure the casks. The fiscal year 2002 budget request includes no funds for this project.

In fiscal year 2001, the Department awarded a new performance-based Site Management and Operating Contract for WIPP. The Carlsbad Field Office's management and operating contractor assists the Department in managing the activities of the WIPP facility and the National Transuranic Waste Management Program; therefore, the selection of a qualified management and operating contractor for WIPP is not only crucial to WIPP but also to DOE's mission and goals.

In fiscal year 2001, DOE revised the Record of Decision on treatment and storage of transuranic waste. The Department has decided to establish a centralized characterization capability at WIPP to prepare CH–TRU waste for disposal (up to 1,250 of the 7,000 cubic meters planned to be received for disposal annually). The New Mexico Environment Department must approve a modification of WIPP's Hazardous Waste Facility Permit before the Department could perform disposal characterization at WIPP. By conducting centralized characterization the Department will avoid the necessity of constructing characterization facilities at the small quantity sites.

During fiscal year 2002, WIPP expects to receive CH–TRU waste shipments from Rocky Flats, INEEL, the Los Alamos National Laboratory, the Savannah River Site, Argonne National Laboratory-East, and limited shipments from other sites. We plan to increase shipments from the Savannah River Site to WIPP by using mobile facilities to prepare the waste for shipment. This will allow receipt of Mound transuranic waste at the Savannah River Site, as agreed with the State of South Carolina, to support early closure of the Mound Site.

WIPP will continue activities in fiscal year 2002 to support the first receipt of RH–TRU waste. The Department must receive New Mexico Environment Department and the U.S. Environmental Protection Agency approvals before RH–TRU waste can be disposed of.

The funding request for fiscal year 2002 includes $21.5 million to provide economic assistance to the State of New Mexico, as authorized by the WIPP Land Withdrawal Act. The WIPP program also funds a variety of institutional programs that provide for operational oversight and other assistance for affected governments and stakeholder groups.

The Carlsbad Field Office, working with the Office of Science and Technology, will continue to apply innovative science and technology solutions that facilitate receipt of transuranic waste and promote cost savings in the National Transuranic Waste Management Program.

West Valley Demonstration Project, New York—Fiscal Year 2002 Request

[In thousands of dollars]

Non-Defense EM, Post 2006 Completion	95,115
Defense ER&WM, Science & Technology	1,810
Defense ER&WM, Safeguards & Security	1,395
Total	98,320

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The West Valley Demonstration Project, located in western New York, is being conducted at the site of the only commercial nuclear fuel reprocessing facility to operate in the United States. Pursuant to an agreement with the State of New York, a private company processed spent nuclear fuel to extract plutonium and uranium from 1966 to 1972, generating 2,200 cubic meters of liquid high-level radioactive waste. New York alone became responsible for the site after operations ceased, and the 1980 West Valley Demonstration Project Act directed the Secretary of Energy to carry out a high-level radioactive waste demonstration project to assist the State with cleanup of the site. The site will be returned to the State after DOE completes its responsibilities under the Act.

The principal operation at West Valley is the solidification of the liquid high-level waste into borosilicate glass using a process called vitrification. The primary vitrification campaign began in June 1996 and was completed ahead of schedule in June 1998. Vitrification of the high-level waste tank heels is currently underway. Ten canisters of solidified high-level waste were produced in fiscal year 2000, exceeding the goal of five canisters, and five to eight canisters of solidified high-level waste will be produced in fiscal year 2001. Due to recent characterization data which indi-

cates that the high level waste tanks contain higher than expected levels of radionuclides, vitrification operations will continue into fiscal year 2002 to support additional tank cleaning efforts, to be then followed by systematic shutdown of the melter and other vitrification processing systems.

The EM program is also responsible for the safe management of 125 spent nuclear fuel elements stored at the site. The spent fuel is scheduled to be shipped to the Idaho National Engineering and Environmental Laboratory in the summer of 2001.

The West Valley site exemplifies the Department's continued commitment to the safety of its workers. In fiscal year 2000, the West Valley site received the Department's top safety and health award, referred to as "Voluntary Protection Program Star Status."

Now that vitrification of the high-level waste is nearly complete, our focus shifts to waste management and decontamination of project equipment and facilities. Off-site shipments of low-level waste for disposal are underway and will continue. We are developing the Remote Handled Waste Facility to prepare high activity waste for off-site shipment for disposal; we completed final design and started construction in fiscal year 2001, and construction will continue in fiscal year 2002. Deactivation and decontamination activities on project facilities will be carried out, such as clean-out of waste from the head-end cells and deactivation of the spent fuel storage pool.

In addition, work is progressing toward development of a Waste Management and Decontamination Environmental Impact Statement Record of Decision (EIS ROD) scheduled for fiscal year 2002, to be followed in several years by a Decommissioning or Long-Term Stewardship EIS ROD, which will determine final closure of the site. New York State and DOE have been working together and with stakeholders to formulate a preferred alternative for the Decommissioning or Long-Term Stewardship EIS. Although negotiations between New York and DOE concluded in January 2001 without an agreement, we continue to work successfully with the State on day-to-day activities at the site. Should DOE and the State ultimately be unable to reach consensus on a preferred alternative, DOE will proceed with the Decommissioning EIS on its own.

Paducah Gaseous Diffusion Plant, Kentucky—Fiscal Year 2002 Request

In thousands of dollars]

Defense, Privatization	13,329
Uranium Facil Main & Rem/UE D&D Fund	62,198
Uranium Facil Main & Rem/Other Uran Activ	10,784
Defense ER&WM, Safeguards & Security	2,408
Total	88,719

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

This uranium enrichment facility occupies a 3,500 acre site in Paducah—including 750 acres within the fenced security area and 2,000 acres leased to the Kentucky Department of Fish and Wildlife. Initially constructed to support the Federal government's uranium enrichment program for defense purposes, U.S. Enrichment Corporation (USEC) now operates the facility to produce enriched uranium for commercial nuclear reactors. USEC is responsible for all primary process facilities and auxiliary facilities associated with the enrichment services and for waste generated by current operations. The Department has responsibility for facilities, materials, and equipment not leased by USEC.

The Environmental Management program has historically been responsible for remediation of contaminated soils and groundwater, and management of legacy wastes and materials at Paducah generated before the plant was leased to USEC. The cleanup problems and contaminants include both on-site and off-site contamination from radioactive and hazardous materials, including off-site groundwater contamination which has contaminated private residential wells. There are also numerous contaminated areas around the site requiring cleanup, about 55,000 tons of scrap metal that must be dispositioned; 6,000 cubic meters of low-level waste in drums; and several radioactively-contaminated surplus facilities that must be decontaminated.

In addition, the Energy and Water Development Appropriation for fiscal year 2001 consolidated funding for Uranium Programs and cleanup activities and authorized the transfer of federal personnel from the Office of Nuclear Energy, Science and Technology to the Office of Environmental Management to carry out the associated responsibilities. With this transfer, EM gained additional responsibilities, addressed

in the fiscal year 2002 request, including management and disposition of the depleted uranium hexafloride (DUF_6) inventory and the cleanup of 160 DOE Material Storage Areas (DMSAs) containing more than 800,000 cubic feet of materials and equipment.

The Department continues to monitor residential wells and to pay municipal water bills for residents whose drinking-water wells were affected by the groundwater contamination. We will continue to operate "pump-and-treat" systems installed at the northeast and northwest plumes during the early 1990's; approximately 12,000 pounds of contaminants have been extracted from ground water since these systems began operation.

In December 2000, we completed the disposition of 6,250 tons of radioactively-contaminated drums removed from "Drum Mountain," a suspected source of contamination of the Big and Little Bayou Creeks. Current plans for fiscal year 2001 call for beginning the removal of the remaining scrap yards, which is critical to access and characterize the underlying burial grounds, for completion at the end of 2003; beginning construction in fiscal year 2001 to remediate the North-South Diversion Ditch; issuing a Record of Decision for final remedy for groundwater sources contributing to the northeast and northwest plumes; and continuing decontamination of the shutdown radioactively contaminated buildings, completing the removal of stored equipment and materials and accessible loose contamination from the C–410 Feed Plant facility. In fiscal year 2002, our plans include completing remediation of the North-South Diversion Ditch; continuing removal of the remaining scrap metal piles; and removing the building infrastructure of the C–410 Feed Plant.

However, it will be necessary to re-prioritize cleanup activities in fiscal year 2001 and fiscal year 2002 in order to resolve a Notice of Violation (NOV) issued by the Commonwealth of Kentucky in September 2000. The NOV concerned the possible presence of hazardous waste and other regulated substances in the 160 DOE Material Storage Areas (DMSAs), which EM became responsible for with the transfer of Uranium Programs in fiscal year 2001. Some planned cleanup activities may need to be deferred to accelerate characterization and disposition of materials and equipment in the DMSAs in response to the NOV. Discussions with State and EPA regulators are underway.

The Department is currently evaluating alternatives for disposal of waste generated by site-wide remediation activities at Paducah. One alternative being considered is the construction and operation of an on-site disposal facility, a cost-effective approach to dispose of remediation waste. Environmental planning activities currently in progress, such as siting, seismic, and feasibility studies, will lead to a Record of Decision early in 2003. (Initially scheduled for fiscal year 2002, additional field studies requested by the regulators have delayed the schedule for issuing the ROD by several months.) If on-site disposal is selected, we would develop the 600,000 cubic yard facility through a privatization approach, in which the Department would purchase waste disposal services from the private vendor for low-level, hazardous, Toxic Substances Control Act defined, and mixed wastes generated at Paducah. Our request for $13.3 million in the privatization account supports this project and would allow us to carry out the procurement planning activities needed to award a contract soon after the Record of Decision is issued.

Our fiscal year 2002 request for Uranium Programs at Paducah supports the maintenance of facilities not leased to USEC and of surplus uranium inventories. It also supports surveillance and maintenance of the inventory of approximately 40,200 mainly DUF_6 cylinders at Paducah. We are managing the cylinders at Paducah and the other gaseous diffusion plants in Ohio and Tennessee consistent with the consent agreements with the affected states and with Defense Nuclear Facilities Safety Board's Recommendation 95–1, which was closed in December 1999 when the Board determined the Department had met all of the relevant commitments.

The fiscal year 2002 request includes $10 million in the Oak Ridge Reservation account to proceed with the project to chemically convert the Department's inventory of DUF_6 at Paducah and elsewhere into a more stable form that would make it acceptable for reuse if applications for the material are found, or for disposal. Early in fiscal year 2001, the Department issued the final Request for Proposals to design, construct and, for the first five years, operate conversion facilities at Paducah and Portsmouth. The Department is committed to keeping this project on track to begin construction in January 2004, consistent with the schedule provided in Public Law 105–204.

The President's fiscal year 2002 budget request also includes $3.8 million for pre-existing liabilities at the Paducah Gaseous Diffusion Plant, which are those liabilities that by law or agreement the Department retained after the transfer of the uranium enrichment activities to USEC. Pre-existing liabilities consist of post-retirement life and medical benefits for retirees and employees that existed prior to

the time of transfer to the USEC (for that portion attributed to service prior to privatization for these future retirees).

Nevada Test Site, Nevada—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Post 2006 Completion	74,843
Defense ER&WM, Science & Technology	2,429
Defense ER&WM, Program Direction	5,656
Total	82,928

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Nevada Test Site (NTS) is located 65 miles North of Las Vegas and encompasses 1,375 square miles (an area roughly the size of Rhode Island). The EM program undertakes waste management activities and environmental restoration actions resulting from past DOE nuclear testing activities at NTS.

NTS plays a crucial role for other DOE sites as one of the major low-level radioactive waste disposal facilities in the DOE complex. In fiscal year 2000, the NTS disposed of 18,267 cubic meters of low-level waste and 29 cubic meters of mixed low-level waste. This year's projections are 28,500 cubic meters of low-level waste. NTS disposal operations are critical to closing other DOE sites. For example, Rocky Flats and Fernald will dispose of more than 38,000 cubic meters of low-level waste at NTS to support their closure.

We are working with the State of Nevada to acquire the required permits and to increase capacity for mixed low-level waste disposal at NTS as a result of the February 2000 Record of Decision designating NTS as a regional disposal facility for DOE low-level and mixed wastes. Work is also proceeding on the characterization of transuranic waste drums, in preparation for shipment to the Waste Isolation Pilot Plant, to begin in fiscal year 2002.

Progress continues in the Underground Test Area to address groundwater contamination through installation of groundwater wells, monitoring activities, and modeling efforts. We installed and sampled three deep wells in fiscal year 2000. The corrective action strategy for NTS groundwater contamination was also renegotiated in fiscal year 2000 with the State of Nevada, and have implemented actions to address regulator and stakeholder concerns.

The cleanup of NTS Industrial Sites area that supported the historic nuclear testing continues on schedule. To date, corrective actions have been completed at over half of the 1,068 release sites. Negotiations are continuing with the State of Nevada on corrective action levels for cleanup of soils, which were contaminated primarily by above-ground testing. The start of corrective actions for soils cleanup has been deferred, pending negotiations.

Project baselines have been reviewed with the regulators and stakeholders and fully identify the planned implementation of corrective measures for the various Nevada projects. These baselines include long-term stewardship obligations and emphasize the use of innovative technologies, such as the deployment of laser cutting for oversized TRU boxes, and an alternative arid landfill cover and monitoring system.

Los Alamos National Laboratory, New Mexico—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Post 2006 Completion	73,182
Defense ER&WM, Science & Technology	2,538
Non-Defense EM, Post 2006 Completion	2,500
Total	78,220

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Los Alamos National laboratory is a 43 square mile research and development site located 60 miles northeast of Albuquerque, New Mexico. Through fiscal year 2001, the Department expects to complete remediation of 1,302 of 1,942 "release sites," or specific areas where releases of contaminants had occurred, and de-

commission 36 out of 101 surplus facilities. We plan to complete cleanup of one additional release site in fiscal year 2002.

Approximately half of the fiscal year 2002 funding request for Los Alamos is devoted to environmental restoration work, such as drilling new regional ground water wells to characterize the hydrogeology and cleanup work in multiple watersheds. Although no EM funds in fiscal year 2002 directly support the project to transfer land to the community, a joint project with the Office of Defense Programs, other Los Alamos cleanup work, such as the source removal actions at high risk sites at the TA–21 parcel and some of the characterization work in the canyons, will support the transfer of parcels in future years. At this point, cleanup work has been completed at four of the 10 parcels proposed to be transferred.

The EM program provides for the treatment, storage, and disposal of all legacy waste that is presently stored at the Los Alamos National Laboratory. The legacy waste consists of mixed low-level waste, transuranic waste, and mixed transuranic waste generated at 33 Technical Areas and is treated, stored. Los Alamos has accelerated the treatment and disposal of legacy mixed low-level waste and retrieval of legacy transuranic waste (both transuranic and mixed transuranic) stored on asphalt pads under earthen cover, and now expects to complete these activities a year earlier than previously planned. Treatment and disposal of legacy mixed low-level waste with an identified path for disposal is now planned to be completed in fiscal year 2003. Retrieval of legacy transuranic and mixed transuranic waste stored on Asphalt Pads 1 and 4 has been completed. Retrieval of waste drums on Pad 2 began in fiscal year 2000 with completion scheduled for fiscal year 2002.

In March 1999, Los Alamos National Laboratory became the first DOE site to ship transuranic waste to WIPP. Los Alamos plans to make 19 shipments to WIPP in fiscal year 2001, bringing the total number of shipments or quantities of waste shipped to 41 which includes transuranic waste from the Office of Environmental Management and DOE's Office of Defense Programs.

The Department designated Los Alamos as the lead laboratory for research and development efforts to support DOE's nuclear materials management. In this capacity, Los Alamos provides solutions to complex-wide technical and operational issues associated with stabilization and storage of plutonium and other nuclear materials. LANL also manages the Off-Site Source Recovery Program for the recovery and storage of more than 5,500 commercial sealed radioactive sources, as well as Department of Defense sources and radioisotopoic thermoelectric generators. The program began full operations in fiscal year 2001 and to date has recovered more than 1,100 private sector sealed sources and brought them to LANL for storage. We expect to recover over 2,000 sources by the end of fiscal year 2001, and an additional 1,000 sources in fiscal year 2002.

Miamisburg Environmental Management Project (Mound)—Fiscal Year 2002 Request

[In thousands of dollars]

Defense Closure, Site Closure	70,939
Defense Closure, Safeguards & Security	5,778
Total	76,717

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Miamisburg Environmental Management Project, a 306-acre facility near Dayton, Ohio used for tritium and plutonium operations, consists of 152 buildings and approximately 230 potentially contaminated soil areas. By the end of fiscal year 2001, over one-half of the 107 buildings scheduled for removal will have been demolished or auctioned for off-site use, a quarter of the 42 buildings scheduled to be transferred to the Miamisburg Mound Community Improvement Corporation will have been decommissioned and decontaminated, and two-thirds of the soil release sites will have been remediated. We still have a goal of completing cleanup of the site by 2006; however, changing conditions and increased scope are making a closure date of several years later more likely. Expanded project scope, especially in the excavation of greater quantities of contaminated soils, has significantly impacted cost and schedule. Worker health and safety issues at various times have seriously curtailed work in the "critical path" areas while additional personal radiation protection equipment to address these concerns has contributed to increased project cost.

We continue to make progress towards closure. In fiscal year 2000, Mound completed the disposition of its excess nuclear materials, most of which were sealed sources used to calibrate and test equipment. The site also completed the decontamination or demolition of four buildings and the remediation of five contaminated soil areas in fiscal year 2000, and will complete three buildings and the assessments of six contaminated soil areas in fiscal year 2001. We are shipping low-level radioactive waste off-site for disposal, approximately 18,000 and 13,000 cubic meters in fiscal year 2000 and 2001 respectively. And in fiscal year 2001, Mound will begin off-site disposition of its transuranic waste to the Savannah River Site for interim storage and eventual repackaging and shipment to WIPP.

In fiscal year 2002, Mound will complete shipments of its transuranic waste as well as disposition of all remediation-generated waste. Groundwater remediation will continue, and up to nine contaminated soil areas will be assessed for remedial action. In addition, cleanup will continue on the site's most contaminated buildings, including the tritium operations facilities that comprises three highly contaminated, complex buildings on the site's "critical path" for cleanup and closure.

In 1998, the Department signed an agreement to transfer ownership of the site to the Miamisburg Mound Community Improvement Corporation as remediation of discrete parcels are completed. To date, the Department has transferred two buildings and 122 acres, and another five acres and two buildings will be deeded over in the next few months, bringing the total acreage transferred to 40 percent of the site. Currently, 31 private businesses employing 342 workers are co-located at Mound in leased or transferred property. The Department's radioisotope heat source program, managed by the Office of Nuclear Energy, Science and Technology, will remain at Mound after the rest of the site is transferred. The program will retain use of three of the site's buildings.

Weldon Spring Site Remedial Action Project, Missouri—Fiscal Year 2002 Request

[In thousands of dollars]

Non-Defense EM, Site Closure	43,000

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Weldon Spring Site Remedial Action Project in Missouri covers the cleanup of an abandoned decommissioned uranium processing plant, an abandoned quarry used as a dump site, as well as numerous vicinity properties that were contaminated by uranium and thorium processing operations conducted for nuclear weapons support in the 1950's and 1960's. It consists of two separate facilities, the Weldon Spring Quarry and the Chemical Plant Site, which includes the raffinate disposal areas.

Our request supports completion of the cleanup of surface contamination at the Weldon Spring Site and permanent disposal of all contaminated material in an on-site, above-grade cell by the end of fiscal year 2002. Groundwater activities, as well as long-term surveillance and monitoring for the disposal facility will be conducted after surface cleanup is complete. Much of the remaining land is planned to be released for unrestricted use.

In fiscal year 2000, we completed placement of 1.5 million cubic yard of waste in the on-site disposal facility, with only minimal miscellaneous waste expected to be placed to achieve site closure. The last of the legacy plant buildings was demolished, and cleanup of the vicinity properties was completed. We also completed the remediation of the waste pits and began restoration of the site.

In fiscal year 2001, most of the disposal facility cover will be in place, and we will complete the backfill of the Quarry and the demolition of the Quarry water treatment plant. Work on the Quarry groundwater interceptor trench operation will continue. Efforts will continue on the study of the site groundwater, which will evaluate whether a pump-and-treat remediation operation will be needed and will support the Record of Decision on site groundwater.

Fiscal year 2002 will be a transition year for the project as it moves from active remediation and restoration to preparation for long-term stewardship. In fiscal year 2002, we will complete the construction of the disposal facility cover, cap and the restoration of the Quarry, soil borrow area, and main site. The Quarry ground-water interceptor trench operations and the treatment of trichloroethylene contaminants in the site ground water will also be completed. The groundwater Record of Decision that will establish whether groundwater remediation is required will also be completed in fiscal year 2002.

Brookhaven National Laboratory, New York—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Science & Technology	770
Non-Defense EM, Site/Project Completion	25,658
Non-Defense EM, Excess Facilities	1,240
Total	27,668

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Brookhaven National Laboratory is a Department of Energy research and development facility on Long Island, New York, which is managed by the Office of Science. The site is located at the headwaters of the Peconic River, a New York State-designated Wild and Scenic River and included in the federal Estuary Program. The Laboratory has extensive groundwater and soil contamination, and overlies a shallow sole-source aquifer. EM is responsible for cleanup of on-site radionuclide and chemical contamination of groundwater and soils, heavy metal contamination in river sediments, and tritium and volatile organic compound contamination of off-site groundwater. EM is also carrying out the deactivation and decommissioning of two shut-down research reactors and for management of legacy waste. Listed on Superfund's National Priorities List, the cleanup is being conducted under an Interagency Agreement with the U.S. Environmental Protection Agency (EPA) and New York State.

We are continuing to treat contaminated groundwater with the operation of five on-site and one off-site groundwater treatment systems. This off-site treatment system, installed under EM's Accelerated Site Technology Deployment program in 1999, uses innovative technology (in-well air stripping) to extract contaminants within the well. The Record of Decision to finalize groundwater remedies was signed in June 2000. Over the remainder of fiscal year 2001 and in 2002, we will design and install additional groundwater treatment systems. The cleanup of the Ethylene Dibromide Plume is scheduled to begin in fiscal year 2002. The cleanup remedy will involve installation of a groundwater treatment unit as called for in a March 2001 Record of Decision.

In September 1999, DOE and State and Federal regulators finalized the remedy for contaminated soil, which involves excavation and off-site disposal. Remedy design was finalized, and soil excavation began in fiscal year 2000. Soil excavation will continue over the next several years.

The proposed remedy for cleaning up contaminated sediments in the Peconic River is currently being finalized. We anticipate finalizing the Record of Decision for this project in fiscal year 2001, with remedial design activities beginning in fiscal year 2002. A draft Record of Decision for the Sewage Treatment Plant was submitted to the regulators in fiscal year 2001.

In February 1999, EM assumed responsibility for characterizing, stabilizing, and decommissioning the Brookhaven Graphite Research Reactor. This project is being executed as a series of removal actions, allowing an early start to decommissioning. We plan to accomplish substantial field work by the end of fiscal year 2001, including removal of above-ground ductwork and below-ground piping. In addition, EM assumed responsibility for deactivation and decommissioning of the High Flux Beam Reactor at Brookhaven in April 2000. Stabilization activities funded by the Office of Science and managed by EM were performed in fiscal year 2000 and are continuing in fiscal year 2001, which will reduce the cost of safely maintaining the facility. We will carry out surveillance and maintenance activities for the Brookhaven Graphite Research and High Flux Beam reactors in fiscal year 2002.

The EM program continued to dispose of legacy wastes and to store, treat and dispose of wastes generated by on-going Brookhaven operations in fiscal year 2000. In fiscal year 2001, management of newly-generated waste was transferred to the Office of Science. EM will continue management of legacy waste; we expect to complete most legacy waste disposal in fiscal year 2001.

Sites in the State of California—Fiscal Year 2002 Request

[In thousands of dollars]

Defense ER&WM, Post 2006 Completion:	
Lawrence Livermore National Laboratory	32,317
Oakland Operations Office	1,219

Sites in the State of California—Fiscal Year 2002 Request—Continued

Defense ER&WM, Site/Project Completion: Lawrence Livermore National Laboratory	762
Non-Defense EM, Post 2006 Completion:	
Energy Technology Engineering Center	13,305
General Electric	100
Oakland Operations Office	74
Non-Defense EM, Site/Project Completion:	
Lawrence Berkeley National Laboratory	4,950
General Atomics	300
Laboratory for Energy-Related Health Research	5,893
Stanford Linear Accelerator Center	2,617
Oakland Operations Office	90
Total	61,627

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

The Lawrence Livermore National Laboratory consists of the Livermore Main Site, an operating weapons research and development laboratory; and Site 300, located about 15 miles east of the Livermore Main Site, which has been used to test high explosives and other technologies for defense programs. The EM program is responsible for management of both legacy waste and waste generated from on-going operations. It also is responsible for site remediation, which includes cleanup of hazardous contaminant releases to the soil and ground water contamination at the Livermore Site, and releases of hazardous and radioactive materials to soil and ground water from landfills, drum storage areas, and dry wells at Site 300. Both sites are listed on the Superfund National Priorities List and have cleanup agreements with U.S. Environmental Protection Agency and the State of California.

At the Livermore Main Site, we have used an aggressive cleanup strategy to contain and extract groundwater contaminants that used enhancements to pump-and-treat technology, supplements the existing permanent treatment system network with portable treatment units, and emphasizes specific source area removal. In fiscal year 2000 we continued to install portable treatment units to treat specific areas of the site. In fiscal year 2001, we applied an electro-osmosis technology to our treatment system strategy to attempt to remove groundwater contaminants from fine grained sediments more effectively. In fiscal year 2002, groundwater treatment systems will continue to operate to maintain control of off-site migration of the Western boundary plume.

In fiscal year 2000, we completed testing of the Molten Salt Oxidation unit for treating mixed low-level and hazardous waste and have awarded a contract to a commercial vendor who will own and operate the treatment unit to treat waste. In fiscal year 2001, we will complete construction of the Decontamination and Waste Treatment Facility, a treatment system for mixed low-level waste, and begin operational testing. In fiscal year 2002, we will continue to operate waste treatment, storage and disposal facilities and prepare documentation for closure of old waste storage facilities.

At Site 300, the Department has focused on removal actions such as capping the Pit 6 Landfill to control release and getting groundwater treatment systems in place to contain off-site plume migration, and on characterizing the contamination at the site. In fiscal year 2000, we finalized plans and schedules for site-wide cleanup of the site and will begin design work in fiscal year 2001. We will also begin operation of an innovative groundwater treatment system in a canyon in the southeast part of the site using the Iron Filing/Geosyphon technology to remediate high concentrations of contaminants in groundwater. In fiscal year 2002, we will continue operation and maintenance of existing treatment facilities and soil vapor extraction units and will complete remedial design for several of the operable units.

The General Atomics facility is a privately-owned and operated site, located near San Diego. General Atomics maintained and operated a Hot Cell Facility for years to conduct both government and commercially funded nuclear research and development. EM is responsible for the cleanup of the Hot Cell Facility and surrounding contaminated soils. In fiscal year 2000, after an independent verification certification was conducted, the Nuclear Regulatory Commission and State of California amended their respective licenses to release the Hot Cell Facility and associated yard for unrestricted use. However, soil from the Hot Cell yard, thought to be clean, was found to have particle contamination. In fiscal year 2001 we are disposing of

that soil at the Nevada Test Site. Once the soil is dispositioned, all activities at the Hot Cell Facility will be complete except for surveillance and maintenance of spent nuclear fuel. The spent nuclear fuel will remain on site until 2003, at which time it will be shipped to the Idaho National Engineering and Environmental Laboratory for interim storage.

The Laboratory for Energy-Related Health Research is located at the University of California, Davis. Research at the laboratory originally was directed toward the health effects from chronic exposure to radionuclides using animals to simulate radiation effects on humans. The Department terminated the research program and closed the laboratory in 1988. EM activities are directed toward cleaning up the DOE areas of contamination for eventual release back to the University without radiological restrictions. The site was put on the Superfund National Priorities List in 1994, and a Federal Facility Agreement between DOE, EPA and the State was signed in fiscal year 1999.

We have made significant cleanup progress at this site. In fiscal year 2000, we completed the closure of the mixed waste storage facility; and removed three dry wells, a distribution box and piping, and Domestic Tank 2. In fiscal year 2001, we will complete removal of the Colbalt-60 source, Domestic Tank 3, the radium tank, Imhoff Facility tanks and associated leachfield, and begin removal of the Western Dog Pen and additional Domestic Tanks. In fiscal year 2002, we will complete removal of the domestic tanks, continue work on the Western Dog Pens, perform assessments on remaining domestic septic tanks, and perform offsite disposal of low-level wastes. However, due to additional contamination found and an increased volume of waste removed during soil excavation of the southwest trenches, the completion of cleanup at the site will extend beyond the original projected completion date of fiscal year 2002.

The Energy Technology Engineering Center is a DOE facility located on 90 acres of land leased from Boeing North American Corporation in Simi Valley, California. EM activities at this site involve remediation of contaminated groundwater; decontamination and decommissioning of the remaining radiological facilities; deactivation and cleanup of existing sodium facilities; landlord functions; and characterization and off-site disposal of waste.

In fiscal year 2000, we began the development of an Environmental Assessment to evaluate the impacts of the remaining cleanup work at the site, completed cleanup of three facilities, and shipped mixed low-level and low-level waste offsite for disposal. We began assessment for deactivation and decommissioning of the Radioactive Materials Handling Facility.

We also completed the excavation of soil contaminated with hazardous constituents from the Former Sodium Disposal Facility (FSDF) in fiscal year 2000. However, in response to stakeholder concerns raised about the disposal of this material at a hazardous waste facility, the soil was temporarily stored onsite pending a re-evaluation by the State as to whether the soil could appropriately be disposed at a permitted hazardous waste disposal facility as planned, or whether it should instead be disposed of at a radioactive disposal site. The State has completed its evaluation and approved disposal of the soil at the hazardous waste disposal facility. In fiscal year 2001, we will dispose of the excavated soil as approved by the State.

Also in fiscal year 2001, we will complete below-grade work at the Reactor Test Facility, continue offsite shipments of mixed low-level and low-level waste, complete backfill operations at the FSDF, dismantle the Hockey Stick Steam Generator at the Sodium Component Test Installation, continue the assessment of the Radioactive Materials Handling Facility, and complete the site-wide Environmental Assessment.

Dismantlement of the Sodium Component Test Installation and deactivation of Building 4059 will continue in fiscal year 2002, as will the development of plans for D&D of the Radioactive Materials Handling Facility and offsite disposal of mixed low-level and low-level waste.

The Stanford Linear Accelerator Center is a 426-acre site at Stanford University, which conducts theoretical research in high-energy particle physics for DOE. Remediation activities at the site involve the cleanup of polychlorinated biphenyls (PCB)-contaminated soil areas and several solvent-contaminated groundwater and soil areas. In fiscal year 2000, we excavated contaminated soils in the Research and the Lower Salvage Yards, and completed the characterization the IR–6 Drainage Channel. We will complete the pilot testing of the soil vapor extraction system at the Former Hazardous Waste Storage yard in fiscal year 2001 and begin remediation of soils at the Research Yard. In fiscal year 2002, final assessment reports for the Former Hazardous Waste Storage Area and plating shop will be submitted to the regulators. In addition, soil remediation will continue at several locations, the IR–6 Drainage Channel, and a power supply station.

The Lawrence Berkeley National Laboratory is a site leased by DOE at the University of California-Berkeley. EM responsibilities at the site include storage, treatment and off-site disposal of both legacy waste and hazardous and radioactive waste generated by current operations, and remediation of contaminated soil and groundwater created from past Departmental operations. The Office of Science assumed responsibility for newly generated waste in fiscal year 2001, but EM continues to manage legacy waste. In addition, the RCRA Facility Investigation Report was submitted to the regulatory agencies in fiscal year 2001. In fiscal year 2002, we will continue to excavate contaminated soils at on-site locations, operate groundwater treatment systems to contain off-site plume migration, and continue off-site disposal of hazardous and radioactive waste.

Senator DOMENICI. Senator Craig, whatever your commitments are, I would offer this to you. If you would like to inquire of Dr. Huntoon now, and you may proceed to do what you would like for the rest of the day and I will finish the hearing.

Senator CRAIG. Well, thank you very much, Mr. Chairman, for that courtesy.

COMPLIANCE AGREEMENTS

Dr. Huntoon, you testified before the House Energy and Water Appropriations Subcommittee and some of your statements were reported in the media. Specifically, it was reported that under the funding level in the budget request that you are here testifying on today, you said that DOE sites may fall out of compliance with their cleanup agreements, but that DOE is not sure at which specific sites this will occur.

I have been doing all that I can, as I mentioned earlier, in working with the chairman to avoid this concern from happening. Did you testify that some sites might fall out of compliance and would you like to comment and-or to clarify that statement?

Dr. HUNTOON. Well, thank you for this opportunity. I believe what I said—and of course, under the press of the moment I may have misspoken. I believe what I meant to say, if I did not say it or was quoted incorrectly, was that it is going to be a challenge at some of our sites. Because our site managers and our program managers here in Washington are still working together to see exactly what this 2002 budget would look like at some of our sites, we are not certain about exactly how many challenges we have in the compliance area.

We are committed, DOE is committed, Environmental Management is committed, to meet our compliance agreements. But as you well know, they are very complex in some States, and we have to sit down and talk with our regulators—both EPA and State regulators.

To clarify this one step further, those kinds of talks go on continually at all of our sites. I know that almost on a weekly basis we are discussing milestones and challenges to milestones and the ability to clean up. We—just to put things in context, Senator—oversee 77 compliance agreements at 25 sites. We have 1,100 enforceable milestones through the year 2070 and 187 of those occur in the year 2002 alone.

So out of this, we are going to have some challenges. But we intend to sit with our regulators and discuss with them and try to come to some agreement about the ones where we have challenges.

Senator CRAIG. It also appears that funding for State oversight programs, such as the one that we have at the Idaho Department

of Environmental Quality, have been substantially reduced. This is of concern to me and to environmental officials who work for the State of Idaho. Would you pledge to take another look at that funding level for us?

Dr. HUNTOON. Yes.

Senator CRAIG. Obviously, that not only is an important balance to have, but it assures the credibility of the total program when you have more than one set of eyes looking at it, if you will, I think a reasonable and appropriate analysis.

INEL BURIED WASTE—IDAHO

Dr. Huntoon, you and I have visited previously on the issue of buried waste at the INEL. In what is known as the subsurface disposal area, we have about 88 acres of pits and trenches, one of which is, of course, the very infamous Pit 9, buried low-level and transuranic waste. Right now DOE and the State of Idaho and the Environmental Protection Agency are involved in a dispute resolution process over how to proceed regarding cleanup of the buried waste. The State would like to see DOE demonstrate the retrieval of some of the hotter, more radioactive waste. It is my understanding that DOE is refusing to talk about any alternatives for buried waste that would exceed the DOE's fiscal year 2002 budget request.

Since doing any cleanup of buried waste is essentially underfunded in the budget request, this does not give the State much to work with. My question: Would you agree with me that when you are in a dispute resolution process it is good to at least get all of the options on the table? Is DOE willing to engage in a good faith process of negotiating with the State about buried waste?

Dr. HUNTOON. Certainly, Senator Craig. I think the ongoing discussions—in fact, I thought there was going to be a meeting this week. I guess it has been postponed until next week. But all the options do need to be out on the table. We have discussed the very laborious process of trying to completely dig up this waste area. But demonstrating that it can be done at some level, I think is appropriate. And I believe that that is what they are working toward.

One of the issues, of course, is not only funding, but is the time that it takes. I have asked the people from the DOE Idaho office to work with the State on a schedule that would pull that into a more realistic time frame. I believe stretching it out over a decade is just too long.

Senator CRAIG. Well, the last question, I am going to,I think, rely on the chairman to ask it because it is in his home State. He has mentioned it in his opening comments, and that is, of course, the adequate funding of the WIPP facility, because from Idaho to New Mexico flows a tremendous amount of transuranic waste. Both you and the person that is going to proceed you were talking about the succeeded, as it is appropriate to talk about. I think it is important for our public to know that there are some very real successes out there now.

But one of the successes we like to talk about is Rocky Flats. The rest of the story is that that waste, some of that waste, a substantial part of the waste at Rocky Flats, is now in Idaho. So we clean up one site to store it at another site.

My suggestion is that in the total text of the story that is not a completed process. Yes, it looks good in Colorado, but now Idaho has a growing concern that it becomes the recipient of cleanups and that we are not facilitating the kind of movement out of Idaho that we should, especially in the transuranic area. I think we are going to be okay. We were concerned, Mr. Chairman, about the number of casks available to facilitate the timely movement, and with the 13 percent cutback the ability of the facility itself at Carlsbad to be able to receive on a timely basis that which not only Idaho, but other sites, are shipping, too.

So I will stop there, but let me suggest that when one paints a picture of success I always like the turn the canvas over, and in turning the Rocky Flats canvas over and other sites around the country, some of the other DOE sites become the recipient sites. I would suggest to you that that is not a complete picture.

Thank you. Thank you, Mr. Chairman.

Senator DOMENICI. We will ask about the $26 million cut in WIPP in due course. If we do not, we will submit it to you so you can answer it.

Let me follow up here now and see, Senator, if we could proceed with Senator Bennett, who arrived.

STATEMENT OF SENATOR HARRY REID

Senator REID. If I could just ask, courtesy of the Senator from Utah, just to take the rest of the minute.

Senator BENNETT. Of course.

Senator REID. I had to arrange a pair on the last vote and it took me a while to get here, and then my staff gave me the wrong room to come to, 128. So I wandered around the halls for a while.

Senator BENNETT. He was really scheduled to arrive here sooner than I was and we passed in the hall.

Senator REID. I just had the wrong place. So I would ask unanimous consent, Mr. Chairman, that I be allowed to submit my statement in the record and also some questions that I have. My full committee of which I am the ranking member is meeting upstairs, and so I apologize. I have to be there.

Senator DOMENICI. Sure, we will make your statement and the questions part of the record. What do you think we should have? 2 weeks.

[The statement follows:]

PREPARED STATEMENT OF SENATOR HARRY REID

Good Afternoon, Mr. Chairman. Thank you for scheduling this final budget oversight hearing as we prepare to begin writing the fiscal year 2002 Energy and Water Development Appropriations bill.

Representatives of two DOE programs have joined us today:

—Mr. Lake Barrett, the Acting Director of the Office of Civilian Radioactive Waste Management

—Carolyn Huntoon, the Assistant Secretary of the Environmental Management Program

I would like to welcome both of you to today's hearing. I have read each of your statements and have a number of questions for all of you.

Unfortunately, most of these questions must be for the record.

As you know, I am the Ranking Member of the Full Committee on Environment and Public Works and I am expected upstairs for a hearing.

However, I hope you will not take my absence as a sign of a lack of interest on my part in what is going on in each of your programs.

Quite the contrary. Ms. Huntoon, I am very concerned that the President's budget has not given you nearly enough money to perform the enormous amounts of work we have entrusted to you.

Mr. Barrett, I worry that perhaps we are giving you too much.

At a time when program after program at DOE has been slashed or, at best, held at last year's level (despite having been given far more to do), I am not sure what to think when the budget for the Office of Civilian Radioactive Nuclear Waste is given a double digit percentage increase.

Is it because your program is running ahead of schedule or even on-time?

NO. Completion of the characterization report has been repeatedly delayed and all of the other milestones have also slipped. The current external rumor is that the report will be completed in December, although there certainly are signs that it will be later than that.

Is it because your program has achieved significant cost efficiencies and you are being rewarded for such good stewardship?

NO. If the Department succeeds in foisting this program off on the citizens of Nevada, it will do so at about double the originally-anticipated cost. The $30 billion estimate of the early 1990's has become the $58 billion estimate of 2001. This includes a $12 billion increase in just the last three years.

I needn't remind anyone in this room that we are a LONG ways away (both in terms of time and policy) from actually moving any nuclear waste in this country ANYWHERE. What are the chances that these costs will continue to spiral out-of control?

Pretty good chance.

So, I ask my rhetorical question again? What makes this program different?

It costs twice as much as DOE thought. Sounds like a typical big DOE project to me.

It rarely, if ever, meets its critical path milestones. Sounds like a typical big DOE project to me.

The answer is there is really nothing different about the Yucca Mountain Project. It is plagued by the same management and budget problems that torment every major program at the Department. It is no different from the National Ignition Facility or the pit production process, or even some of the clean-up efforts.

There is nothing going on in this program that is so special that it needs or deserves such a large increase when so many other worthy activities are being left on the floor at OMB.

The only difference seems to be on this side of the table.

There is no shortage of outrage from Members (including me) when projects like NIF or Pit Production spiral out of control. "Kill NIF!" we cry. "Send pit production back to the drawing board until they get it right!" we shout. The yelling and screaming and hand-wringing is a sight to behold.

$30 BILLION over budget at Yucca Mountain? The Silence is Deafening.

I am the first to admit that I am opposed to Yucca Mountain. Always have been. Always will be.

However, I would like to think that any casual observer would be concerned about what is going on here.

If the work of the desperately under-funded Nuclear Waste Technical Review Board and some university scientists that we have thrown pocket change to over the years has been enough to get the Department to re-think some of their fundamentals at Yucca Mountain, just think what some adequately funded external oversight might un-earth.

But, then again, the DOE did just release a giant 1,000 page science and engineering report on Yucca Mountain. Unfortunately, nowhere—in any of those 1,000 pages—did they find a response to the issues the Technical Review Board asked the DOE to address. With all the money DOE seems to have for Yucca Mountain, you would think they would have the courtesy—let alone the responsibility—to address those issues with the full science and engineering report.

On the off-chance that no one else is as upset about this as I am at the moment, I will simply have to bear the bad news to you myself, Mr. Barrett: there will be no huge increase for the Yucca Mountain Program this year given the current funding profile.

You and your staff may not agree, but I feel that I have been more than fair to your program over the years, all things considered. However, I am not going to sit idly by while your program absorbs one of the only substantial increases in the DOE budget.

Even you would have to agree, Mr. Barrett, that it is as least as important, for example, for the United States to meet its legal and moral commitment to major

clean-up activities throughout the Nation's cold war weapons complex, as it is to make a little progress in your area.

Which brings me to you, Ms. Huntoon.

I won't beat around the bush.

There is no way that the amount of funding the Administration has provided for clean-ups, particularly at Washington, South Carolina, and Idaho, will fulfill the legal and/or Departmental promises to those three States (and probably several others, including Nevada). I think you and I both know that your budget is shy hundreds of millions of dollars.

While I appreciate the enormity of the task and the scarcity of dollars in this year's budget, the program you have outlined represents backsliding. Worse, I think, if enacted, it will subject the Department to legal jeopardy. Other States may need to line up behind Washington and Idaho at the courthouse door, but line-up they will.

Congress is going to need to find additional resources to keep that from happening.

That said, my other concern is this: The Department needs to get some of these sites closed.

When Congress created a closure account a number of years ago, it was done to give a certain number of sites priority and additional resources to get the clean-up done prior to 2006. My staff informs me that a fair number of these sites now have closure dates after 2006.

Obviously, this is not what we had in mind.

If a site is really a post-2006 site, Congress may need to consider treating it as such.

Hopefully, some more realistic resources will get these sites back on track.

Again, thank you to both of our witnesses for appearing today.

Thank you, Mr. Chairman.

Senator REID. Thank you very much, Mr. Chairman.

Senator DOMENICI. Thank you very much, Senator Reid.

Senator REID. Thank you, Senator Bennett.

Senator BENNETT. Thank you.

Senator DOMENICI. Senator Bennett, I have not inquired because I wanted to proceed, but I would like to do the same. I will stay on and you go ahead and ask your questions.

Senator BENNETT. Thank you, Mr. Chairman. I appreciate that.

Dr. Huntoon, we are going to talk about Moab. Are you familiar with Moab?

Dr. HUNTOON. Yes, sir.

Senator BENNETT. The tailings problem there.

Dr. HUNTOON. Yes, sir.

Senator BENNETT. Well, I will not go through the history of it, then, except to enter into the record the fact that Congress in the last session passed legislation that directs the Secretary of Energy to prepare and complete a plan for remediation of the Moab site by October 30 of 2001, with the National Academy of Sciences directed to provide DOE with technical advice, assistance, and recommendations concerning that plan, and also for the record PriceWaterhouseCoopers is the trustee that controls the site after Atlas Corporation filed for bankruptcy and the asset was handed over to a trustee.

Now, with that very, very brief background and understanding that you know far more about it than that, let me ask when DOE plans to take title to the site?

MOAB MILL TAILINGS SITE

Dr. HUNTOON. I believe the ownership will become effective by October the 30 of this year, DOE will assume ownership.

Senator BENNETT. PriceWaterhouseCoopers has indicated that it will resign and return management responsibility for the site to DOE on September 1. I do not quite understand what that is. Would that be a problem? Would you be prepared to take responsibility on September 1, as opposed to October 30?

Dr. HUNTOON. I am sure that is what needs to be done. We are planning to take ownership of the site as soon as they finish or resign their current management responsibility. The schedule may have changed a little, but that is the plan, the current plan.

Senator BENNETT. What is the status of the remediation plan?

MOAB MILL TAILINGS SITE REMEDIATION PLAN

Dr. HUNTOON. What we asked for was a reprogramming that was submitted by the last administration to get funds, because we did not have funds to deal with Moab. The programming is still pending. The current administration has resubmitted the request and it is with OMB right now, I understand, before coming to Congress for funds, we will have to complete the plan.

Senator BENNETT. So the fact that there is no money in the budget indicates that you think the money is available through reprogramming and that is why it is not necessary to put a new item in the budget?

Dr. HUNTOON. The reprogramming funds are necessary to create the plan, so we will know how much to ask for, over what period of time. That is the work that has not been done.

Senator BENNETT. Do you have any idea when the remediation efforts might begin?

Dr. HUNTOON. I think creating the plan, meeting the current schedule we are on—and of course, the reprogramming money, getting it now will certainly help, but I think the idea of having 6 months to a year to not only do the planning but the permitting and all to do the necessary remediation work, will enable us to have time to ask next year for the money in 2003 that would be required for the actual work there at Moab.

Senator BENNETT. So you think the work would begin in fiscal 2003?

Dr. HUNTOON. That would be the current plan.

Senator BENNETT. Do you have any plans for the site in fiscal 2002 other than the study?

SURVEILLANCE AT THE MOAB MILL TAILINGS SITE

Dr. HUNTOON. Well, the office at Grand Junction that is currently now overseeing it will continue in their surveillance of the site to make sure that the status remains the same of the facility there. They have enough money in their budget to continue the surveillance of the site.

Senator BENNETT. Thank you very much. This will be useful information. As you may know, there have been a number of newspaper articles that raised the flag of great panic and suggested that because there was no money in the budget DOE was in danger of poisoning the water for 25 million people downstream. I take it from what you are saying that it is your scientific opinion that there is no health risk in the present circumstance, even though the long-term solution to move the tailings is the right solution.

FUNDING FOR THE MOAB MILL TAILINGS SITE

Dr. HUNTOON. That is correct, Senator. The idea that we had not measured any substance from the mill tailings site downstream makes us think that that is true, and we are watching that now. The responsibility to clean it up has certainly been given to the Department of Energy. We did not ask, as you said, for the money because we did not have a plan and, we did not know what to ask for. We will have that worked out and we will come in with a plan and ask for permission to proceed with that.

But it is the intent to clean up the place.

Senator BENNETT. Thank you.

Thank you very much, Mr. Chairman. I appreciate your courtesy.

Senator DOMENICI. You are welcome.

Senator Murray, we have proceeded without taking the second witness because I knew the two Senators that had arrived on our side of the aisle wanted to inquire with reference to the waste management part of this budget.

Mr. Barrett, is it all right if we proceed to complete and then we will take you last?

Mr. BARRETT. As you wish, Mr. Chairman.

Senator DOMENICI. That may very well mean that I am the only person here.

Senator MURRAY. Mr. Chairman, is Dr. Huntoon going to stay, because I am going to have some questions for her if that is the case.

Senator DOMENICI. She is. She is. In fact, she has testified and two Senators have inquired of her very briefly. If you would like to inquire now of her, I would let you do that, and then I will save mine until afterwards. Go ahead, Senator.

STATEMENT OF SENATOR PATTY MURRAY

Senator MURRAY. Well, thank you so much, Mr. Chairman.

Senator DOMENICI. You are welcome.

Senator MURRAY. I will do so as briefly as I can. I really appreciate your holding this hearing.

Dr. Huntoon, I particularly wanted to thank you for all your efforts over the past several years and your willingness to stay on until the administration has a new Assistant Secretary in place. I would be remiss if I did not thank you, Mr. Chairman, as well for your support for nuclear waste cleanup in my State and across the country. It is not an easy challenge. It is one that is pretty easy to ignore. We cannot ignore it, and you have been there, and I just want to publicly thank you.

Senator DOMENICI. Thank you very much.

Senator MURRAY. Dr. Huntoon, significant progress on cleanup has been made at Hanford in the last couple of years and we are now moving spent nuclear fuel out of the K basins and the environmental restoration work along the river has moved along very well. I want to thank you for your efforts on that, and the support of Keith Klein and Harry Boston and all of the folks at Hanford have really done a good job.

I know you are not responsible for this budget, but I just have to raise some very serious concerns and questions I have about the

funding that is proposed in the budget for DOE Richland and the Office of River Protection. I really fear that this budget threatens the progress that has been made at Hanford and fails to meet the legal obligations of the triparty agreement and it fails to meet our moral obligations to protect the health and welfare of citizens and the environment in the Pacific Northwest.

I am especially troubled by the proposed cuts in the waste treatment plan which is going to vitrify the high-level radioactive waste that is currently stored at our old and decaying tanks at Hanford. DOE officials have acknowledged that the new contract that was negotiated for this project was based on an fiscal year 2002 budget of $690 million, but the request that we have is only for $500 million.

Now, I am told that with a $500 million level for 2002 the funding for this project would need to be spiked all the way up to $880 million in 2003. Would it not make more sense to levelize the funding for this project at $690 million, as it was first proposed and actually written into the contract, instead of counting on a funding spike next year? And would not a measured level of funding base be more consistent with the objectives of your top to bottom review of the cleanup program and use of commercial type contracts to make it more efficient? I would love to hear your response.

OFFICE OF RIVER PROTECTION FUNDING

Dr. HUNTOON. Thank you, Senator Murray. I think acknowledging the work that has been done out at Hanford is certainly appropriate. I know that we have two good managers out there and with their help with the stakeholders and regulators we have been able to move forward in a lot of areas at Hanford.

I think the danger in meeting the commitments that we have is real. I mentioned a little bit earlier in response to a question that we do have challenges in several States to meet all of our commitments. But we are going to work with the regulators and the State and EPA to try to do that.

Senator Murray, I know you know this, but just to put it in context, in 1989 when we signed the triparty agreement with EPA, the State of Washington, and DOE, we signed up for 161 milestones in 1989. In the year 2001 we have completed 900 milestones, 700 enforceable and 200 targets. What that is saying is that this is an ongoing process. It is an iterative process.

We are working, as you know, almost on a daily basis with the regulators to meet milestones, to adjust the way we are approaching them, to try to keep our agreements we have made, but understanding this is a dynamic process.

I know you know this, but there are 30 regulators that DOE pays for that work for the State of Washington that live on the site at Hanford. I do not mean live there literally, but work there. They are there all the time. So our relationship with our regulators I believe is good. There is some tension there. I think that tension is probably healthy. But it is an ongoing, iterative, very long-range process.

We have milestones in the State of Washington to reach out through the year 2070, and I think that tells you the level at which

this TPA has gone to to make sure that we do things in a regulated fashion that the State and EPA agree with.

To answer your question about the funding, I think that with the money that we requested for the tanks at Hanford we can get started on the job.

Senator MURRAY. $500 million.

Dr. HUNTOON. The $500 million.

POSSIBLE RENEGOTIATION OF BECHTEL WASHINGTON CONTRACT

Senator MURRAY. Well, I just have to say, Dr. Huntoon, I am really concerned that the $500 million is going to trigger a renegotiation of the Bechtel Washington contract, which is based on a $690 million allocation for 2002. That is an incentive-based contract that could result in this facility being built for a lower target price than was first expected. I am very concerned that if we do not have the $690 million that that contract will be renegotiated, and I do not think any one of us think that it is going to be renegotiated for a lower price.

So does not that funding level put us in jeopardy of having to pay more in the long run?

Dr. HUNTOON. The funding level does give us the potential to have to renegotiate. We have not heard that from the contractor yet officially.

Senator MURRAY. I would assume that renegotiation would not mean to a lower contract price.

Dr. HUNTOON. Most often it does not. But the issue is again the $500 million can keep us on track to do the 2007 start of operations, which is what the contractor agreed to. The funding profile would be different, as you mentioned, and it would call for quite a bit more funding in 2003 than we had previously thought when we negotiated the contract.

Senator MURRAY. So if the $500 million comes in this year, we are going to have to spike it up to $800 million?

Dr. HUNTOON. That is correct, according to the current profile we would have to do that.

Senator MURRAY. If we do not do that, that contract could be renegotiated, and my sense is that we will have a legal challenge as well on the triparty agreement.

So, Mr. Chairman, I think we have got some very serious issues that we need to look at. I have several other questions that I will submit for the record that I would like responses back on. But I want to work with you, because this is a very, very serious issue for my State and I am concerned about the funding levels in this budget.

Senator DOMENICI. Senator, if you will submit your questions they will be answered within 2 weeks, as the other questions.

We will proceed now. I was going to ask you, Dr. Huntoon, a series of questions, but I think what I will do is let Mr. Barrett testify. Do you mind waiting just another 15 or 20 minutes? That is all it will be.

Dr. HUNTOON. I do not mind at all. I am here.

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

STATEMENT OF LAKE H. BARRETT, ACTING DIRECTOR

Senator DOMENICI. Mr. Barrett, would you proceed. Your testimony will be made a part of the record. Would you summarize it as best you can.

Mr. BARRETT. Thank you very much, Mr. Chairman and Senator Murray. I am pleased with this opportunity to present our fiscal year 2002 budget request. Our budget request advances our Nation's policy for the management of spent nuclear fuel and high-level radioactive waste. The request presumes that the Department will make an informed science-based decision to recommend the Yucca Mountain site for further development later this year. If a decision is made, under the process outlined by the Nuclear Waste Policy Act we will proceed into the next phase of site development.

Our budget request begins the transition from the predominantly investigative science of the site characterization phase to the engineering and design phase to prepare a license application for submittal to the Nuclear Regulatory Commission.

Management of nuclear materials in a repository is important in supporting the continued operations of our Nation's commercial nuclear power plants, which provide 20 percent of our Nation's electricity. It is also essential for our national defense and international nonproliferation objectives.

PREPARATIONS FOR YUCCA MOUNTAIN REPOSITORY

After nearly 20 years of cutting-edge science to determine whether a geologic repository can perform safely, we are close to making a decision on whether or not to proceed with developing the Yucca Mountain site.

The fiscal year 2002 request is $444.9 million, a modest increase over fiscal year 2001. In the next fiscal year, most of our resources will be applied toward preparing a complete license application for the Nuclear Regulatory Commission.

However, science will not end there should a decision be reached to proceed with applying for a license to build a repository. Our program will continue to strengthen the underlying scientific basis for any further potential decisions.

We have allocated $355 million, about 80 percent of our request, to conduct activities at Yucca Mountain. For example, the core science funding will increase by 15 percent to a request level of $76 million. These activities support our ability to model individual and combined natural processes necessary in assessing how a repository might perform many thousands of years into the future.

Design and engineering funding will increase 41 percent, to $104 million. This substantial increase in these activities, which were deferred due to past year budget cuts, is necessary to resume, and in some cases accelerate, engineering and design work to develop

a complete license application. For instance, we will integrate new design concepts for accepting and handling all the different types of spent fuel and high-level waste that we might receive.

We are also evaluating how a flexible repository system can integrate new spent fuel management technologies and new operating concepts as they may become available in the future. A flexible repository is an important part of any future advanced nuclear energy technology scenario.

The operations and construction funding request is $35 million, and in part, will be used to build additional thermal test alcoves and niches to gather performance confirmation data in the repository block. The remainder will go to maintaining the surface and subsurface infrastructure which supports the core science activities.

If the Yucca Mountain site is recommended and approved for further development, a transportation infrastructure must be available to move spent fuel and high-level radioactive waste in sufficient quantities to meet our obligations. We have requested $5.9 million to begin the long-lead time logistical and planning activities in this area.

CHALLENGES TO THE YUCCA MOUNTAIN SITE

As I have noted in my written statement, some of the opportunities and challenges facing us are quite significant. If the Yucca Mountain site is ultimately recommended for further development, then future program costs could far exceed past appropriations. Our administration's budget request recognizes these future funding challenges by affirming support for efforts to use the nuclear utilities' budgetary receipts for their intended purposes.

The program is looking at engineering, construction, and operational strategies for managing potential annual cost increases. These strategies seek to distribute annual costs over the next 10 years by using modular repository construction and operational approaches. The program also intends to submit its report on alternative means for financing and managing a Federal repository to the Congress this June, as requested in last year's energy and water development conference report.

However, the report identified several statements that the Inspector General concluded "could be viewed as suggesting a premature conclusion regarding the suitability of Yucca Mountain." After the Inspector General's finding, both Secretary Abraham and I communicated our firm belief to all the program's Federal, laboratory, and contractor employees that our work must be performed in a manner that reflects the integrity and objectivity necessary for conducting world class science. We will continue to operate this program in an open and transparent manner worthy of public confidence and trust.

PREPARED STATEMENT

In conclusion, I believe we have made considerable progress, despite enormous challenges. Our budget request supports the next step in the process, which is development of a license application for submittal in 2003. I urge you to consider favorably our appropriation request. I would be pleased to answer any questions that you may have.

[The statement follows:]

PREPARED STATEMENT OF LAKE H. BARRETT

Mr. Chairman and members of the Committee, I am Lake H. Barrett, Acting Director of the Department of Energy's Office of Civilian Radioactive Waste Management. I appreciate the opportunity to present our fiscal year 2002 budget request to you and discuss our plans for scientific and technical activities at the Yucca Mountain site in Nevada.

Our fiscal year 2002 budget request of $444.9 million is devoted to advancing our Nation's policy for the long-term management of spent nuclear fuel and high-level radioactive waste. Based on the presumption that a potential decision to recommend the site for further development could be made, fiscal year 2002 would begin the transition from investigative science under the site characterization phase to engineering and design for the pre-licensing phase. Work during the fiscal year would focus mainly on preparing a license application for submittal to the Nuclear Regulatory Commission. The license application would contain surface and subsurface designs, including descriptions of operational parameters to meet the Commission's stringent technical licensing and Nuclear Quality Assurance requirements. During the transition, we would begin implementing performance confirmation work to verify and strengthen the scientific and technical basis for a potential repository. Also in fiscal year 2002, we would begin the work necessary to develop the national infrastructure necessary to move spent nuclear fuel and high-level radioactive waste from their present locations.

BACKGROUND

The Civilian Radioactive Waste Management Program, particularly the ongoing scientific and technical work at Yucca Mountain, is the cornerstone of our national policy for the management of nuclear wastes. Permanent geologic disposal is essential for managing spent nuclear fuel from commercial electric power generation and nuclear waste from defense activities.

Commercial nuclear power plants that currently generate 20 percent of our nation's electricity will require permanent disposal of their spent nuclear fuel in a geologic repository. Past weapons production and research activities have accumulated over 2,500 metric tons of spent nuclear fuel. Thousands of high-level radioactive waste canisters will have been processed at Hanford and Savannah River. Our Navy's nuclear powered ships will have generated approximately 65 metric tons of spent nuclear fuel by 2035. From dismantling surplus weapons, our nation has amassed approximately 50 metric tons of weapons-usable plutonium. The nation will require disposition of these materials in a geologic repository to maintain our energy options, support cleanup of our weapons sites, continue operations of our nuclear powered ships, and advance our international non-proliferation goals to isolate weapons material in a repository.

Since the enactment of the Nuclear Waste Policy Act in 1982, our nation has made a substantial investment in permanent geologic disposal. Almost $4 billion has been committed to the scientific and technical work for a geologic repository. After nearly twenty years of cutting-edge science, our policymakers are very close to making a science-based decision on whether to proceed with further development of the Yucca Mountain site. Should the site be approved, we will continue with the step-wise process, outlined in the Nuclear Waste Policy Act, to develop a repository.

SUMMARY OF FISCAL YEAR 2002 APPROPRIATION REQUEST

The Office of Civilian Radioactive Waste Management fiscal year 2002 budget request of $444.9 million is an increase of $44.6 million above fiscal year 2001 funding. This increase not only reflects our goal to reverse the over $140 million in funding shortfalls incurred over the past four years, but also renews the Administration's commitment to address the waste management issue responsibly.

Our resources will be reallocated and applied towards accelerating our efforts—i.e., regaining some lost schedule—to submit a license application to the Nuclear Regulatory Commission in 2003. The Commission will consider information in the license application in its determination of how a repository at Yucca Mountain would protect human health and safety and the environment, based on the regulatory framework provided by the Environmental Protection Agency and the Commission.

Yucca Mountain.—Of the $444.9 million request, $355.4 million, eighty percent, is targeted for activities at Yucca Mountain. Of these funds, more than sixty-five percent are devoted directly towards regaining momentum for license application ac-

tivities, with particular emphasis on resuming and accelerating surface and subsurface Design and Engineering. To support a potential license application, Suitability, Licensing, and Performance Assessment activities will focus on resolving key technical issues identified by the Commission, and conducting and refining performance assessments of the surface and subsurface design features and operational modes, based on input from Core Science activities.

Core Science activities will continue to strengthen the underlying scientific and technical basis, which will be used to make an informed decision on whether to recommend Yucca Mountain for further development, and to verify and provide scientific data for licensing. These scientific activities will focus on understanding more fully how lower-temperature subsurface operational modes may reduce uncertainties in analyzing long-term repository performance. We also will seek to strengthen our performance analysis through our performance confirmation activities, which will provide independent lines of evidence for our analysis and performance models.

Waste Acceptance and Transportation.—In fiscal year 2002, the Program is requesting $5.9 million to fund activities that will support the transfer of spent nuclear fuel and high-level waste from its current owners to a federal facility and to begin revitalizing transportation logistical and institutional planning activities. Due to budgetary shortfalls during the past four years, these activities, especially transportation planning, were deferred while we focused our resources on investigative science for a possible decision on whether to recommend Yucca Mountain for development as a repository.

PERFORMANCE MEASURES

The fiscal year 2002 request is the start of funding levels that we need to meet our most critical performance measure—maintaining the schedule to begin waste acceptance at a geologic repository by 2010. If there is a decision to proceed, the Program could then move forward with the process embodied in the Nuclear Waste Policy Act, as amended, by submitting a license application in 2003; obtaining Commission authorization—as early as thirty-six months after submittal; and building the infrastructure to begin waste acceptance in 2010.

FISCAL YEAR 2002 ACTIVITIES

I would now like to describe in more detail our fiscal year 2002 objectives and how this budget request will support our activities.

Yucca Mountain

Fiscal year 2002 delineates a shift in focus to engineering and design activities necessary for a possible license application in 2003. The Program, under direction from language accompanying the 1997 Energy and Water Development appropriations, presented our plans, schedule, and estimated costs to license a repository in the 1998 Viability Assessment. If a decision is made to recommend the site, the Program will proceed to implement the general framework presented in the 1998 plan, supplemented by our greater understanding of how a potential repository within Yucca Mountain might perform.

Our budget request for Yucca Mountain is allocated under the following project elements: Core Science, Design and Engineering, Suitability, Licensing, and Performance Assessment, National Environmental Policy Act, Operations and Construction, and External Oversight and Payments-Equal-to-Taxes. The activities planned under each of these categories are described as follows.

Core Science.—This year's budget request of $75.6 million represents a fifteen percent increase. Core Science activities include collecting data from the surface and subsurface; performing laboratory tests; monitoring and collecting environmental data; formulating scientific hypotheses; modeling individual and combined natural processes; compiling scientific information for technical data bases; and writing scientific descriptions and analyses used to document results and findings. These efforts will proceed as a part of our performance confirmation program to strengthen the underlying scientific basis for a potential decision and provide multiple lines of evidence supporting the assumptions used in our engineering designs and performance assessments.

Design and Engineering.—The fiscal year 2002 request for Design and Engineering is $104.4 million, an increase of 41 percent over last year. This substantial increase will allow us to resume engineering and design work to support a possible license application. This is work that we deferred while the Program focused on scientific and technical activities required for any possible decision on whether to proceed with repository development. The Program will vigorously continue repository surface design efforts to integrate new design concepts for accepting and handling

defense high-level waste and spent fuel, and commercial spent fuel. The Program will analyze a modular surface and subsurface design and construction concept to evaluate how a step-wise, flexible repository system can integrate new technologies and new operational concepts as they become available.

The Program will refine the repository subsurface design and operating modes, including further analyzing the potential advantages of cooler repository operating temperatures and what effect they might have on reducing uncertainties associated with long-term performance. Engineering and design work will analyze fuel blending models that could enhance subsurface thermal management. We also will seek a greater understanding of long-term performance of waste package materials to strengthen our understanding of corrosion properties and the effects of manufacturing on waste package integrity.

Suitability, Licensing, and Performance Assessment

The fiscal year 2002 request for Suitability, Licensing, and Performance Assessment is $84.9 million, a slight decrease of 1.2 percent. Although our request is lower in this area than fiscal year 2001, we have reallocated funds to specific activities supporting a possible license application. The bulk of our resources will be applied towards developing the preclosure safety analysis. This work was deferred while our investigative science focused on the post-closure long-term repository performance assessment required for a possible site recommendation decision. The results from this preclosure safety engineering analysis and the long-term post-closure performance assessments will provide the Commission in a licensing proceeding with a basis to determine whether a repository at Yucca Mountain can reasonably assure that public health and safety, and the environment would be protected during repository operations, and post-closure.

In parallel, we will further refine our repository total system performance assessments with information from continuing Core Science and Engineering and Design work to strengthen our understanding of long-term performance at cooler subsurface operating modes. Finally, significant resources will be applied to documenting license application reports and underlying data into electronic media and web-based technologies for a license support network. We deferred these activities while we awaited a possible decision on whether to proceed with Yucca Mountain, but must address them to meet the Commission's requirements under 10 CFR Part 2, if the site is recommended and approved.

Operations and Construction.—The fiscal year 2002 request for Operations and Construction is $35 million, a 10.7 percent increase. This modest increase is to build additional thermal test alcoves and niches in the potential repository block to gather performance confirmation data verifying drift scale thermal test results. The bulk of these funds would be used primarily to maintain the surface and subsurface infrastructure that supports Core Science.

National Environmental Policy Act (NEPA).—In fiscal year 2002, $1.6 million, a 27 percent reduction, is requested for NEPA activities if the site is recommended. A final environmental impact statement will be completed and will accompany the documents supporting the comprehensive basis for a potential site recommendation. Afterwards, the administrative record compiled during preparation of the final environmental impact statement would be finalized, if the site is recommended.

External Oversight and Payments-Equal-to-Taxes (PETT).—The fiscal year 2002 budget requests $19.7 million for External Oversight and Payments-Equal-to-Taxes. The Administration supports the State of Nevada and affected units of local government oversight activities—solely for independent review of ongoing scientific and technical work—as authorized by the Nuclear Waste Policy Act.

Our budget request also includes $10 million to continue our cooperative agreement with the University and Community College System of Nevada. This agreement, initiated in fiscal year 1999, provides the public and the Yucca Mountain project with an independently derived body of scientific data, and fosters collaborative working relationships between government and academic researchers.

WASTE ACCEPTANCE, STORAGE, AND TRANSPORTATION

The primary responsibility of the Waste Acceptance, Storage, and Transportation Project is to develop processes for the physical transfer of spent nuclear fuel to the Federal Government. Because we were awaiting a decision on whether to proceed with the Yucca Mountain site, we deferred transportation logistical and institutional planning activities. However, if the site is recommended and approved, we must resume the preparations necessary to implement a transportation infrastructure to support the movement of spent nuclear fuel and high-level radioactive waste in 2010. For fiscal year 2002, we request $5.9 million to begin long lead-time logistical and planning activities.

Transportation.—For fiscal year 2002, we request $3.1 million to begin and ramp-up activities that would develop the private sector-based national transportation capability necessary to move spent nuclear fuel and high-level waste beginning in 2010. This requires restarting the solicitation process for a draft request for proposals for waste acceptance and transportation services, with the goal of releasing a final request for proposals in late fiscal year 2002. Other planning activities will consider transportation institutional issues within the State of Nevada, as the potential host state for a geologic repository, and will focus on resuming development of policies and procedures for the training of public safety officials as specified under the Nuclear Waste Policy Act, Section 180(c).

Waste Acceptance.—For fiscal year 2002, $2.3 million is requested to support modifying the Standard Disposal Contract to integrate private sector-based transportation services requirements. A significant part of our request will be applied to integrating waste acceptance criteria and schedules for the wide variety of fuel types from defense spent nuclear fuel and high-level waste owned by the Office of Environmental Management, Office of Fissile Materials Disposition, and Naval Nuclear Propulsion Program.

PROGRAM MANAGEMENT AND INTEGRATION

For fiscal year 2002, we request $83.6 million for Program Management and Integration activities, a 10 percent increase above fiscal year 2001. The Program Management and Integration element oversees coordination between the Yucca Mountain Site Characterization Project and Waste Acceptance, Storage, and Transportation Project. The primary function is to ensure compliance with the statutory requirements of the Nuclear Waste Policy Act, and regulatory requirements imposed by the Nuclear Regulatory Commission, the Environmental Protection Agency, other Federal oversight groups, and Departmental reporting and accounting systems. Particular emphasis will be placed on ensuring that the Program meets Nuclear Regulatory Commission Nuclear Quality Assurance requirements as we accelerate our efforts to submit a possible license application in 2003.

Future Funding Challenges

Mr. Chairman and members of the Committee, I began my testimony by stating that our fiscal year 2002 request is based on the presumption that a potential decision to recommend the site for development could be made. If the Yucca Mountain Site is recommended and approved, the costs to license, build, and operate a waste management system will exceed past appropriations levels. Our Administration's budget request recognizes these future-funding challenges. The Administration in its budget states "support for efforts to use the nuclear utilities' budgetary receipts for [their] intended purposes."

The Program is looking at engineering, construction, and operational strategies for managing these potential annual costs that could occur after the 2002 timeframe. These strategies seek to distribute costs to level-out annual costs over the next ten years, using modular repository construction and operational approaches. In addition, the Program intends to submit a report on alternative means of financing and managing a federal repository to Congress in June 2001, as requested in the 2001 Energy and Water Development Conference Report.

LITIGATION

The Department is in litigation over the delay in meeting our contractual obligation to nuclear utility companies to begin accepting their spent fuel by January 31, 1998. The issue of waste acceptance is among our highest priorities. The Courts already determined that the federal government is liable to compensate utilities for additional costs they may have incurred due to the delay. We are now litigating what the source of funding should be and how much these costs will be.

Inspector General Inquiry

Last December, Secretary Richardson decided not to issue the Site Recommendation Consideration Report until the Inspector General investigated whether bias may have compromised the integrity of our work. The Inspector General performed a comprehensive and thorough evaluation of this issue and released his report on April 23. I was gratified that the Inspector General concluded there was no evidence to "substantiate the concern that bias compromised the integrity of the site evaluation process." I have told my staff that we must do even better. The report also identified several statements that the Inspector General concluded, "could be viewed as suggesting a premature conclusion regarding the suitability of Yucca Mountain." We are well aware that we must perform our work without even the perception of possible bias.

Secretary Abraham, and I firmly believe and have communicated to all our employees, that it is Departmental policy, that all Federal, laboratory, and contractor employees must perform their work in a manner that reflects the integrity and objective approach necessary to conduct world-class science. We have reaffirmed our commitment to a site suitability evaluation process that is objective, unbiased, and based on sound science. We will continue to operate this Program in an open and transparent manner, worthy of public confidence and trust.

CONCLUDING REMARKS

The Department has made considerable progress and, despite enormous challenges, maintained the essential momentum to implement our Nation's policy for the management of spent nuclear fuel and high-level radioactive waste. We have conducted a world class investigative science program to determine whether the Yucca Mountain site is suitable for further development. We have developed repository designs and operational concepts that would enable future generations to make decisions about a repository, providing them the flexibility to choose closure, indefinite monitoring, or retrieval of emplaced materials.

I believe that we are in a position to achieve important national and global decisions later this year. I urge you to consider favorably our appropriation request. Thank you. I would be pleased to answer any questions you may have.

YUCCA MOUNTAIN SITE TIME TABLE

Senator DOMENICI. Thank you very much. Let me just ask you three or four questions on Yucca Mountain if I might.

First of all, the Inspector General has issued a report. That caused some delay. Now, that report is considered to be a favorable report as I understand it. Is that a correct characterization of it?

Mr. BARRETT. Yes, sir.

Senator DOMENICI. How soon will the Department be ready to proceed with their recommendations to the President?

Mr. BARRETT. We are proceeding ahead in doing the scientific work necessary to support any future decisions. Just last week we released a suite of documents which include the Yucca Mountain Science and Engineering Report, which is the bulk of the science that would support any future decision, and we are proceeding ahead under the processes in the law this year.

YUCCA MOUNTAIN RADIATION STANDARDS

Senator DOMENICI. Recently—well, I will give you the date. March the 30 of this year, I wrote to EPA Administrator Christine Whitman noting that the scientific credibility of the draft EPA regulations for Yucca Mountain were severely criticized by the National Academy of Science. No such criticism was leveled by the Academy against the proposed NRC standards. I suggested in my letter that the EPA and the NRC should be working to harmonize their difference in approach to the standards.

Many have suggested that the scientifically flawed EPA standards, if implemented, would preclude waste storage in Yucca Mountain while offering no benefit of public safety. On April the 26, Administrator Whitman responded that the EPA and the NRC are working through an inter-agency process to determine "the most appropriate public health standards for Yucca Mountain." The latter part of that statement is in quotes.

What is the status of discussions among EPA, NRC, and DOE to identify scientifically credible radiation standards for Yucca Mountain?

Mr. BARRETT. The Office of Management and Budget is in the process, through the inter-agency approach, of reviewing that. The Environmental Protection Agency is actively involved in creating the standard. They requested scientific input from us. We have provided that, and that process is continuing under the OMB interagency review process. So it is very active and Ms. Whitman is involved and will, we hope be reaching some decisions soon.

Senator DOMENICI. A technical question. The Nuclear Waste technology Review board, they have expressed some concern within the last year over certain aspects of the Department's plans for Yucca Mountain. Among those concerns were the reliance by the Department on high temperatures in the repository to reduce moisture and thereby enhance the life of the waste casks. These high temperature storage configurations, created by reducing spacing among casks, was criticized in part because lower temperature options which would minimize chemical reaction rates that could degrade the casks had not been reviewed with sufficient care, they said.

What is the current status of the Department's response to the concerns by the NWTRB, the Nuclear Waste Technology Review Board?

Mr. BARRETT. The Nuclear Waste Technical Review Board pointed out opportunities to strengthen the technical basis for any future decisions on Yucca Mountain. We have been working very hard over the last 6 months in doing the studies in exactly those areas. I just had a meeting last week, where we presented the results of many of those studies. We are in the process of preparing those documents to strengthen the technical bases and address the issues of operational low temperature designs and improvements.

Senator DOMENICI. This could go to both of you. The Washington group—that is a business group. I should say Washington Group International—announced that it had reached an agreement in principle with the bank group, the steering committee for the plan of reorganization in bankruptcy. The plan did not include Westinghouse government services companies which operate a number of DOE M&O contracts. What is the effect of this announcement at existing sites where Westinghouse has contracts? Do you know?

CONTRACTOR FINANCIAL ISSUES

Dr. HUNTOON. Senator, after they I guess made their business decisions we did communicate with the Westinghouse——

Senator DOMENICI. Would you pull that up a little closer, please.

Dr. HUNTOON. I am sorry.

Senator DOMENICI. Thank you.

Dr. HUNTOON. We did communicate with the Westinghouse company about our sites and the work they are doing for us, as you know, at Savannah River, in New York, and at WIPP. We were told that it will have no effect, it will be transparent, our operations will continue. So we are not expecting anything to happen to our work based on the Washington Group's financial issues right now.

Mr. BARRETT. We do not expect any in ours at all.

Senator DOMENICI. It will not affect yours.

Have you received sufficient information at this point to conclude yourself that that statement is true?

Dr. HUNTOON. Our procurement people have, our legal people have. I have not gotten back input from all my sites. I have talked to Savannah River and they have no issues. I will be talking to the others today.

Senator DOMENICI. All right. In any event, are you telling this subcommittee that you believe in that regard things are all right?

Dr. HUNTOON. Yes.

WASTE ISOLATION PILOT PLANT FUNDING

Senator DOMENICI. Let me now ask you a few more questions. Let me talk about WIPP just for a minute. There is a lot of reductions in this budget that struck me as being kind of interesting and in some ways counterproductive. But the one that gives me a real strange feeling is, how can you expect WIPP to do more and yet reduce the funding by $26 million? They are supposed to do more of everything. They are supposed to do more on-site characterization. They are supposed to move more transuranic wastes there. Their budget is $26 million less than last year.

Dr. HUNTOON. Yes, sir. As you know, we had challenges across the complex with the budget to get to our budget numbers. WIPP was certainly one of them. WIPP has done an outstanding job in meeting their commitments in the past and coming up on the curve to getting the shipments in. We are past 20 now in the shipments to WIPP.

This budget that we turned in, Senator, is focused on activities that are essential to the disposal operations specifically. We want to maintain the priorities on Rocky Flats, Idaho, and Savannah River because that is going to support closure at Mound. We talked about limiting the shipments from other places until we had the funds to do it. We will scale back advisory groups and State organization support where we have to.

We were going to begin the work on the remote handled waste. That is an essential aspect, but hopefully working with the State and NRC to make some necessary changes to some of the permits to decrease the cost and increase the efficiency.

Senator DOMENICI. Well, let me just assure you that there is no more support from any community on anything of national interest that involves nuclear activity than this community of Carlsbad and Eddy County and that part of New Mexico. Frankly, when they read things like this they wonder over the years why they have been so supportive. I can assure you that there are all kinds of reasons to say we should cut this or that as it pertains to the Department of Energy, but the OMB missed the boat on this one. I do not expect you to say that about it—as they did on a number of others of these.

COMPLIANCE AGREEMENTS

Let me talk about the compliance agreements, Dr. Huntoon, for just a minute. Do you believe that this budget keeps the DOE in compliance with all applicable laws, regulations, and existing programs? How much more money would be required to do that if the budget does not?

Dr. HUNTOON. This budget, Senator, gives us some challenges in several years to meet compliance. We have sat down with our regulators yet to discuss if we can adjust milestones or procedures to stay in compliance, but it will be a challenge in several areas.

Senator DOMENICI. I take it that means you are not sure you can live within it. Is that a fair statement of what "challenging" means?

Dr. HUNTOON. It will be very difficult to do it in a lot of areas. I am not prepared to say we will not be compliant, but there are going to have to be negotiations.

Senator DOMENICI. Well, let me suggest I have been at this long enough—I shared with you early on when you took this appointment that I sure hope there were some ways we could find to be more efficient at all the sites, that we seemed in many cases to be walking in place, where we stayed in one place for so long, with so much money spent, that I had begun to wonder whether some of these activities were employment opportunities or cleanup sites.

So I expect that we can do better. But I want to suggest to the Department of Energy, it is not very easy to do it in the way you are recommending. It seems to me you have a responsibility, the Department, whoever represents the Executive Branch, to sit down with those who are cleaning these sites up, with the States that they are in, with the communities that they have agreements with, and try to work out something new and different that is more efficient, and if they are unsuccessful to bring that to Congress and say, we have to have your help.

I do not think the way to do it is to dramatically reduce the funding and let each one of these communities wonder how many hundreds will be laid off while we are looking for a new policy. I think that is kind of a reverse approach. It may be that there were some in the OMB that concluded that is the only way to get change. Well, it might be. You are not going to get that change this year, however, that way, if there is any way to avoid it. We are going to put the money in and ask that you all start a new process of determining how we might improve the efficiency of these various sites.

The top the bottom review that the Secretary is talking about, I just want to talk about one aspect of it. Every portion of the DOE from what I understand is supposed to become 5 to 10 percent more efficient in the future and immediately cut the budget about 6 percent. That is my own interpretation of where we are.

Now, the management review is supposed to identify steps to strengthen project management, but in some respects it stretches out projects and increases the cost. Now, this management review is supposed to implement better contracting strategies, but fails to fund such performance-based contracts that you have negotiated in the very past few years. That does not seem to me to be very consistent.

This review is supposed to make greater use of technologies, as I understand it, but the cuts in environmental science and technology are about 27 percent. Now, I would conclude that either those are inconsistent or one would conclude that the research being done in the EM R&D effort is not very good or something you do not think is very good.

Which is it, or is it neither of them?

FUNDING FOR RESEARCH AND DEVELOPMENT

Dr. HUNTOON. I think our science and technology program I think has been excellent. The money invested has already helped us through in the last few years. We have reaped benefits from money that has been invested over the last 10 years in R&D. So you would never get me to say that it is not a good program, that it is not worth the money.

In fact, I believe, as you and I have discussed in the past, the one way we are going to decrease the amount of time that it is going to take to clean up this complex is by applying good science and technology to the problem. So I think we are going to be doing that.

We are, with the money that we do have available in science and tech this year, planning plan to our highest priority issues and trying to get more work out into the complex from the R&D community. We will be not doing as much basic research as we would like or university work as we would like.

Senator DOMENICI. Well, let me tell you, I would not be surprised to hear the Department of Energy say that an awful lot of the EM research, that is research within the laboratories and not on contract, which has been looking for better ways to handle our responsibility with reference to cleanup, I would not be surprised if somebody said they have been very redundant, some of them have been absolutely inapplicable, it just did not fit, some of them were done with such scientific esoteric ideas that they are not applicable anywhere. I have found that over the years to be the case.

But I also find that there is nobody what seems to be able to do that much better than they do. If you could refine them down and make sure they are all focused, they are a pretty good source of information on how to handle this. Is that latter a fair assessment, they are pretty good at it?

Dr. HUNTOON. Yes, sir, it absolutely is. I will give you one example. We have a very tough problem with the salt issue down at Savannah River. We are looking at three technologies right now and we are going through an assessment to choose the one that we will do a pilot on later this year. Two of those most promising technologies, have come from our R&D program that we funded earlier, that would not have been ready for us to apply had we not put money into it.

Other people do not have the kinds of problems that we have in dealing with this nuclear waste.

Senator DOMENICI. I am going to submit a question to you with reference to performance-based contracts and then close my questioning of you by talking about a project and program called Waste Management Education Research Consortium. Its acronym is WERC. I am not sure you would be aware of that.

WASTE MANAGEMENT EDUCATION AND RESEARCH CONSORTIUM

Dr. HUNTOON. No.

Senator DOMENICI. There exists a program whereby three universities in the State of New Mexico, led by one of its technology universities, engages in a curriculum to produce civil engineers who are environmentally oriented, and at the same time they conduct

national competitions among college students to prepare actual plans for environmental cleanup. It attracts attention from all the universities of America and the winners have gone on to be great scientists in cleanup. That is a $2.5 million a year program and it is supposed to be extended for 5 years pursuant to the last appropriation bill.

There has not been any extension done on that. I wonder if you would look at that for us and report back through the committee with a response as to when that is going to be funded.

Dr. HUNTOON. Yes, sir, I will.

[The information follows:]

WASTE-MANAGEMENT EDUCATION AND RESEARCH CONSORTIUM (WERC)

The Department has developed a new 5-year cooperative agreement with WERC (which is now referred to as A Consortium for Education and Technology Development). The agreement became effective on July 1, 2001. Funding for this agreement is included in the DOE Fiscal Year 2002 Congressional Budget Request. Future funding will be subject to the availability of funds and overall DOE funding priorities.

WASTE MANAGEMENT EDUCATION AND RESEARCH CONSORTIUM (WERC)

Senator DOMENICI. I appreciate that.

Mr. Barrett, did you have anything further you would like to comment on?

Mr. BARRETT. No, sir.

Senator DOMENICI. Dr. Huntoon, did you want the comment? This is your last appropriation hearing. We said that. Thank you so much for all you have done.

ADDITIONAL COMMITTEE QUESTIONS

Dr. HUNTOON. Well, I would just like to thank you for your support of this program. I appreciate it.

Senator DOMENICI. You are welcome.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

WASTE ISOLATION PILOT PLANT

Question. Many elements of the Departments' budget submission are puzzling to me, but perhaps none as confusing as the dramatic cut in the budget recommended for the Waste Isolation Pilot Plant.

It seems to me that the Department should be encouraging dramatic increase in the material shipment rates to WIPP. Furthermore, one of the best ways of increasing those shipment rates would be to improve the overall management of the National TRU-Waste progam, which I think requires that WIPP and the Carlsbad Office of the Department play a larger role in specifying shipments from each site.

WIPP has also made excellent proposals to assume responsibility for characterizing waste from the many Small Quantity Sites around the complex. Such centralized characterization can lead to greater efficiencies, more rapid shipment of wastes from these sites, and greater assurances to the people of New Mexico that the characterization is done to State-mandated requirements.

In light of these issues, can you explain how WIPP is going to increase its shipments rates, assume additional waste characterization responsibilities, and play a larger role in the National TRU Waste program with a funding cut of $26 million?

Answer. The Waste Isolation Pilot Plan (WIPP) budget request is focused on activities that are essential to disposal operations and the National Transuranic Waste Program. It also assumes that a combination of efficiencies being pursued

with the U.S. Environmental Protection Agency, the New Mexico Environment Department, and the Nuclear Regulatory Commission will reduce transuranic waste characterization and shipping costs.

The Department will give priority to shipments from the Rocky Flats Environmental Technology Site to support closure, and from the Idaho National Engineering and Environmental Laboratory to support the Idaho Settlement Agreement requirements, as well as shipments from the Savannah River Site which is assisting in the closure of the Mound Site by storing some of Mound's waste. WIPP will also accept limited shipments from other sites, such as Argonne National Laboratory-East, Los Alamos National Laboratory, and the Nevada Test Site.

To support the President's fiscal year 2002 budget priorities, the Department will need to scale back support to advisory groups and State organizations where possible. In addition, the Department has eliminated funding for other initiatives that are not core functions of WIPP's mission to dispose of transuranic waste at WIPP.

The Department is also looking at resources needed for the increases in waste shipments in fiscal year 2002 from Rocky Flats and Idaho. Since the President's fiscal year 2002 budget was submitted to Congress, Rocky Flats has identified plans to ship more waste to WIPP than was assumed at the time the budget was formulated. Options will be reviewed for shifting EM funds to meet these needs and ensure we have sufficient shipping containers and adequate carrier services. The Administration's recently submitted supplemental budget request for fiscal year 2001 includes funds that could be applied to this increased workload for WIPP.

COMPLIANCE AGREEMENTS

Question. Does this budget keep the DOE in compliance with all applicable laws, regulations and existing agreements?

Answer. We are taking several steps to identify and evaluate new ways of doing business to reduce costs and shorten schedules. Recently, the Secretary directed the start of an assessment of the Environmental Management program to find ways to achieve cleanup goals more cost effectively and efficiently. In addition, Secretary Abraham has invited the Governors of states that host major DOE sites and the EPA Administrator to work with us on this assessment. Working with our state and EPA partners, we believe we can find ways to improve the program's efficiency and progress.

Maintaining compliance is a priority for the Department. However, until these initiatives and the Congressional appropriations process are completed, it is premature to say what our specific compliance challenges may be in fiscal year 2002. We will follow applicable procedures if any modification to existing requirements is needed.

Question. How much more money would be required to do so? If you wish, you may submit that answer for the record.

Answer. Until these initiatives and the Congressional appropriations process are completed, it is premature to say whether additional money will be required to meet our compliance requirements in fiscal year 2002. We believe, however, that by working with our state and EPA partners, we can find ways to improve the compliance framework and our programmatic efficiency, and continue to make progress toward Environmental Management cleanup goals.

PERFORMANCE-BASED CONTRACTS

Question. The DOE Inspector General has recently criticized the Department for undermining its own performance-based contracts by paying incentive fees even though the work did not meet the specific requirement DOE established in its contract. This has been a recurring problem for the DOE. The Department has placed a lot of hope on the success of such contracts for increasing performance and cutting costs. Does the DOE have the mechanism in place to completely enforce such contracts?

Answer. Yes. The subject of performance-based contracting has received the highest level of management attention within the Department. In turn, this top-level emphasis directly resulted in DOE's recent implementation of a contract management initiative which requires greater responsibility and accountability from both the Department's senior managers and its contractors.

Some of the major provisions of this May 2000 initiative include: (1) ensuring that performance fees will be paid in full when earned or withheld when performance objectives are not met; (2) ensuring that performance bonuses paid by contractors to their key managers are dependent on the achievement of established contract performance objectives; (3) expanding the Chief Operating Officer's "watch list" to include marginal or poor-performing projects, so that a project which is placed on the COO's watch list is subject to more frequent reporting and closer scrutiny until

its performance improves; (4) requiring that contract performance objectives be formally linked to the Department's strategic plan; (5) holding Federal senior executives accountable for effective contractor management through their own performance plans; and (6) conducting briefings to high-level DOE management officials of contractor performance assessments and proposed performance awards prior to their award.

Furthermore, the Department's major program offices have established policies and procedures to ensure: early identification of program expectations to be communicated to Field offices; close coordination between Headquarters and Field offices in developing such plans; and the approval of these plans, as well as any performance awards as a result of the evaluation of the contractor's performance, by the responsible program assistant secretary. DOE's Procurement Executive has also been reviewing and approving major site and facility management contract performance plans since 1998.

In addition, with the publication of the Department's revised fee policy for management and operating contractors in March 1999, DOE's Office of Procurement and Assistance Management established an iterative program to work with selected Headquarters and Field offices to upgrade the effectiveness of the incentives being established for the achievement of critical performance. Moreover, the Office issued in 1998 a "Performance-Based Contracting Guide" which provide guidance on linking performance incentives to desired results and strategic goals. Associated workshops have focused on sharing lessons-learned within the Department.

Performance-based contracting—characterized by results-oriented statements of work, strict performance criteria and measures to assess the quality of work accomplishment, and incentive-fee arrangements to motivate enhanced performance—is now the standard for the Department of Energy. All of DOE's major site and facility management contracts awarded during and after fiscal year 1999 are performance-based management contracts. Despite the identification of occasional deficiencies, the Department believes that the appropriate mechanisms are available to adequately enforce the provisions of performance-based contracts. In turn, with an emphasis on sustained improvements in the administration of these contracts, the use of performance-based contracts should lead to even more cost-effective performance on the part of the Department's contractors and a greater return for the U.S. taxpayer.

WASTE-MANAGEMENT EDUCATION AND RESEARCH CONSORTIUM

Question. The contract for the Waste-management Education and Research Consortium (WERC) was specified in the current Appropriations Report language to be extended for a 5-year period at a level of $2.5 million. To date, that contract extension has not been done.

WERC has compiled an excellent record in their support of environmental education and technology development. Over its history, now spanning more than 10 years, WERC graduates have filled many positions of importance to the nation. Some graduates are now directly contributing to cleanup of the Department's environmental legacy problems.

When will the congressional guidance be followed and their contract extended?

Answer. The Department has developed a new 5-year cooperative agreement with WERC (which is now referred to as A Consortium for Education and Technology Development). The agreement became effective on July 1, 2001. Funding for this agreement is included in the DOE fiscal year 2002 Congressional Budget Request. Future funding will be subject to the availability of funds and overall DOE funding priorities.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

MOAB MILL TAILINGS SITE

Question. What is the status of the remediation plan?

Answer. The Federal staff at the Grand Junction Office is preparing an initial draft remediation plan that will identify remediation alternatives and summarize the state of knowledge regarding the Moab site. This will be completed by October 30, 2001. The initial draft plan will not, however, be sufficiently developed to allow for selection of a remediation option. Selection of a remedial action will require an in-depth analysis and the legally-required involvement by the National Academy of Sciences, for which funding was included in the Administration's recent supplemental budget request for fiscal year 2001.

Question. Has the DOE made any arrangements with the National Academy of Sciences to provide technical advice, assistance, or recommendations on the remediation plan?

Answer. On February 16, 2001, the Office of Environmental Management sent a letter to the National Academy of Sciences requesting them to perform the analysis required by the National Defense Authorization Act for Fiscal Year 2001. The Administration recently submitted a supplemental budget request for fiscal year 2001 that includes funding for the Moab project. If this funding becomes available, DOE will request the Academy to commence the analysis as part of an ongoing long-term institutional management study and provide DOE with advice and recommendations in a separate report.

Question. When is it estimated that the DOE will begin remediation efforts?

Answer. The start of remediation is dependent on the successful completion of all preparatory activities, such as National Academy of Sciences review, any required environmental review, remedy selection and design, and contractor procurements. Appropriate remediation is expected to start in fiscal year 2005, subject to the availability of funding.

Question. What actions will the DOE need to take before remediation work could begin?

Answer. DOE will have to complete the National Academy of Sciences review, prepare any required environmental review, obtain a Biological Opinion from the U.S. Fish and Wildlife Service regarding endangered species near the site, receive Nuclear Regulatory Commission approval of the remedial action plan, complete design for the selected remedial alternative, and procure a remediation contractor.

Question. What are your plans for the site in fiscal year 2002?

Answer. DOE will complete the title transfer of the mill site, finalize the remediation plan, and perform surveillance of the tailings pile. Initiation of the National Academy of Sciences review is dependent upon Congressional approval of the Administration's recent supplemental budget request that included funding for developing the Moab remediation plan.

QUESTIONS SUBMITTED BY SENATOR HARRY REID

TRANSPORTATION OF WASTE

Question. One of the major issues with the proposed Yucca Mountain site is transporting the waste from the 103 reactor sites through more than 40 states to Nevada. Why has so little effort been placed on defining the transportation modes and routes? How can we be studying a central disposal site if we do not know if the spent fuel can be safely moved?

Answer. The transportation of spent nuclear fuel has been conducted safely for decades. The U.S. Department of Transportation and the Nuclear Regulatory Commission have developed regulations that control virtually every aspect of spent nuclear fuel and high-level radioactive waste transportation. The safety record for spent fuel shipments in the United States and in other industrialized nations is excellent. Of these thousands of shipments completed over the last 30 years, none has resulted in an identifiable injury through release of radioactive material.

Because of funding constraints, the Department, in setting priorities, applied its available funds to Yucca Mountain scientific and engineering activities to determine if this site is scientifically suitable for further development as a geologic repository. We have deferred activities related to transportation planning until a site is designated. If the site is designated, the Department plans to acquire a transportation infrastructure by 2010. While we await a decision on whether to proceed, identifying transportation routes that could be used in 2010 is premature. It is more appropriate to select routes taking into account the highway, rail route, and shipping vendor considerations that would exist at the time that shipments may occur.

BENEFITS OF COOPERATION WITH FOREIGN WASTE MANAGEMENT PROGRAMS

Question. Why does the Office of Civilian Radioactive Waste Management feel that it must send senior level managers to foreign countries? What is the purpose of the trips? How do these trips benefit the U.S. waste disposal program?

Answer. The general international consensus and the cornerstone of the United States waste management strategy is disposal of radioactive waste in geologic repositories. All nations with nuclear power programs will need to safely dispose of their radioactive waste regardless of their nuclear fuel cycle approach. Furthermore, nuclear issues transcend national boundaries, and therefore, the global nuclear com-

munity has a shared interest in protecting human health and safety and the environment.

Developing geologic repositories for high-level radioactive waste is a first of a kind endeavor. The U.S. continues to play a leading role in developing scientific and engineering knowledge for geologic repositories. Foreign countries have technical and institutional information that is beneficial to the current U.S. effort. In this regard, the Office of Civilian Radioactive Waste Management has bilateral agreements with six nations and is working to extend that collaboration with other countries. The Office also has formal arrangements with the International Atomic Energy Agency, the International Association for Environmentally Safe Disposal of Radioactive Materials, and the Nuclear Energy Agency of the Organization for Economic Cooperation and Development. The purpose of these agreements is to share and exchange scientific, technical, and other relevant information on radioactive waste management. Senior management in the United States and abroad have recognized the value and benefits of sharing experiences and information through participation in meetings, conferences, and visits to nuclear facilities.

TOTAL SYSTEMS LIFE CYCLE COSTS

Question. There has been an $11 billion increase to the total cost estimates for the proposed repository, bringing the total to $58 billion. Please explain to me what has driven this large increase in total repository costs.

Answer. Increases in costs are due to design enhancements that could improve long-term repository performance, if they are all implemented. For example, most of the increases are due to inclusion of titanium drip shields. These drip shields would be placed over the waste packages within the emplacement drifts just before repository closure. However, the decision to include drip shields would be made at the time of repository closure, after performance confirmation and monitoring. Because the possible use of drip shields is far in the future, we believe that monies from the Nuclear Waste Fund will be available to pay for them.

LOCAL OVERSIGHT FUNDING

Questions What is the justification for reducing the budget request for local government oversight at a time when DOE is asking for an increase in its Yucca Mountain budget for fiscal year 2002? Is there no longer a relationship between the amount of work to be carried out at the site and the amount of work required of local governments to monitor, review and comment on those site activities?

Answer. The Administration fully supports the State of Nevada and affected units of local government in their scientific oversight roles pursuant to the Nuclear Waste Policy Act. The Department's fiscal year 2002 budget request of $445 million is a modest increase over the fiscal year 2001 budget request of $437.5 million. Our fiscal year 2002 budget request for affected units of local government oversight funding of $5.8 million is the same as the fiscal year 2001 request. The fiscal year 2002 request for State of Nevada oversight funding is also at the same level as fiscal year 2001 appropriations at $2.5 million. We hope that fiscal year 2002 appropriations will support continuing oversight activities.

DISPOSAL OF WASTE AT THE NEVADA TEST SITE

Question. Data presented by the Department last month at my local Community Advisory Board concluded that disposal of low-level radioactive soils shipped from the DOE site at Fernald, Ohio to the Nevada Test Site is two-and-half times more expensive than disposal at a commercial disposal site in Utah, a site I'm advised that has the support of its congressional delegation and stakeholders. How can the Department justify trucking increasing amounts of low-level waste from sites around the DOE complex to NTS when you can use an existing contract to ship the same waste directly via rail to the Utah site at a much lower cost?

Answer. The cost of shipping waste from the Fernald site in Ohio to the Nevada Test Site (NTS) or to a commercial facility, and the cost of disposal at NTS or a commercial facility, is dependent on the type of waste requiring disposal. Wastes vary in density, type of containerization, level of radioactivity, and heterogeneity (e.g., soil or debris). Another key factor in these decisions is the waste acceptance criteria at each of the disposal sites. For example, the commercial facility in Utah cannot accept radioactive wastes that exceed Class A limitations. Prior to selecting a disposal option for each waste stream, the Department compares costs for transportation to and disposal at DOE and commercial disposal sites. Normally, commercial disposal is selected when it is the most cost effective option.

The data on disposal options presented to the NTS Community Advisory Board focused on two examples of low-level waste streams from Fernald, to illustrate how

waste density, containerization, radioactivity level, and heterogeneity influence costs and decisions. The wastes chosen for these examples both met the Envirocare waste acceptance criteria. However, for one predominantly soil low-level waste stream, as you have noted, commercial disposal was the more cost effective disposition and was used for that waste stream. In fact, Fernald sends the majority of its soil to the commercial facility. The second example stream, consisting of contaminated debris, was more cost effectively transported to and disposed of at the NTS.

Other DOE low-level waste, with radioactivity levels that exceed the Envirocare license, cannot be disposed of at Envirocare. For these wastes, technical criteria, not transportation and disposal costs, are the deciding factors in choosing a disposal facility.

NUCLEAR POWER PLANTS

Question. The industry has recently seen expensive purchases for nuclear power plants. In almost no case, has this price been close to the actual cost of constructing and operating these plants. In fact, Paul Joskow an MIT economist recently said referring to the price per unit capacity, "None of these deals even comes close to covering the book costs. You couldn't justify paying $2,000 or $3,000 per kilowatt for those plants." He added that investors would have to expect a huge competitive benefit from nuclear plants to risk putting money in a new one "because of the significant possibility of coming up with a dry hole." Do you agree with this assessment?

Answer. Today, purchasing a nuclear plant from another utility has become a very cost-effective approach to acquiring additional electricity capacity for a given utility. As there are plants that have been in operation for, in general, a decade or more, it should not be surprising that the cost of purchasing an existing plant is less than the cost of building a new nuclear plant. That said, the price paid for existing plants is not dramatically lower than what a modern nuclear power plant would cost to build.

With the advances made by the nuclear industry over the last decade, the deployment of advanced light water reactors overseas, improvements in construction techniques (e.g., modular construction), operating efficiencies, and with greater regulatory certainty, we believe that a more realistic cost of new nuclear capacity is in the range of $1,000 to $1,500 per kilowatt. When coupled with the increasing cost of natural gas (due primarily to delivery constraints) and the economical track record of current nuclear plants, nuclear power presents an attractive option for investors.

Over the past decade, the nuclear industry has succeeded in lowering average production costs (fuel, operations and maintenance) to below two cents per kilowatt-hour. Last year, nuclear energy was the lowest cost electricity source in the country—attributed to a decade-long increase in unit capacity factors following economizing steps taken to resolve regulatory issues, reduce refueling outage durations, and extend operating cycles. Aside from economics, nuclear power has benefits that are not measured in dollars and cents. Nuclear-generated power provides electricity that is free of greenhouse gas emissions and other pollutants released by the combustion other energy fuels coal, petroleum, and natural gas. As a result of its performance and its benefits, the value of nuclear power plants has increased, as indicated by their more expensive, recent purchase prices. As a result, we expect to see new nuclear construction in the United States during this decade.

VITRIFICATION TECHNOLOGY

Question. In last year's Energy and Water Development Appropriations Act, Congress directed the Department to re-test the Advanced Vitrification System. What is the status of that review? Are you willing to commit to providing a complete assessment to Congress in a timely fashion to allow Members to make an informed decision about the future of this technology?

Answer. The additional tests of the Advanced Vitrification System (AVS), a process under development by the Radioactive Isolation Consortium (RIC) designed for vitrification of high-level waste in a canister, were performed using surrogate waste provided by the Department of Energy. These additional tests were completed by June 1, 2001, and a project review was initiated on June 12, 2001.

Yes, we will provide RIC and Congress the results once we have completed this review. We anticipate the results will be available by July 30, 2001.

QUESTIONS SUBMITTED BY SENATOR ROBERT C. BYRD

WAIVERS FOR DISPOSITION OF SCRAP METALS FROM RADIOLOGICAL AREAS

Question. How do you intend to insure that this waiver is not used to circumvent the current suspension on release of metal from radioactive areas? Will decisions to use the waiver be reviewed by appropriate persons in the Secretary's office to make sure that the suspension is not circumvented?

Answer. The suspension on unrestricted release of scrap metals from DOE radiological areas was initiated in July 2000 as part of a process in which DOE proposed establishing a new standard that would preclude the unrestricted release of such metals if surveys demonstrated that the metals had contamination at levels above background levels as a result of DOE operations at the site. DOE prepared proposed related changes to its procedures and issued them for public comment last fall. As a result of public comments on these proposed changes, DOE decided to retain the suspension and prepare an Environmental Impact Statement (EIS) to address this topic. A Notice of Intent to prepare the EIS was published in the Federal Register on July 12, 2001.

While the EIS is being prepared, DOE will continue the July 2000 suspension on recycling of scrap metal from radiological areas into commerce unless DOE makes a specific determination that the metal could not have been radioactively contaminated by DOE activities or operations. In making a determination, the Department will impose a rigorous set of protocols that must be followed to demonstrate and document process knowledge about the use and location of the metals and the necessary confirmatory surveys that must be performed to validate this determination. Field offices would be responsible for implementing these protocols, and oversight would be provided by Headquarters program offices.

EXCESS FACILITIES

Question. The National Energy Technology Laboratory located in Morgantown, West Virginia, and Pittsburgh, Pennsylvania, administers nearly half of the Department of Energy's Deactivation and Decommissioning Focus Area, which seeks to promote the rapid deployment of better technologies to treat, stabilize, and dispose of nuclear waste at the Department of Energy sties across the nation, reduce risks to site workers, the public and the environment; and provide a practical approach for testing a technology's capability.

How many contaminated buildings are there to deactivate at the DOE complex?

How many buildings are there to be decommissioned at the DOE complex?

How many years will it take to clean up these sites and facilities, and at what cost?

Answer. The Department of Energy (DOE) does not have precise, complex-wide data on all facilities that are or may be determined in the future to be excess to DOE mission requirements and require deactivation, decontamination and/or decommissioning (D&D). However, there are two sources of information that can provide rough estimates of the total scope of facilities that may need to be deactivated and/or decommissioned in the future and give an indication of the life-cycle cost of carrying out this work. One source contains information on facilities that are the responsibility of the Department's Environmental Management (EM) program, and the other source addresses those that are the responsibility of other DOE programs.

For EM facilities, EM's corporate information system, the Integrated Planning, Accountability and Budgeting System (IPABS), which supports budget formulation and execution, life-cycle planning, and performance measurement, provides a good indication of the total facilities' workscope currently within the EM program. IPABS lists 4,222 facilities managed by EM that require D&D over the life of the EM program. IPABS further indicates that deactivation has already been completed on another 411 of these facilities, and decommissioning on 639 facilities. The lifecycle cost associated with D&D of all EM-managed facilities, including those that are currently operational, as reported in IPABS is $10.6 billion from fiscal year 2002 through 2052. IPABS does not include data on which of these facilities are currently excess, or the level of cleanup that may be required.

EM is seeking additional, facility-level information to better characterize the universe of facilities in the next update of its planning estimates, which is expected to be available at the end of the summer. However, we will continue after that time to develop methods to collect more complete and consistent information that minimizes differences in how different field offices manage, maintain, and interpret facility data.

The "Department of Energy Performance and Accountability Report for Fiscal Year 2000" (DOE/CR–0071) estimates a $26 billion potential liability associated

with Departmental facilities (both active and surplus) other than those in the EM program. This includes about $19 billion (based on use of a cost-estimating model) to stabilize, deactivate and/or decommission about 3,000 contaminated facilities. The specific number of facilities associated with the remaining costs in the liability estimate (e.g., for decommissioning of Naval Reactor and Strategic Petroleum Reserve program facilities), is not identified.

NATIONAL ENERGY TECHNOLOGY LABORATORY

Question. Is advanced technology needed to clean up the remaining DOE facilities?

Answer. While technologies generally exist to clean up contaminated facilities, innovative deactivation and decommissioning technology is needed to enhance worker safety, minimize cleanup schedules, and reduce costs. For instance, more than 900 plutonium-contaminated gloveboxes must be removed, cut up, and disposed of to meet the accelerated Rocky Flats closure goal of fiscal year 2006. The baseline method—workers in cumbersome protective gear using hand tools—could not have met this schedule or budget requirements. In the last three years, several innovative technologies that revolutionize this process have emerged as a result of the Deactivation and Decommissioning Focus Area. Through these technologies, worker exposure is eliminated or dramatically reduced, often enabling cleanup that was impossible otherwise.

Question. Is the Deactivation and Decommissioning focus area helping to address the nation's cleanup backlog?

Answer. The Deactivation and Decommissioning (D&D) Focus Area provides support for the demonstration and deployment of improved D&D technologies and methods, and through technical assistance to DOE sites for the planning and execution of D&D tasks. Through these new D&D technologies, worker exposure is eliminated or dramatically reduced, often enabling cleanup that was impossible otherwise.

For instance, the D&D Focus Area is furnishing improved technologies to ensure closure milestones can be met at the Rocky Flats Environmental Technology Site. The primary focus of these efforts is the disposition of over 900 plutonium-contaminated gloveboxes and other contaminated equipment, such as process piping, tanks, and vessels. Disposition of this equipment is a formidable task that, unless improved technologies are implemented, would place workers in extremely dangerous and high-radiation environments. Deployment of remotely operated robotic systems for size reduction, decontamination, and waste handling and packaging in some cases are enabling cleanup that could not have been accomplished previously.

The D&D Focus Area has demonstrated 121 new and innovative technologies. And 91 different D&D-sponsored technologies have been deployed a total of 336 times, all of which performed cleanup cheaper, faster or safer than conventional technologies or enabled cleanup that was previously impossible.

Question. Does the program save taxpayers money? How?

Answer. The Deactivation and Decommissioning Focus Area is achieving direct cost savings through the deployment of more productive and cost-effective methods and technologies, as well as cost avoidance through accelerated cleanup schedules thereby reducing long-term facility surveillance and maintenance requirements. As important as saving taxpayers' money, technologies from this program also minimize worker safety and health risks

Question. The fiscal year 2001 enacted level of funding for D&D Focus Area was $27.1 million. The President's fiscal year 2002 budget request slashing the budget for this activity to $17.6 million a 35 percent cut. What impact will this have?

Answer. At the requested level, there is sufficient funding to continue core activities, including some deployment projects, at a reduced level.

Question. How will jobs at National Energy Technology Laboratory be impacted as a result of the 35 percent cut in the program?

Answer. We do not expect any National Energy Technology Laboratory employees' jobs will be affected as a result of the request for the Deactivation and Decommissioning Focus Area.

Question. Please provide me a chart, listing of the number of D&D Focus Area projects that have been funded in each state, along with their total value, and the number of employees that the projects support.

Answer. The requested information follows:

DEACTIVATION & DECOMMISSIONING FOCUS AREA (1991–2001)

[Dollars in thousands]

State	Projects	Total funding	Estimates FTE's [1]
California	7	$3,640	12
Colorado	8	16,206	57
Florida	3	535	3
Idaho	12	10,650	21
Illinois	10	7,662	23
Iowa	1	830	1
Montana	1	660	4
Nevada	7	8,615	20
New Mexico	5	11,772	37
New York	6	6,153	18
Ohio	10	11,157	32
Pennsylvania	1	1,000	6
South Carolina	9	8,559	22
Tennessee	21	14,177	49
Washington	16	24,114	46
West Virginia	7	12,240	24
Total	124	137,970	375

[1] Full-time equivalents.

Question. Please also provide me with a listing of the West Virginia projects that are funded under this program.

Answer. The National Energy Technology Laboratory administers all the Deactivation and Decommissioning projects for the Environmental Management program. See attached chart of activities within West Virginia.

FISCAL YEAR 1991–2001 WEST VIRGINIA DEACTIVATION AND DECOMMISSIONING (D&D) FUNDING

[In thousands of dollars]

Project	Fiscal year funding	
	1991–2000	2001
Transition of Basic Science for D&D	0	1,151
Characterization Exploratory & Advanced Development	0	175
Cost Benefit Analysis/Stakeholder Involvement/Public Participation	1,867	2,637
U.S. Army Corp of Engineers	5,000	0
Phoenix: A Decision Support Tool for D&D Activities	800	0
Technology and Program Support to CMST–CP	104	0
Cost Savings Analysis/Technology Summaries	206	300
Total	7,977	4,263

INDUSTRY AND UNIVERSITY PROGRAM

Question. The National Energy Technology Laboratory also administers 100 percent of the Industry and University Program, which is the Office of Environmental Management's main mechanism for private industry and higher education to provide new technical solutions to the DOE cleanup problems.

How many research and development (R&D) contracts with private-sector organizations have resulted from this program?

Answer. This program has resulted in 123 research and development contracts with private sector companies and universities, nearly all of which have been managed by the National Energy Technology Laboratory (NETL). There have also been 11 cooperative agreements and grants with universities and nonprofit organizations that conduct applied research and development in support of the Environmental Management mission under this program, also managed by NETL.

The Industry and University Program also includes the University Robotics Program administered by the Albuquerque Operations Office, which consists of a consortium of five universities and has resulted in five grants.

Question. How many technology demonstration and technology deployments has the program yielded?

Answer. Research and development within this program has resulted in 87 technology demonstrations and 78 deployments. For instance, a robotic vehicle sponsored by this program (Houdini) was instrumental in closing the Gunite and Associated Tanks at Oak Ridge ten years ahead of the project's initial schedule.

Question. What is the projected cost savings that can be realized with successful technologies?

Answer. New and innovative technologies can result in significant life-cycle savings or cost avoidance for the EM program compared to the "baseline" technologies that were otherwise planned to be used.

However, it is difficult to provide reliable and consistent estimates of cost savings associated with new technologies across the program. Not only have the baselines for many of these first-of-a-kind, technically complex projects evolved, but EM has used several methods in the past to estimate cost savings/avoidance related to the introduction of new technologies. Consequently, these estimates are not consistent or comparable.

To improve the consistency of estimates, EM has adopted a Return-on-Investment methodology for estimating and documenting the cost savings or cost avoidance resulting from the use of new or improved technologies. We have recently issued guidance requiring use of this methodology across the program and will begin applying it to technologies deployed in fiscal year 2001.

Question. What will be the primary impacts of these cuts? Will there be any new program starts next fiscal year because of the cuts?

Answer. The requested level provides sufficient funding to support core activities at a reduced level and a limited number of new starts. It also provides equitable funding for work at universities such as Florida International University, Florida State University, the Diagnostic and Instrumentation Analysis Laboratory at Mississippi State University, and the university consortium conducting work in robotics.

Question. How many jobs will be eliminated at the National Energy Technology Laboratory as a result of the 28 percent cut in the program?

Answer. We do not expect any jobs at the National Energy Technology Laboratory will be eliminated as a result of the fiscal year 2002 budget request for this program.

Question. Could a reduction in the number of projects to be funded have an eventual impact on the jobs at the Lab since the workload would be lessened?

Answer. We do not anticipate any eventual impact on the National Energy Technology Laboratory employees' job as a result of the fiscal year 2002 budget request for this program.

Question. Please provide me a chart, listing the number of Industry and University Program projects that have been funded in each state, along with their total value, and the number of employees that the projects support.

Answer. The requested information follows:

State	Number of projects	Total EM–50 funding	Estimated FTE's [1]
INDUSTRY PROGRAMS (1992–2001)			
Arizona	1	$681,636	1
California	14	14,024,444	34
Colorado	5	5,664,169	14
Connecticut	1	224,947	1
District of Columbia	1	1,301,425	4
Florida	5	3,888,978	12
Georgia	2	1,148,484	10
Idaho	1	362,446	2
Illinois	5	9,709,871	18
Kentucky	1	267,827	1
Louisiana	1	1,513,959	3
Maine	1	2,849,768	4
Maryland	8	25,073,805	46
Massachusetts	12	42,477,632	57

State	Number of projects	Total EM–50 funding	Estimated FTE's [1]
Michigan	2	748,793	4
Minnesota	2	3,429,910	5
Mississippi	1	562,000	6
Missouri	2	912,329	4
Nevada	1	111,316	1
New Jersey	1	526,193	1
New Mexico	11	20,647,888	28
New York	5	6,340,768	14
North Carolina	1	950,519	2
North Dakota	1	11,786,381	20
Ohio	2	1,910,340	3
Pennsylvania	11	43,241,154	59
South Carolina	9	7,000,362	18
Tennessee	3	4,795,275	7
Texas	6	9,248,036	16
Vermont	2	821,089	2
Virginia	13	13,648,441	23
Washington	2	2,828,050	9
West Virginia	4	21,338,593	69
Total	137	260,093,828	498
UNIVERSITY PROGRAMS (1997–2001)			
Florida	3	39,891,248	133
Louisiana	2	8,770,118	37
Michigan	1	2,600,000	7
Mississippi	1	21,182,000	60
New Jersey	1	500,000	6
New Mexico	1	2,600,000	7
Tennessee	1	2,600,000	7
Texas	1	2,600,000	7
West Virginia	1	4,000,000	17
Total	12	84,743,316	281

[1] Full time Equivalents.

Question. Please also provide me with a listing of the West Virginia projects that are funded under this program.

Answer. The National Energy Technology Laboratory administers most of the industry and university projects for the Environmental Management program. The list of projects within West Virginia follows, including the International Union of Operating Engineers where human factors assessment and protocol development are conducted to enhance the desirable human values, including improved safety, reduced fatigue and stress, and increased comfort.

WEST VIRGINIA PRIVATE SECTOR FUNDING

Project	Fiscal year	
	1992–2000	2001
Industry Programs:		
Miscellaneous Technical Support Contracts	$6,619,732	$1,400,000
Remote Mining for In-Situ Waste Containment	316,146	.....
West Virginia University	12,092,365	.....
International Union of Operating Engineers [1]	910,350	.....

WEST VIRGINIA PRIVATE SECTOR FUNDING—Continued

Project	Fiscal year	
	1992–2000	2001
Total	19,938,593	1,400,000
University Programs: Development of a National Electronics Recycling Center	2,000,000	2,000,000
Other Funding Managed at NETL: International Union of Operating Engineers [1]	11,552,828	2,946,000

[1] Originally this activity was funded and managed by Industry Programs. Funding and management was subsequently moved to the Technology Acceptance budget, but the project is still administered by the National Environmental Technology Laboratory.

QUESTIONS SUBMITTED BY SENATOR ERNEST F. HOLLINGS

SAVANNAH RIVER ECOLOGY LABORATORY

Question. Could you please explain your plans for funding the SREL for fiscal year 2002 and the future. Can you please assure the Subcommittee that you will find the necessary funds in the EM–50 account to fully realize the plans set forth in the new five-year cooperative agreement the SREL is now discussing with the SRS managers.

Answer. The Secretary has challenged every program in the Department to become more efficient, and the Environmental Management budget request reflects this challenge. The Department has also initiated a management assessment to evaluate our current clean-up strategies and to identify ways to become more efficient.

The Department's highest priorities for the Environmental Management program are ensuring safety, addressing high risk waste and materials, and supporting the closure of major sites. Accordingly, in developing our request for fiscal year 2002, we have placed priority on a number of key, high-risk projects at the Savannah River Site and have had to balance the needs of other activities funded by the EM program in light of these priorities.

The Department values the independent environmental research provided by the University of Georgia. Our request continues support for the basic research programs at the Savannah River Ecology Laboratory, but the education and public outreach programs may need to be cut back, depending on the outcome of the management assessment and the response of the Savannah River Site to the Secretary's management challenge.

Question. As the mission of the SRS site grows, what increased activities for the SREL does the Department contemplate to help ensure that the SRS will continue to have an independent, scientifically credible environmental research and assessment capability at the SRS?

Answer. The Savannah River Ecology Laboratory currently conducts ecological research and site-wide monitoring activities at the Savannah River Site covering a number of elements and isotopes including plutonium. Therefore, we do not anticipate that the expanded plutonium disposition mission at the Savannah River Site will require any change in the scope of the Savannah River Ecology Laboratory sidewide activities.

ENVIRONMENTAL MANAGEMENT PROGRAM

Question. Secretary Abraham testified to the House Appropriations on Energy and Water that the Department of Energy Budget for 2002 was sufficient. Is this accurate? How can such a representation be made when the President's fiscal year 2002 budget will not result in compliance with RCRA and CERCLA requirements at SRS?

Answer. Maintaining compliance at the Savannah River Site is a priority. However, we face significant challenges in meeting lower-risk environmental restoration commitments in fiscal year 2002.

Concerned about the cost and schedule estimates for completing the cleanup, Secretary Abraham has directed a top-to-bottom assessment to focus on ways to more efficiently and cost effectively complete cleanup. The Secretary has also asked the

Governor in each state in which a major DOE site is located to work with us in this assessment. Our goal is for the cleanup program to proceed as fast as possible with the minimum necessary commitment of federal resources. Given the pressing needs of the nation in many other areas that affect citizens' well being, health, and safety, it is DOE's responsibility to ensure that funds are spent wisely and results are maximized. Until this assessment is complete, it is unknown whether any work will need to be deferred.

MEETING COMMITMENTS

Question. With the proposed fiscal year 2002 budget reductions at SRS, will the DOE be able to meet the following commitments?

Perform all obligations required by the Federal Facilities Compliance Agreement?

Maintain High Level Waste Vitrification operations and investments needed for continuity of operations to meet the SRS Site Treatment Plan?

Shipments of Transuranic Waste to the Waste Isolation Pilot Plant?

Stabilization of nuclear materials commitments to the Defense Nuclear Facility Safety Board?

Answer. The Environmental Management budget continues to place the highest priority on protecting the health and safety of workers and the public at all DOE sites, and on mitigating high risks. We will ensure that nuclear materials are properly managed and safeguarded. Our budget places priority on a number of key projects that reduce higher potential risks, provide significant mortgage reduction, or are key to completing activities at other sites. For the Savannah River Site, these projects include producing at least 150 canisters of vitrified high level waste, shipping up to 600 cubic meters of transuranic waste to the Waste Isolation Pilot Plant, completing construction of the melt and dilute technology demonstration facility, beginning construction of the Salt Processing pilot plant and initiating conceptual design of the full scale plant, and completing all currently planned F-Canyon dissolution campaigns.

Maintaining compliance with the Federal Facilities Agreement at the Savannah River Site is a priority. However, we face significant challenges in meeting some of our lower-risk environmental restoration compliance commitments in fiscal year 2002. The Secretary has directed a top-to-bottom reassessment of the Environmental Management program to examine opportunities for program efficiencies and to review existing cleanup strategies. Until this review is completed, it is unknown whether any work will need to be deferred.

ENVIRONMENTAL MANAGEMENT PROGRAM

Question. If Congress restores funding to the DOE EM budget for fiscal year 2002, will you, in turn, restore nearly $160 million to the SRS EM budget to assure regulatory compliance?

Answer. Maintaining compliance is a priority for the Environmental Management Program. However, until Congress passes a final appropriations bill and the Department has had an opportunity to evaluate the direction provided by Congress and to consider all program priorities, it would be premature to say how much funding would be provided to any individual site.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

OFFICE OF RIVER PROTECTION FUNDING

Question. I am deeply troubled by proposed cuts in the Waste Treatment Plant, which will vitrify the high-level radioactive waste currently stored at old and decaying tanks at Hanford. DOE officials have acknowledged that the new contract negotiated for this project was based on a fiscal year 2002 budget of $690 million, but the request is only for $500 million. I'm advised that with a $500 million level for fiscal year 2002, the funding for this project would need to spike up to $800 million in fiscal year 2003.

Wouldn't it make more sense to levelize the funding for this project at $690 million, as first proposed and actually written into the contract, instead of counting on a funding spike next year? Wouldn't a measured, level funding base be more consistent with the objectives of your "top-to-bottom" review of the cleanup program and use of commercial type contracts to make it more efficient?

Answer. The fiscal year 2002 budget proposes $500 million for the Waste Treatment Plant, an increase of $12.4 million above the fiscal year 2001 enacted level. We believe the fiscal year 2002 budget request will allow the performance of the fiscal year 2002 scope of work agreed to by the Department and Bechtel Wash-

ington, the contractor. We recognize that increased funding may be needed in subsequent years. We are working with Bechtel to satisfy the priorities within the terms and conditions of the contract in order to meet the goal of beginning radioactive waste treatment by fiscal year 2007.

OFFICE OF RIVER PROTECTION—RENEGOTIATION OF BECHTEL CONTRACT

Question. I am concerned that the lower funding level of $500 million will trigger a renegotiation of the Bechtel-Washington contract which is based on the $690 million amount. This is an incentive-based contract that should result in this facility being built for a lower target price than was first expected. Doesn't the Administration run the risk that renegotiating this contract will result in a higher cost to the taxpayer?

Answer. The Department of Energy is currently working to meet the commitment of processing wastes through the treatment plant by fiscal year 2007. The Bechtel Washington contract was developed to help us achieve these milestones and to get the best value for the government. The Department of Energy has requested budget authority to cover all the work that we expect Bechtel will accomplish through fiscal year 2002. Bechtel is working with DOE to establish a baseline of work that will fit within the limits of the contract and satisfy Departmental priorities. Renegotiation of the Bechtel contract is not likely to be necessary.

OFFICE OF RIVER PROTECTION—FUTURE FUNDING FOR THE WTP

Question. As you know, my state has negotiated a legally-binding agreement with the Department to get the Hanford tank waste cleaned up. Yet, the funding cut for the Waste Treatment Plant raises real concerns with my state regulators as to whether you can meet the milestones established in this Tri-Party Agreement. For example, what assurances can you give me that the facility can commence hot start-up in 2007 as required by this agreement?

Answer. DOE is committed to moving ahead with the design and construction of the Hanford vitrification plant and beginning radioactive waste treatment by fiscal year 2007. At the requested funding level of $500 million in fiscal year 2002 and with adequate funding in fiscal year 2003 and beyond, meeting the 2007 milestone for beginning hot-waste processing is expected to be achievable.

HANFORD TRI-PARTY AGREEMENT RENEGOTIATIONS

Question. My state has been very patient with the Department on Tri-Party Agreement compliance issues. We have re-negotiated this agreement several times, pushing back deadlines to accommodate DOE's slips in the schedule with the promise that additional delays will not happen and yet here we are again with a likely delay because of inadequate funding. Given the Department's disappointing record in complying with the Tri-Party Agreement, why shouldn't my state take legal action?

Answer. The State and the Department have worked together to resolve issues that arise under the Tri-Party Agreement (TPA). Additionally, we believe that the Department's performance under the TPA has been good over the years and we expect to continue that performance, even with the challenges we face at Hanford and elsewhere in the DOE complex. The Tri-Party Agreement contains 1,261 milestones, of which 924 are enforceable. To date, approximately 970 milestones, including slightly more than 700 enforceable ones, have come due. All but eight of the enforceable milestones have been met. We have successfully started shipping transuranic wastes from the Hanford Site to the Waste Isolation Pilot Plant in New Mexico, we are making improved progress in removing spent nuclear fuel out of the aging K-Basins and transporting it away from the Columbia River, and we are stabilizing and repackaging plutonium residues at the Plutonium Finishing Plant and moving it to compliant storage. Soil cleanup along the river shore has moved forward at a steady and safe rate, and we have successfully removed most high-level waste tanks from Congress' "watch list." We have successfully removed the liquid waste from 128 of 149 single-shell tanks, including 65 of 67 suspected leaking tanks.

The future success of the Tri-Party Agreement will depend on the ability of all parties to work collectively to resolve issues. We expect to continue to work together to evaluate all aspects of the fiscal year 2002 budget, including identifying ways to improve efficiency and streamline processes. We expect the Department's "top-to-bottom" review of its Environmental Management program to assist us in more effectively meeting our cleanup obligations.

OFFICE OF RIVER PROTECTION—BUILDING NEW DOUBLE-SHELL TANKS

Question. Given the budget cuts and the uncertainty on the schedule for the Waste Treatment Plant, it appears under the terms of the Tri-Party Agreement that DOE must build new double-shell tanks for the storage of Hanford high-level waste. Do you agree that building still more tanks is very wasteful when the real solution to vitrify the waste only needs to be funded adequately?

Answer. The Department currently is not considering building new double-shell tanks to replace the single-shell tanks. The Department agrees that vitrifying waste is the best solution to the Hanford waste problem and is proceeding with that approach as a budget priority. The State of Washington, in its regulatory role, continues to require the Department to study the possible installation of additional double-shell tanks as a contingency against future single-shell tank failures and/or to permit the movement of waste out of the single-shell tanks prior to the processing of these wastes in the vitrification plant.

HANFORD RIVER CORRIDOR CLEANUP PROJECT

Question. Cleanup of the corridor along the Columbia River is another important priority for Hanford. This remediation effort is proceeding extremely well. Please explain the Administration's plans to keep the momentum going on the Hanford river corridor cleanup project—especially when the program has not been funded at levels supported by the local site manager and necessary to meet milestones?

Answer. The fiscal year 2002 Presidential budget request places high priority on funding high-level waste and high-risk nuclear material activities. It defers some lower-risk environmental restoration activities, including remediation work along the Columbia River. Other remediation work along the Columbia River will continue, including completing nine release site remediations and decommissioning one facility, as well as disposing of up to 215,000 cubic meters of contaminated soil and debris at the on-site Environmental Restoration Disposal Facility. The River Corridor 2012 plan was envisioned to combine all work done along the Columbia River (principally in the 100- and 300-areas) under one contract and achieve River Corridor cleanup and closure of most of the area by 2012. The Department is currently working on developing a contract strategy for achieving cleanup of the River Corridor, taking into account input from stakeholders and potential bidders, the fiscal year 2002 funding levels, and the top-to-bottom review of the Environmental Management Program. This review will focus on efficiencies and cleanup strategies that will allow us to accomplish additional cleanup work at the site and proceed on the most expeditious schedule possible.

HANFORD WORKER LAYOFFS

Question. It is my understanding that Richland and Office of River Protection may need to begin laying-off workers in mid summer if there is no indication funding levels will be increased over the Administration's budget. How can the Department meet legal milestones if the site has to lay-off over a thousand workers?

Answer. It is our intent that more work will get done per dollar spent than in the past as a result of the Secretary's "top-to-bottom" review to improve the efficiency and productivity of the Department's Environmental Management program. The Secretary has also pledged to work with the U.S. Environmental Protection Agency and the States to find ways to improve cleanup progress and improve the compliance framework at DOE sites. Until these initiatives are complete, it is premature to say whether any workforce reductions will be required, or what our compliance challenges might be.

CONCLUSION OF HEARINGS

Senator DOMENICI. We stand recessed at the call of the Chair.

[Whereupon, at 3:45 p.m., Tuesday, May 15, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2002

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

NONDEPARTMENTAL WITNESSES

[CLERK'S NOTE.—At the direction of the subcommittee chairman, the following statements received by the subcommittee are made part of the hearing record on the Fiscal Year 2002 Energy and Water Development Appropriations Act.]

ENERGY PROGRAMS

PREPARED STATEMENT OF THE GEOTHERMAL RESOURCES COUNCIL

Mr. Chairman and Members of the Committee, my name is Ted Clutter. I am Executive Director of the Geothermal Resources Council (GRC), a non-profit professional education association located in Davis, California. I am here before you, today, to request $34 million for the Geothermal R&D Program of the U.S. Department of Energy (DOE) for fiscal year 2002.

Geothermal energy is heat derived from the natural geologic forces of the Earth. It is of utmost importance to both the environmental health of the nation and our energy security, providing highly reliable, domestically produced electricity and geothermal heat to homes, communities and industry across the American West. Though geothermal energy has been used to varying small degrees in the United States for centuries, industrial development of this unique, indigenous energy resource began only 40 years ago. During that time—and with DOE assistance—the U.S. geothermal industry has installed power plants in California, Nevada, Utah and Hawaii that now produce approximately 2,800 megawatts of clean electricity—or enough power to serve 2.8 million homes.

Geothermal energy is our most valuable renewable energy option. Electricity generated from all non-hydro renewal energy sources accounts for approximately 0.8 percent of total U.S. energy needs, with geothermal contributing over half (60 percent) of that figure. Not only is geothermal the largest contributor of renewable electricity in the nation, it is not subject to skyrocketing fuel costs or the whims of wind and sunlight. These attributes are especially important today, with our continuing concern for the environment, a tripling of natural gas prices during the past year, and a crisis of power supply centered in California reaching out its tentacles to engulf the entire West.

Geothermal energy development is part of the answer to solving these problems for the future as well. According to a 1999 joint study by DOE and the Geothermal Energy Association, U.S. geothermal power generation capacity could be realistically quadrupled to 10,000 megawatts with enhanced technologies. Development of geothermal resources for conversion to electricity or useful heat, however, requires costly and risky exploration of potential geothermal areas, costly drilling of wells, and development of power plants or direct-use facilities.

Because of these high up-front costs and risks, continuing well-funded assistance by DOE in partnership with the U.S. geothermal industry—through cost-shared initiatives and development of new technologies—is of paramount importance to future, economical installation of geothermal energy facilities in the West.

DOE GEOTHERMAL R&D PROGRAM

DOE has promoted geothermal energy development through its R&D Program since the early days of the OPEC oil crisis of the 1970s. With that assistance, the U.S. geothermal industry developed a sixfold increase in clean power online, and roughly a threefold increase in direct-use facilities. Another key factor in fostering this development was favorable energy markets and legislation that rewarded geothermal power developers with firm long-term power sales contracts. But all that changed in the 1990s when utility deregulation and low natural gas prices effectively killed those incentives. The result? Without assured contracts available to help geothermal energy investors face exploration, drilling and development risk, no new geothermal resources have come online in the past decade.

At the same time, DOE's financial resources for its Geothermal R&D Program have dwindled to less than $30 million annually. And even that marginal amount is now threatened with proposed cuts to DOE's entire Energy Efficiency and Renewable Energy Program. During this time of change and economic uncertainty, the GRC understands the need for fiscal restraint, but also believes that geothermal energy's potential contributions to our environment and national energy security far outweigh our request of $34 million for DOE's Geothermal R&D Program in fiscal year 2002.

If DOE is to meet the goals of its Geothermal Strategic Plan to provide geothermal electricity and heat to over 10 million homes in the coming decade, a number of regulatory, legislative and technological barriers to development must be overcome. DOE's role is vital in assisting the industry in its efforts to solve technological problems and spur geothermal energy production to new highs for the benefit of the nation. The following highlights important areas of R&D that the GRC believes DOE must pursue through industry partnerships to enhance geothermal development in the United States:

DOE Geothermal Focus on the West

To meet the present energy crisis in the western states—and recognizing our continuing need for environmental improvement—we must quickly and significantly increase electricity capacity from all forms of renewable energy, especially geothermal. In the past year, the DOE Office of Wind and Geothermal Technologies has provided new and dynamic leadership for its Geothermal R&D Program, instituting an initiative with the assistance of its National Laboratories that has served as an effective catalyst for geothermal development in the western United States.

The program, though marginally funded, has succeeded in drawing 21 industry R&D proposals intended by DOE to put geothermal "projects on the ground" as rapidly as possible, and to increase the number of states with geothermal electric and heat production from 4 to 8. Projects initiated by this program have already fostered a successful exploratory drilling effort in Nevada that will likely result in construction of a 30-megawatt power plant. We recommend that this initiative be further funded to continue the momentum already achieved for geothermal development in the West.

Geothermal Resource Exploration

To help accomplish DOE goals for geothermal development, a campaign of exploration must begin at once across the West. Many obvious geothermal areas—hot springs, fumaroles and other surface manifestations—have already been explored, and where environmentally appropriate, many have been developed for their energy potential. However, physical and geologic characteristics of many unexploited areas in the western United States strongly suggest that many more geothermal systems exist where no signs of them are found on the surface—and no exploration has been undertaken or completed.

A critical key to success is DOE incentives to encourage exploration for new geothermal resources throughout the West. This effort should include development of new geothermal exploration technologies, DOE contingent grants and loans to help offset high risk of initial geothermal exploration costs, and additional funding for federal and state land agencies to provide geologic databases that will effectively assist an industry revival of geothermal exploration activity.

With needed improvements in federal agency land-use policies and renewed emphasis on geothermal exploration backed by a solid, well-financed Geothermal R&D Program at DOE, the U.S. geothermal industry can develop needed increases in geothermal power generation at existing sites—and begin to tap the West's vast potential for new geothermal sources of clean, renewable and reliable energy supplies.

Geothermal Drilling

The cost of drilling geothermal steam wells presents the largest risk to potential power plant developers. A geothermal well costs between $200 and $300 per foot—40 percent more than drilling an off or gas well. That makes the cost of a typical 8,000-foot deep geothermal well from $1.6 million to $2.4 million! Success rates for geothermal exploration wells are only 20 percent in newly explored, untested areas (and rising to only 80 percent for wells in proven geothermal fields). Given these figures, it's easy to see the up-front risk involved in geothermal development—long before power production can begin.

Reasons for the high cost of geothermal well completions are many. First, high temperatures demand the use of costly unconventional drilling tools. Second, the hard and abrasive geologic environment typical of geothermal formations significantly slow drill penetration rates. Third, low reservoir pressures create "loss circulation" zones that drain away expensive drilling muds and pose costly problems in cementing of well casings. And finally, steam from certain reservoirs contains minerals that cause corrosion and scale deposition inside well casings that are expensive to deal with.

Sandia National Laboratories is DOE's lead organization in the development of much needed geothermal drilling equipment, materials and technologies. With its industry partners, Sandia is developing high-temperature instrumentation for use in geothermal wells, and high-temperature logging tools for geothermal reservoir monitoring and evaluation. Bit design is an ongoing area of research, with development and testing that has resulted in a marked increase in both bit life and penetration rates. Loss circulation control has been addressed with development of new cements, cement placement tools and equipment, fracture plugging agents, and lightweight drilling and cement additives.

To reach its targeted goal of reducing geothermal drilling costs by 50 percent, Sandia periodically surveys the geothermal industry for needed areas of research, and works through a Request for Proposal process to bring these products and technologies to the industry. This ongoing effort by Sandia, DOE and its private-sector partners offers unparalleled value in reducing the cost of drilling for geothermal steam resources for producing electricity.

A number of projects in this arena are ongoing—to lose these partnerships and this momentum at a critical time for western energy supply would deal a terrible blow to U.S. geothermal development. To successfully proceed in development of geothermal resources in the West, this vital research to lower drilling cost by DOE must continue. An increase in DOE's Geothermal R&D Program budget will augment this valuable potential contribution to our national energy security.

Enhanced Geothermal Systems

Currently, all commercial power production of geothermal energy in the United States is derived from relatively shallow (less than 2 miles deep) hydrothermal zones. Water flows freely through highly fractured rock in these geothermal reservoirs, heated by magmatic intrusions lying far below. In many cases however, a high degree of geothermal development potential lies just beneath these free-flowing reservoirs in geologic formations with fewer fractures (low permeability) and limited fluid flows.

Only about 20 percent of total heat is contained in the relatively shallow, commercially available hydrothermal zones of currently developed geothermal resources, while the remainder (80 percent) resides in underlying, low-permeability zones that have yet remained untapped for their energy potential. Currently, our ability to produce energy from these resources is limited, dictated by available technology and cost.

In concert with other geothermal development promotion initiatives, DOE's Office of Wind and Geothermal Technologies has undertaken a major program to develop technologies for the creation and development of "Enhanced Geothermal Systems," or EGS. Assistance by DOE in development of such technologies is critical if the U.S. geothermal industry is to successfully engineer commercially viable power production from deep heat reservoirs that offer only limited permeability and/or fluid content.

Cost-effective EGS technologies to "mine" heat from beneath areas of hydrothermal circulation will have a profound impact on the geothermal industry. The life of currently commercial geothermal systems will be greatly expanded, making better use of existing power plants. And new EGS technologies will also be applicable to other potential geothermal resource production areas, including those previously considered as candidates for Hot Dry Rock (HDR) development.

Development of EGS technology is critical to the long-term viability of the U.S. geothermal industry after all of our high-grade hydrothermal resources have been

developed. With assistance by DOE's current and future EGS technology program, the geothermal industry can continue its contribution of environmentally benign electricity to the U.S. power generation mix well into the future.

Geothermal Co-Production

Recent developments with the assistance of DOE incentive funding have resulted in construction of the world's first geothermal minerals recovery facility, using spent geothermal fluids from power plants on the shore of southern California's Salton Sea. Potential exists for commercial recovery of manganese at the Salton Sea, and high-grade silica and other minerals at other geothermal developments in the West. A DOE investment in further development of these "co-production" technologies holds the promise to add another revenue stream to certain geothermal operations, making them more competitive with fossil-fuel power generation while reducing treatment and disposal costs.

Geothermal Direct Use

Direct-use employs low- to intermediate-temperature geothermal resources (100° to 3000° F) in systems for industrial processes, space heating, and agricultural production (greenhouses and aquaculture). Currently, there are over 1,000 geothermal direct-use projects in 26 states, and geothermal central heating projects in 18 communities. Recent surveys have shown that this is only a fraction of direct-use potential in the United States, which DOE estimates could potentially serve as many as 7 million households by the year 2010.

Unfortunately, interest in and development of direct-uses of geothermal energy is limited, largely because of reliable information and financial assistance to "jump-start" projects is lacking. This is especially true in rural areas where the necessary technical infrastructure is not available.

The DOE Geothermal R&D Program can play a vital role in promoting and assisting the development of direct-use projects across the West. It is already doing so by providing information and technical assistance, but can do more with increased funding to assist in the critical areas of direct-use resource identification and drilling confirmation. Funding to provide this information and expanded technical assistance can do much to help develop this extensive geothermal energy resource.

DOE funding is also needed to develop improvements in direct-use equipment, reduce the cost of project capital, and lower project operations and maintenance costs. The DOE budget should also provide funds for promotion of economic and efficient cascaded use of geothermal fluids from power production to direct-use developers. In addition, direct-use geothermal funding can help foster public-private partnerships to help "buy down" the up-front risk and financial burdens that often discourage potential geothermal direct-use developers during the initial drilling and resource confirmation stages of potential projects. Once these concerns are satisfied, direct-use geothermal resource development can more easily occur with private project financing, while accruing additional benefits of economic development and employment in rural areas of the West.

Mr. Chairman and Members of the Committee, the Geothermal Resources Council urges your attention to these facts, and hopes you will agree that given current need, the modest $34 million in funding that we request for the U.S. Department of Energy Geothermal R&D Program in fiscal year 2002 is money well invested in our environment and our national energy security. Thank you for your consideration.

PREPARED STATEMENT OF THE INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS®

Dear Chairman Domenici: On behalf of the 240,000 professional fire fighters and emergency medical personnel who are members of the International Association of Fire Fighters (IAFF), I write to communicate our strong disagreement with the proposal to decimate the Hazardous Waste Worker Training Program line item of the Department of Energy's budget.

For the past two years, the Hazardous Waste Worker Training Program has been funded at $8.5 million. However, in DOE's fiscal year 2002 request, the funding for this vital program has been slashed to $1 million. If this devastating budget cut remains unchanged, the result will be the termination of the training program that protects fire fighters and those communities that they serve.

The Hazardous Waste Worker Training Program funds training for fire fighters on or near DOE nuclear facilities and contract employees working at these facilities. The International Association of Fire Fighters (IAFF) utilizes the grant from DOE's training program to teach fire fighters how to safely and effectively respond to emergencies, whether accidental or intentional, at these facilities.

Since 1994, an average of 2,200 responders have been injured at hazardous materials incidents annually. Emergency personnel responding to incidents related to DOE complexes face health and safety challenges that potentially involve radioactive and other hazardous materials. The IAFF provides a flexible training program that emphasizes occupational safety and health which is designed to meet these unique challenges.

For these reasons, the IAFF urges the Subcommittee to appropriate $8.5 million, instead of the $1 million DOE has requested, for the Hazardous Waste Worker Training Program.

Please direct all your questions or comments to Barry Kasinitz, IAFF Governmental Affairs Director, at 202–824–1581.

Thank you for your time and attention to this matter.

PREPARED STATEMENT OF THE GEOTHERMAL ENERGY ASSOCIATION

The Geothermal Energy Association is a trade association composed of 84 U.S. companies and organizations that support the expanded use of geothermal energy and are developing geothermal resources worldwide for electrical power generation and direct-heat uses. Our members have offices or operations in virtually every state, though most of the energy production from geothermal resources is located in the Western half of the country.

The Department of Energy's geothermal research program has been seriously under funded. For over a decade, we have witnessed the near abandonment of this program by the political hierarchy of the Department of Energy. Budgets have collapsed from a high of over $100 million to requests for under $30 million in recent years.

A recent independent review by the National Research Council, Renewable Power Pathways, generally agrees with this conclusion. The NRC panel states:

"In light of the significant advantages of geothermal energy as a resources for power generation, it may be undervalued in DOE's renewable energy portfolio. Significant amounts of high-grade resources are available, and geothermal power technologies can operate in a variety of duty cycles (from base load to peak load conditions) . . . In addition, the United States has taken the lead in successful commercial demonstrations of geothermal energy for generating electricity and heat at several sites and is the current technology leader in the world among very active competitors in Europe and Japan." (Renewable Power Pathways, page 53.)

The DOE geothermal energy program was separate from the renewable energy programs for many years. Ever since the program was incorporated into DOE's renewable energy efforts, it has lost out in the internal competition for budget priority. (Perhaps as one senior official of the previous Administration stated, drilling holes and building power plants was just viewed as "PC.") As a result, the U.S. Department of Energy's efforts to advance the technology to tap the enormous geothermal resources base have waned, and as a result we are slowing the development of new resources in the U.S. and losing our lead in foreign markets. This has serious consequences for our Nation's energy supply, and the U.S. geothermal industry's competitiveness in one of the world's fastest growing power markets.

FISCAL YEAR 2002 RECOMMENDATION

The Geothermal Energy Association recommends an appropriation for the DOE research program of at least $60 million in fiscal year 2002. This would provide the funds needed to support the institutional capabilities of the program, which involves core competencies at Sandia, INEEL, NREL, and other research institutions; and provide funds to undertake programmatic research efforts in a few significant areas. We estimate the base institutional capabilities of the program to require annual funding of roughly $20 million. The additional funds should be used in prioritized efforts consistent with the programs Strategic Plan, as updated on a regular basis.

Given the expense involved in many geothermal operations, $60 million for program efforts is not an extraordinary sum. Much of the risk and uncertainty in geothermal development involves finding, defining and accessing the subsurface resource. Developing new technology to improve our ability to identify the resource without drilling will be risky and expensive, and corresponding research to reducing drilling costs can involve substantial effort. Today, drilling one geothermal well can involve several million dollars, and an advanced drilling program would likely involve sustained effort at several sites over several years costing tens of millions of dollars.

THE DOE GEOTHERMAL PROGRAM'S STRATEGIC PLAN

In June of 1998, the Department of Energy released a new Strategic Plan For Geothermal Energy Research and Development. This document was the product of a multi-year collaborative effort between DOE, national laboratories, university researchers, and the geothermal industry. Through a series of new initiatives, implementing the Strategic Plan would develop the technology to engineer enhanced production from geothermal systems. The technology developed would be applicable to hundreds of sites in the Western States, as well as to geothermal development around the world.

According to the Strategic Plan, this advanced research initiative can develop the technology to "greatly accelerate development and use of the [geothermal resource], providing a reliable alternative energy capable of supplying a significant fraction of the world's energy needs."

Enhanced geothermal systems technology research would have numerous benefits. For example, if funded, by 2010 this effort is expected to result in:

—tripling domestic geothermal electricity production, supplying the needs of 18 million people in the U.S.,

—continued expansion of geothermal technology exports, the leading US renewable energy export today, by installing at least 10,000 MW in developing countries.

A recent study prepared by the Geothermal Energy Association in conjunction with DOE and the University of Utah indicates that research into enhanced geothermal systems technology, as proposed in the new DOE Strategic Plan, could lead to the development of an additional 12,000 MW of geothermal power in the Western U.S., and open new export opportunities for an additional 65,000 MW of power. Both of these figures represent developments beyond what would otherwise occur in a favorable market place.

BUDGET BACKGROUND

The geothermal energy budget has received low priority at the Department of Energy while the program has been reassessing its long-term direction. In recent years, the program has been funded at about one-half of what internal multi-year plans indicate should be its base funding level.

The DOE budget has included very limited funds to begin implementing the Department's new Strategic Plan For Geothermal Energy Research And Development. These funds would have supported cost-shared, collaborative research by the Department of Energy, national laboratories, university researchers, and the geothermal industry.

The geothermal energy Strategic Plan calls for a near-term annual budget level of $50–$60 million. This budget level would be consistent with recommendations made by the President's Committee of Advisors on Science and Technology (PCAST) in its 1997 report. Critical technical needs include the development of advanced drilling, exploration and reservoir sensing, energy conversion and metals recovery, and enhanced reclaimed water injection. (By comparison, Japan is spending $150 million on geothermal energy research and development)

STATUS OF GEOTHERMAL ENERGY

Geothermal energy supplies about 6 percent of the electricity in California, 10 percent of the power in Northern Nevada, about 25 percent of the electricity for the Island of Hawaii (the Big Island), and significant power in Utah. These states together with Arizona, Colorado, Idaho, New Mexico, Oregon and Washington could produce nearly 20,000 megawatts with enhanced technology. With advanced technology, Potential electric power resources could possible be identified and developed in nearly every state West of the Mississippi.

Direct uses of geothermal heat provide energy for businesses schools and homes in over twenty-six States. States with potential for expanding their direct use of geothermal heat include: Alabama, Alabama, Alaska, Arizona, Arkansas, California, Colorado, Georgia, Hawaii, Idaho, Kansas, Maryland, Montana, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Oregon, Pennsylvania, South Dakota, Utah, Virginia, Washington, and West Virginia.

Exports of U.S. geothermal technology involve businesses throughout the country. Currently, the U.S. geothermal industry enjoys a lead in the international market with its chief competition from Italy, Japan and New Zealand. At stake is 80,000 MW of potential new power development contracts in developing countries alone, a market that could exceed $25 billion over the next ten to fifteen years.

NEAR TERM POTENTIAL

Geothermal energy has significant potential to contribute to alleviating the energy supply crisis in the West, and the Department of Energy's programs could assist with realizing this potential. With proper support, hundreds of Megawatts of geothermal electricity could be brought on line fairly quickly, and thousands of megawatts could be added in a matter of a few years.

We estimate that electricity production from many existing power plants could be improved through better technology and operational changes. Existing plants could provide perhaps 20–30 percent more power—adding 500–600 MW—if there was a significant short-term investment in these improvements. Also, efforts to supply treated wastewater to The Geysers need to be continued on a priority basis to achieve projected increases in generating capacity.

In fairly short order, new geothermal capacity could be on-line in the West. A thousand megawatts or more of additional capacity lies in or immediately near existing facilities. Because there is some knowledge of the subsurface resource, and some infrastructure already in-place, these sites could be developed as fast as markets and permitting allow.

Further we estimate that between 5,000 and 20,000 of additional electric power resources are developable in the West using technology that we anticipate would be available if a continued research and development effort it supported. Based upon our review of experts in the field, this level of power development may be possible over the next decade with appropriate federal and state support.

Of course, this is only electric power resource development. Today, there is also a significant direct use industry throughout the West that uses geothermal heat in schools, homes, farms, and industrial processes. Dr. John Lund of the Oregon Institute of Technology has estimated than an equal amount of energy could be harnessed through direct use applications in buildings, commercial operations and industrial processes. Of course, Dr. Lund also assumes that both federal and state governments continue to support expanded use of geothermal resources.

Combined, geothermal power and direct-use energy has enormous potential for the Western United States. Together, these estimates represent energy equivalent to roughly 20 percent of total current U.S. energy needs. And, with continued advances in technology, the ultimate potential for geothermal energy will continue to expand far beyond this range.

CONCLUSION

The U.S. geothermal industry strongly supports the research and technology development programs in geothermal energy at the Department of Energy. Our industry's growth is not limited by geothermal resource availability. Rather it is limited by inadequate technology. Despite is significant contribution in some states, geothermal technology is not mature, but is still in early stages of development. Only the very highest-grade geothermal resources can be economically used today, and then only at significant risk and cost to a developer. Research is urgently needed to expand the range of the resource that can be utilized, and to lower both the cost and risk of using geothermal energy to produce power and direct-use energy.

Thank you.

PREPARED STATEMENTS OF BOB LAWRENCE & ASSOCIATES, INC.

GEOTHRMAL R&D PROGRAMS

Mr. Chairman and Members of the Subcommittee: My name is Bob Lawrence, and I am President of Bob Lawrence & Associates, Inc., a consulting firm headquartered in Alexandria, Virginia. I am here before you, today, to request that the Geothermal R&D Program at the Department of Energy be funded at a level of $37 Million for fiscal year 2002, since this is the level that will allow ongoing programs to continue at their planned rate. My firm has been involved with Geothermal technology since 1990, working with both the private sector and national laboratories, and we are very impressed with both the progress and potential of this technology.

This Subcommittee, in particular, deserves a great deal of credit for your support of the Geothermal Program over the past 25 years. It has been a great investment of taxpayer dollars. Cost-shared Department of Energy investments in geothermal energy R&D, starting in the 1970s, have made possible the establishment of a geothermal industry in the United States. In 1975, that industry did not exist. Today, the geothermal industry generates over 16 Billion kilowatt-hours per year in the U.S., alone, with a value over $1 Billion in annual revenues. The industry, today:

—returns over $41 million annually to the Treasury in royalty and production payments for geothermal development on Federal lands, an amount significantly exceeding our funding request. This amount is in addition to the amount of taxes paid to Federal, State, and Local governments.

—supplies the total electric-power needs of about four million people in the U.S., including over 7 percent of the electricity in California, about 10 percent of the power in Northern Nevada, and about 25 percent of the electricity for the Island of Hawaii (the Big Island). Significant power is also provided to Southwestern Utah.

—employs some 30,000 U.S. workers;

—displaces the emissions of 16 million tons of carbon dioxide, 20 thousand tons of sulfur dioxide, 41 thousand tons of nitrogen oxides, and 1300 tons of particulate matter every year, compared with production of the same amount of electricity from a State-of-the-Art coal-fired plant;

—has installed geothermal projects worth $3.0 billion overseas, mostly in the Philippines and Indonesia;

It is very important to note that none of this would have been possible without the dedicated and tenacious efforts of the Department of Energy's Geothermal R&D programs and the patient and continuing support of this Subcommittee. Geothermal developers are, almost entirely, financial people with little, internal, technology capability. The industry depends upon the wealth of geothermal technology and knowledge that has been developed at the national laboratories and at university institutes. Cost shared, government-industry programs provide the necessary technical know-how to address each new geothermal challenge, and we do this better than teams in any other country.

The American geothermal industry is centered in the Western States, right in the region which is most threatened by an electric generation and transmission shortfall. The industry, working with government technologists, has a great deal of near term generation potential. The geothermal industry, with appropriate government R&D support, can provide an additional 600 Megawatts of power in about 18 months. This power will come from:

—Use of tertiary treated wastewater injection: 200 MW: Pioneering efforts being accomplished in Lake County and with the city of Santa Rosa, California, are taking thoroughly treated wastewater and are injecting this water about 1000 meters down into the earth. This depth is well below the water table, but in the regions where very hot formations of volcanic rock occur and water is lacking. The wastewater turns to steam and makes its way back to the geothermal wells which are used for power generation. An additional 200MW, using this technique, could be obtained over the next 18 months to two years.

—Implementation of new technologies into old plants, well field upgrades, and turbine replacements: 400 MW: Many of the geothermal generation units presently operating were put into place in the late 1970's and early 1980's. Available technology, today, can upgrade the efficiency and capacity of these units so that, over the next 18 months to two years, an additional 400MW of capacity could be obtained.

In addition, direct use increases, through the GeoPowering the West initiative, can provide an additional 100MW of use for heating, cooling, industrial drying, agricultural applications, and recreational purposes in the near term.

This is an additional 700MW of clean, renewable, geothermal energy available within two years with appropriate government funding and support, right in the heart of the western states that presently have the most critical power problems.

Longer term potential.—The long term potential of Geothermal energy in the United States is estimated to be 25,000 MW of electrical generation and an additional 25,000 MW of direct use. To date, the geothermal industry has made use of only the highest grade geothermal resources in the U.S. The key to realizing the enormous potential of geothermal energy is improved technology to tap resources that can not, at present, be economically developed. Substantial investments in R&D by the geothermal industry, acting alone, are unlikely because the developers are uniformly financial entities, with small engineering components, which rely on the technology centered at national laboratories and university institutes for project development and engineering. The government investment is essential, with a history of providing an outstanding return to the taxpayer.

Technology Needs.—Applied R&D is essential to reduce the technical and financial risks of new technology to a level that is acceptable to the private sector and its financial backers. The U.S. geothermal industry has conducted a series of workshops to determine the industry's needs for new technology and has recommended cost-shared R&D programs to DOE based on the highest-priority needs.

The Geothermal Industry supports the Strategic Plan of the DOE Office of Geothermal Technology. The plan calls for increased spending, quickly reaching $50—$60 million per year, a geothermal budget level consistent with that recommended by the President's Committee of Advisors on Science and Technology (PCAST) in their 1997 report. Technical needs include:

—*Drilling.*—Geothermal drilling differs dramatically from oil and gas drilling since the necessary production holes are three times as wide as oil and gas and they must be drilled through hard, volcanic rock rather than sedimentary soils. Also, because of the high temperatures and corrosive nature of geothermal fluids, geothermal drilling is much more difficult and expensive than conventional oil and gas drilling. Each well costs $1 million to $3 million, and an average geothermal field consists of 10 to 100 or more wells. The drilling technology program continues to show cost-saving advancements.

—*Exploration and Reservoir Technology.*—The major challenge facing the industry in exploration and development of geothermal resources is how to remotely detect producing zones deep in the subsurface so that drill holes can be sited and steered to intersect them. No two geothermal reservoirs are alike. Present exploration techniques are not specific enough, and result in too many dry wells, driving up development costs. The industry needs better geological, geochemical, and geophysical techniques, as well as improved computer methods for modeling heat-extraction strategies from geothermal reservoirs.

—*Energy Conversion.*—The efficiency in converting geothermal steam into electricity in the power plant directly affects the cost of power generation. During the past decade, the efficiency of dry- and flash-steam geothermal power plants was improved by 25 percent. It is believed that geothermal power-plant efficiency can be improved by an additional 10–20 percent over the next decade with a modest investment in R&D.

—*Reclaimed Water Use for Geothermal Enhancement.*—Many potential geothermal resources are not utilized due to insufficient water in the hot zones. Reclaimed water, which is an expensive problem for many communities, could be used productively, in many cases, to enhance the geothermal resources, making them more economically viable for local use. In the US, 271 western communities have a potentially useable geothermal resource within 5 miles. The technology which will evolve from this effort could be broadly applicable to these communities and their combined energy and wastewater problems.

GeoPowering the West.—This initiative, now in its second year, seeks to develop and implement those technologies needed to utilize geothermal resources in the 271 presently identified "co-located" communities in 17 Western States. These 17 Western States are exactly the area presently threatened by electric generation and transmission shortfalls. Studies now underway may increase the number of communities to over 350. The program is creating partnerships with the subject communities to utilize hot geothermal waters for direct use applications such as space conditioning, industrial drying, agricultural applications, and recreational purposes. Additionally, the program will provide technology needed to explore these resources for generation potential. First contracts, being issued under a competitive solicitation, are studying the feasibility of increased use of a number of these sites. Follow-on funding, for cost-shared development of these sites, is planned and requires the level of funding requested in this testimony, or $37 Million for fiscal year 2002.

Mr. Chairman, the Geothermal program continues to be a uniquely successful effort integrating the traditionally, high-technology roles of national laboratories and university institutes with the financing and development capabilities of American industry. This program has worked the way it should and remains an investment of which the American people can be proud. It is reasonable, proper, and rewarding to fully fund this effort.

Thank you very much for your time and attention to this matter.

SUPERCONDUCTIVITY PROGRAM

Mr. Chairman and Members of the Subcommittee: My name is Bob Lawrence, and I am President of Bob Lawrence & Associates, Inc., a consulting firm headquartered in Alexandria, Virginia. Among other assignments, our firm carries out market studies addressing superconductivity technology and potential products for both the private sector and the US Government. Our recent report entitled: "High Temperature Superconductivity: The Products and Their Benefits," is based on 54 references and a wide ranging set of utility surveys. It is a heavily referenced document on the subject of Superconductivity. To summarize this 60 page document, it is indicated that Superconductivity technology has the potential to produce accrued public

benefits of $1.086 Billion by 2010, $11.8 Billion by 2015, and $61.2 Billion by 2020 (page 40). In addition, the potential of this technology to reduce atmospheric pollution reaches annual savings of 41.96 million metric tons of carbon equivalent, 0.487 million short tons of sulfur oxides, and 0.241 million short tons of nitrogen oxides by 2020. This program is a classic example of the kind of long term, high risk, high payoff technology that the government traditionally funds.

I am here before you, today, to request that the Superconductivity program be funded, for fiscal year 2002 at $44M, a modest increase over the fiscal year 2001 amount and an amount well justified by the progress and promise of this program.

BACKGROUND

Superconductivity is the property of a material to conduct unusually large quantities of electrical current with virtually no resistance. Since the middle of the century, researchers have known that certain ceramic materials show superconductive properties when they approach a temperature near absolute zero. Practical applications of these materials are difficult, however, since they are characteristically very costly to make, very brittle in nature, and prohibitively expensive to cool to the required temperature of liquid hydrogen or liquid helium.

In 1986, a new class of ceramic materials was discovered which showed superconductive properties at temperatures up to 34K. Since that time, improvements have produced superconducting materials at the temperature of liquid nitrogen, or 72K. These "high temperature" superconductive materials have generated great excitement since the projected costs of applications have dropped by orders of magnitude, and first viable products appear to be within reach.

THE PROGRAM

Today, a number of HTS-based pieces of electrical equipment are at the prototype stage with capable manufacturing entities intimately involved. Early candidates for commercial products include Transformers, Electric Motors, Generators, Fault Current Limiters, and underground Power Cables. Later in the commercialization process, replacements for overhead transmission lines are also foreseen; however, this will not be an early application. To enhance and accelerate the prospects for early commercialization of HTS products, the Department of Energy has developed a vertically integrated program in which product oriented teams are focused on the development and implementation of HTS equipment. Under the title of the Superconductivity Partnership Initiative (SPI), these vertically integrated teams typically each consist of an electric utility, a system manufacturer, an HTS wire supplier, and one or more national laboratories. Supporting these vertical teams is a Second Generation Wire Initiative, in which development teams are exploiting research breakthroughs at Los Alamos and Oak Ridge National labs that promise unprecedented current-carrying capabilities in high-temperature superconducting wires. Since superconducting wire is the main component of all superconducting cables, products and systems, the price drop projected by the Second Generation technology is highly significant and important to successful commercialization.

Transformer development is being carried out by the team of Waukesha Electric Systems, Intermagnetics General Corporation, Rochester Gas and Electric, Rensselaer Polytechnic Institute, and the Oak Ridge National Laboratory. This team has conducted a series of reference designs concentrating mostly on a 30–MVA, 138-kV/13.8kV transformer which is representative of a class expected to capture about half of all U.S. power transformer sales in the next two decades. According to Mehta et al, Japan and Europe are somewhat ahead of the United States in transformer development.

The United States HTS electric motor team is headed by Reliance Electric with American Superconductor Corp as the HTS coil supplier and manufacturer. Also on this team are Centerior Energy (a utility company) and Sandia National Laboratory. "In February 1996, Reliance Electric successfully tested a four-pole, 1800 rpm synchronous motor using HTS windings operating at 27°K at a continuous 150kW output. The coils . . . achieved currents of 100A. . . , 25 percent over the initial goal of 80 A." This program has now been extended to "develop a pre-commercial prototype of a 3.7MW HTS motor". The demonstration of this motor will be an important milestone in the commercialization process, since it will provide a measure of efficiency, reliability, and projected costs and benefits.

Generator efforts in the United States, again, appear to be behind those in Japan. In Japan, funds expended on HTS design, development, and demonstration were $75M covering 1995 and 1996. This heavily funded effort involves 16 member organizations with representation from the electric utilities, manufacturers of electric

power equipment, research organizations, manufacturers of HTS wire and tape, refrigeration and cryogenic suppliers, and independent research institutes.

Fault Current Limiters represent a new class of electric utility equipment with many attractive properties. This type of equipment may, in fact, be a market leader, since its properties appear to provide substantial potential cost savings to electric utilities as well as containing power outages.

Exciting developments have taken place in the field of underground HTS cables for transmission and distribution. In the United States, two teams are pursuing two different technical concepts, but each team is led by a powerhouse electrical cable manufacturer; Pirelli North America, and Southwire Co.

THE BENEFITS

Dramatic cost and energy savings are projected when the candidate systems and products from superconducting technology are fully implemented, with incremental benefits accruing from the time of technology readiness and commercial introduction to the time of full market penetration. Generally speaking, one-half the present losses in electric generation, transmission, distribution, transforming, and using equipment can be saved by the implementation of superconducting technology. Since, in round numbers, 10 percent of the electricity generated today is lost between generation and use, and another 2 percent is lost in use, Superconductivity has the potential of saving in excess of 6 percent of the total amount of electricity generated. Today, that would equate to approximately 225 billion kilowatt hours valued at $13.5 Billion. This would be a dramatic savings to Americans, especially compared to the small DOE program investment I am requesting.

Thank you very much for your time and attention to this matter.

PREPARED STATEMENT OF THE STEAMSHIP ASSOCIATION OF LOUISIANA

Mr. Chairman: I am President of the Steamship Association of Louisiana (SALA). Our Association represents ship owners, operators, and agents who handle the majority of the approximately 8,000 deep-draft vessels in waterborne commerce that call Louisiana's deep-water ports each year. SALA is dedicated to the safe, efficient movement of maritime commerce through the state's deep-water ports. We endorse the testimony of Mr. Donald T. Bollinger, Chairman of the Governor's Task Force on Maritime Industry.

Channel stabilization and maintenance dredging in Southwest Pass (SWP) are critical to keep project draft. Project draft ensures the Mississippi River's deep-water ports will continue to handle the country's foreign and domestic waterborne commerce in the most cost-effective way possible.

For years we have urged this Committee to provide funds to maintain project draft at SWP. You have responded, and your wisdom has benefitted the entire American heartland served by the Mississippi River system. SWP was greatly restricted throughout the 1970s. From 1970 to 1975, the channel was at less than project draft 46 percent of the time. In 1973 and 1974, the channel was below the 40-foot project draft 70 percent of the time. During some periods, drafts were limited to 31 feet. Fortunately, those conditions have not recurred because of a combination of factors: Your help, and the constant vigilance of the Pilots, the Corps, and the maritime community. The years 1990 through 2000 show a tremendous improvement in channel stability. The funding you provided was money well spent. The repairs to the jetties and dikes, and the Corps' ability to rapidly respond to shoaling, have been instrumental in maintaining project dimensions. However, the lack of available hopper dredges has, at times, jeopardized the stability of the channel.

The Pilots have taken advantage of tidal flows and other factors to recommend the maximum draft possible consistent with safe navigation. This stability represents additional sales and increased competitiveness for U.S. products on the world market. Industry's partnership with you has kept Mississippi River ports competitive and attractive to vessels. Twelve inches to a large vessel with a loading capacity of 250 tons per inch is an additional 3,000 tons of cargo. As of this writing, freight rates for grain moving from the Mississippi River to the Far East are $22.65 per ton. Using this figure, each foot of draft represents an additional $67,950 in vessel revenue, or $339,750 for the five additional feet over the old 40-foot project draft.

The funds we request for maintenance dredging and other works are essential for the Corps to maintain a reliable channel and respond rapidly to potential problems. This builds the confidence of the bulk trade in a reliable Mississippi River draft, which is critically important. Much of Louisiana's bulk trade is export agricultural products and coal and imports of petroleum products. These export commodities are

neither captive to Louisiana nor the United States if they can be shipped from competing countries at a consistently lower cost.

The deeper the channel, the more important channel stabilization becomes. Adequate channel stabilization work minimizes the maintenance cost of the deeper channel—a cost-effective investment. The faster the project is stabilized, the faster and greater the benefits of reduced O&M costs will be realized. Also, we recommend that the Corps conduct research on prototype dredging techniques.

Funds are also needed for dustpan dredges to work the crossings above New Orleans. These crossings control the draft to the Ports of South Louisiana and Baton Rouge, which are home to eight of our ten major grain elevators, plus many midstream and other bulk cargo facilities. This area caters to the bulk trade and must have a stable channel depth consistent with the depth at SWP. Only two dustpan dredges in the world are available to maintain the deep-draft crossings between New Orleans and Baton Rouge. There are times when a high river is followed by a rapid drop in the river's stage. In such cases, the dustpan dredges may not be available, or both dredges may not be capable of restoring the 12 crossings within a reasonable time. When this happens, hopper dredges are used to assist in the work.

For all of the above reasons, we request full funding for the mitigation features of the O&M General, 45-foot Mississippi River project.

We also support Phase III of the Mississippi River channel deepening project and urge that the Corps be funded to proceed with design studies for the 55-foot channel, Baton Rouge to the Gulf of Mexico.

The Mississippi River-Gulf Outlet (MR–GO) is also a viable channel for the state of Louisiana. The funds you provided in past fiscal years have allowed the Corps to improve the channel considerably. However, the channel width has remained limited primarily because of erosion. For safety reasons in this narrow channel, one-way traffic restrictions apply to vessels with a draft of 30 feet or more, causing delays to the tightly-scheduled container traffic using the MR–GO. These specialty vessels serving the Port's facilities are becoming larger. The highest wages under the International Longshoremen's Association's contract ($25 per straight-time hour) is paid for work at the MR–GO container facilities. Anything that threatens the MR–GO jeopardizes these high-paying jobs, which are held mostly by minority workers.

To improve safety on the MR–GO and protect Louisiana's container trade (and the well-paying, minority employment it produces), we request that the Corps be funded to an increased capability for the MR–GO in fiscal year 2002. This will allow annual maintenance dredging, north and south bank stabilization, and jetty maintenance, which is essential to provide the stability needed for vessel and port operations.

The Corps is currently conducting a study that will determine the feasability of maintaining the MR–GO at a depth of 36 feet. This study has been requested due to the increase in costs of maintaining the channel and growing environmental concerns. While we urge that the Corps be funded in fiscal year 2002 to complete this study, this important and viable channel must not be closed to deep-draft traffic until construction of the new deep draft IHNC lock is complete. A deep-draft lock should accommodate the needs of all business, except the Port's container facilities, that require deep-water access. In addition to the lock, 100 percent of the container traffic currently being handled by the Port of New Orleans must be re-located to the Mississippi River. Container vessels are extremely price and time conscious and will not utilize a lock. If the channel is closed prior to the container traffic being moved, the port will lose traffic that will be nearly impossible to recover.

With facilities located on both the MR–GO and the Mississippi River, an adequate route between the two is essential for efficient transit between these facilities. The shortest route is the inadequate, antiquated Inner Harbor Navigation Canal (IHNC) Lock built in the 1920s with a width of 75 feet and limited depth of 30 feet. Its maximum capacity has long been exceeded. The average waiting time for passage through the Lock has increased from 8½ hours in 1985 to about 12 hours at present; however, we understand that waiting time can be more than a day in some instances. A much larger ship lock is necessary to accommodate today's traffic.

The replacement project for the IHNC Lock is important to the ports on the lower Mississippi River and to the nation's commerce since it is on the corridor for east/west barge traffic. Without full funding, the project will be delayed and increase the overall cost of the project. We urge Congress to provide the Corps' full fiscal year 2002 capability for this important project to insure its completion. Delays are unthinkable since the new lock is long overdue.

The Port of Lake Charles, Louisiana, is served by the Calcasieu River, which is often below project depth and width. This is another of Louisiana's major deep-water ports that benefits the economy of the State and the nation. According to the

Port's figures, the Port handled 34.3 million tons of import cargo and 15.8 million tons of export cargo. Also in 1999, a total of 1,056 deep-draft vessels and 7,305 barges utilized the Calcasieu River. The public and private facilities along this waterway provide thousands of jobs for the Lake Charles area. This channel, because of its project deficiencies, requires one-way traffic for many ships, causing delays that disrupt cargo operations. This is costly and inefficient for industry. The Port area's growth and continued success depends on a reliable and safe channel that should be at full project. We request funding to the full capability of the Corps to maintain this channel at its project dimensions.

The J. Bennett Johnston Waterway, Mississippi River to Shreveport, Louisiana, Project is directly related to our deep-water ports. The continuation and completion of this work will stimulate the economy all along the Red River Basin with jobs and additional international trade. This stimulated trade will service the Port of Shreveport and the ports on the lower Mississippi River, providing needed growth and benefitting the states of Louisiana, Texas, Oklahoma, and Arkansas, which are served through the Shreveport distribution center. Therefore, we strongly recommend that the Corps be funded to full capability for fiscal year 2002.

Thank you for allowing the Association to submit testimony on the Corps' funding needs.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other state and locally owned utilities throughout the United States. Collectively, public power utilities deliver electric energy to one of every seven U.S. electric consumers (about 40 million people), serving some of the nation's largest cities. The majority of APPA's member systems are located in small and medium-sized communities in every state except Hawaii.

We appreciate the opportunity to submit this testimony outlining our fiscal year 2002 appropriations priorities within your Subcommittee's jurisdiction.

RENEWABLE ENERGY PROGRAMS

APPA believes it is important to continue development and commercialization of clean, renewable energy resources as we face increased competition in the electricity marketplace. Two of the most significant barriers to greater renewable energy use are cost and lack of demonstrated experience. Because of the requirement to supply electricity to customers on demand, with high reliability at a reasonable cost, electric utilities often are conservative when evaluating new technologies. Evolving deregulation, coupled with unstable fuel prices, now adds a further challenge to greater adoption of relatively unproved renewable technologies.

APPA believes that investing in energy efficiency and renewable programs is critical and urge this Subcommittee to support adequate funding to ensure that renewable energy remains part of the full range of resource options available to our nation's electric utilities. APPA supports a minimum of $409 million for Solar and Renewable Resources Technologies in fiscal year 2002. This funding level will go a long way in furthering the call for significant expansion of renewable energy R&D programs in order to meet the energy challenges and opportunities of the 21st century.

RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM (REPI)

APPA urges this subcommittee's support of the Renewable Energy Production Incentive Program (REPI) at $25 million in fiscal year 2002. At this level of funding, 62 projects would be funded providing 685 million kWh of electricity from renewable energy resources.

Established by the Energy Policy Act of 1992, Section 1212 was intended to provide some level of benefit with EPAct programs for tax paying entities (sections 1914 & 1916, providing production and incentive tax credits for renewable energy projects). The law directed the Department of Energy to create a program providing one and half cents per kWh of electricity produced from solar, wind, certain geothermal and biomass electric projects. Because projects of this nature often require a long lead-time for planning and construction, it is imperative that stable and predictable funding be provided.

As the only significant incentive available to locally owned, not-for-profit electric utilities to make new investments in renewable energy projects, REPI represents public power's only opportunity to produce environmentally-friendly electricity to meet the nation's environmental and energy goals.

A fully funded and reformed REPI program will help public power improve it's contribution to important renewable energy supply goals. Under a fully funded REPI program, 55.8 million metric tons of carbon equivalent (mmtce) could be reduced by developing existing landfills into gas-to-energy projects. A fully funded REPI would provide the needed incentive to spur development of other renewable energy projects.

Even more critical, given today's situation, the nation faces an unprecedented energy shortage, requiring the need to bring additional sources of energy capacity online. Rising prices in gas and other fuels have resulted in higher consumer power rates and power shortages. The time is ripe to accelerate the development and use of sustainable energy resources which currently represent 2 percent of the nation's energy generation (2.8 percent of capacity).

This subcommittee's support of full funding for REPI at $25 million will go a long way in fueling future renewable investments.

STORAGE FOR HIGH-LEVEL NUCLEAR WASTE

The Federal government's responsibility for deep geologic disposal of used nuclear fuel and the byproducts of defense-related activities is long established U.S. national policy. In 1982, the Nuclear Waster Policy Act established Federal policy for developing a repository for long-term stewardship of used nuclear fuel. In 1987, after environmental assessments were conducted of five sites, Congress focused the repository study on a single site at Yucca Mountain, Nevada. DOE is committed to providing a decision on a formal Yucca Mountain site recommendation to the president in 2001. Page 3 of 5 APPA

Since 1982, American electricity consumers have committed $16.5 billion to the Nuclear Waste Fund, specifically to finance the central Federal management of used nuclear fuel. Federal taxpayers have paid an additional $1.2 billion for disposal of waste from defense-related programs. The Nuclear Waste Fund has a balance of about $10 billion, all of which must be made available for repository construction and operation.

APPA strongly supports the Department of Energy's fiscal year 2002 funding request for the Civilian Radioactive Waste Management program. At this critical juncture, an increase in DOE's fiscal year 2001 appropriation of $409 million is warranted to continue scientific study at Yucca Mountain. Electricity consumers this year will pay more than $700 million into the Nuclear Waste Fund.

ADVANCED HYDROPOWER TURBINE PROGRAM

The Advanced Hydropower Turbine Program is a joint industry/government cost-share effort to develop a new, improved hydroelectric turbine superior in its ability to protect fish and aquatic habitat and operate efficiently over a wide range of flow levels. We support funding this program at $5 million in fiscal year 2002

During the next 15 years, 220 hydroelectric projects will seek new licenses from the Federal Energy Regulatory Commission (FERC). Publicly owned projects constitute 50 percent of the total capacity that will be up for renewal. Many of these projects were originally licensed over 50 years ago. Newly imposed licensing conditions can cost hydro project owners 10 to 15 percent of power generation. A new, improved turbine could help assure any environmental conditions imposed at relicensing in the form of new conditioning, fish passages or reduced flows are not accomplished at the expense of energy production. This is particularly important due to the increasingly competitive electric market in which utilities operate today. Flow levels will affect the economics of each of these projects and many will be unable to compete if the current trend toward flow reductions continues.

FEDERAL POWER MARKETING ADMINISTRATIONS (PMAS)

APPA urges the Committee to support adequate funding for purchase power and wheeling (PPW). APPA has consistently supported increased efficiency in PMA operations. However, Congress must recognize that Federal power sales revenues cover all PMA operating expenses plus all Corps of Engineers and Bureau of Reclamation operations, maintenance, replacement and rehabilitation expenses for hydropower and repayment of the Federal investment in the construction of the projects plus interest. Power sales also support many nonpower-related expenses associated with these projects.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

APPA urges support of at least $175 million in fiscal year 2002 for the Federal Energy Regulatory Commission (FERC). Adequate funding for the agency is particu-

larly necessary at this time in Page 4 of 5 APPA order to provide the resources needed to continue implementation of electric utility industry restructuring and to address major issues such as development of regional transmission groups.

The FERC is charged with regulating certain interstate aspects of the natural gas, oil pipeline, hydropower, and electric industries. Such regulation includes issuing licenses and certificates for construction of facilities, approving rates, inspecting dams, implementing compliance and enforcement activities, and providing other services to regulated businesses. These businesses will pay fees and charges sufficient to recover the Government's full cost of operations.

CLIMATE CHANGE PROGRAMS

APPA advocates continued support for and funding of the Climate Change Technology Initiative in fiscal year 2002. The initiative consists of a package of tax incentives and investments in research and development to stimulate increased energy efficiency and to encourage greater use of renewable energy sources. APPA is an aggressive advocate of Federal support for energy research and development. While these programs do not directly provide benefits or incentives to public power systems, APPA supports them nevertheless because they will result in substantial improvements to the environment.

U.S. DOE programs under the Climate Change Initiative include a mix of tax credits and Federal spending programs designed to increase efficiency and greater use of renewable energy resources. Important elements of the initiative include support for the deployment of clean technologies for buildings, transportation industry and electricity.

NAVAJO ELECTRIFICATION DEMONSTRATION PROGRAM

APPA calls on this Subcommittee to support full funding for the Navajo Electrification Demonstration Program at its $15 million authorized funding level for fiscal year 2002 and for each succeeding year.

The Navajo Electrification Demonstration Program is a new program authorized in Public Law 106–511, Section 602. The purpose of the program is to provide electric power to the estimated 18,000 occupied structures on the Navajo Nation that lack electric power. The goal of the program is to ensure that every household on the Navajo Nation that requests electric power has access to a reliable and affordable source of electricity by the year 2006. Appropriations for the program are authorized at $15 million over each of the next five years beginning in fiscal year 2002, October 1, 2001.

The Navajo Nation is served by the Navajo Tribal Utility Authority (NTUA), an APPA member. NTUA provides electric, natural gas, water, wastewater treatment, and photovoltaic services throughout the Navajo Indian Reservations in the states of Arizona, New Mexico, and Utah at the Four Corners.

APPA believes the Navajo Electrification Demonstration Program will go a long way to improve the quality of life for the Navajo Nation.

NATIONAL ENERGY RELIABILITY INITIATIVE

The nation's economic future is inextricably linked to the information revolution. Computer dependent and data-intensive end-users such as the Internet, telecommunications, and financial services industries, and modernized manufacturers require uninterruptible power supplies and high levels of power quality. It is estimated that power interruptions cost this nation's economy approximately $50 billion annually. The existing power infrastructure is challenged to provide the quality of power and high reliability that the information-based economy requires. APPA's membership believes that the Federal government has an important role to play in addressing these issues.

APPA believes the time has come for a National Energy Reliability Initiative to be established. The solution requires the immediate implementation of a joint public/private research, development and deployment portfolio in technologies for fuel-diverse distributed energy resources, electricity transmission and distribution, end-use equipment improvements, natural gas infrastructure, advanced power controls and sensors, and energy storage. Advances in these areas will help information-based industries for the next few years, while providing the technology framework that will enable truly effective and efficient competitive energy markets.

APPA, along with stakeholders in the high tech industry, seek the creation of a specific fiscal year 2002 line-item in the fiscal year 2002 budget focused on the energy reliability needs of the high tech industry and urge this Subcommittee to support the program and provide adequate funding to assist in achieving its goals.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM), the largest single life science organization in the world, with more than 42,000 members, appreciates the opportunity to provide written testimony on the fiscal year 2002 budget for the Department of Energy (DOE).

The ASM represents scientists working in academic, medical, governmental and industrial institutions worldwide. Microbiological research is focused on human health and the environment and is directly related to DOE programs involving microbial genomics, climate change, bioremediation and basic biological processes important to energy sciences.

The ASM strongly supports the basic science programs of the DOE, which fund important fundamental discoveries that lead to developments in alternative fuels, improvements in the refinement process of fossil fuels, environmental remediation and reduction of wastes and pollution. These programs are critical for the United States to develop the science to respond to the challenges of global warming and to solve the nation's growing demand for reliable and environmentally safe energy.

The DOE Office of Science (SC) provides the primary source of support for the physical sciences and is an essential partner in areas of biological and environmental science research as well as in mathematics, computing and engineering. The SC complements the scientific programs of the National Institutes of Health and the National Science Foundation and supports peer reviewed, basic research in DOE-relevant areas of science in universities and colleges across the United States, contributing enormously to the knowledge base and training of the next generation of scientists.

ASM comments focus on research supported by the Biological and Environmental Research (BER) and Basic Energy Sciences (BES) programs and make recommendations on several programs that include microbiology research.

MICROBIAL GENOMICS

DOE is the lead agency supporting the genomic sequencing of non-pathogenic microbes. Since these bacteria and fungi make up the vast majority of microbes on earth and power the planet's carbon and nitrogen cycles, clean up our wastes, make important transformations of energy, live in extreme conditions and are an important source of biotechnology products, the genome sequences of these microbes are extremely valuable for advancing our knowledge of the non-medical microbial world. ASM applauds DOE's leadership in recognizing this important need in science and endorses expansion of its microbial genome sequencing efforts, particularly in using DNA sequencing to learn more about the functions and roles of the 99 percent of the microbial world that cannot yet be grown in culture. DOE's role in this science frontier needs to be expanded.

MICROBIAL CELL PROJECT

During the last decade, scientists have determined the sequence of millions of DNA base pairs from the genomes, containing the complete genetic instructions, for a rapidly growing number of important microbes. As the number of sequenced microbes increases, and sequencing costs continue to decrease, scientists are faced with the important task of deciphering how the information in the DNA sequence determines cell function, in short, how a cell assembles functional pathways and systems from those genome-determined parts. Since microbial cells are the simplest cells, The Microbial Cell Project (MCP) represents a logical start to understand the meaning of genome sequences in a comprehensive and functional manner. MCP builds upon previous research sponsored by the DOE Office of Science, e.g. the Microbial Genome Program, itself a spin-off of the DOE Human Genome Program. The ASM applauds the bold vision of DOE in starting the MCP and notes that this represents the kind of interdisciplinary science that DOE has done successfully in the past, making use of advanced technologies, specialized facilities, teams of scientists, and computational power. The ASM also sees this program as the basis for an expanded effort to understand more broadly how genomic information can be used to understand life at the cellular level and urges Congress to fully support this exciting program.

BASIC ENERGY SCIENCE

This program includes initiatives in both microbiological and plant sciences focused on harvesting and converting energy from sunlight into energy feedstocks such as cellulose and other products of photosynthesis, as well as how those chemicals may be further converted into energy rich molecules such as methane, hydrogen

and ethanol. Alternative and renewable energy sources will remain of strategic importance in the nation's energy portfolio, and DOE is well positioned to advance basic research in this area. The advances in genomic technologies have given this research area a tremendous new resource for advancing the Agency's bioenergy goals.

BIOREMEDIATION

DOE's bioremediation research is largely supported through the Natural and Accelerated Bioremediation Program (NABIR). This is a well coordinated, comprehensive basic research program comprised of seven interrelated research elements. The quality of the research has been outstanding and is probably the best example of basic research advances on this challenging topic area supported by the Federal government. Many of the nation's pollution problems cannot be solved by simple, existing technologies, which is particularly true of DOE's metal and radionuclide contaminated sites. Hence, the basic research effort supported by NABIR is particularly appropriate for DOE. ASM notes that the funding of NABIR was reduced by 20 percent last year. ASM endorses the NABIR program and recommends that the funding be restored to the fiscal year 2000 level of $25 million.

NEW TECHNOLOGIES AND UNIQUE FACILITIES

New technologies and advanced instrumentation derived from DOE's expertise in the physical sciences and engineering have become increasingly valuable to biologists. The beam lines and other advanced technologies for determining molecular structures of cell components are at the heart of current advances to understand cell function and have practical applications for new drug design. DOE advances in high throughput, low cost DNA sequencing; protein mass spectrometry; cell imaging and computational analyses of biological molecules and processes are other unique contributions of DOE to the nation's biological research enterprise. Furthermore, DOE has unique field research facilities for environmental research important to understanding biogeochemical cycles, global change and cost-effective environmental restoration. In short, DOE's ability to conduct large-scale science projects and draw on its unique capabilities in physics, computation and engineering is critical for future biological research.

DOE's research programs play a major role in keeping the United States at the forefront of scientific discovery and competitive in the world marketplace. The ASM encourages Congress to maintain its commitment to the Department of Energy research programs to maintain the United States' leadership in science and technology.

PREPARED STATEMENT OF DOE UNIVERSITY RESEARCH PROGRAM IN ROBOTICS (URPR)

The U.S. Department of Energy (DOE) has provided support to the DOE University Research Program in Robotics to pursue long range research leading to the:

"development and deployment of advanced robotic systems capable of reducing human exposure to hazardous environments, and of performing a broad spectrum of tasks more efficiently and effectively than utilizing humans."

The DOE University Research Program in Robotics (URPR) has proven highly effective in technology innovation, education, and DOE mission support. The URPR incorporates mission-oriented university research into DOE EM's Office of Science and Technology (OST) and, through close collaboration with the DOE national laboratories, provides an avenue for developing creative solutions to problems of vital importance to DOE.

The URPR would like to thank the Committee members for their historically strong support of this successful program and is pleased that the URPR is reportedly embedded in the broad DOE EM–50 Budget Request for fiscal year. To ensure the continuation of this support, we respectfully request the Committee explicitly include language endorsing the DOE request.

Request for the Committee

We request the Committee include language augmenting DOE's request of EM–50 research funds from $4M to $4.35M to support the University Research Program in Robotics (URPR) program in developing safer, less expensive, and more efficient robotic technology for environmental restoration and waste management.

DEVELOPING ADVANCED ROBOTICS FOR DOE AND THE NATION

Develop robotic solutions for work in hazardous environments and facilitate cleanup operations

The goal of this program is to advance and utilize state-of-the-art robotic technology in order to remove humans from potentially hazardous environments and expedite remediation efforts now considered essential. Competitively established by DOE in fiscal yearsupport advanced nuclear reactor concepts, the project was moved to EM to support the higher priority needs in environmental restoration. The project has produced an impressive array of technological innovations which have been incorporated into robotic solutions being employed across Federal and commercial sectors. This successful program demonstrates efficient technology innovation while educating tomorrow's technologists, inventing our country's intelligent machine systems technology of the 21st century, and meeting today's applied research needs for DOE.

ROBOTICS: A STRATEGIC NATIONAL TECHNOLOGY

According to economists, R&D funding is the most effective use of Federal funds to promote the nation's well-being. Indeed, technological innovation has been responsible for more than half of the GDP growth since WW II. And, as documented in previous testimonies, key national studies (by the Council on Competitiveness, DOD, and former OTA technology assessment reports) consistently list robotics and advanced manufacturing among the five most vital strategic technologies for Federal support. The national need for an investment in the development of intelligent machines which can interact with their environment has now been universally recognized and accepted.

Intelligent Machines: Grand Challenge for the New Millennium

Significant advances in computing power, sensor development and platform architectures (e.g., unmanned airborne vehicles) have opened new opportunities in intelligent machine technology. The long-range implications of intelligent mobile machines which can assist humans to perform life tasks are clearly significant and represent one of technology's Grand Challenges for the new millennium. We can expect to see intelligent prosthetic devices, smart transport vehicles, and mobile devices capable of assisting or replacing the human, not only in potentially hazardous situations, but in daily life. Much as the computer has revolutioned life in the 20th century, intelligent mobile machines will revolutionize life in the 21st century and beyond.

URPR: INNOVATION, EDUCATION, AND DOE MISSION SUPPORT

The URPR Paradigm The National Science Board (NSB) policy paper "The Federal Role in Science and Engineering Graduate and Postdoctoral Education" reaffirmed the basic principle of a government-university partnership in graduate and postdoctoral education, but warned that the government "tends to emphasize short-term research "products" and to de-emphasize benefits to graduate education." The ensuing recommendations in that paper argue for better integration of research and education, validating the paradigm of the URPR for providing DOE mission support.

URPR: Refining the Right Paradigm in 1902

The URPR's strategic mission is to make significant advances in our nation's robotic and manufacturing technology base while emphasizing: education, technology innovation through basic R&D, and DOE mission support. Accomplishments in each of these areas for DOE are detailed below. Uniquely organized, the Consortium of Universities (Universities of Florida, Michigan, Tennessee, Texas, and New Mexico) are united as a powerful technology team advised by a Technical Advisory Committee of site users and directed by DOE field managers.

The URPR has demonstrated the advantages of operating as a consortium are significant. The institutions of the URPR partitioned the technical development into manageable sections which allowed each university to concentrate within their area of expertise (efficiently maintaining world-class levels of excellence) while relying on their partners to supply supporting concentrations. With full cooperation of the host universities, this effort naturally generated the in-depth human and equipment capital required by the EM community. Practically, the long-term distributed interaction and planning among these universities in concert with the DOE labs and associated industry allows for effective technology development (with software and equipment compatibility and portability), for a vigorous and full response to application requirements (component technologies, system technologies, deployment issues, etc.), and for the supported application of the technology. Considering the remark-

able achievements of URPR over its history, the URPR is in an ideal position to continue to execute its role in education, technology innovation, and DOE mission support.

Educating 21st Century Technologists

The URPR has already educated approximately 500 advanced-degree students in the critical engineering fields, including many with earned doctoral degrees. These students have entered the work force, and are powering today's innovation economy, employing intelligent machines, advanced manufacturing technology, and related fields. Graduates from this project have built successful startup companies and made industrial technology transfers in computer vision and robotic technology (MI, TN) and medical imaging (MI), video databases (CA), and intelligent manufacturing (MI, FL, TX). We have seen an overwhelming demand for graduates educated through this project to fill the serious skills shortage in our country.

DOE Mission Contribution—Environmental Cleanup

Since its inception, EM has recognized robotics as an essential technology to accomplish its mission. The motives for undertaking a comprehensive R&D effort in the application of advanced robotics to EM tasks in hazardous environments reflect both economic considerations, efficiency, and health and safety concerns. In particular, DOE/EM–0362 "Accelerating Cleanup: Paths to Closure" is the high-level plan to clean up and close down many facilities by year 2006 and has objectives that are being addressed by the URPR. While the national laboratory-based robotics program primarily applies existing technology to current problems, the URPR is the only needs-driven research program to provide new remote systems technologies to support the EM thrust areas.

Over the past few years, the URPR projects successfully supported DOE EM operations:

—deployment and testing of SWAMI, an autonomous inspection robot for Fernald stored waste drums,
—design, construction and testing of a robot to precisely map large DOE facilities, such as K–25 and K–27 in Oak Ridge, in preparation for decontamination and decommissioning (D&D),
—delivery of a robotic handling system for an automated chemical and radiological analysis system to Los Alamos,
—remote radiation imaging of the MSRE facility at ORNL prior to D&D.
—design and implementation of a real-time controller for use at Hanford in support of the tank waste retrieval project

During Fiscal Year 2001, the URPR projects have included:

—a system to reduce the time between a site-defined need and a site-delivered implementation of the robotic hardware using simulation followed by direct conversion to actual controllers (UNM), demonstrated using the coordinated control of dual robot arms in a workcell,
—a portable radiation imager with high efficiency and wide energy range for EM cleanup applications (UMI), demonstrated in both low and high radiation environments,
—sensors and navigation algorithms invented, built, and delivered for D&D robots to permit semi-autonomous operation (UTN, UMI), including the integration of a three-dimensional laser range scanner capable of mapping large facilities,
—a program for design, fabrication, and testing of intelligent actuators for environmental robot systems (UTX). These actuators are as central to robots as computer chips are to computers.
—a vision system to inspect and sort randomly placed objects for the Mixed Waste Operations Focus Area for robotic singulation tasks (UTN).

As shown above, these efforts are directly linked to cleanup operations in the DOE complex. During fiscal year 2002, the URPR plans to continue its focussed efforts on DOE field cleanup technology needs, while maintaining our commitment to research and education.

Innovation—the seed of future technology

The URPR has produced prodigious levels of innovation in research and development. While recent demonstrations reveal next-generation technologies, even more advanced capabilities are emerging from the laboratories. These include new types of locomotion, navigation techniques, sensing modalities (radiation cameras and laser imaging devices), environmentally hardened components, and dextrous dual-arm manipulators. These new machines will have an unparalleled man-machine interface and inherent intelligence, with the capability of being able to integrate

many diverse sensors simultaneously. These devices will evolve and inspire the intelligent machines of the future, including smart automobiles, obstacle avoidance aids for the disabled, and advanced manufacturing cells assembled on demand.

This level of innovation can also be seen in the following statistics:

—Approximately 20 patents awarded or pending.
—Over 700 technical papers published in technical journals and conferences.
—The standard technical books for vision, radiation detection and imaging, and mobile robots are authored by researchers associated with this project. Faculty and senior scientists who have contributed to this project are the internationally renowned technologists of their fields.
—A suite of world-class robots (including CARMEL, winner of the AAAI Mobile Robot Competition; OmniPede, OmniMate, MOVERS, and ARM modular manipulators) serve as the research testbeds for this project.

PROGRAM REQUEST

During fiscal year 2001, the URPR provided vital contributions to education and research while meeting DOE technology needs. The motivation for this project remains steadfast—removing humans from hazardous environments while enhancing safety, reducing costs, and increasing cleanup task productivity. EM–50 has reportedly embedded $4M for the URPR for fiscal year 2002 in its broad request for focus area support. However, Committeee language is needed to explicitly identify this funding for the URPR and to augment this level to the fiscal year 2001 level of $4.35M.

Request for the Committee

To continue this vital program, we request that the Committee include the following language into the fiscal year 2002 Energy and Water Appropriations Bill:

The Committee supports the DOE EM–50 request to continue the University Research Program in Robotics (URPR), at the fiscal year 2001 level of $4.35M in fiscal year 2002.

PREPARED STATEMENT OF THE NUCLEAR WASTE STRATEGY COALITION

Mr. Chairman, and distinguished members of the Subcommittee, the Nuclear Waste Strategy Coalition (NWSC) appreciates this opportunity to present written testimony in support of the Department of Energy's (DOE) fiscal year 2002 budget request of $445 million for the civilian nuclear waste disposal program. While the NWSC supports increasing the DOE's budget, the NWSC strongly OPPOSES the DOE's budget request of $900 thousand or any appropriations in its budget that supports the 1998 Department of Justice (DOJ) litigation efforts involving the civilian radioactive waste management system. However, the NWSC RECOMMENDS the allocated amount be used for transportation related systems and infrastructure activity.

ABOUT THE NWSC

The NWSC is an ad hoc group of state utility regulators, state attorneys general, electric utilities and associate members representing 43 member organizations in 25 states. The NWSC was formed in 1993 out of frustration at the lack of progress by the DOE's Office of Civilian Radioactive Waste Management (OCRWM) to develop a permanent repository for high-level radioactive waste. The mission and purpose of the NWSC is to seek on behalf of the ratepayers of the United States:

—The removal of commercial spent nuclear fuel from 72 temporary storage sites located in 33 states.
—The authorization of a temporary, centralized commercial spent nuclear fuel storage facility.
—The allocation of appropriate funds from the Nuclear Waste Fund (NWF) by the U.S. Congress to the DOE so that it will fulfill its statutory and contractual obligations.
—The capping of the NWF payments at the present one-tenth of a cent per kilowatt-hour by the U.S. Congress.
—The approval of the Yucca Mountain Geologic Repository by the President of the United States and the U.S. Congress with the requirement that the repository will be operational by 2010.
—The augmentation of existing Waste Isolation Pilot Plant (WIPP) hazardous and nuclear materials transportation planning and regulations to facilitate transportation systems.

BUDGET REQUEST

The DOE requests $445 million in its fiscal year 2002 budget for the civilian nuclear waste disposal program. The $445 million requested by the DOE is the minimum required and is barely adequate to keep its nuclear waste disposal program on track. The NWSC strongly urges members of Congress to appropriate the total funds collected into the Nuclear Waste Fund, and that the DOE be funded so that it stays on track with the permanent repository and transportation infrastructure to remove spent nuclear fuel from plant sites.

The DOE cites in its budget request that the requested $445 million is essential to complete the scientific and technical reports obligated of the Secretary to determine the suitability of Yucca Mountain, present the site recommendation to the President in 2002 and complete the licensing application to the Nuclear Regulatory Commission (NRC) by 2003. The budget further highlights transportation activities for the removal of waste from plant sites to include the development of legal and physical processes and management and integration systems that support program functions. The NWSC is concerned that the ratepayers who have contributed multiple billions of dollars into the NWF are seeing none of these funds directed to build the transportation-related systems and infrastructure necessary to ultimately remove the spent fuel from commercial reactor sites. The DOE's schedule not to begin the fabrication and deployment of transportation casks and waste acceptance capabilities until the end of the decade, as documented in the DOE's January 2001 response to the House Committee on Appropriations request, is unacceptable—these programs need to begin now. If Congress continues to reduce essential funds to complete this program, as it has done in the past, there will be further delays and excuses by the DOE not to fulfill its statutory and contractual obligations. Every delay increases the amount and cost of spent nuclear fuel stored at the plant sites.

PROGRESS OF THE CIVILIAN DISPOSAL PROGRAM

The NWSC is encouraged by the timeline proposed in the DOE's fiscal year 2002 budget to maintain progress towards the civilian disposal program. It is indeed heartening news that the DOE will soon release the Science and Engineering Report requested by the Nuclear Waste Technical Review Board and a Preliminary Site Suitability Evaluation Report with hearings to be held in Nevada sometime this summer.

On the other hand, the DOE and OCRWM have been evaluating alternatives to the design of the permanent repository and packaging for the removal of high-level nuclear waste from plant sites for eighteen years. Since 1983, the DOE and OCRWM have released several scientific and environmental studies on the progress at Yucca Mountain and yet, in 2001, we are still waiting to see actual progress. Progress reports are not what Americans have paid for. We have paid to have high-level radioactive waste removed from power plants beginning by January 31, 1998. We want sound science that evaluates the viability and suitability of Yucca Mountain. We also want the DOE to produce high quality work with a comprehensive framework that accommodates safety and bolsters confidence in the performance of Yucca Mountain as the permanent repository site. Hopefully, we will see actual performance in 2001 towards the development of a permanent repository and not just progress reports.

NUCLEAR WASTE FUND

The NWF collects annually more than $680 million from the nation's ratepayers. Americans have already paid more than $17 billion, including interest, to the NWF for nuclear waste disposal services we are not receiving. We continue to pay at the rate of $80,000 every hour of every day. Meanwhile, tons of high-level radioactive waste continues to accumulate at 73 sites in 33 states because of the DOE's failure to fulfill its statutory and contractual obligations with the nation's ratepayers to move this waste to a permanent repository. Because of continued missed deadlines by the DOE, an additional $40 billion to $80 billion in costs could occur, paid from the Department of Treasury Judgment Fund and NOT from the Nuclear Waste Fund as the DOE has claimed. Clearly, it is time for Congress to hold the DOE accountable for its expenditures, especially its contract obligations, by expressly linking the $445 million requested by the DOE in its fiscal year 2002 budget to an action plan that includes (1) a settlement with contract litigants and (2) until there is a permanent repository in the U.S., initiate immediately a pilot program to transport byproducts from plants threatened with shutdown or are already shutdown. It is time for Congress to appropriate, at a minimum, the $445 million requested by

the DOE in its fiscal year 2002 budget so that the Department stays on track with the nuclear waste disposal program.

LAWSUITS AND FUNDS FOR THE DEPARTMENT OF JUSTICE

The DOE has requested $900 thousand from the NWF to defend itself against 1998 lawsuits brought by various utilities seeking performance under the contract with the DOE. The NWSC vigorously OPPOSES any appropriations to the DOE in support of the 1998 Department of Justice litigation involving civilian radioactive waste management system. The NWSC RECOMMENDS that this $900 thousand be allocated instead to transportation related systems and infrastructure necessary to remove spent nuclear fuel from plant sites.

It is almost 3 years since the DOE defaulted on its obligations, as stated in the Nuclear Waste Policy Act of 1982, to remove spent nuclear fuel from the nation's nuclear power plants. In its 1996 Indiana—Michigan decision, the U.S. Court of Appeals affirmed that the DOE was obligated to start moving waste on January 31, 1998, "without qualifications or condition." The DOE ignored the Court, prompting 46 state agencies and 36 utilities to again seek relief from the Court. The DOE has meanwhile ignored repeated Court orders to begin moving waste from commercial nuclear plant sites on the grounds that it has yet to build a permanent repository and has no authority to provide an interim storage and transport high-level nuclear waste from plant sites.

RIGOROUS SAFETY STANDARDS

The DOE has proven that it can safely transport spent nuclear fuel and high-level nuclear waste from plant sites across the nation. More than 3,000 shipments of spent nuclear fuel from nuclear power plants, government research facilities, universities and industrial facilities have crossed the United States, "without a single death or injury due to the radioactive nature of the cargo." [1] Shipments include 719 containers from the Naval Nuclear Propulsion program between 1957 and 1999, and 2,426 highway shipments and 301 railway shipments from the U.S. nuclear industry from 1964 to 1997. In addition, since 1996, shipments of spent nuclear fuel have been safely transported to the United States from 41 countries to the DOE facilities; [2] again, without a single death or injury. Furthermore, the DOE has safely and successfully made more than 100 shipments to the WIPP in New Mexico since 1999.[3] The Western Governors' Association (WGA) signed an agreement with the DOE in April 1996 that affirmed regional planning processes for safe transportation of radioactive waste. All regional high-level radioactive waste transportation committees also endorsed the WGA approach. The WIPP transportation planning system is setting the standard for safety and proving to be a critical step toward solving the nations spent nuclear waste disposal program. To ensure safety at on-site spent fuel storage facilities and during transportation, the material is stored in containers that meet the NRC's rigorous engineering and safety standards testing. To satisfy the NRC's rigorous standards for subsequent transportation approval, these containers have been dropped 30-feet onto an unyielding surface, dropped 40 inches onto a 6-inch vertical steel rod, exposed for 30 minutes to a 1,475°F fire, submerged under 3 feet of water for eight hours, immersed in 50 feet of water for at least eight hours (performed in a separate cask), and immersed in 656 feet of water for at least one hour.[4]

PROTECT NATION'S ENVIRONMENT AND ENERGY

Nuclear power comprises 20 percent of our nation's base-load electric generating capacity and is consistently emission-free when properly monitored. According to the International Atomic Energy Agency, U.S. commercial nuclear power plants prevent the emission of 147 million metric tons of carbon dioxide and 2.5 million tons of nitrogen oxide into our nation's atmosphere per year; and by doing so, significantly reduces the global greenhouse effect and improves the air quality of this country. Nevada is unfortunately among the states that rely primarily on coal fuel for energy. These states struggle for solutions to the downwind effects of that energy's byproducts. Regardless of the merits of nuclear energy, nuclear byproduct management advocated by the NWSC is policy-neutral. That is, access to Federal storage

[1] National Conference of State Legislatures' Report, January 2000.
[2] U.S. Department of Energy Report to the Committees on Appropriations, January 2001.
[3] U.S. Department of Energy Report to the Committees on Appropriations, January 2001.
[4] Nuclear Regulatory Commission Testing Requirements, 10 CFR Sections, 71.61, 71.71, and 71.73.

and disposal facilities is required immediately whether nuclear power plants are closed, re-licensed or licensed in a Neo-Nuclear Age.

CONCLUSION

The NWSC is an environmentally minded ad hoc group concerned about the nation's civilian nuclear waste disposal program. For the last 18 years, those who want to derail commercial nuclear power in this country have used this program as a political tool. In fact, the Federal government's failure to deliver extends back several decades. The U.S. Congress and the Federal government need to immediately address the growing problem of high-level nuclear waste that now exists. We can no longer pretend that stranded waste at plant sites does not exist and is without economic consequence to the nation. We can no longer pretend that the problem is going away. The NWSC strongly urges the U.S. Congress to release, as a minimum, the $445 million requested by the DOE to bring the nuclear waste disposal program to fruition as promised and mandated by the Nuclear Waste Policy Act of 1982. The NWSC also urges Congress to deny the DOE's request for any funds from the NWF requested in support for the 1998 Department of Justice litigation involving civilian waste management system. The DOJ expenses incurred in the DOE's breach of contract with the utilities should be paid by the nation's taxpayers and not by the nation's electric ratepayers who are already paying for the disposal of high-level radioactive waste.

PREPARED STATEMENT OF THE AMERICAN CHEMICAL SOCIETY

The American Chemical Society (ACS) would like to thank Chairman Pete Domenici and Senator Harry Reid for the opportunity to submit testimony for the record on the Energy and Water Development Appropriations bill for fiscal year 2002.

As you may know, ACS is a non-profit scientific and educational organization, chartered by Congress, representing more than 163,000 individual chemical scientists and engineers. The world's largest scientific society, ACS advances the chemical enterprise, increases public understanding of chemistry, and brings its expertise to bear on state and national matters.

We firmly believe that advances in science and engineering have produced more than half of our nation's economic growth in the last 50 years. They remain the most important factor in the productivity increases responsible for our growing economy and rising standard of living, economists agree. Each field of science contributes to our diversity of strengths and capabilities and has given us the flexibility to explore new fields and apply science in unexpected ways. Over the last 25 years, funding for biomedical research has increased while Federal support for most other disciplines has remained flat or declined. Congress took an important step in the right direction last year when it increased funding for scientific research for fiscal year 2001. To nourish the roots of innovation in all fields and help ensure the success of growing investments in biomedicine, balance must be restored to the nation's R&D portfolio while supporting overall growth in the nation's science and technology budget. This should be a top priority for Congress and the administration as fiscal year 2002 appropriations are considered.

DOE BUDGET RECOMMENDATIONS

The Department of Energy's Office of Science is the nation's largest supporter of research in the physical sciences and is responsible for managing major scientific facilities. To meet the challenges of the nation's 21st century energy needs, ACS strongly supports funding the Office of Science in fiscal year 2002 at $3.62 billion, a 15 percent increase.

The Office of Science's fiscal year 2001 budget was a step toward reversing ten years of declining funding (in constant dollars) that eroded research capabilities and adversely impacted DOE-managed facilities used by the scientific community. A strong fiscal year 2002 budget will enable the Office of Science to support additional peer-reviewed research, better maintain and operate scientific facilities, and participate more fully in cutting-edge multi-disciplinary research such as nanotechnology and advanced scientific computing.

To ensure value for research dollars and excellence in performance, the Office of Science depends on rigorous peer reviews and on scientific advisory committees. These committees regularly provide recommendations on program content, scientific quality, future directions, research priorities, and proposed scientific user facilities.

This overall approach is recognized by many in the scientific community to be among the best and most thorough processes in the field of public research.

Currently, DOE must decline many highly rated grant proposals. These are lost opportunities for significant discoveries. Increases in core, peer-reviewed research are essential to provide clean and affordable power, advance energy efficiency and renewable energy, and improve energy production. Within the Office of Science, ACS is particularly supportive of the Basic Energy Sciences (BES) and Biological and Environmental Research (BER) programs.

The Basic Energy Sciences (BES) program funds an array of long-term basic research to improve energy production and use and environmental progress. BES research, for example, has fostered improvements in battery storage, superconducting materials, and the understanding of combustion at a fundamental level.

The Biological and Environmental Research (BER) program advances fundamental understanding in fields such as waste processing, bioremediation, and atmospheric chemistry to better understand potential long-term health and environmental effects of energy production and use and identify opportunities to prevent pollution.

Progress in these fields is also needed to develop and advance new, effective, and efficient processes for the remediation and restoration of weapons production sites. The program advances understanding of the basic chemical, physical, and biological processes of the Earth's atmosphere, land, and oceans, and how energy production and use may affect these processes. Such research includes critical efforts to capture, measure, and reduce carbon dioxide and other greenhouse gases and the consequences of global climate change. ACS supports a strong role for BER in Federal efforts to understand and address global climate change.

Each year, over 15,000 scientists and students from academia, industry and government—many funded by agencies other than DOE—conduct cutting-edge experiments at the national laboratories and user facilities DOE manages. These experiments are vital to advances in nearly every scientific discipline. With demand for these world-class facilities intensifying, additional funding would allow more operating time, upgrades, instrumentation, and technical support. More complete utilization of DOE's facilities would increase the return on investment made in their construction and maximize their scientific contributions and educational value. Additional funding for DOE user facilities should not come at the expense of individual investigator grants.

ACS also supports DOE's "Industries of the Future" program within the Office of Industrial Technologies (OIT). The program advances innovative technologies through cooperative R&D with the nation's most energy-intensive industries, including the chemical industry. OIT works with these industries to develop both a long-range vision of their future competitiveness and a technology roadmap to identify the R&D and other investments needed to achieve that vision.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other state and locally owned utilities throughout the United States. Collectively, public power utilities deliver electric energy to one of every seven U.S. electric consumers (about 40 million people), serving some of the nation's largest cities. The majority of APPA's member systems are located in small and medium-sized communities in every state except Hawaii.

We appreciate the opportunity to submit this testimony outlining our fiscal year 2002 appropriations priorities within your Subcommittee's jurisdiction.

RENEWABLE ENERGY PROGRAMS

APPA believes it is important to continue development and commercialization of clean, renewable energy resources as we face increased competition in the electricity marketplace. Two of the most significant barriers to greater renewable energy use are cost and lack of demonstrated experience. Because of the requirement to supply electricity to customers on demand, with high reliability at a reasonable cost, electric utilities often are conservative when evaluating new technologies. Evolving deregulation, coupled with unstable fuel prices, now adds a further challenge to greater adoption of relatively unproved renewable technologies.

APPA believes that investing in energy efficiency and renewable programs is critical and urge this Subcommittee to support adequate funding to ensure that renewable energy remains part of the full range of resource options available to our nation's electric utilities. APPA supports a minimum of $409 million for Solar and Re-

newable Resources Technologies in fiscal year 2002. This funding level will go a long way in furthering the call for significant expansion of renewable energy R&D programs in order to meet the energy challenges and opportunities of the 21st century.

RENEWABLE ENERGY PRODUCTION INCENTIVE PROGRAM (REPI)

APPA urges this subcommittee's support of the Renewable Energy Production Incentive Program (REPI) at $25 million in fiscal year 2002. At this level of funding, 62 projects would be funded providing 685 million kWh of electricity from renewable energy resources.

Established by the Energy Policy Act of 1992, Section 1212 was intended to provide some level of benefit with EPAct programs for tax paying entities (sections 1914 & 1916, providing production and incentive tax credits for renewable energy projects). The law directed the Department of Energy to create a program providing one and half cents per kWh of electricity produced from solar, wind, certain geothermal and biomass electric projects. Because projects of this nature often require a long lead-time for planning and construction, it is imperative that stable and predictable funding be provided.

As the only significant incentive available to locally owned, not-for-profit electric utilities to make new investments in renewable energy projects, REPI represents public power's only opportunity to produce environmentally-friendly electricity to meet the nation's environmental and energy goals.

A fully funded and reformed REPI program will help public power improve it's contribution to important renewable energy supply goals. Under a fully funded REPI program, 55.8 million metric tons of carbon equivalent (mmtce) could be reduced by developing existing landfills into gas-to-energy projects. A fully funded REPI would provide the needed incentive to spur development of other renewable energy projects.

Even more critical, given today's situation, the nation faces an unprecedented energy shortage, requiring the need to bring additional sources of energy capacity online. Rising prices in gas and other fuels have resulted in higher consumer power rates and power shortages. The time is ripe to accelerate the development and use of sustainable energy resources which currently represent 2 percent of the nation's energy generation (2.8 percent of capacity).

This subcommittee's support of full funding for REPI at $25 million will go a long way in fueling future renewable investments.

STORAGE FOR HIGH-LEVEL NUCLEAR WASTE

The Federal government's responsibility for deep geologic disposal of used nuclear fuel and the byproducts of defense-related activities is long established U.S. national policy. In 1982, the Nuclear Waster Policy Act established Federal policy for developing a repository for long-term stewardship of used nuclear fuel. In 1987, after environmental assessments were conducted of five sites, Congress focused the repository study on a single site at Yucca Mountain, Nevada. DOE is committed to providing a decision on a formal Yucca Mountain site recommendation to the president in 2001.

Since 1982, American electricity consumers have committed $16.5 billion to the Nuclear Waste Fund, specifically to finance the central Federal management of used nuclear fuel. Federal taxpayers have paid an additional $1.2 billion for disposal of waste from defense-related programs. The Nuclear Waste Fund has a balance of about $10 billion, all of which must be made available for repository construction and operation.

APPA strongly supports the Department of Energy's fiscal year 2002 funding request for the Civilian Radioactive Waste Management program. At this critical juncture, an increase in DOE's fiscal year 2001 appropriation of $409 million is warranted to continue scientific study at Yucca Mountain. Electricity consumers this year will pay more than $700 million into the Nuclear Waste Fund.

ADVANCED HYDROPOWER TURBINE PROGRAM

The Advanced Hydropower Turbine Program is a joint industry/government cost-share effort to develop a new, improved hydroelectric turbine superior in its ability to protect fish and aquatic habitat and operate efficiently over a wide range of flow levels. We support funding this program at $5 million in fiscal year 2002

During the next 15 years, 220 hydroelectric projects will seek new licenses from the Federal Energy Regulatory Commission (FERC). Publicly owned projects constitute 50 percent of the total capacity that will be up for renewal. Many of these projects were originally licensed over 50 years ago. Newly imposed licensing conditions can cost hydro project owners 10 to 15 percent of power generation. A new,

improved turbine could help assure any environmental conditions imposed at relicensing in the form of new conditioning, fish passages or reduced flows are not accomplished at the expense of energy production. This is particularly important due to the increasingly competitive electric market in which utilities operate today. Flow levels will affect the economics of each of these projects and many will be unable to compete if the current trend toward flow reductions continues.

FEDERAL POWER MARKETING ADMINISTRATIONS (PMAS)

APPA urges the Committee to support adequate funding for purchase power and wheeling (PPW). APPA has consistently supported increased efficiency in PMA operations. However, Congress must recognize that Federal power sales revenues cover all PMA operating expenses plus all Corps of Engineers and Bureau of Reclamation operations, maintenance, replacement and rehabilitation expenses for hydropower and repayment of the Federal investment in the construction of the projects plus interest. Power sales also support many nonpower-related expenses associated with these projects.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

APPA urges support of at least $175 million in fiscal year 2002 for the Federal Energy Regulatory Commission (FERC). Adequate funding for the agency is particularly necessary at this time in Page 4 of 5 APPA order to provide the resources needed to continue implementation of electric utility industry restructuring and to address major issues such as development of regional transmission groups.

The FERC is charged with regulating certain interstate aspects of the natural gas, oil pipeline, hydropower, and electric industries. Such regulation includes issuing licenses and certificates for construction of facilities, approving rates, inspecting dams, implementing compliance and enforcement activities, and providing other services to regulated businesses. These businesses will pay fees and charges sufficient to recover the Government's full cost of operations.

CLIMATE CHANGE PROGRAMS

APPA advocates continued support for and funding of the Climate Change Technology Initiative in fiscal year 2002. The initiative consists of a package of tax incentives and investments in research and development to stimulate increased energy efficiency and to encourage greater use of renewable energy sources. APPA is an aggressive advocate of Federal support for energy research and development. While these programs do not directly provide benefits or incentives to public power systems, APPA supports them nevertheless because they will result in substantial improvements to the environment.

U.S. DOE programs under the Climate Change Initiative include a mix of tax credits and Federal spending programs designed to increase efficiency and greater use of renewable energy resources. Important elements of the initiative include support for the deployment of clean technologies for buildings, transportation industry and electricity.

NAVAJO ELECTRIFICATION DEMONSTRATION PROGRAM

APPA calls on this Subcommittee to support full funding for the Navajo Electrification Demonstration Program at its $15 million authorized funding level for fiscal year 2002 and for each succeeding year.

The Navajo Electrification Demonstration Program is a new program authorized in Public Law 106–511, Section 602. The purpose of the program is to provide electric power to the estimated 18,000 occupied structures on the Navajo Nation that lack electric power. The goal of the program is to ensure that every household on the Navajo Nation that requests electric power has access to a reliable and affordable source of electricity by the year 2006. Appropriations for the program are authorized at $15 million over each of the next five years beginning in fiscal year 2002, October 1, 2001.

The Navajo Nation is served by the Navajo Tribal Utility Authority (NTUA), an APPA member. NTUA provides electric, natural gas, water, wastewater treatment, and photovoltaic services throughout the Navajo Indian Reservations in the states of Arizona, New Mexico, and Utah at the Four Corners.

APPA believes the Navajo Electrification Demonstration Program will go a long way to improve the quality of life for the Navajo Nation.

NATIONAL ENERGY RELIABILITY INITIATIVE

The nation's economic future is inextricably linked to the information revolution. Computer dependent and data-intensive end-users such as the Internet, telecommunications, and financial services industries, and modernized manufacturers require uninterruptible power supplies and high levels of power quality. It is estimated that power interruptions cost this nation's economy approximately $50 billion annually. The existing power infrastructure is challenged to provide the quality of power and high reliability that the information-based economy requires. APPA's membership believes that the Federal government has an important role to play in addressing these issues.

APPA believes the time has come for a National Energy Reliability Initiative to be established. The solution requires the immediate implementation of a joint public/private research, development and deployment portfolio in technologies for fuel-diverse distributed energy resources, electricity transmission and distribution, end-use equipment improvements, natural gas infrastructure, advanced power controls and sensors, and energy storage. Advances in these areas will help information-based industries for the next few years, while providing the technology framework that will enable truly effective and efficient competitive energy markets.

APPA, along with stakeholders in the high tech industry, seek the creation of a specific fiscal year 2002 line-item in the fiscal year 2002 budget focused on the energy reliability needs of the high tech industry and urge this Subcommittee to support the program and provide adequate funding to assist in achieving its goals.

Clean Coal Power Initiative.—APPA strongly urges the Subcommittee to support the Administration's request of $150 million in fiscal year 2002 to fund joint government/industry-funded research, development and demonstration of new technologies to enhance the reliability and environmental performance of coal-fired power generators. The CCPI will also develop the technological foundation for the next generation of even cleaner, more efficient technologies for both new power plants and for modernizing older ones.

PREPARED STATEMENT OF THE COALITION OF NORTHEASTERN GOVERNORS

The Coalition of Northeastern Governors (CONEG) is pleased to provide testimony for the record to the Senate Appropriations Subcommittee on Energy and Water Development as it considers fiscal year 2002 funding for the Office of Energy Efficiency and Renewable Energy (EERE) of the U.S. Department of Energy (DOE). Adequate funding for EERE is a vital component in the nation's ability to secure a diverse, balanced and reliable energy portfolio. Within this appropriation, the CONEG Governors specifically support an increase in funding for the Regional Biomass Energy Program (RBEP)—an important partner in DOE's multi-faceted initiatives to encourage a diverse energy resource mix and energy efficiency across the nation. Congressional support for an fiscal year 2002 funding level of $5.5 million for the RBEP within the EERE biomass program budget will allow this Federal-state-private sector initiative to continue the pioneering regional projects and informational and technical assistance networks which help bring bioenergy into regional energy markets across the nation.

Recent increases in the price of energy have placed a new emphasis on the need for alternative and domestic energy production. Bioenergy, which is both renewable and sustainable, includes forestry and agricultural crops and residues; wood and food processing wastes; and municipal solid waste. Today, ethanol and electricity generation from biomass feedstocks contribute three percent of the nation's energy consumption. Biomass resources and technology offer additional potential as the nation seeks to secure additional domestic energy production from diverse energy resources.

Biomass is particularly important to the Northeastern United States—a region heavily dependent on imported energy. Today, bioenergy produced from the region's forest and agricultural resources contributes approximately five percent of the region's energy consumption. Increased use of these indigenous energy resources for electricity production and fuels offers the potential to diversify the region's energy resource mix, generate jobs, and achieve important environmental objectives.

The RBEP, a U.S. DOE supported program which encompasses all 50 states in five regional programs, is an important tool in the nation's effort to realize the opportunities which bioenergy offers for energy production, economic development and sound environmental management. The regional programs are unique in tailoring their services to the specific biomass resources and unique energy market opportunities of each region. These services include regional projects and information and technical assistance networks which help identify opportunities for bioenergy re-

sources and technology, and mitigate institutional and market barriers to the development and deployment of bioenergy technologies. To accomplish these goals, the RBEP and its state partners have established partnerships with industry, fostered intra-state coordination, and established a reputation for providing objective and reliable information to Federal and state officials and the public sector.

From Maine to Maryland, the Northeast Regional Biomass Program (NRBP) makes possible state working groups which promote state policies supportive of bioenergy. It provides critical informational networks which share policy, technical and market information about bioenergy among the states and with the energy industry and the Federal government; and encourages public and private sector cooperation in undertaking demonstrations of bioenergy technologies. The NRBP activities encompass a wide range of biomass resources and technologies—from promoting experimental trials of energy crops such as willow and switch grass; demonstrating leading edge technologies such as fuel cells powered by biomass fuels; regional analysis of residues and wastes suitable for energy production; and facilitating the understanding of the role of bioenergy production in rural economies.

Recent RBEP funding has fallen to just over $2 million. This decrease has resulted in a significant reduction in funding to states and the elimination of regional projects. By restoring funding to $5.5 million, regional studies that support state and national activities can continue; and states can continue to support critical public-private sector bioenergy networks which transfer information and coordinate activities within a state, throughout the region and throughout the nation.

We thank the Subcommittee for this opportunity to share the views of the Coalition of Northeastern Governors, and we stand ready to provide you with any additional information on the importance of the Regional Biomass Energy Program and the Northeast Regional Biomass Program to the Northeast and the rest of the nation.

PREPARED STATEMENT OF THE CITY OF GRIDLEY

Mr. Chairman, Members of the Subcommittee, my name is Thomas Sanford, Energy Commissioner of the City of Gridley. I appreciate the opportunity to submit this testimony on behalf of the City and rice growers in Northern California who provide 20 percent of the nation's total rice production. We submit the following testimony in support of our request that an additional $5,000,000 (above the President's request) be earmarked in the fiscal year 2002 Energy and Water Development Appropriations bill, under the Department of Energy, Solar and Renewable Energy, Biomass/Biofuels, for the Gridley Rice Straw Project. These federal funds will be used to complete feasibility, permitting and environmental assessment efforts, and initiate construction of facilities to implement technologies and processes for cost-effective rice straw removal and utilization in the production of ethanol, silica and electric power.

BACKGROUND

The City of Gridley has spearheaded development of technologies and processes for cost-effective rice straw removal and utilization in the production of ethanol. Gridley is in the heart of Sacramento Valley rice growing region in Northern California. Thousands of jobs and more than $500 million of the Sacramento Valley's economy are directly dependent on the rice industry. Clean air mandates have required exploration of alternative methods of clearing and disposing rice straw. Without alternatives to open field burning, rice acreage would likely diminish, with adverse economic consequences. This key component of the Gridley Rice Straw Project, rice straw disposal, will assist the State of California in meeting air quality objectives, help maintain cost-effective operations in the rice industry, and create hundreds of direct and indirect jobs in Northern California communities. This is particularly important to communities facing double-digit unemployment and significant seasonal reductions in agriculture-related jobs.

RICE STRAW CONVERSION TO ETHANOL AND ELECTRIC POWER

The Gridley Rice Straw Project (Project) has made great strides towards an efficient process of gathering, processing and converting rice straw into ethanol. The present design capacity of the Project will be a minimum of 365,000 bone dry tons (BDT) of rice straw annually—approximately 40 percent of the reasonably available feedstock in the Sacramento Valley. The present Project design is expandable, and could handle up to 700,000 BDT of rice straw. Application of new technology for economical separation of silica and favorable transportation costs are key factors in in-

creasing the Project's consumption of rice straw and overall efficiency. Production of up to 43,000 BDT of marketable silica will add significantly to the project's overall output/revenue generation.

In addition to producing 15.5–26 million gallons of ethanol annually, the Project can convert rice straw to lignin, a high energy content boiler fuel. The project's net electric generation capacity is currently estimated to be 11–20 megawatts, depending on the project's configuration.

The processes and technology at the foundation of the Gridley Rice Straw Project can also utilize other renewable biomass feedstocks for the production of ethanol; including the byproducts of corn harvest, and even municipal greenways (grass clippings).

PROJECT TIMING, COST AND PRIOR FEDERAL APPROPRIATIONS

Environmental assessment and permitting work is expected to be completed in 2001, with construction scheduled for 2002. The Project will be operational in 2003, at a total capital cost of $80–$104 million, depending on the final plant configuration. Between fiscal year 1995 and fiscal year 2000, the Project has received $12.15 million in federal support under the Department of Energy, Solar and Renewable Energy, Biomass/Biofuels.

CONCLUSION

This project to collect, transport and process rice straw, eliminate open-field burning, and implement new technologies for ethanol, silica and electric energy production represents the best efforts of local communities working with state and federal agencies to implement state-of-the-art biomass to biofuel conversion and electricity production. Once established, this technology can be utilized in other California communities, and across the country—providing cost efficient renewable energy.

We strongly urge and respectfully request your support for $5,000,000 in addition to the President's budget request for the Gridley Rice Straw Project, to implement technologies and processes for cost-effective rice straw removal and utilization in the production of ethanol, silica and electric power.

PREPARED STATEMENT OF THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university community involved in weather and climate research and related education, training and support activities, I submit this written testimony for the record of the Senate Committee on Appropriations, Subcommittee on Energy and Water Development.

UCAR is a 66 university membership consortium that manages and operates the National Center for Atmospheric Research (NCAR) and additional programs that support and extend the country's scientific research and education capabilities. The UCAR mission is to support, enhance, and extend the capabilities of the university community, nationally and internationally; to understand the behavior of the atmosphere and related systems and the global environment; and to foster the transfer of knowledge and technology for the betterment of life on earth. In addition to its member universities, UCAR has formal relationships with approximately 100 additional undergraduate and graduate schools including several historically black and minority-serving institutions and 38 international universities and laboratories. UCAR is supported by the National Science Foundation (NSF) and other federal agencies including the Department of Energy (DOE).

The President's Blueprint budget stated that "DOE intends to achieve significant savings in 2002 from restructuring and reevaluating the performance of major projects . . . including . . . science projects . . .", and the detailed DOE proposed budget includes only a 0.1 percent increase for the Office of Science. While constructive assessment of continuing programs is desirable, I urge the Committee to examine carefully any "significant savings" coming from DOE's science programs to ensure that programs contributing to the nation's scientific and technological preeminence and world economic leadership are not compromised.

I would like to comment on the following programs within the DOE Office of Science that are of particular importance to the work of the atmospheric sciences community:

BIOLOGICAL AND ENVIRONMENTAL RESEARCH (BER)

The environmental component of BER is of great importance to the welfare of the country since its programs improve our understanding of the Earth's radiative energy balance, improve predictions of climate change induced by greenhouse gases, quantify sources and sinks of greenhouse gases and aerosols, and improve our ability to assess the potential consequences of climate change. BER programs, particularly those involving support of peer-reviewed research at universities and national laboratories, are critical to the work of researchers focussing on climate change and climate change impacts, and represent an important part of DOE's contribution to the multi-agency U.S. Global Change Research Program. These include the following:

Atmospheric Radiation Measurement (ARM) Program

ARM is a key component of DOE's research strategy to address global climate change. ARM data are critical to the improvement of General Circulation Models (GCMs), which simulate the entire global circulation of the atmosphere, and to our understanding of climate change responses to increasing greenhouse gases. Current ARM research foci include the significant role of clouds in climate, the radiation balance of the atmosphere, and the interactions of solar and infrared radiation with water vapor and aerosols. These atmospheric processes are critical to understanding and predicting changes in global and regional temperature and precipitation patterns that result from anthropogenic and natural influences.

The work of many university principal investigators is supported through ARM as are interactions and collaborative work with prominent climate modeling centers. The proposed fiscal year 2002 funding for ARM is $13.4 million for research, only a $362,000 increase; and $27.3 million, or flat funding, for ARM infrastructure. I urge the Committee to allocate increases to cover at least a 4 percent cost of inflation for BER's Atmospheric Radiation Measurement program research and infrastructure accounts, or $13.65 million and $29.3 million, respectively.

Climate Modeling

DOE is working with agencies such as NSF, NASA and NOAA to improve the state of climate modeling. Positioned within Climate and Hydrology in BER, the Climate Modeling effort is an important component of the USGCRP and integrates the BER climate modeling programs, including the successful Computer Hardware, Advanced Mathematics, and Model Physics (CHAMMP) activity. This initiative supports the development of the next generation circulation models and smaller scale climate model simulations for global and regional studies of environmental changes.

Teams involving national laboratories and the university community produce and apply observational and modeling data to study both global and regional climate change and accompanying environmental impacts. This work is of great importance to our understanding of the manner in which climate change, natural or otherwise, affects specific areas of the country with ramifications to local environmental and economic systems. The proposed funding of $27.1 million for Climate Modeling in fiscal year 2002 is only very slightly higher than that of fiscal year 2001 and is insufficient to cover inflation, much less make the kinds of scientific progress that it possible. I urge the Committee to appropriate an amount of at least $29.0 million (approximately a 4 percent increase) for Climate Modeling within BER.

Atmospheric Chemistry and Carbon Cycle

Contributing critical work to the USGCRP, DOE's Atmospheric Chemistry and Carbon Cycle programs support research at university, DOE, and non-DOE laboratories across the country to provide information on the atmospheric environment that is critical for long-range energy planning. The DOE-supported carbon cycle research explores movement of carbon on a global scale and is key to understanding the sources and sinks of carbon both in terrestrial and ocean systems. The agencies of DOE, NOAA, NSF, and EPA have a coordinated strategy to work toward completing our knowledge of the carbon cycle. One of the especially important aspects of the DOE carbon cycle program is its support of long-term measurement sites and data holdings that are used by climate change researchers around the world. Proposed overall funding for this critical work is decreased from the fiscal year 2001 amount by $735,000. I urge the Committee to appropriate for Atmospheric Chemistry and Carbon Cycle (within BER) an fiscal year 2002 amount of $37.0 million, a 4 percent increase over fiscal year 2001 to account for inflation.

Within Atmospheric Chemistry and Carbon Cycle, the Atmospheric Science programs acquire critical data to advance our understanding of the transport and fate of energy-related chemicals and particulate matter in the atmosphere as well as the important roles of aerosols in weather and climate. Proposed funding for this work

is flat for fiscal year 2002. I urge the Committee to specify for DOE's Atmospheric Science programs (within BER) an fiscal year 2002 amount $13.1 million, a 4 percent increase over fiscal year 2001.

ADVANCED SCIENTIFIC COMPUTING RESEARCH (ASCR)

DOE's ASCR complements the work of and enables progress in the Climate Modeling initiative described above. ASCR's continued progress is of particular importance to atmospheric scientists involved with coupled general circulation model development, research that takes enormous amounts of computing power. By their very nature, problems dealing with the interaction of the earth's systems and global climate change, cannot be solved by traditional approaches. If the United States is to continue to play a key role in determining the components that influence climate behavior and further developing scientific methods to successfully predict climate change, then the country's scientists must have access to enhanced computer simulation and modeling technology and software.

The ASCR section of the proposed fiscal year 2002 budget states that, "High performance computing is rapidly increasing its importance as a science tool." A completely flat budget of $165.4 million is then recommended. If I am reading the budget correctly, that flat request will be reduced soon by $2.7 million to increase the Fusion Energy Science Program. While I understand the immediate need for enhanced energy science, I disagree strongly with handicapping one critical scientific program to boost another, particularly at a time when we enjoy a national surplus in large part because of scientific and technological advances. I urge the Committee to examine carefully the importance of Advanced Scientific Computing Research in the context of the world's computing capabilities and the country's needs and appropriate, at the very least, an increase of 4 percent to cover inflation, for a funding level of $172.4 million.

GLOBAL CHANGE EDUCATION PROGRAM

DOE's Global Change Education program (within Human Interactions in the budget) performs a great service for the atmospheric sciences community by joining with the NSF and other agencies to support students involved in the UCAR-managed program, Significant Opportunities in Atmospheric Research and Science (SOARS). SOARS is a four-year graduate and undergraduate program for students pursuing careers in the atmospheric and related sciences. In its relatively short history, SOARS has already increased the number of under-represented students in this scientific area by a significant percentage. I would like the Committee to be aware that the Global Change Research Program is contributing to the SOARS effort to ensure that tomorrow's scientific workforce reflects the diversity of our citizenry and provides opportunity to all students.

On behalf of UCAR, I want to thank the Committee for the important work you do for U.S. scientific research. We appreciate your attention to the recommendations of our community concerning the fiscal year 2002 budget of the Department of Energy.

PREPARED STATEMENT OF NEW YORK UNIVERSITY

On behalf of New York University, I appreciate the opportunity to submit testimony in support of public investment in basic research and, in particular, to salute the Department of Energy (DOE) whose funding of fundamental research is so important to the health and well being of our nation.

The DOE's support of university-based research is essential to our national ability to prepare for the scientific and technological challenges that we will face in the 21st century. The Department of Energy supports biological and environmental research, nanoscale science, physical, life, as well as computational, and social sciences. The DOE's funding is critical both for its direct support of research, training, and education, as well as its indirect impact in enabling extramural (university-based) researchers to attract additional funding for research and science infrastructure from other federal agencies, private foundations, and industry. In that regard, I urge Congress to support increased funding for the Department of Energy for fiscal year 2002.

At the Washington Square Campus of New York University, DOE funding has supported leading-edge research across a range of areas. In environmental science, DOE supported our efforts to test climate models against what is known about paleoclimates. In quantum physics, DOE is aiding the theoretical understanding and experimental pursuit of quark-gluon plasma. In the broadening field of

genomics, DOE has funded work in everything from optically mapping the genome to studying chemical and energy-related mutation to isolating the genes that regulate plant growth. I would like to underscore genomics, as it is an important priority for DOE and an area in which NYU intends to make major contributions.

ADVANCES IN GENOMICS

The genome is the recipe or blueprint for life. During the last decade—and particularly during the last two years—the unraveling of the genetic code has opened up a vast range of new opportunities for evolutionary and developmental biologists, chemists, and information scientists to understand what genes are, what they do, and how they do it. Genomics is revolutionizing biology and is dramatically changing the way we characterize and address biological questions. As a field that straddles biology, chemistry, computer science, and mathematics, genomics is growing at an extraordinary pace and is transforming these disciplines as well as the social and behavioral sciences.

In its first stage, the revolution in genomics was characterized by a period of intensive development of techniques to analyze DNA, first in simple models, like yeast, bacteria, the worm, and the fruitfly, then in the mouse, and now in humans. The structure and function of genes are similar in these models, making comparisons useful. The second phase was characterized by the use of these tools to address whatever biological question was most easily approached, given the state of technique development. It may be described as structural genomics—which comprises the mapping and sequencing of genomes and is mainly driven by technology. The scientific community is now poised to enter the third phase of the genomics revolution in which investigators bring perspectives from other fields, like immunology, genetics, and neurobiology to pursue investigations that are driven by hypothesis rather than technique. This third phase is generally termed functional genomics and uses the map and sequence information already collected to infer the function of genes.

At New York University, we think the key issues facing genomics today are how to translate the enormous quantities of gene sequence data into knowledge of gene function. The answers lie, we believe, in comparative functional genomics, an approach that looks for the occurrence of the same genes in different species that share certain structures or functions, and provides a powerful method for understanding the function of particular genes. Comparative functional genomics uses two primary modes of analysis: (1) identifying what has been conserved over long evolutionary periods, and (2) determining crucial differences that distinguish two closely related species. This focus can provide the key to unraveling the complex regulatory networks for crucial biological functions.

Studies in comparative functional genomics are necessarily multidisciplinary. Comparative functional genomics synergizes basic science research programs such as those at NYU's Faculty of Arts and Science, with computational science, specifically bioinformatics, at its Courant Institute of Mathematical Sciences. Further, the scope of the enterprise is such to encourage collaboration not only within but also between research institutions. As an example, the concentration within NYU of strengths in evolutionary biology, neurobiology, developmental genetics, human genetics, applied mathematics research, imaging and computation is further extended through the University's research collaborations and affiliation agreements with major metropolitan area institutions. Productive affiliations that were recently articulated in response to New York State's major new initiative to develop the State's science and technology resources link NYU with The New York Botanical Garden and the American Museum of Natural History which house the world's largest collections of well-characterized specimens from the animal and plant kingdoms respectively, and Cold Spring Harbor Laboratory, one of the world's centers for molecular biology and genomics research.

New York University and other major research institutions are poised to make important contributions to the next phase of genomics research. DOE funding is critical to maintain and strengthen the vibrancy of university-based science research.

RESEARCH APPLICATIONS AND NATIONAL BENEFITS

Research in genomics can offer benefits to our citizens in a wide range of domains from new energy sources to crops that resist disease, insects and drought to better industrial processes to identification (or exoneration) of crime suspects. Genomics can be a major resource for directly energizing a range of commercial enterprises, and can provide a strong framework for economic development in vital, high-tech industries.

Advances in Biological, Computational, and other Research Fields.—The understanding of the human genome has very broad applications to cell biology, embryology, developmental biology, and population genetics. Genomics connects and illuminates science in all these fields. Further, functional genomics research has created a need for information processing structures that efficiently compare and analyze patterns in enormous data sets and allow ready representation and interpretation of their common elements and differences. As an example, computer scientists at NYU are working closely with molecular geneticists and business entrepreneurs to develop a library of genomics software tools. Some of these tools are already being considered by medical researchers for use in diagnosing tumors, which have a genetic structure different from healthy tissue.

Applications for Environmental Issues.—Genomics offers important new approaches to addressing environmental problems and conservation. As an example, knowing the genetic sequence of plants may allow us to identify clusters of genes and their function (to produce a flower from a shoot) and manipulate them (to cut flowering time); enhance seed viability without affecting the quality of a fruit; and increase the nutritional value of grains. As we continue to sequence new plants and isolate more genetic clusters, we can expect to discover how to develop crops that have increased resistance to temperature extremes and disease, and that can also grow in less hospitable soils. As we learn more about how genes are switched on and off by environmental factors, we may be able to predict how a crop will function in a particular climate before attempting to cultivate it. These discoveries and others can revolutionize agriculture within a decade.

Commercial Applications.—Fundamental studies in genomics are producing new data about the function of genes that will have widespread commercial applications for the development of novel human and veterinary therapeutics and diagnostics; "customized" patient care; the development of crops with improved growth capabilities or improved resistance to herbicides; and so on, in a list that can impact virtually every aspect of our health and well being.

Economic Development.—R&D investment in genomics is energizing biotechnology, pharmaceutical, biomedicine, agbiotech, computer software, and engineering enterprises, as genomics research begins to spawn a new generation of commercializable technologies, and new bioinformatics and software companies and genomics platform companies (that generate specific genomic data for product development).

More generally, investment in research can foster vital university-centered concentrations of industrial activity: In a now familiar dynamic, industry draws on the faculty's entrepreneurial energies, their expertise in training the personnel needed to staff high-technology firms, and the fundamental scientific research that can translate into practical applications. High-tech firms spring up near a research university and, in turn, attract or spin off additional high-tech firms in the same or related fields. The interaction of scientists across firms makes the spread of information quicker and the development of projects more rapid. Initial firms and newer firms share a growing pool of highly trained personnel. The expansion of the skilled labor pool makes hiring easier and attracts still more firms. And, once a core of high-tech industries locates in an area, venture capitalists identify the area as "promising" and the flow of capital—a key ingredient for high-technology growth—increases.

In a related economic spiral, R&D funding spurs job growth across a range of economic sectors. A conservative approximation that uses state employment multipliers maintained by the U. S. Commerce Department's Bureau of Economic Analysis points to immediate employment impacts: The BEA calculates that each $1 million in R&D grants supports roughly 34.5 full and part time jobs directly within the university and indirectly outside the university as the university's expenditures ripple through the local and state economy.

Biomedical Applications for National Health Needs.—An investment in genomics research will help us to understand complex, multi-gene diseases such as cancer, heart disease, and Alzheimer's; distinguish different forms of a disease, permitting precisely targeted treatment; and understand why drugs work and how to design better ones. Genomics has the potential to revolutionize the development of mass screening tests for genetic disorders, ultimately making it possible to identify the hereditary contribution to common diseases, predict individual responses to drug intervention, and design drugs that are customized for individual use.

In summary, investment in genomic science is a strategic and efficient vehicle for advancing fundamental studies in a wide variety of scientific fields, facilitating applications that can greatly enhance the public welfare, and energizing existing and new industries. Increasing the investment in state-of-the-art equipment and in research that enables geneticists, computer scientists and physical chemists to readily

interact with each other is essential for the development of this important area. We firmly believe that a federal investment in these and other biomedical research fields repays itself many times over.

The commitment of this committee to support the Department of Energy and its capacity to support the study of genomics is greatly appreciated. And, in general we urge Congress to continue its commitment to increase the funding of the basic sciences.

PREPARED STATEMENT OF THE INTEGRATED PETROLEUM ENVIRONMENTAL CONSORTIUM

It is proposed that the U.S. Department of Energy support a pilot technology transfer program in Oklahoma and Arkansas called the Petroleum Extension Agent Program through the Integrated Petroleum Environmental Consortium (IPEC). Federal support of $1.5 million is specifically requested as part of the fiscal year 2002 appropriation for the Department of Energy or other source the Subcommittee may determine to be appropriate

THE INTEGRATED PETROLEUM ENVIRONMENTAL CONSORTIUM (IPEC)

The Integrated Petroleum Environmental Consortium (IPEC) is an environmental consortium of The University of Oklahoma, Oklahoma State University, The University of Tulsa, and The University of Arkansas at Fayetteville. Funded as an EPA Research Center, the mission of IPEC is to increase the competitiveness of the domestic petroleum industry through a reduction in the cost of compliance with U.S. environmental regulations. This mission is accomplished through a vigorous research and technology transfer program.

IPEC is industry driven to ensure that the consortium is meeting the needs of the industry and fulfilling its mission. IPEC is advised by an Industrial Advisory Board (IAB) composed of environmental professionals, state regulators, and independent operators who review all research proposals for relevancy to IPEC's mission. Representatives of regulatory bodies include the Oklahoma Corporation Commission, the Arkansas Oil and Gas Commission, the Arkansas Department of Pollution Control and Ecology, and the Pawhuska, OK office of the U.S. Environmental Protection Agency. The independent oil companies (producers and refiners) are the majority group represented on the IAB. This Board is dominated by the upstream independent sector of the industry. The responsibilities of the IAB are two-fold. First, the IAB advises the IPEC Executive Committee on environmental research needs in the domestic petroleum industry. Secondly, the IAB reviews research proposals at a pre-proposal stage for relevancy to the mission of IPEC. Research proposals must meet this test of relevancy to be considered further for funding. IPEC is also advised by a Science Advisory Committee (SAC), composed of leading environmental experts from academia and government laboratories, that reviews all research proposals for scientific quality.

Since September 1998 IPEC has funded 18 research projects that promise to help ease the regulatory burden on the domestic petroleum industry. These funded projects include: the use of plants to clean contaminated soils; the natural biodegradation of gasoline by microorganisms in the absence of oxygen; the beneficial use of petroleum wastes as road materials; the control of the formation of toxic hydrogen sulfide in oil wells; the development of simple sampling devices to replace expensive live organisms to assess toxicity in contaminated soils; the treatment and disposal of naturally occurring radioactive material (NORM) in oil production equipment; the remediation of brine-impacted soils; development of a sound scientific basis for ecological risk assessment of petroleum production sites; improving the economics of well plugging; improving the efficiency of oil-water separation; and enhancing the remediation of oil contaminated soils. These projects were first reviewed and approved by our Industrial Advisory Board (dominated by independent producers) as relevant to our mission of increasing the competitiveness of the domestic petroleum industry and finally reviewed and approved by our Science Advisory Committee (SAC) on the basis of scientific quality. The EPA has endorsed each member of the IPEC SAC.

IPEC has provided $1,612,071 in funding for these projects. However, another $1,432,226 in funding for these projects has been secured by the investigators as matching funds from industry and industry organizations such as the Gas Research Institute, the American Petroleum Institute and the Petroleum Environmental Research Forum. This is over and above matching funds provided by the Oklahoma State Reagents for Higher Education ($750,000). IPEC has pledged to Congress to

work for a 1:1 match of federal dollars. As you can see IPEC is living up to that promise! IPEC is a true public/private partnership.

IPEC's technology transfer program is directed toward providing useful tools for environmental compliance and cost reduction to independent producers. The first objective of this program is to raise the level of technical training of the field inspectors of the oil and gas regulatory bodies of Oklahoma and Arkansas including the Oklahoma Corporation Commission, the Arkansas Oil and Gas Commission, and the Osage Agency of the Bureau of Indian Affairs with regard to first response to spills, pollution prevention, and remediation of oil and brine spills. The second objective of this program is the development of checklists for independent producers to assist them in environmental audits ("staying out of trouble checklists"), remediation of oil and brine spills, and first response to spills. Oklahoma and Arkansas regulatory field agents are being used to deliver these tools to the independent producers.

IPEC's technology transfer flagship is the International Petroleum Environmental Conference. In November, 2000 IPEC held the 7th International Petroleum Environmental Conference in Albuquerque, NM. There were 345 in attendance from all facets of the oil and gas industry including independent and major producers, service industry representatives, and state and federal regulators. The program for the 7th conference featured several plenary lectures, over 135 technical presentations, exhibits, a poster session and a special symposium on characterization and remediation of the subsurface. Co-sponsors of the conference included the Interstate Oil and Gas Compact Commission, the Railroad Commission of Texas, the Texas Independent Producers and Royalty Owners Association, the Gas Research Institute, the Oklahoma Independent Petroleum Association, the Oklahoma Energy Resources Board, the EPA Office of Research & Development, and the National Petroleum Technology Office of the U.S. Dept. of Energy. IPEC sponsors the participation of fifteen state regulators from Oklahoma and Arkansas each year at the conference. The 8th International Petroleum Environmental Conference will be held November 5–9, 2001, in Houston, TX.

THE CONTINUING CRISIS IN THE DOMESTIC PETROLEUM INDUSTRY

Much attention has been paid recently to the high costs to consumers of gasoline and natural gas. Energy experts agree that the price increases currently being experienced were brought on by short-term shocks that resulted from sudden changes in supply and demand. On the demand side there has been increasing demand for petroleum worldwide, especially in the Far East. On the supply side, OPEC and several non-OPEC countries have removed significant amounts of crude oil from production. Once again America has been held hostage to the marketing whims of foreign producers and we are in no position to respond. Since 1990 there has been a 27 percent decline in the number of jobs in the U.S. exploring and producing oil and gas and the number of working drilling rigs has seriously declined. Thirty-six refineries have closed since 1992 and no new refineries have been built since 1976. Most energy analysts agree that we need to "drill our way out" of the current high prices and shortages; however, the industry's infrastructure (in terms of equipment and trained personnel) cannot support the amount of drilling activity current prices would otherwise encourage.

In order to regain energy security the U.S. must have a coherent domestic energy strategy. Some may be willing to entrust the health of the U.S. economy to windmills and solar-powered cars, but it will be a stable and profitable domestic oil and gas industry that is the nation's best defense against OPEC market manipulations. The current upswing in crude oil prices may eventually stimulate the industry. However, the record low prices that preceded the current increases have left many companies in financial positions that make it impossible to launch new exploration activities. Additionally, many in the industry are simply uneasy with the volatility that has come to characterize the industry. Much of U.S. domestic oil production is carried out by independent producers who are producing from mature fields left behind by the majors. Although there is a significant resource base in these fields, this is the most difficult and the most costly oil to produce. The independent producer has only one source of revenue—the sale of oil and gas. There is no vertical depth to his business.

A major factor in the high cost of production in the domestic petroleum industry is the cost of environmental compliance. IPEC is working to strengthen the domestic petroleum industry and reduce the impact of market volatility by providing cost-effective environmental technologies to solve those problems that are having the greatest impact on production costs. These efforts are especially needed now as we develop new sources of natural gas such as coal-bed methane. This new source of natural gas is desperately needed to meet our nation's energy demand but coal-bed

methane presents some unique environmental problems which must be addressed in a cost-effective manner. A strong and stable domestic petroleum industry is our best hedge against foreign market manipulation.

IPEC'S RESPONSE TO CRITICAL INDUSTRY NEEDS

IPEC is continually probing our Industrial Advisory Board for new ways to assist the domestic petroleum industry and continually seeking out cost-effective technical solutions to these problems through an aggressive proposal solicitation and review process. The IPEC IAB also advises the Consortium on technology transfer needs in the industry. An exciting idea that has been put forward by the IPEC IAB is the concept of the petroleum extension agent (PEA). The current appropriations request will fund a pilot PEA program in Oklahoma and Arkansas that can be expanded to include every oil and gas producing state or region.

There are over 3,500 independent oil producers in Oklahoma and Arkansas. Most of these are very small companies, the "mom and pop" operations whose business is run from the pickup truck and the kitchen table. These small producers are especially vulnerable to industry volatility. The current crises in the domestic petroleum industry requires a multi-level response with a specific outreach effort to the smallest of the independents, those without in-house experts, to advise them on the latest production techniques to minimize costs; how to prevent spills and the accompanying clean-up costs; and how to comply with state and federal regulations to avoid fines and costly loss of production. This type of assistance is not currently provided by the private sector engineering and service companies because the small producers cannot afford private sector services of this kind.

IPEC proposes to provide these services to small independent producers through a system of petroleum extension agents (PEAs). Up to ten (10) full-time equivalent petroleum professionals will be hired to call on small independent producers throughout Oklahoma and Arkansas to provide direct assistance in every aspect of operating a profitable and environmentally friendly business as an oil producer. These PEAs will be seasoned veterans of oil and gas production in the state in which they will operate. PEAs will possess demonstrated technical competence and have a minimum of 20 years of experience in the industry. PEAs will operate in the major oil producing areas of the states.

PEA services will be made known to producers through advertisements and through field agents of the Oklahoma Corporation Commission and the Arkansas Oil and Gas Commission. PEAs will also seek out and call on small producers in the same way that county agricultural extension agents call on small farmers. PEAs will be required to serve at least 24 clients per year, spending an average of two weeks working with each small producer. This amount of time is needed to earn a producer's confidence, get to know their business, and demonstrate cost-saving ideas. In difficult situations PEAs will be able to draw on the significant resources of the IPEC institutions and the IPEC Industrial Advisory Board. The IPEC institutions contain many business and environmental resources, two departments of petroleum engineering, and many chemical and mechanical engineers engaged in oil and gas research. The IAB members also represent decades of experience in the oil and gas industry in Oklahoma and Arkansas.

Representatives of the Oklahoma Corporation Commission and Arkansas Oil and Gas Commission are members of the IAB; therefore, in cases of conflict between small producers and one of these regulatory bodies, IPEC can also potentially serve to help resolve problems.

The results expected from this program are:

—a reduction in the costs of production and increased profitability among small independent producers,
—lesser numbers of small producers going out of business,
—less abandoned resources,
—greater state tax revenues and
—increased compliance with environmental regulations and greater protection of natural resources.

It is anticipated that 240 small producers will be directly assisted in the first year of this program. However, the knowledge gained by these producers will be passed on to other small producers and family members by word-of-mouth greatly expanding the reach of this direct mechanism of technology transfer to the industry.

FUNDING OF THE PETROLEUM EXTENSION AGENT PROGRAM

IPEC is seeking an appropriation of $1.5 million for fiscal year 2002 through the Department of Energy to fund a pilot petroleum extension agent program in Okla-

homa and Arkansas. The Consortium will be subject to peer review to ensure the effective utilization of public funds in meeting the stated goals of the PEA program.

PREPARED STATEMENT OF THE AMERICAN MUSEUM OF NATURAL HISTORY

ABOUT THE AMERICAN MUSEUM OF NATURAL HISTORY

The American Museum of Natural History [AMNH] is one of the nation's preeminent institutions for scientific research and public education. Since its founding in 1869, the Museum has pursued its mission to "discover, interpret, and disseminate—through scientific research and education—knowledge about human cultures, the natural world, and the universe." It is renowned for its exhibitions and collections of more than 32 million specimens and cultural artifacts. With nearly five million annual visitors—approximately half of them children—its audience is one of the largest, fastest growing, and most diverse of any museum in the country. Museum scientists conduct groundbreaking research in fields ranging from all branches of zoology, comparative genomics, and informatics to earth, space, and environmental sciences and biodiversity conservation. Their work forms the basis for all the Museum's activities that seek to explain complex issues and help people to understand the events and processes that created and continue to shape the Earth, life and civilization on this planet, and the universe beyond.

Today more than 200 Museum scientists with internationally recognized expertise, led by 47 curators, conduct laboratory and collections-based research programs as well as fieldwork and training. Scientists in five divisions (Anthropology; Earth, Planetary, and Space Sciences; Invertebrate Zoology; Paleontology; and Vertebrate Zoology) are sequencing DNA and creating new computational tools to retrace the evolutionary tree, documenting changes in the environment, making new discoveries in the fossil record, and describing human culture in all its variety. The Museum also conducts graduate training programs in conjunction with a host of distinguished universities, supports doctoral and postdoctoral scientists with highly competitive research fellowships, and offers talented undergraduates an opportunity to work with Museum scientists.

The AMNH collections of some 32 million natural specimens and cultural artifacts are a major scientific resource, providing the foundation for the Museum's interrelated research, education, and exhibition missions. They often include endangered and extinct species as well as many of the only known "type specimens," or examples of species by which all other finds are compared. Within the collections are many spectacular individual collections, including the world's most comprehensive collections of dinosaurs, fossil mammals, Northwest Coast and Siberian cultural artifacts, North American butterflies, spiders, Australian and Chinese amphibians, reptiles, fishes, and one of the world's most important bird collections. Collections such as these are historical libraries of expertly identified and documented examples of species and artifacts, providing an irreplaceable record of life on earth. They provide vital data for Museum scientists as well for more than 250 national and international visiting scientists each year.

In the exhibition halls AMNH scientific knowledge and discovery are translated into three dimensions. One of the most exciting chapters in the Museum's history culminated just over one year ago with the opening of the Rose Center for Earth and Space in February 2000. Greeted with critical and popular acclaim and record-setting attendance surpassing all projections, the Rose Center includes a rebuilt Hayden Planetarium, Hall of the Universe, and Hall of Planet Earth. In Planet Earth, exhibits explore the processes that determine how the Earth works and questions about natural resources. It leads to the Hall of Biodiversity, which opened in 1998 and reveals the variety of Earth's living things and expands the Museum's efforts to alert the public to the critical role biodiversity plays in sustaining life as we know it. Together, the new planetarium and halls provide visitors with a seamless educational journey from the universe's beginnings to the formation and processes of Earth to the extraordinary diversity of life on our planet.

The Education Department builds on the Museum's unique research, collections, and exhibition resources to offer rich programming dedicated to increasing scientific literacy, to encouraging students to pursue science and museum careers, and to providing a forum for exploring the world's cultures. Each year hundreds of thousands of students, teachers, and schools participate in workshops, courses for college credit, and Museum visits; more than 500,000 students and teachers come on school visits, prepared and supported by curriculum resources and workshops. The Museum is also reaching beyond its walls: through its National Center for Science Literacy, Education, and Technology, launched in 1997 in partnership with NASA, it is ex-

ploiting new technologies to bring learning and discovery, materials, and programs into homes, schools, museums, and community organizations around the nation.

SUPPORT FOR DEPARTMENT OF ENERGY MISSION AND GOALS

The American Museum shares DOE's fundamental commitments to cutting-edge research, technology in support science and education, and science education and literacy. As the nation's third largest government sponsor of basic research and a major source of support for laboratory equipment and instrumentation, DOE is one of the world's preeminent science organizations. Its primary strategic goals also include promoting science literacy and educating the next generation of scientists. The Museum seeks in concert with DOE to leverage our complementary resources and mutually strengthen our abilities to advance our shared goals.

Genomics Science

DOE is a leader in genomics research, advanced sequencing technologies, and instrumentation. With the historic completion of the first draft of the human genome, its work on the frontier of genome science continues, including research in energy-related biology, comparative genomics, and organisms' responses to biological and environmental cues. The American Museum, in turn, is home to a preeminent molecular research effort and is deeply engaged in genome research closely tied to DOE's mission areas and research priorities. Indeed, natural history and genomic science are intricately related. The AMNH molecular systematics program is at the forefront of comparative genomics and the analysis of DNA sequences for evolutionary research. In its molecular laboratories, in operation now for ten years, more than 40 researchers in molecular systematics, conservation genetics, and developmental biology conduct genetic research on a variety of study organisms.

The Museum is also expanding its collection techniques to include the preservation of biological tissues and molecular libraries in a super-cold storage facility for current and future genetic study. This collection is an invaluable resource for worldwide research in fields including genetics, comparative genomics, and medicine. Such a tissue collection will preserve genetic material and gene products from rare and endangered organisms that may become extinct before science fully exploits their potential. With nearly 40,000 samples already collected, it will be the largest super-cold tissue collection of its kind and will increase the possibilities for DNA research exponentially. We also plan an online collection database to ensure public access as well as to facilitate loans to scientists worldwide.

Cluster Computing

Parallel computing is an essential enabling technology for phylogenetic (evolutionary) analysis and intensive, efficient sampling of a wide array of study organisms. A 256-processor cluster recently constructed in-house by Museum scientists is the fastest parallel computing cluster in an evolutionary biology laboratory and one of the fastest installed in a non-defense environment. It allows Museum scientists to examine the effectiveness and computational behavior for large real-world data sets, and will be central to all Museum projects in evolutionary and genomics research.

INSTITUTE OF COMPARATIVE GENOMICS

The Museum proposes to establish, in concert with the scientific goals and efforts of DOE, an Institute of Comparative Genomics so as to contribute its unique resources and expertise to the nation's genomic research enterprise. A full understanding of the impact of the knowledge we have gained from genomics and molecular biology can come from placing genomic data in a natural history perspective; comparative work in genomics will enrich our knowledge not only of biodiversity, but also of humans, medicine, and life itself. The Museum intends to establish the Institute with funds from federal as well as nonfederal sources.

With the advent of DNA sequencing, museum collections have become critical baseline resources for the assessment of the genetic diversity of natural populations, as well as for pursuit of research questions pertinent to DOE's interests. Genomes, especially those of the simplest organisms, provide a window into the fundamental mechanics of life. One of the goals of DOE's Human Genome Project is to learn about the relevance to humans of nonhuman organisms' DNA sequences. DOE also supports an area in which AMNH is expanding its expertise—microbial genomics, the study of organisms that have survived and thrived in extreme and inhospitable environments. This research can yield information that can be applied in solving critical challenges in medicine and health care, energy resources, and environmental cleanup. The AMNH comparative genomics program could provide vital tools in these endeavors and support DOE's biological and environmental research function (the BER account).

The Museum has already established its parallel computing facility, enhanced the molecular labs with state-of-the-art DNA sequencers, and built the super cold storage facility. Thus initially equipped, the Institute will be one of the world's premier research facilities for mapping the genome across a comprehensive spectrum of life forms, drawing on comparative methods and biological collections.

Working cooperatively with New York's outstanding biomedical research and educational institutions, the Institute will focus on molecular and microbial systematics, expanding our understanding of the evolution of life on earth through analysis of the genomes of selected microbes and other non-human organisms, and constructing large genomic databases for conservation biology applications. Research programs may include the study of the utility of genomic information on organismal form and function, microbial systematics, and the use of broad scale comparative genomic studies to understand the function of important biomolecules.

The Institute's scope of activities will include: an expansion of the molecular laboratory program that now trains dozens of graduate students every year; the utilization of the latest sequencing technologies; employment of parallel computing applications that allow scientists to examine the effectiveness and computational behavior of large real world data sets; and operation of the frozen tissue collection as a worldwide scientific resource, with at least 500,000 samples accessioned in the first phase alone, an active loan program, and ready public on-line access.

In addition to research, the Museum has already launched an ambitious agenda of genomics-related exhibition, conference, and public education programming, including the landmark exhibition, "The Genomic Revolution," which opens in May 2001. The exhibition, the most comprehensive ever presented on genomics, will examine the revolution taking place in molecular biology and its impact on modern science and technology, natural history, biodiversity, and our everyday lives. In conjunction with the exhibition, the Museum may also display a video bulletin on genomics in the Hall of Human Biology. The bulletin would be modeled after the popular Earth, Bio, and AstroBulletins in the newest exhibit halls that display changing science news and link to computer kiosks and websites.

In fall 2000 the Museum hosted "Sequencing the Human Genome: New Frontiers in Science and Technology," an international conference featuring leading scientists and policymakers. Spring conferences will include: "Conservation Genetics in the Age of Genomics," co-sponsored by AMNH's Center for Biodiversity and Conservation and the Wildlife Conservation Society; and "New Directions in Cluster Computing," which will explore how parallel computing can make sense of the huge complex data sets that genomic science and other fields generate. In September, the Museum will convene "Assembling the Tree of Life: Science, Relevance, and Challenges."

In establishing the Institute, the Museum plans to expand its curatorial range in microbial work; grow the super-cold tissue collection; and draw on our exhibition and educational expertise to offer enhanced public education and outreach. Plans also entail expanding and renovating lab space and facilities to accommodate additional curators and students.

We seek $5–$10 million to establish the Institute for Comparative Genomics at the Museum. Together, the Museum and DOE will be positioned to leverage their unparalleled resources to advance joint genomics research, education, and technology goals. As well, development of the super-cold tissue collection will increase enormously the possibilities for DNA research and provide an invaluable international scientific resource. Our online collection database will ensure public access to genomics information, furthering DOE's own goals for fostering public understanding of human genomics and the fundamental building blocks of life.

PREPARED STATEMENT OF THE LOVELACE RESPIRATORY RESEARCH INSTITUTE (LRRI)

It is proposed that the Department of Energy through its constituent agencies support the renovation of the LRRI clinical facilities and purchase of necessary equipment to support LRRI's ability to maintain its high research and clinical standards, and to better provide appropriate patient data security.

LRRI has committed to a building campaign using $10M in private funds to improve its laboratory facilities and equipment. LRRI's clinical study facility is in need of renovation to better accommodate the thousands of outpatients recruited for these studies and to better maintain security of their patient information. LRRI requests $2M to help renovate this facility.

LRRI has a long and distinguished history of providing critical and superior research to DOE. Through a long standing cooperative agreement, LRRI managed and operated the DOE Inhalation and Toxicology Research Institute (ITRI) for many

years. With the encouragement and support of DOE, LRRI went through a five-year transition to privatize the use of the ITRI facility. LRRI continues and it is anticipated, will do so into the future, provide research services to DOE through a new Cooperative Agreement, which is pending final execution. As part of its services to DOE, LRRI will continue to use its clinical trial's facility in furtherance of scope of services defined in that agreement.

Project Impact:

LRRI, as a private non-profit research institute, places top priority on its ability to translate its basic science findings from animal models, into protocols designed to evaluate new approaches for treating respiratory disease. These protocols lead to new innovative techniques and approaches to health care.

LRRI conducts clinical studies requiring the recruitment of thousands of patients that provide the basis for making the link between genetic and cellular defects and clinical disease presentation and demographic characteristics. Currently, LRRI is conducting population-based genetic studies in:

—Chronic obstructive pulmonary diseases (COPD),
—Early detectors for lung cancer,
—Pulmonary fibrosis, and
—Mechanisms of asthma and other lung diseases in Hispanic and Native American children.

Two events have greatly enhanced the ability to better understand the mechanisms of human disease in communities. One is the dramatic advance in molecular and cellular biology over the last 10 years, especially in human genetics. The other is the ability to collect and process data using advance computer systems and statistical techniques. This process called "molecular epidemiology" makes the link between genetic and cellular defects and clinical disease. LRRI has formed collaborations with national and local a private health providers to collect and manage patient data to carry out their "molecular epidemiological" studies. These partners include, the:

—Lovelace Health Systems (LHS),
—Albuquerque Veterans Administration Medical Center (VA),
—University of New Mexico School of Medicine (UNM), and the
—University of Miami School of Medicine (UMSM).

Given the nature of the clinical studies performed, LRRI's facility requires security mechanisms well beyond those of ordinary medical clinics. As one can well imagine, this facility is the repository of very sensitive personal data, including that linked to an individual's DNA. To carry out this responsibility for privacy and confidentiality, there is a need to renovate the facilities and equipment necessary to be physically and electronically impenetrable to all but those who have specific and authorized access.

The existing 8,000 sq. ft. facility was constructed in the 1950's and requires renovation and upgrades to provide a suitable, efficient, functional and secure facility. The proposed project would require reconfigured space, upgrades to meet current fire and safety codes, new interior finishes, new plumbing, upgraded electrical and a new heating, ventilation and air conditioning system.

The current clinical trial's facility is occupied in part by other LRRI functions. Some of these functions will need to be relocated to provide the required additional space for the clinical studies. Unfinished space is being made available in the new research facility included as part of the $10M LRRI campaign. The proposed project will include the completion of 8,000 square feet of the unfinished space for this purpose.

Accordingly, to meet this responsibility and to improve LRRI's ability to conduct its clinical studies, we respectfully request $2M. The responsible Federal agency is the Department of Energy—Biological and Research Account.

PREPARED STATEMENT OF THE ALACHUA COUNTY BOARD OF COUNTY COMMISSIONERS, ALACHUA COUNTY, FLORIDA

Mr. Chairman: Thank you for allowing the Alachua County Board of County Commissioners to submit this written testimony before your Subcommittee concerning the County's Energy Conservation Prototype for the New Alachua County Criminal Courthouse. This innovative and state of the art project is described below in detail.

ENERGY CONSERVATION PROTOTYPE FOR THE NEW ALACHUA COUNTY CRIMINAL COURTHOUSE ($3.0 MILLION IN FUNDING REQUESTED)

In order to be a model for energy and resource conservation, the new Alachua County Criminal Courthouse has been designed in accordance with the highest national standards (LEED Certification Program) for energy conservation. Federal funding is being sought in order to augment the building's present energy saving measures with four additional items: potable water reduction, alternative energy source, reduction of heat loads, and higher performance systems for the building's heating, ventilation and air conditioning (HVAC) system. Together, these systems will effectively reduce energy consumption, as well as the future operating costs of the new Courthouse.

The following narrative outlines in detail the energy saving measures that are presently being incorporated into the design of the new Courthouse. For ease of review, they are broken down into the five major categories of the LEED Certification Program.

Site Considerations

—Erosion will be controlled to reduce any negative impact on water and air quality.
—The site will increase the density and urbanity of downtown Gainesville.
—The site is adjacent to and provides good access for mass transit.
—On site parking requirements have been reduced to their minimum, and parking preference will be provided for car pooling.
—Site construction impact has been limited to an area of four blocks to minimize disturbance.
—Fifty percent of the open areas will be planted with native vegetation.
—Existing storm water runoff patterns will be undisturbed, and on site water treatment will be provided.
—Parking areas will be provided with landscaping to reduce heat islands.
—Screening measures will be used to ensure that direct lighting beam emissions do not fall outside of the property line.

Water Conservation and Efficiency

—Landscape material will be selected from native plant materials that require minimal watering.
—Waste water needs have been minimized by reducing the user requirements for showers to a minimum of two for the building's staff.
—All of the plumbing fixtures specified utilize 30 percent less water than the industry standard.

Energy Conservation and Atmospheric Efficiency

The building is being designed so that it is 30 percent more efficient in energy use than the industry requirements (ASHRE 90.1).

—The mechanical and fire protection systems will contain no HCFC, or ozone damaging liquids.
—An extensive commissioning routine will be utilized to insure that the building systems are constructed as designed, and operated in the most efficient manner.

Material Conservation and Resource Efficiency

—Program areas to facilitate the recycling of materials will be provided in the building.
—Whenever possible, existing site materials will be recycled into the new construction. Examples include asphalt pavement and crushed concrete to be used for base material.
—Fifty percent of all materials that will be specified are to be manufactured within a 500-mile radius of the site.
—All wood products utilized in the project will be acquired from companies providing responsible forest management, and from rapidly renewable sources.

Indoor Environmental Quality

—The heating, ventilation, and air conditioning (HVAC) system in the facility will be monitored and operated through a carbon dioxide monitoring system.
—Fresh air effectiveness will be equal, or greater to 0.9 as determined by ASHRAE 129–97.
—A construction indoor air quality management plan will be implemented, and monitored.
—All materials specified will have low, or no emission of VOCs.

—The HVAC system in the facility will be monitored and operated through a relative humidity monitoring system, and will comply will ASHRAE standards for thermal comfort.

—Natural day lighting will be provided to all spaces regularly occupied, when not in conflict with confidentiality and security measures.

As previously noted, the items described above constitute those design measures and mechanical systems that are presently being planned for the new Courthouse. However, the County is requesting a total of $3.0 million to augment these systems with four additional energy saving items. These items, with their estimated costs, are describe below.

Potable Water Reduction (Estimated Cost: $570,000)

In order to reduce potable water consumption, the County is investigating the use of a centralized vacuum toilet system that will reduce the water consumption for every single flush from 1.6 gallons to 0.5 gallons. This system utilizes a centralized vacuum extractor to help move the solids through the piping network. This allows water to used only to clean bowl, and to work as a lubricant to facilitate movement.

Alternative Energy Source (Estimated Cost: $900,000)

The use of a fuel cell power plant is being analyzed in order to help reduce the building's dependence on traditional electric systems. Specifically, fuel cells are designed to produce electrical power from natural gas fuel (through an electro-chemical process) and recoverable heat. The fuel cell system being studied for the new Courthouse would be utilized for both a portion of the building's normal energy needs, and the emergency power needs of the facility. With the approval of the appropriate agencies for the storage of some natural gas on site, the dependence upon a traditional diesel-powered generator can be avoided for this facility.

Reduction of Heat Loads (Estimated Cost: $1,000,000)

The single largest contributor of heat in this facility will be the building's direct exposure to the sun. In order to minimize the heat-gain of the building, and thus reduce the energy demand to cool the building and its users, the design team has developed an alternative exterior shading device in the form of horizontal fins. This system will shade all of the glazing, and the exterior of the building. By acting as a parasol shade, all of the building's glazing will be protected at the peek exposure time. The state of the art shading coefficient for 1.0 inches of insulated glass without a mirror finish is in the range of 0.24 to 0.28. The goal of the shading system for this building is to bring that shading coefficient of the glass to near zero.

Higher Performance Systems for the Heating, Ventilation, and Air Conditioning (HVAC) System (Estimated Cost: $530,000)

The County's efforts in the design of the building's HVAC system concern the utilization of the most energy efficient equipment and technology available on the market. As part of those efforts, the following systems are being analyzed for the final implementation of this design. These systems include:

—High efficiency condensing natural gas boilers that provide hot water to all air handling units, and VAV box heating coils. Consequently, the boilers shall be the direct vent type with PVC combustion air ducts and stainless steel exhaust flues out of the roof of the mechanical room. This would include two boilers rated two million BTU each. Finally, the hot water pumping system will be a primary/secondary pumping system with variable frequency drives on secondary pumps.

—Air handling equipment that would be designed as follows: double-wall construction with two inch insulation, IAQ-type sloped drain pans, 30 percent prefilters, and 90 percent to 95 percent cartridge filters. In order to provide optimal energy efficiency, the air-handling units that are variable volume shall be controlled via variable frequency drives. This system also greatly increases the latent cooling ability of the system at part-load conditions, preventing humidity buildup in the summer months. Each air-handling unit shall have a humidity sensor to monitor and modify control sequences if necessary to maintain proper humidity levels. All motors shall be high-efficiency. The coils within the system will all operate using two-way control valves to provide the most efficient use of chilled and hot water. Cooling coil temperature differential shall be selected to minimize energy use.

—A ventilation system for the building that would be provided in accordance with the amounts prescribed in ASHRAE 62–1989. Specifically, carbon dioxide sensors will monitor the carbon dioxide level in the building's habitable spaces, and utilize this information to control the amount of outside air being supplied to

the building's system. This will reduce energy consumption by reducing the amount of outside air that needs to be cooled and dehumidified.

CONCLUDING COMMENTS FOR WRITTEN TESTIMONY

In conclusion, Alachua County proposes an energy conservation prototype for the new Alachua County Criminal Courthouse. In addition to serving as a centerpiece of downtown redevelopment, the Courthouse will also serve as a model project for the conservation of energy and natural resources in public buildings. To demonstrate the County's commitment to this project, numerous energy and resource conservation measures have already been planned for the building.

Therefore, the federal funding requested in this initiative will allow other conservation measures to be included in the building's design, making it a remarkable state and national example of energy conservation and environmental protection. For these reasons, we hope that the Subcommittee will find this project worthy of your support. Thank you for your consideration.

PREPARED STATEMENT OF THE UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY

UMDNJ is one of the of the largest public health sciences universities in the country. In its 30-year history, the university has become a statewide system with 8 schools on 5 academic campuses. UMDNJ has developed a network of core and affiliated teaching hospitals as well as academic partners that provide health care and higher education to citizens throughout the state.

The university's president and board of trustees developed a strategic plan to place UMDNJ in the top tier of academic health centers in the nation. Foremost in that plan is the development of centers of excellence such as the Cancer Institute of New Jersey and the Child Health Institute of New Jersey.

The Cancer Institute is New Jersey's only NCI-designated cancer center. CINJ was established in 1990 with a capital grant from the federal government and other grant support. Over the past decade, CINJ has developed a provider network that includes 20 hospital partners across the state to provide seamless access to the exceptional cancer programs at CINJ. Over the past 3 years, the Gallo Prostate Cancer Center achieved $9 million in federal funding to enhance prostate cancer education and treatment programs throughout New Jersey. Because African-American males are 2.5 times more likely to develop prostate cancer than white males, we are especially pleased of our partnership with the 100 black men organization through which we offer prostate cancer screenings in minority communities. To date, this initiative has provided screenings for prostate cancer to more than 1,500 men in three counties. Our goal is to extend that service to every county in New Jersey.

CINJ also works with the Chandler Health Center, a federally qualified community health center operated by the UMDNJ-Robert Wood Johnson Medical School in New Brunswick, NJ. The center provides early detection programs and examinations to medically indigent adults and children. CINJ also provides outreach to make the benefits of clinical trials more widely available to minorities.

CINJ currently occupies a 76,000 square foot research and treatment facility, but demand has outpaced its capacity. The facility was designed to accommodate 16,000 patient visits, but last year there were more than 37,000 patient visits. These visits continue to increase at an annual rate of 10 percent. We anticipate between 50,000–60,000 patient visits at CINJ by 2003. UMDNJ has approved the construction of a new addition to the CINJ facility in New Brunswick and has commitments of $16,000 toward the construction cost of $30 million. The new facility will take about two years to build and will create numerous construction-related jobs in the area. When completed, the facility will accommodate nearly 200 additional employees (faculty, support staff, nurses, clinical researchers, etc.) and will be the new home of the Dean and Betty Gallo Prostate Cancer Center. We are seeking $10 million in federal funding toward construction of the new CINJ addition.

Our second priority is the Child Health Institute, a comprehensive research institute dedicated to the prevention, treatment and potential cures of childhood diseases, disabilities and disorders. The strong support of parents and families of affected children has produced important collaborations for the institute. Advocacy groups know the value of research as a tool toward treatment and cures. An example is autism. The Child Health Institute is home to the governor's council on autism, which distributes $1.5 million in grants from the state to provide education and treatment services to autistic children and their families.

The Child Health Institute will act as a magnet for additional growth in research and healthcare in New Jersey. The Institute will encompass 100,000 square feet to

house more than 40 research laboratories and associated support facilities. When completed, there will a full complement of 130 employees at the CHI.

The Child Health Institute is estimated to cost about $40 million. To date, CHI has achieved close to $5 million in federal funding and $30 million from private, individual, foundation and other government sources. We are seeking $5 million to complete the federal government's commitment to the development of the Child Health Institute.

The ability of urban based academic health centers such as UMDNJ and Robert Wood Johnson Medical School to conduct research that will translate to better health care must be supported through a partnership of federal, state and private resources. We thank this committee for supporting the critical needs of research and economic development throughout the nation and for your past support of our programs.

PREPARED STATEMENT OF THE BUSINESS COUNCIL FOR SUSTAINABLE ENERGY

INTRODUCTION

The Business Council For Sustainable Energy is pleased to offer testimony on the role for government in promoting energy research, development and deployment, specifically the renewable energy programs at the Department of Energy (DOE).

The Council was formed in 1992 by businesses and industry trade associations sharing a commitment to realize our nation's economic, environmental and national security goals through the rapid deployment of clean and efficient natural gas, energy efficiency, and renewable energy technologies. Our members range in size from Fortune 500 enterprises to small entrepreneurial companies, to national trade associations.

A FEDERAL ENERGY COMMITMENT IS CRITICAL

The recent election focused on the energy crisis like none other we have faced in recent memory. We continue to experience spiraling prices and supply interruptions in California for electricity and we may see problems spread to other regions this summer. The environmental challenges of energy supply and use abound, and even energy's national security implications are coming to the forefront. All of these challenges will persist for years and will only be resolved by the concerted efforts of industry, government and the public.

Regarding the Federal role in energy supply and use, we eagerly await implementation of the Administration's demonstrated commitment to fixing the problems, and a commitment by Congress to ensure that there is a diverse, environmentally and economically sound menu of energy options available to the market.

FEDERAL PROGRAMS TO PROMOTE RENEWABLE ENERGY RESOURCES

The Council recognizes that suppliers and users of energy—not the Federal government—ultimately will decide which energy sources will meet our needs. In fact, in the deregulated California wholesale electricity market, many renewable energy projects are the margin in keeping the lights on, and their contribution to grid reliability will be realized many more times in more areas of the nation as summer approaches.

The ability of these technologies to fulfill this role is due in large part to a sustained commitment by industry and the Federal government to research and development. In addition, the private sector has and continues to be important in helping share the risk of investing in deployment of clean technologies that, while at or near economical viability, face obstacles to their wide market availability.

With the energy needs of the nation having never been more acute, the need for a continued Federal commitment is likewise critical. We believe it vital that the following programs receive the full support of the Congress in order to lead the nation through the challenges we face and will continue to face in the foreseeable future.

WIND

Markets for utility-scale wind energy continue to accelerate their growth rate. Over the past year in the U.S. alone, nine separate hundred-plus megawatt projects were announced, including in Nevada, California and along the Washington-Oregon border, which will aid the heavily stressed West coast grid, three projects in Texas, and smaller projects in Pennsylvania, upstate New York, Kansas, Wyoming and elsewhere. Collectively, they represent the output of several traditional central station power plants yet have a minimal impact upon the environment.

In addition to increasing their contribution to national electricity needs, wind facilities are some of the most rapidly sited and constructed energy providers. Major wind facilities can move from proposal to being on line in a fraction of the time of traditional power plants. In short, they are making a difference now.

Wind energy technology as it stands today is capable of providing electricity at cost-competitive rates in only 5 percent of potential wind sites in the U.S. Further refinement from continued research and development can make wind a viable energy resource in more and more regions, over a wider range of wind conditions and make more significant contributions to our national electricity needs. To do so, Federal support is critical.

Small wind turbines are also on the rise. Companies like Bergey Windpower, a Council member and manufacturer of small wind systems serving the distributed generation market for rural homes and facilities, are working overtime to satisfy orders from electricity-starved regions. These distributed generation systems have great potential to reduce energy costs, promote competition and strengthen the electrical grid.

DOE has significant programs for many technologies but not for small wind. A Small Wind Turbine Initiative (SWTI) would reduce the costs of small wind systems for homes, farms, and small businesses by promoting deployment that would lead to higher production volumes, reducing market barriers and improving the technology. SWTI aims to make small wind turbines cost-effective for an estimated 6 million to 10 million potential rural residential users, opening a potential market of up to 60,000 MW that could make small wind a major contributor to our domestic energy supply.

SOLAR ENERGY

Solar energy continues to provide an increasing amount of energy for the world. The concentrated solar power, photovoltaics and solar buildings programs at the Department have played and will continue to play an important role in the deployment of these technologies.

Concentrated Solar Power

This technology can provide both heat and power for baseload energy demand. Three primary technologies are emerging today: solar troughs; solar-driven dish/engines; and concentrators. Storage technologies and hybrid designs provide for energy production even when the sun is not shining. Together these technologies are expected to contribute over 5,000 megawatts of electricity worldwide by 2010.

The Council supports funding for a combination of activities related to concentrated solar power (CSP). This includes research and technical assistance directed by industry but administered through the national laboratories and universities, cost-shared funding provided directly to U.S. industry for applied research, development and deployment and the establishment of the CSP Southwest Border Initiative, which would provide a blend of CSP technologies to help provide badly needed power to this region (Arizona, Nevada, California, and New Mexico). Together we request funding for concentrated solar power activities at a level of $25 million.

Photovoltaics

This technology utilizes silicon to convert sunlight directly into electricity. Research has already succeeded in cutting the cost of producing electricity in this manner in half between 1995 and 2000. The industry has grown three-fold in less than a decade. On the horizon over the next five years is the potential to halve cost again, making photovoltaic-produced electricity competitive with all other distributed electricity generation options in the U.S.

U.S. preeminence in this field can only be maintained with a committed Federal effort. New materials development, integrating photovoltaic systems with structural building materials, increasing manufacturing efficiencies and technology validation partnerships that increase confidence in the technology are all efforts requiring Federal assistance. Funding at a level of $100 million in fiscal year 2002 would build upon past achievements and increase market penetration of this environmentally benign technology.

Solar Buildings

Continued technological developments and a Federal commitment in this arena have seen solar thermal water heating and other technologies penetrating the building market. This program has successfully established performance and certification criteria that can predict the performance of solar water heating systems and improve efficiencies at lower costs. Today, large-scale homebuilders are actively inte-

grating a variety of solar, energy efficiency and other renewable energy technologies into their designs and marketing them to consumers.

The Council supports $12 million in funding for this program to develop integrated technology packages that can deliver competitive energy in today's market. Its blending of technologies including energy efficiency, other renewable and natural gas technologies creates solutions that provide reliable, low cost and environmentally sound energy options to consumers.

The Zero Energy Building Initiative

The Council supports the creation of this initiative. The combination of solar technologies with energy-efficient construction techniques and highly efficient appliances can result in a new generation of cost-effective buildings that have zero net annual need for off-site energy while generating zero air pollution emissions.

GEOTHERMAL ENERGY

The Council supports Federal programs directed towards taking advantage of geothermal resources. California today receives six percent of its electricity from geothermal resources and the western U.S. could realize nearly 20,000 megawatts of electrical and thermal energy using enhanced geothermal technology. That would represent a tripling of today's output, and would satisfy the needs of 18 million residents. The Council requests an increase to $60 million in geothermal funding in fiscal year 2002.

RESIDENTIAL RENEWABLE ENERGY GRANT PROGRAM

Senator Murkowski has proposed this program to offset a portion of the cost of renewable energy systems that include solar, photovoltaic, wind, biomass, waste, hydroelectric or geothermal energy resources. We support the full authorization level of $30 million for fiscal year 2002.

DISTRIBUTED POWER

Reliable power generated on-site has received much attention since rolling blackouts struck California. Whether the energy is produced by microturbines, reciprocating engines, fuel cells or other gas-fueled systems, or by renewable energy technologies, challenges to widespread deployment remain. In some instances it is the lack of real-world operating experience due to the newness of some technologies; in other cases it may be problems associated with hooking up to the grid due to the lack of interconnect standards or emissions issues associated with siting new generating capacity. In all of these cases and despite demands of the marketplace, the Federal role remains strong.

We view the new National Energy Reliability Initiative as a serious effort to address many outstanding distributed power and reliability issues. Its integrated examination of the challenges, backed by meaningful resources, has the potential to make substantial inroads toward deploying distributed energy resources. To meet these needs, the Council requests appropriations in the amount of $30 million for the initiative and $9 million for traditional distributed energy resources programs.

RENEWABLE ENERGY PRODUCTION INCENTIVE

As part of the Energy Policy Act of 1992 (Sec. 1212), Congress passed the Renewable Energy Production Incentive (REPI) to encourage the development of renewable energy projects in tax-exempt municipal utilities. This program has been successful in helping municipal utilities such as the Sacramento Municipal Utility District develop wind and solar generating facilities. We very much support this program and request the Committee provide $25 million in funding for the REPI.

INTERNATIONAL ACTIVITIES

Finally, the Council would like to offer its support for Federal programs designed to help open important international markets for renewable energy technologies. Competition in rapidly growing developing country markets is intense; U.S. renewables manufacturers face the dual obstacles of competition from conventional energy sources and foreign renewables manufacturers often buoyed by government assistance.

Our participation in international markets is more critical than ever. Growth in developing nations will take their energy use levels above that of the industrialized nations within two decades, with an anticipated expenditure of $4 trillion to $5 trillion. Traditionally, most "new" environmentally friendly and efficient technologies are not the first choice of decision-makers in these markets. With encouragement

and bureaucratic streamlining, however, U.S. clean energy exports could easily double in less then five years, resulting in up to $5 billion in export revenues and 100,000 new American jobs. Global benefits include reducing greenhouse gas and sulfur particulate emissions, and providing for the energy needs of some of the 2 billion people in the world now without electricity.

The Council is extremely supportive of the fiscal year 2002 funding for international energy programs and urges that funding not come at the expense of existing research, development and deployment programs. Beyond the benefit to U.S. exports, these technologies can help ensure international economic and political stability by meeting the profound infrastructure needs of these countries.

CONCLUSION

A wide range of energy options is needed to create energy security and ensure our economic and environmental integrity. With a full slate of choices, choices in part aided by research and development supported by the Department of Energy, the marketplace will have options to select those most appropriate solutions to meet specific needs. These are options that are already having an impact in many states and countries.

In the near-term, these technologies provide the shortest lead-time to getting new generation capacity on the grid. Simultaneously, they provide American jobs, stronger economies here and abroad, enhanced export opportunities for domestic manufacturers and a cleaner environment. Continuing Federal emphasis on developing low- and non-polluting energy technologies and services will help achieve these goals. Utilizing cost-shared collaboratives with industry to leverage limited Federal funds in recognition that cooperation with industry is vital for addressing market imperfections impeding the widespread use of renewables.

The Council strongly urges the Congress to continue its support of Federal research, development and validation programs for renewable and distributed energy technologies. By adopting a robust budget, Congress can demonstrate its genuine commitment to the U.S. economy throughout this time of critical energy constraint.

PREPARED STATEMENT OF THE NATIONAL HYDROGEN ASSOCIATION

Dear Chairman Domenici: The National Hydrogen Association (NHA) was formed by a group of ten industry, university/research, and small business members in February 1989. The National Hydrogen Association now has over 70 members, including automobile companies, energy providers, fuel cell developers, gas producers, chemical companies and others. The NHA provides a national focal point for hydrogen interest and information transfer.

With active participation from three major energy companies (BP, Shell Hydrogen, and Texaco Energy Systems), as well as three major hydrogen suppliers (Air Products and Chemicals, BOC Gases, and Praxair), the NHA is better positioned than ever to achieve the goal of industry and government to implement a hydrogen energy infrastructure. The Department of Energy must be ready to support this effort with improved technology and safe infrastructure while removing the barriers to commercialization.

The mission of the National Hydrogen Association is to foster the development of hydrogen technologies and their utilization in energy applications. I am writing to underscore the NHA's support for increased funding of the Department of Energy's fiscal year 2002 Hydrogen Research Program. The Hydrogen Future Act of 1996, authored by Congressman Robert Walker while he was Chairman of the Science Committee, authorized $40 million for the Hydrogen Research Program for fiscal year 2001. This act expires this year, and reauthorization efforts are underway. The current proposed DOE budget for hydrogen falls short of the targets in the draft bill and in fact falls short of the authorized amount for fiscal year 2001 of $40 million. The NHA encourages you to fund the fiscal year 2002 DOE Hydrogen Program at the $40 million level that was authorized, but not appropriated for fiscal year 2001.

The development of programs that create jobs, and enhance the economy while not polluting our environment should be a priority and should be funded at the level that Congress has authorized. The introduction of hydrogen as a clean energy carrier will have wide ramifications. Hydrogen and the associated technologies will provide us with a degree of energy independence that we have not experienced in the world market for oil, and will unleash this nation's ability to influence world markets through U.S. production of clean energy technologies.

A $40 million appropriation for such an important program is modest, especially when compared to the funds being spent by domestic and foreign businesses and foreign governments. We should not be left at the starting gate when it comes to

the opening of New World markets. Full funding of the Hydrogen Research Program is a cost-effective investment in America's future.

Hydrogen was rated highly by the Department of Energy in a study conducted by Energy Efficiency and Renewable Energy (EERE) on carbon displacement, a key indicator in their budget allocation in response to the Administration's climate change initiative. Auto companies and energy companies have publicly stated that if certain technical issues with hydrogen were solved, they would not be looking at other alternate fuels. Why has DOE reduced the budget for the Department's core competency in hydrogen when the need for clean, sustainable energy has significantly increased?

The administration's budget recommends only $13.9 million for hydrogen research and development. A supplemental budget may be in the works. At $13.9 million, many activities critical to assure a safe hydrogen infrastructure will not be funded. These include ceramic membrane technology efforts cost-shared with industry; the development of codes and standards for hydrogen energy systems, including transportation and stationary power systems; critical outreach with regulatory bodies and others who want to work with the hydrogen community to assure public safety; outreach to the public on the proper use and benefits of these new technologies; niche market demonstrations including fuel cell mining vehicle demonstration projects, hydrogen refueling stations, hydrogen storage technologies using new materials; and others. Even at $27 million, demonstrations of stationary fuel cells and vehicles at Federal facilities, efforts to meet cost targets for hydrogen production by reformation of natural gas, and other activities described in Title II of the Hydrogen Future Act will not be fully funded.

Hydrogen technologies have made significant progress both technically and economically due to the benefit of a focused government-industry program at the U.S. Department of Energy. The Hydrogen Program allows for a single focal point for hydrogen energy system information and activities. This core competency is supported by industry and avoids redundancy and duplication of effort, while enabling hydrogen to have a visible activity. This activity is monitored with support from the Hydrogen Technical Advisory Panel, mandated by Congress, and tracked through an effective peer review process annually. This type of accountability has allowed the Hydrogen Program to make significant progress with limited budgets.

Given that demonstrations will be taking place over the next three years in California and other states, timing for the development of hydrogen storage and refueling systems is now. The DOE Hydrogen Program, in which the National Hydrogen Association and many of our members participate, has been called upon by industry to address these issues and is responding to industry's requests. The NHA has been working closely with the DOE Hydrogen Program to ensure that industry has the tools it needs to commercialize the technologies developed through our national laboratories and cooperative research efforts. I believe it is unwise for the hydrogen program to suffer a funding reduction and turn these activities over to other DOE areas, since this diffuses the hydrogen effort and would lead to independent or poorly coordinated hydrogen projects.

Hydrogen has enjoyed support on Capitol Hill and from industry by providing a balanced program focused on proving key technological concepts, which industry may then use to make products, based on their own market analyses. The NHA encourages you to fund the Hydrogen Program at its fiscal year 2001 authorized level of $40 million in fiscal year 2002. Thank you for your past leadership in this energy area. I look forward to working with you to increase the fiscal year 2002 appropriation for the DOE Hydrogen Program.

PREPARED STATEMENT OF THE NUCLEAR ENERGY INSTITUTE

On behalf of the Nuclear Energy Institute, I would like to commend you, Mr. Chairman and the members of this subcommittee, for focusing your attention on the value of nuclear technology-related programs in the Energy Department and Nuclear Regulatory Commission budget proposals for fiscal year 2002.

The Nuclear Energy Institute (NEI) coordinates public policy for the U.S. nuclear industry. NEI represents 270 members with a broad spectrum of interests, including every U.S. electric company that operates a nuclear power plant. NEI's membership also includes nuclear fuel cycle companies, suppliers, engineering and consulting firms, national research laboratories, manufacturers of radiopharmaceuticals, universities, labor unions and law firms.

Today, America's 103 nuclear power plants are the safest, most efficient and reliable in the world. Nuclear energy is the largest source of emission-free electricity

generation in the United States, and the industry last year reached record levels for efficiency and electricity production.

The industry thanks Senator Pete Domenici for his leadership in supporting the major U.S. source of emission-free electricity. The nuclear energy legislation introduced by Senator Domenici in March provides concrete steps to set our nation on a sound energy course for decades to come, including an appropriate robust role for nuclear energy in our nation's electricity portfolio.

FEDERAL DISPOSAL OF USED NUCLEAR FUEL

The Federal government's responsibility for deep geologic disposal of used nuclear fuel and the byproducts of defense-related activities is long established U.S. national policy. In 1982, the Nuclear Waste Policy Act codified Federal policy for developing a repository for long-term stewardship of used nuclear fuel. In 1987, after environmental assessments were conducted at five sites, Congress focused the repository study on Yucca Mountain, Nev. DOE is committed to forward a formal decision on the site suitability of Yucca Mountain to the president this year.

DOE's 1998 viability assessment, 1999 draft environmental impact statement (EIS) and additional scientific evaluations support preliminary findings that the proposed repository at the remote, desert ridge at Yucca Mountain can protect public health and safety far into the future. DOE's science consistently predicts that peak radiation releases over 10,000 years, due to the repository, would be less than 1 percent of naturally occurring background radiation at that location, or less radiation than received by traveling on a transcontinental airplane flight.

DOE must start meeting its contractual and statutory obligations to begin removing used nuclear fuel from nuclear power plant sites, national laboratories and defense facilities in approximately 150 communities in 40 states. The industry thanks the committee for its commitment to rectify DOE's 1998 default on this obligation by sufficiently funding the repository program. We urge the committee to continue to hold DOE accountable for making a decision on a formal Yucca Mountain site recommendation to the president by the end of this year.

Since 1983, American electricity consumers have committed $16.8 billion to the Nuclear Waste Fund, specifically to finance the Federal management of used nuclear fuel. Federal taxpayers have paid an additional $1.4 billion for disposal of waste from defense-related nuclear programs. The Nuclear Waste Fund has a balance of $10.1 billion, which must be made available for repository construction and operation.

The nuclear energy industry strongly supports the Department of Energy's fiscal year 2002 funding request of $445 million for the Civilian Radioactive Waste Management program. At this critical juncture, an increase in DOE's appropriation is warranted to continue the scientific study of Yucca Mountain. Electricity consumers this year will pay more than $700 million into the Nuclear Waste Fund.

Although the repository program is the foundation of our national policy for managing used nuclear fuel, the nuclear industry also recognizes the value in researching future used fuel management technologies. Farsighted research and development programs allow our nation to remain the world leader in nuclear technologies. However, it is important to note that even technologies like transmutation—the conversion of used nuclear fuel into less toxic materials—require a repository for disposal of the radioactive byproducts generated from the process.

NUCLEAR ENERGY RESEARCH & DEVELOPMENT

For the United States to remain the world leader in nuclear safety and technology, it is crucial that industry and government continue to invest in nuclear technology research and development.

U.S. electricity demand grew by 2.3 percent a year on average during the 1990s, and by 2.6 percent in 2000. Even if electricity demand grows by a modest 1.8 percent annually over the next two decades, the nation will need nearly 400,000 megawatts of new electric generating capacity, including replacement of retired capacity, according to the U.S. Energy Information Administration. This capacity is the equivalent of building about 40 new mid-size (500-megawatt) power plants—20,000 megawatts—every year for the next 20 years.

The industry is disappointed that DOE has requested less funding for its fiscal year 2002 nuclear energy research and development programs than last year, and urges the committee to approve $433 million in fiscal year 2002 for DOE's Office of Nuclear Energy, Science and Technology—twice the current budget.

This funding level is consistent with recommendations in legislation recently introduced authorizing increases in nuclear energy R&D programs. Funding increases also have been suggested in recent years by the President's Committee of Advisors

on Science and Technology (PCAST), the Secretary of Energy's Nuclear Energy Research Advisory Committee and DOE's Near-Term Deployment Group.

The Nuclear Energy Research Initiative (NERI)—which seeks to expand America's nuclear energy program in the 21st century—fills a vital need identified in a 1997 PCAST report. PCAST recommended an R&D program to address potential barriers to nuclear energy's long-term use and to maintain America's nuclear science and technology leadership. PCAST also recommended another R&D initiative—the Nuclear Energy Plant Optimization (NEPO) program—to generate more low-cost energy from America's nuclear power plants.

A blue ribbon panel of seven experts appointed by the Nuclear Energy Research Advisory Committee has offered recommendations on how DOE can support university nuclear engineering programs, help to maintain university research and training reactors and promote collaboration between universities and DOE laboratories. DOE's Near-Term Deployment Group is developing recommendations on agency actions needed in fiscal year 2002 and fiscal year 2003 to facilitate the NRC review of early site permit applications for new nuclear power plants.

Also, authorizing legislation introduced this year in the U.S. Senate and House of Representatives would expand funding in these areas as well as provide incentives to increase electricity generation at nuclear power plants.

The nuclear energy industry urges the committee to approve $60 million in fiscal year 2002 for the NERI program, which is paving the way for the expanded use of nuclear energy and maintaining U.S. leadership in nuclear plant technology and safety. In fiscal year 2001, NERI received $22.5 million—less than one-half of the $50 million annual appropriation recommended by PCAST in its 1997 report. Beginning in fiscal year 2002, PCAST recommended NERI funding be increased to $100 million a year. Although current funding has been sufficient to continue projects initiated in previous fiscal years, it leaves little funding for new R&D projects.

The nuclear energy industry also encourages the committee to allocate $15 million for the NEPO program, which improves efficiency and reliability while maintaining outstanding safety at U.S. nuclear power plants. This public-private partnership is helping to facilitate America's economic growth and prosperity—and improving our nation's air quality. NEPO received $5 million in fiscal year 2000 and fiscal year 2001—half the annual funding recommended by PCAST.

DOE has launched a project to prepare a technology roadmap for developing and deploying "next generation" nuclear plants, called Generation IV. As a part of this effort, DOE is preparing a report on near-term deployment activities needed to have new nuclear plants in operation by 2010 or sooner, while longer term technologies are being developed.

DOE is coordinating with NEI's Executive Task Force on New Nuclear Plants. In the interim, DOE is preparing recommendations on activities requiring immediate attention and is expected to released them in the near future. To support completion of the DOE technology roadmapping effort and to begin implementing these near-term recommendations, NEI urges the committee to approve $42 million in fiscal year 2002 for the Nuclear Energy Technology Development program.

The industry also requests $34.2 million for DOE's University Support Program, which enhances vital research and educational programs in nuclear science at the nation's colleges and universities. The number of college programs in nuclear engineering and science is dwindling. To maintain our nation's position as the international leader in nuclear technology, it is vital that this trend be reversed and that our nation's best and brightest technical minds be attracted to the nuclear technologies. We urge Congress to adequately fund student recruitment, teaching facilities, fuel and other reactor equipment, and instructors to educate a new generation of American nuclear specialists.

Finally, the industry supports the new initiatives included in authorization legislation introduced this year. One such initiative is the Production Incentive Programs, which the industry believes should be funded at $15 million.

NUCLEAR REGULATORY COMMISSION

The industry commends Congress for important changes to the nuclear industry user fee assessments supporting NRC activities that are unrelated to industry activities. That legislation requires that the proportion of the NRC's budget derived from user fees be decreased by 2 percent each year through 2005. In that year, licensees will support 90 percent of the NRC's budget, but not activities that are not directly related to regulating the industry.

As industry and national energy supply priorities change, sound public management and budgeting principles dictate that the NRC reassess its allocation of resources and make appropriate budget and staffing changes. In that regard, this

committee asked for a comprehensive five-year plan as part of the NRC's fiscal year 2001 budget request. Last year, the NRC issued a strategic plan for fiscal years 2000–2005. In addition, the agency submitted a fiscal year 2001–2005 resource information document in response to requests from Congress.

The industry urges the NRC to review its budget in the context of those documents and the changing needs of the agency. In particular, the agency should carefully review its organizational structure and employment levels. The NRC, in its resource information document, has acknowledged that additional organizational changes may be desirable. Although the NRC has reduced its staffing levels during the 1990s, its projections reveal that it may begin increasing those levels over the next few years. The industry believes there are a number of opportunities for reallocating resources that should be explored before additional resources are authorized. These include: reevaluating NRC's regional structure in light of the results of the reactor oversight process; eliminating research efforts of questionable value, such as human performance and organizational effectiveness; limiting the role of the Advisory Committee on Reactor Safety (ACRS) to technical matters; and streamlining the differing professional opinion process to minimize its impact on issue resolution and management time.

The NRC will be facing several issues in the near future that will challenge its management flexibility. The possibility of early site permitting and new reactor licensing, for example, will raise issues that have not been considered by the NRC for many years. It may not be possible to simply reassign current staff due to the levels of specialized expertise that may be required. The industry urges the committee to request a detailed explanation of how the NRC's proposed budget will address this important issue as well as the impact that license renewal may have on this and future NRC budgets and resource allocation.

The industry thanks the committee for its continued oversight of the NRC and support for the agency's new reactor oversight process, which is designed to make regulation of the industry more focused on areas significant to safety. The industry and other stakeholders are working with the NRC to incorporate lessons learned during initial implementation of the process in 2000 and to enhance the efficacy of the oversight process.

The industry believes that the majority of U.S. nuclear power reactors will be relicensed for an additional 20 years. The first two electric companies seeking 20-year license extensions for a total of five reactors received regulatory approval within 24 months. The industry expects future license renewal applications to be streamlined as the NRC applies lessons learned from the initial applications. The committee's continued oversight of license renewal is greatly appreciated.

Other programs supported by the industry include:

Nuclear Nonproliferation: The industry supports the disposal of excess weapons grade nuclear materials through the use of mixed-oxide fuel in reactors in the United States and Russia.

Low-Dose Radiation Research: The industry strongly supports continued funding for the DOE's low-dose radiation research program. This program will produce a better understanding of low-dose radiation effects to ensure that public and private resources are applied in a manner that protects public health and safety without imposing unacceptable risks or unreasonable costs on society.

Nuclear Research Facilities: The industry is concerned with the declining number of nuclear research facilities. We urge the committee to request that DOE provide it with a long-term plan for using existing nuclear research facilities as well as for development of new research facilities.

Uranium Facility Decontamination and Decommissioning: The industry fully supports cleanup of the gaseous diffusion plants at Paducah, Ky., Portsmouth, Ohio; and Oak Ridge, Tenn. Each year, commercial nuclear power plants contribute more than $150 million to the government-managed uranium enrichment plant Decontamination and Decommissioning Fund. NEI urges the committee to ensure that these monies are spent on decontamination and decommissioning activities at these facilities. Other important environmental, safety and/or health activities at these facilities should be paid for out of the general fund.

International Nuclear Safety Program & Nuclear Energy Agency: NEI supports the funding requested for the international nuclear safety programs of both the DOE and NRC. They are programs aimed at the safe commercial use of nuclear energy.

Medical Isotopes: The nuclear industry supports the administration's program for the production of medical and research isotopes. We support continued funding for the Advanced Nuclear Medicine Initiative to fill the gap where other funding sources, such as the National Institutes of Health, have been either unable or unwilling to provide support for radioisotope production.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS, THE NATIONAL CORN GROWERS ASSOCIATION AND THE AMERICAN PHYTOPATHOLOGICAL SOCIETY

SUMMARY PARAGRAPH

The Department of Energy, Office of Science, Basic Energy Sciences, Energy Biosciences program is a highly competitive research program that supports leading basic research on plants and microbes. Plant genomics and recombinant DNA technology (biotechnology) offer revolutionary new tools to plant scientists to engineer plants that will address the nation's energy needs. Basic plant research is leading to plants that will produce valuable chemicals that will replace petroleum-derived industrial products. These home-grown energy crops will provide benefits to the U.S. economy, farmers, the chemical industry, consumers and environment. Environmental benefits will also result from research on engineered plants that remove heavy metal contaminants from the soil and water. Scientists supported by the Energy Biosciences program have gained prominence in the national and international science communities. As just one of these examples, Energy Biosciences-sponsored research on capture of energy from photosynthesis by Professor Paul Boyer led to the award of the 1997 Nobel Prize in Chemistry (biochemistry) for Dr. Boyer. The Energy Biosciences program is an example of the optimum way basic science can be used to solve some of our country's most challenging energy and environmental problems.

Mr. Chairman, the American Society of Plant Physiologists (ASPP), representing 6,000 plant scientists, the National Corn Growers Association (NCGA), representing more than 30,000 members, and the American Phytopathological Society (APS), representing 5,000 plant pathologists, appreciate having this opportunity to submit comments on opportunities offered by energy-related plant research sponsored by the Department of Energy. The DOE Office of Science, Basic Energy Sciences, Energy Biosciences program funds basic research in the plant sciences and non-medical microbiology in several important areas.

The Energy Biosciences program supports basic research that makes use of the sun's energy and atmospheric carbon dioxide to produce in plants renewable sources of energy including fuels and industrial products. Promising research on plants in the area of phytoremediation sponsored by the Energy Biosciences program is leading to enhanced plants that can be used to clean heavy metal contaminants from soil and water.

Until the latter part of the 19th Century, people throughout the world were dependent upon plants and other contemporaneous biological sources for the production of organic materials. Plants and animals provided the only sources of fibers, coatings, lubricants, solvents, dyes, waxes, fillers, insulation, fragrances detergents, sizing, leather, wood, paper, rubber and many other types of materials.

Dr. Chris Somerville, whose research has been supported by the Energy Biosciences program, and Dario Bonetta, provided in the January 2001 issue of the peer-reviewed science journal Plant Physiology a historical background and projected future advances in energy-related plant research. These scientists identified a number of opportunities offered by advances in plant genomics and modern transformation technologies such as biotechnology that will lead to development of novel plant products to replace petroleum-derived chemicals. Research in this area has been identified by Plant Physiology as one of the greatest advances in plant science of the past 25 years. The DOE Energy Biosciences program is the key source of support for this basic energy research. This statement includes in part some of the findings of Somerville and Bonetta endorsed by the ASPP and the APS.

As recently as 1930, 30 percent of industrial organic chemicals were derived from plants. The discovery of extensive petroleum reserves and advances in chemistry and petroleum engineering resulted in a major shift to reliance on fossil sources of organic feedstocks such as petroleum. These developments also led to the development of petroleum-based materials, such as inexpensive plastics, with properties that could not be duplicated by abundantly available natural materials.

However, many important materials are still derived from plants and animals including wood, cork, paper, leather, cotton, ramie, hemp, flax, sisal, wool and silk. Rubber from natural latex is still the only material that can be used to produce tires that will reliably withstand the forces associated with airplane landings. Linseed oil is still used to make paint. Clearly, for many applications, biological sources can still be used to produce materials on the scale necessary to meet the needs of the U.S. and other populous industrialized nations.

Research leading to home-grown genetically engineered plants that produce commercially valuable chemicals offers many benefits for the U.S., which is now greatly

dependent upon imported petroleum for these products. Enhanced energy crops would help diversify crop production in the U.S. by producing high-value chemicals and other technical materials that are currently produced from declining petroleum or coal feedstocks. In addition, it is possible to envision the production in plants of novel biologically inspired materials with properties not easily simulated through chemical synthesis. These enhanced crops could create potentially large new markets for excess production of American agriculture. Plants engineered to be chemical feedstocks would also address the long-term goal of developing more sustainable and environmentally benign methods of meeting national needs for chemicals and other materials. This includes the use of the most environmentally benign methods for protecting these enhanced crops against their pests and diseases. Like any other efficient use of crops for the benefit of society, the crops must be healthy.

Two major factors suggest that the trend toward use of petroleum-derived products over plant-based products can be reversed. First, the costs of agricultural plant products have declined steadily over the past 75 years, while oil prices have generally increased. Second, we now have the ability through genomics and genetic engineering to tap into the vast chemical diversity produced biologically. Within the plant kingdom alone, over 50,000 different organic chemical structures are produced biologically. The microbial world provides many additional opportunities. A practical example of the possibilities offered was demonstrated by the use of a bacterial gene to modify a plant to produce a biodegradable plastic at levels up to 14 percent of the dry weight of the plant's leaves. Basic research leading to this example was made possible by the DOE Energy Biosciences program. Plant-produced products can also provide the chemical industry with much greater diversity than available from the comparatively limited structures found in crude oil.

Examples of transgenic plant oils in commercial production include high-lauric acid canola, which can be used in a variety of applications including specialty foods and soap and detergent manufacture. A transgenic soybean variety has very low saturated fatty acids and more nutritional unsaturated fatty acids. Such oils are both healthier for human consumption and are extremely stable making them useful as biodegradable lubricants.

The lab of Michigan State University Professor John Ohlrogge, who has been supported by the DOE Energy Biosciences program, is now working to develop plants which will provide the feedstocks for new types of polyurethane, nylon with stronger and more flexible fibers, and biodegradable lubricants. These are not niche markets. The U.S. now produces nylon, polyurethane and other plastics to supply multi-billion-dollar markets. Genetically modified crop plant production of nylon alone could create over $2 billion in new income for American farmers. American farmers will benefit from these enhanced plants because they will have new markets for their products. The American chemical industry will benefit because it will have new structures on which to build improved plastics and other products. American consumers will benefit because more of the nation's products will be based on renewable and biodegradable resources that do not contribute to landfill overflow or higher atmospheric carbon dioxide levels. The nation would also become less dependent on foreign oil for production of these products.

The Energy Biosciences program is an example of the optimum way basic science can be used to solve some of our country's most challenging energy and environmental problems. We appreciate the strong support of the Committee for the Energy Biosciences program in past years. ASPP, NCGA and APS respectively urge the Committee to increase support for Energy Biosciences and the Office of Science by 15 percent in fiscal year 2002 to help the nation more effectively meet its enormous energy needs.

PREPARED STATEMENT OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION (SEIA)

Mr. Chairman, Members of the Committee, I appreciate this opportunity to submit testimony on solar energy programs sponsored by the Federal government. Solar energy will play an important role in the years ahead not just in promoting America's energy independence, but also in cleaning up our environment, and in expanding a domestic high-tech industry and the precision manufacturing jobs that come with it.

At the outset, let me express our profound disappointment with the Administration's budget request for solar programs. It is apparently the Administration's judgment that bipartisan majorities in Congress last year wasted an enormous amount of taxpayer money with your fiscal year 2001 appropriations for solar research and development. The facts, however, reflect that the Federal government's investments

in solar programs over the last two decades have lead to steady improvements in efficiency of solar products and in steadily declining costs to produce solar energy.

As you well know, Administrations sometimes under-request funds for programs when they know Congress will correct the deficiencies. Perhaps this is the case here. In any event, it makes your work this year more important than ever. We request that Congress appropriate for these programs in fiscal year 2002 amounts that will enable solar energy to contribute not just to expanding our energy supply, but also to help clean our air, as solar energy creates no emissions.

Our budget recommendations are consistent with an important amendment, sponsored by Senator Harry Reid, which was adopted as part of the Senate Budget Resolution. The amendment increased by $450 million our nation's commitment to renewable energy R&D programs for fiscal year 2002.

The United States has invested millions of dollars in solar RD&D, which is a tiny amount compared to its investment in conventional energy technologies. While SEIA recommends the following minimum investments in Federal solar energy RD&D, we are also equally recommending that existing programs in other agencies be co-invested in the development and demonstration (deployment) part of the RD&D budget. In fact, the priority for these investments this year and beyond should now be focused on the second "D," which we call "deployment."

The funding levels for solar RD&D programs through the Department of Energy for fiscal year 2002 should be:

[In millions of dollars]

Concentrating solar power	25
Photovoltaics	100
Solar buildings	12

SEIA believes that one-quarter of these budgets ($35 million) should be reserved for basic research directed by industry but administered through the national laboratories and universities. SEIA believes that one-third of these funds ($45 million) should be cost-shared with US industry directly from DOE for applied RD&D (i.e., manufacturing initiatives, partnerships, etc.). SEIA urges that the remaining funds ($58 million) be competitively awarded to the U.S. solar industry through the states by leveraging with other Federal and state programs, aggregating nearly $200 million per year for actual deployment and system validation demonstration programs.

There are three other valuable programs that merit the Committee's attention. SEIA urges your support for the Concentrating Solar Power (CSP) Southwest Border Initiative, which would utilize a blend of CSP technologies to help provide badly-needed power to the states of California, Arizona, Nevada, and New Mexico, while also improving these technologies for deployment elsewhere in the nation. The Zero Energy Building (ZEB) Initiative would combine solar technologies with energy-efficient construction techniques and highly efficient appliances to develop the next generation of buildings that will have zero net annual need for off-site energy while generating zero emissions. This multi-disciplinary program deserves your support. Finally, SEIA urges the Committee to support and fund fully Senator Frank Murkowski's innovative Residential Renewable Energy Grant Program, which would offset a portion of the cost of renewable energy systems.

SEIA further recommends that other Federal agency, and other DOE, programs direct a certain portion of their funds for deployment and technology validation, as follows:

[In millions of dollars]

Department of Defense	20
Defense Advanced Research Program (DARPA)	10
FEMP Procurement	10
Department of Energy	26
Combined Heat & Power	10
Distributed Power	2
Hydrogen	3
Industries of the Future	10
Storage	1
Environmental Protection Agency	10
Energy Star	5
Office of Research and Development (ORD)	5
Housing and Urban Development	4
Office of Energy	2
Partnership of Advanced Technology in Housing	2
National Institute of Science and Technology (NIST)	10

SEIA also recognizes that several hundred million dollars are available through the State Trust Funds established by some states that have deregulated their electric utilities. The basis of SEIA's recommendations is to leverage the Department of Energy and other Federal agency funds and co-invest with these state-based funds. SEIA also suggests that states and local governments with other resources should be sought out to co-invest as well, so that a strong geographic dispersion of solar energy technologies and applications can occur.

The US solar industry believes that increased market penetration tied to relevant applied research and technology validation is the most effective path to exponentially increase the use of solar technologies in realistic market-driven uses. Solar technology today can provide real solutions to real problems such as power reliability, energy rate fluctuations, fossil fuel shortages, pollution and noise, as well as high-technology economic development.

Particularly in this time of rolling blackouts in California, and the potential for these disruptions to expand across the country in the summer months ahead, the added capacity that solar represents could make the difference for critical needs of businesses, governments and homes. As we seek to expand our nation's energy mix and capacity, the Department of Energy's solar energy RD&D efforts should continue their important work.

The Solar Energy Industries Association (SEIA) is the national industry organization of the photovoltaics and solar thermal manufacturers, component suppliers, distributors and installers. We have been active in guiding and promoting solar energy through the U.S. Department of Energy (and its predecessors) over the last 26 years. We would be happy to provide you with further information, and answer any questions you may have.

We look forward to working with you in the months and years ahead, as solar energy helps more and more families and businesses meet their energy needs in a clean and reliable way. Thank you very much for your consideration.

PREPARED STATEMENT OF THE BIOMASS ENERGY RESEARCH ASSOCIATION (BERA)

This testimony pertains to the fiscal year 2002 (fiscal year 2002) appropriation for mission-oriented, biomass research, development, and deployment (RD&D) supported by DOE's Office of Energy Efficiency and Renewable Energy (EERE). The Biomass Energy Research Association (BERA) is a non-profit association headquartered in Washington, DC. BERA was founded in 1982 by researchers and private organizations that are conducting biomass research. Our objectives are to promote education and research on the production of energy and fuels from virgin and waste biomass that can be economically utilized by the public, and to serve as a source of information on biomass RD&D policies and programs. BERA does not solicit or accept federal funding for its efforts.

On behalf of BERA's members, I would like to thank you, Mr. Chairman, for the opportunity to present our Board's position on the funding of mission-oriented biomass RD&D. On this occasion, I would like to focus on the high-priority projects and programs that we strongly urge be continued or started.

One of the primary goals of the Bioenergy/Bioproducts Initiative, which was created as a result of "The Biomass Research and Development Act of 2000," and Executive Order 13134, "Developing and Promoting Biobased Products and Bioenergy," is to triple U.S. usage of bioenergy and biobased products by 2010. Congress provided funding for the Initiative in fiscal year 2000 and fiscal year 2001. A strategic plan has been developed to attain the Initiative's goal by the multi-agency Biomass Research and Development Board (BRDB) co-chaired by the Secretary of Energy and the Secretary of Agriculture. Achievement of this goal is sorely needed because of what has happened to U.S. crude oil, natural gas, and electricity markets, our continually increasing dependence on imported oil, and environmental issues. It is time to determine whether practical biomass systems can be developed that are capable of displacing much larger amounts of fossil fuels. The amount displaced in 1999 was 1.65 million barrels of oil equivalent per day (3.49 quad per year). The BRDB will address this question, and help to coordinate the many different biomass RD&D projects in progress in the different agencies to ensure that each is necessary and on course. Estimation of the potential contribution to the program goal of each technology that is funded is essential to optimize the project mix. New projects should not be started until this is done. The BRDB has projected that achievement of the targeted goal requires RD&D funding to be increased by $500 million to $1 billion per year of public-sector investment. It is clear that a significant increase in RD&D appropriations is necessary to implement this program.

The Regional Biomass Energy Program (RBEP) authorized in 1983 by Congress covers the entire country and is nationally known for its information and outreach programs. It has a successful track record in partnership with almost all states, and has brought many local government and business communities together to plan the development of practical biomass energy and fuel systems using indigenous resources in the respective state areas. We urge that the RBEP be continued because it promotes and helps facilitate commercialization of biomass through its established networks with the states and the private sector, and can make major contributions to the goal of tripling biomass consumption.

In its core RD&D, DOE has been required to terminate research in several microbial and thermochemical conversion areas because of the cost of scale-up programs. BERA believes that a balanced program should be sustained and protected, so we continue to recommend both a diversified portfolio of research and an appropriate amount of funding for scale-up without diminishing either EERE's research or scale-up programs. DOE's basic research on biomass energy outside of EERE by the Office of Science, which supports academic research, complements EERE's biomass RD&D. Other mission-oriented biomass RD&D programs are funded through EERE's Office of Industrial Technologies (OIT) under the Interior and Related Agencies Bill. All of these projects and programs should be internally coordinated and jointly managed at DOE Headquarters. BERA's recommendations for OIT's mission-oriented biomass programs are presented in a separate BERA statement for the Interior and Related Agencies Bill.

Specifically, BERA recommends that $127 million be appropriated for biomass RD&D under the Energy and Water Bill in fiscal year 2002 as follows:

—$30 million to continue the Bioenergy/Bioproducts Initiative and $7.5 million to continue the RBEP, equally divided between Power Systems and Transportation.

—$27 million for research and $15 million for industry cost-shared scale-up projects for the core programs of Power Systems.

—$29.5 million for research and $12 million for industry cost-shared scale-up projects for the core programs of Transportation.

—$6 million for biomass-based hydrogen research.

PROGRAM INTEGRATION, COORDINATION, AND MANAGEMENT

For several years, BERA has urged that all biomass-related research funded by DOE should be internally coordinated and jointly managed at DOE Headquarters. The program managers at DOE Headquarters should be heavily involved in this activity.

BERA strongly recommends that the Bioenergy/Bioproducts Initiative be continued and incorporated into the overall federal biomass RD&D program. The USDA has a long history of developing advanced biomass production technologies, which are essential to meet the objective of tripling biomass energy consumption by 2010. It is especially important that the biomass research of DOE and USDA be closely coordinated so that each agency is fully aware and apprised of the research that the other is conducting.

Implementation of the Initiative should include identification of each federal agency that provides funding related to biomass energy development, each agency's programs, and the expenditures by each agency. This will enable the coordination of all federally funded biomass energy programs through the National Bioenergy and Bioproducts Board. This will also avoid duplication of efforts, unnecessary expenditures, and continuation of projects that have been completed or that are not focused on the program goal, and instead will facilitate new starts that target the program goal. If the Initiative is fully implemented, the value of the federal expenditures on biomass research to the country will be enhanced in many different ways.

BERA RECOMMENDS $94.5 MILLION FOR RESEARCH AND $32.5 MILLION FOR INDUSTRY COST-SHARED, SCALE-UP PROJECTS FOR FISCAL YEAR 2002

BERA's recommendations consist of a balanced program of mission-oriented RD&D on feedstock production, conversion research, and technology transfer to the private sector. Advanced feedstock production methods, conversion processes, and power generation technologies; alternative liquid transportation fuels; and hydrogen-from-biomass processes are emphasized.

BERA strongly recommends that at least 50 percent of the federal funds appropriated for biomass research, excluding the funds for scale-up projects, are used to sustain a national biomass science and technology base via sub-contracts for industry and universities. While it is desirable for the national laboratories to coordinate this research, increased support for U.S. scientists and engineers in industry, aca-

deme, and research institutes that are unable to fund biomass research will encourage commercialization of emerging technologies and serious consideration of new ideas. It will also help to expand the professional development and expertise of researchers committed to the advancement of biomass technologies.

BERA's specific dollar allocations are listed in the accompanying table. Additional commentary on each program area is presented in the same order as listed in the table.

Allocation of Appropriations Recommended by BERA

BERA recommends that the appropriations for fiscal year 2002 be allocated as shown in the accompanying table. BERA's recommendations are generally listed in the same order as DOE's request for funding, except we have included several research areas that are either new or that BERA recommends be restored to sustain a balanced program of research and scale-up. Note that the recommended budget for each scale-up category does not include industry cost-sharing, which is required to be a minimum of 50 percent of the total budget. Note also that the funding recommended for the Bioenergy/Bioproduct Initiative is shown in the research category. It is expected that DOE will allocate a large portion of these funds to scale-up projects after evaluating the projected contribution of each technology to the goal of the Initiative.

Office of Energy Efficiency and Renewable Energy/Program Area	Recommended Budget	
	For Research	For Scale-Up
Power Systems		
Thermochemical Conversion:		
Cofiring/Ash Deposition	$3,000,000	$0
Advanced Combustion	2,000,000	0
Advanced Gasification	2,000,000	0
Advanced Pyrolysis	3,000,000	0
Advanced Stationary Fuel Cells	2,000,000	0
Advanced Process Fuels	3,000,000	0
Improved Emissions Control	3,000,000	0
Wastewater Treatment	2,000,000	0
Hot Gas Clean-Up	2,000,000	0
Microbial Conversion:		
Advanced Anaerobic Digestion	1,000,000	0
Systems Development:		
Biomass/Coal Cofiring	0	2,000,000
Integrated Field Scale-Up	0	4,000,000
Vermont Gasifier	0	4,000,000
Small Modular Systems	2,000,000	2,000,000
Feedstock Production	2,000,000	3,000,000
Regional Biomass Energy Program [2]	1,000,000	2,750,000
Core Programs, Subtotal	28,000,000	17,750,000
Bioenergy/Bioproducts Initiative	15,000,000	0
Subtotal	43,000,000	17,750,000
Transportation		
Fermentation Ethanol:		
Advanced Organisms	2,000,000	0
Advanced Cellulase	9,000,000	0
Advanced Pretreatment	3,000,000	0
NREL Pretreatment Pilot Reactor	0	1,000,000
NREL Fermentation Pilot Plant	0	3,000,000
Commercial Ethanol Plants by Company and Location:		
Arkenol, Rio Linda, CA [3,4]	0	0
BCI International, Jennings, LA [3,5]	0	0
BCI International, Gridley, Ca [6]	0	1,000,000
Masada Resources, Orange County, NY [3,7]	0	0
Sealaska Corp., Southeast AK [8]	0	1,000,000
Corn Stalk Feedstock [9]	0	3,000,000
Advanced Mobile Fuel Cells	3,000,000	0
Renewable Diesel	1,000,000	0
Feedstock Production	2,000,000	3,000,000

Office of Energy Efficiency and Renewable Energy/Program Area	Recommended Budget	
	For Research	For Scale-Up
Thermochemical Oxygenates:		
Ethanol	3,500,000	0
Mixed Alcohols	3,000,000	0
Other Oxygenates from Biomass	3,000,000	0
Regional Biomass Energy Program [2]	1,000,000	2,750,000
Core Programs, Subtotal	30,500,000	14,750,000
Bioenergy/Bioproducts Initiative	15,000,000	0
Subtotal	45,500,000	14,750,000
Hydrogen Research [1]		
Thermal Processes (Reforming)	3,000,000	0
Photolytic Processes (Algae)	3,000,000	0
Subtotal	6,000,000	0
Total	94,500,000	32,500,000
Grand Total	127,000,000	

[1] BERA's recommendations pertain only to the biomass-based portion of Hydrogen Research;
[2] BERA strongly recommends that for future funding requests, the Regional Biomass Energy Program be treated as a line item;
[3] DOE contribution to plant costs completed;
[4] Rice straw, concentrated acid;
[5] Bagasse, dilute acid;
[6] Rice straw, dilute acid;
[7] Refuse-derived fuel, concentrated acid;
[8] Waste softwoods;
[9] For plant located in Midwest.

POWER SYSTEMS

Thermochemical Conversion.—Currently, there is over 8,000 MW of electric power capacity fueled by biomass in the United States. Municipal solid wastes, forest and wood processing residues, and pulping liquors are the primary fuels. Continued research to develop advanced biomass combustion, gasification, and pyrolysis methods could have environmental and economic benefits that can lead to significant growth in biomass power generation. Much of this research has been phased out by DOE. Research (not scale-up) should be initiated or re-stored with the goal of developing the next generation of thermochemical biomass conversion processes for power generation. Stationary, integrated biomass gasifier-fuel cell systems should be developed as potential, high-efficiency power generation systems. New fuel cells that can tolerate the sulfur levels found in certain biomass-derived fuel gases without sacrificing system affordability and the testing of integrated advanced fuel cell systems should be included in this work. Research is also recommended to develop advanced processed fuels and systems for handling them. Examples are pelletized wood wastes and densified solid waste biomass-coal fines that are easily handled and fed to existing combustion devices. In addition to this research, priority should also be given to the development of innovative enabling technologies consisting of advanced emission control systems, improved ash disposal methods and new ash uses, low-cost, hot gas clean-up methods, and advanced materials that eliminate corrosion and erosion problems for thermochemical reactors and turbines. The status of these technologies is far from what is needed, yet they are essential for practical, low-cost thermochemical conversion of biomass.

Microbial Conversion. Gasification by anaerobic digestion is unique in that it produces methane directly, the major component in natural gas, from a full range of virgin and waste biomass. DOE has terminated most of the microbiological research needed to develop advanced systems that yield low-cost methane by reducing capital and operating costs. This research can lead to the alleviation of numerous environmental problems encountered during waste treatment and disposal, and should be restored.

Systems Development.—The scale-up of biomass gasification for medium-Btu gas and power in Vermont was successfully continued in fiscal year 2001. This project should be funded in fiscal year 2002 to test an advanced turbine system for the generation of 8–12 MW from wood, and to enable modification of the facility by converting it to a multi-purpose development site for biomass gasification and related technologies. The facility will then provide benefits to a broad range of researchers. The development of hot gas clean-up technology, which was terminated before com-

pletion at another gasification site, should be restored. This work should be continued until the technology is perfected. The integrated biomass production-power generation projects chosen by DOE for scale-up in New York (willow-coal cofiring), and Iowa (switchgrass-coal cofiring) should be continued as well as DOE's initiative to expand biomass-coal cofiring at additional sites, such as the wood waste-coal project at NIPSCO. Plans should also be made to fund scale-up of the Whole Tree Energy system as part of this effort. Research on the development of advanced biomass-coal cofiring systems and small modular direct biomass combustion turbines should be sustained to develop advanced designs for small modular systems, and advanced combined cycle systems for cogeneration.

Feedstock Production.—Land-based biomass grown as energy crops can supply large amounts of fossil fuel substitutes. Considerable progress has been made on the efficient production of short-rotation woody crops, and on the growth of herbaceous species. In addition, research on tissue culture techniques and the application of genetic engineering methods to low-cost energy crop production have shown promise. This research should be continued to develop advanced biomass production methods that can meet the anticipated feedstock demand. BERA also recommends that industry cost-shared, scale-up projects chosen by DOE of at least 1,000 acres in size be continued to develop large-scale, commercial energy plantations in which dedicated energy crops are grown and harvested for use as biomass resources. These projects should be strategically located and should utilize the advanced biomass production methods already developed in the research programs. Successful completion of this work will help biomass energy attain its potential by providing the data and information needed to design, construct, and operate new biomass production systems that can supply low-cost feedstock for conversion to electric power and transportation fuels. It is recommended that the appropriation for this activity be shared between EERE's Power Systems and Transportation Fuels programs.

Regional Biomass Energy Program.—The Regional Biomass Energy Program (RBEP) established by Congress is the information and outreach arm of DOE's biomass energy RD&D program. Within the national goals of DOE and regional constraints, the RBEP develops regional goals and strategies with stakeholder participants, and then conducts activities to create awareness and a positive image of biobased resources, technologies, and applications; develops and provides information and technical assistance; develops educational materials and conducts training programs; and assists in the planning of the infrastucture and facilities needed to produce, store, transport, and distribute biomass energy and fuels. The RBEP also identifies barriers to the development and deployment of energy crops and facilitates the development of state programs to promote biomass energy and fuel production and consumption. Thus, the RBEP develops and disseminates information and provides technical and financial assistance to biomass project developers and entrepreneurs. The RBEP also gathers information in the field to keep DOE informed of current situations and opportunities. There is no other DOE program that is assigned the information transfer roll, nor that has the capability, level of experience, local-level presence, or widespread networks of the RBEP. During its history, the RBEP has established working relationships with virtually all stake holder groups in every state. These linkages, which take considerable time to develop, provide efficiency through expertise and resource-sharing arrangements, including sharing of project costs. Historically, RBEP activities have been conducted with partners providing $2–$4 of non-federal funds for each federal dollar. BERA recommends that the appropriation for the RBEP be shared between EERE's Power Systems and Transportation Fuels programs. For future funding requests, BERA strongly recommends that the RBEP be treated as a line item.

TRANSPORTATION

Fermentation Ethanol.—Research on the conversion of low-cost lignocellulosics to fermentation ethanol should be continued. The targets should include the development of genetically engineered organisms that can produce cellulase to breakdown cellulosics to sugars and ferment all the C5/C6 sugars in biomass at the same time, and low-cost cellulase production for simultaneous saccharification-fermentation of cellulosics. This research should focus on the development of accurate bases from which advanced technologies can be scaled-up for commercial use with confidence, and on advanced technologies that significantly reduce processing costs. NREL's fermentation pilot plant and counter-current pretreatment pilot plant reactor that was installed in fiscal year 2000 should be operated on a cost-shared basis with DOE's industrial partners to support the commercial ethanol plant program.

Commercial Ethanol Plants.—DOE's contributions to the costs of the fermentation ethanol plants have either been completed or are winding down as shown in the

table on page 3. Another plant using corn stalk feedstocks is planned for the Midwest. The processes used are conventional and advanced technologies. BERA recommends that the existing projects should be completed, the results analyzed, and the technologies confirmed before other scale-up projects are started.

Advanced Mobile Fuel Cells.—Research should be initiated to perfect vehicular fuel cell systems equipped with on-board reforming units for biomass and biomass-based liquids. The goal should be the production of low-cost fuel gases suitable for direct use as motor fuels or fuels for on-board fuel cells.

Renewable Diesel.—This research, formerly called Biodiesel, should be focused on methods of reducing production costs of renewable diesel fuels and biomass-based diesel fuel additives. BERA recommends that most of this effort focus on increasing natural triglyceride yields, which are the main barrier to improved biodiesel economics, and to the evaluation of other potential biomass feedstocks such as tall oils that can be directly transformed into high-quality diesel fuels having high cetane numbers.

Feedstock Production.—See Power Systems.

Thermochemical Conversion.—Almost all of DOE's RD&D on liquid transportation fuels from biomass emphasizes fermentation ethanol. Thermochemical conversion research should be started that targets liquid motor fuel production at costs competitive with those of gasolines and diesel fuels in the near-to-mid term. Research on the thermochemical conversion of low-grade biomass for use as motor fuels shows great promise. Preliminary research on the non-microbial conversion of synthesis gas illustrates the potential of producing ethanol, mixed alcohols and oxygenates, ethers, and coproducts at costs that are less than the corresponding costs of liquids produced by microbial and fermentation processes. Some estimates indicate that the production costs of thermochemical fuel ethanol from waste biomass are in the same range as the cost of gasolines. Each of these areas should be added to DOE's program.

Regional Biomass Energy Program.—See Power Systems.

HYDROGEN RESEARCH

Research on the thermal reforming of biomass in a supercritical fluid reactor and in an advanced-design plasma reformer, and on water splitting with algae, which is the equivalent of photolysis, should be continued. Detailed study of each of these conversion techniques may lead to practical processes for the low-cost production of hydrogen.

PREPARED STATEMENT OF THE GEOTHERMAL RESOURCES COUNCIL

Mr. Chairman and Members of the Committee, my name is Ted Clutter. I am Executive Director of the Geothermal Resources Council (GRC), a non-profit professional education association located in Davis, California. I am here before you, today, to request $34 million for the Geothermal R&D Program of the U.S. Department of Energy (DOE) for fiscal year 2002.

Geothermal energy is heat derived from the natural geologic forces of the Earth. It is of utmost importance to both the environmental health of the nation and our energy security, providing highly reliable, domestically produced electricity and geothermal heat to homes, communities and industry across the American West. Though geothermal energy has been used to varying small degrees in the United States for centuries, industrial development of this unique, indigenous energy resource began only 40 years ago. During that time—and with DOE assistance—the U.S. geothermal industry has installed power plants in California, Nevada, Utah and Hawaii that now produce approximately 2,800 megawatts of clean electricity—or enough power to serve 2.8 million homes.

Geothermal energy is our most valuable renewable energy option. Electricity generated from all non-hydro renewal energy sources accounts for approximately 0.8 percent of total U.S. energy needs, with geothermal contributing over half (60 percent) of that figure. Not only is geothermal the largest contributor of renewable electricity in the nation, it is not subject to skyrocketing fuel costs or the whims of wind and sunlight. These attributes are especially important today, with our continuing concern for the environment, a tripling of natural gas prices during the past year, and a crisis of power supply centered in California reaching out its tentacles to engulf the entire West.

Geothermal energy development is part of the answer to solving these problems for the future as well. According to a 1999 joint study by DOE and the Geothermal Energy Association, U.S. geothermal power generation capacity could be realistically quadrupled to 10,000 megawatts with enhanced technologies. Development of geo-

thermal resources for conversion to electricity or useful heat, however, requires costly and risky exploration of potential geothermal areas, costly drilling of wells, and development of power plants or direct-use facilities.

Because of these high up-front costs and risks, continuing well-funded assistance by DOE in partnership with the U.S. geothermal industry—through cost-shared initiatives and development of new technologies—is of paramount importance to future, economical installation of geothermal energy facilities in the West.

DOE GEOTHERMAL R&D PROGRAM

DOE has promoted geothermal energy development through its R&D Program since the early days of the OPEC oil crisis of the 1970s. With that assistance, the U.S. geothermal industry developed a sixfold increase in clean power online, and roughly a threefold increase in direct-use facilities. Another key factor in fostering this development was favorable energy markets and legislation that rewarded geothermal power developers with firm long-term power sales contracts. But all that changed in the 1990s when utility deregulation and low natural gas prices effectively killed those incentives. The result? Without assured contracts available to help geothermal energy investors face exploration, drilling and development risk, no new geothermal resources have come online in the past decade.

At the same time, DOE's financial resources for its Geothermal R&D Program have dwindled to less than $30 million annually. And even that marginal amount is now threatened with proposed cuts to DOE's entire Energy Efficiency and Renewable Energy Program. During this time of change and economic uncertainty, the GRC understands the need for fiscal restraint, but also believes that geothermal energy's potential contributions to our environment and national energy security far outweigh our request of $34 million for DOE's Geothermal R&D Program in fiscal year 2002.

If DOE is to meet the goals of its Geothermal Strategic Plan to provide geothermal electricity and heat to over 10 million homes in the coming decade, a number of regulatory, legislative and technological barriers to development must be overcome. DOE's role is vital in assisting the industry in its efforts to solve technological problems and spur geothermal energy production to new highs for the benefit of the nation. The following highlights important areas of R&D that the GRC believes DOE must pursue through industry partnerships to enhance geothermal development in the United States:

DOE GEOTHERMAL FOCUS ON THE WEST

To meet the present energy crisis in the western states—and recognizing our continuing need for environmental improvement—we must quickly and significantly increase electricity capacity from all forms of renewable energy, especially geothermal. In the past year, the DOE Office of Wind and Geothermal Technologies has provided new and dynamic leadership for its Geothermal R&D Program, instituting an initiative with the assistance of its National Laboratories that has served as an effective catalyst for geothermal development in the western United States.

The program, though marginally funded, has succeeded in drawing 21 industry R&D proposals intended by DOE to put geothermal "projects on the ground" as rapidly as possible, and to increase the number of states with geothermal electric and heat production from 4 to 8. Projects initiated by this program have already fostered a successful exploratory drilling effort in Nevada that will likely result in construction of a 30-megawatt power plant. We recommend that this initiative be further funded to continue the momentum already achieved for geothermal development in the West.

GEOTHERMAL RESOURCE EXPLORATION

To help accomplish DOE goals for geothermal development, a campaign of exploration must begin at once across the West. Many obvious geothermal areas—hot springs, fumaroles and other surface manifestations—have already been explored, and where environmentally appropriate, many have been developed for their energy potential. However, physical and geologic characteristics of many unexploited areas in the western United States strongly suggest that many more geothermal systems exist where no signs of them are found on the surface—and no exploration has been undertaken or completed.

A critical key to success is DOE incentives to encourage exploration for new geothermal resources throughout the West. This effort should include development of new geothermal exploration technologies, DOE contingent grants and loans to help offset high risk of initial geothermal exploration costs, and additional funding for

federal and state land agencies to provide geologic databases that will effectively assist an industry revival of geothermal exploration activity.

With needed improvements in federal agency land-use policies and renewed emphasis on geothermal exploration backed by a solid, well-financed Geothermal R&D Program at DOE, the U.S. geothermal industry can develop needed increases in geothermal power generation at existing sites—and begin to tap the West's vast potential for new geothermal sources of clean, renewable and reliable energy supplies.

Geothermal Drilling

The cost of drilling geothermal steam wells presents the largest risk to potential power plant developers. A geothermal well costs between $200 and $300 per foot-40 percent more than drilling an oil or gas well. That makes the cost of a typical 8,000-foot deep geothermal well from $1.6 million to $2.4 million! Success rates for geothermal exploration wells are only 20 percent in newly explored, untested areas (and rising to only 80 percent for wells in proven geothermal fields). Given these figures, it's easy to see the up-front risk involved in geothermal development—long before power production can begin.

Reasons for the high cost of geothermal well completions are many. First, high temperatures demand the use of costly unconventional drilling tools. Second, the hard and abrasive geologic environment typical of geothermal formations significantly slow drill penetration rates. Third, low reservoir pressures create "loss circulation" zones that drain away expensive drilling muds and pose costly problems in cementing of well casings. And finally, steam from certain reservoirs contains minerals that cause corrosion and scale deposition inside well casings that are expensive to deal with.

Sandia National Laboratories is DOE's lead organization in the development of much needed geothermal drilling equipment, materials and technologies. With its industry partners, Sandia is developing high-temperature instrumentation for use in geothermal wells, and high-temperature logging tools for geothermal reservoir monitoring and evaluation. Bit design is an ongoing area of research, with development and testing that has resulted in a marked increase in both bit life and penetration rates. Loss circulation control has been addressed with development of new cements, cement placement tools and equipment, fracture plugging agents, and lightweight drilling and cement additives.

To reach its targeted goal of reducing geothermal drilling costs by 50 percent, Sandia periodically surveys the geothermal industry for needed areas of research, and works through a Request for Proposal process to bring these products and technologies to the industry. This ongoing effort by Sandia, DOE and its private-sector partners offers unparalleled value in reducing the cost of drilling for geothermal steam resources for producing electricity.

A number of projects in this arena are ongoing—to lose these partnerships and this momentum at a critical time for western energy supply would deal a terrible blow to U.S. geothermal development To successfully proceed in development of geothermal resources in the West, this vital research to lower drilling cost by DOE must continue. An increase in DOE's Geothermal R&D Program budget will augment this valuable potential contribution to our national energy security.

ENHANCED GEOTHERMAL SYSTEMS

Currently, all commercial power production of geothermal energy in the United States is derived from relatively shallow (less than 2 miles deep) hydrothermal zones. Water flows freely through highly fractured rock in these geothermal reservoirs, heated by magmatic intrusions lying far below. In many cases however, a high degree of geothermal development potential lies just beneath these free-flowing reservoirs in geologic formations with fewer fractures (low permeability) and limited fluid flows.

Only about 20 percent of total heat is contained in the relatively shallow, commercially available hydrothermal zones of currently developed geothermal resources, while the remainder (80 percent) resides in underlying, low-permeability zones that have yet remained untapped for their energy potential. Currently, our ability to produce energy from these resources is limited, dictated by available technology and cost.

In concert with other geothermal development promotion initiatives, DOE's Office of Wind and Geothermal Technologies has undertaken a major program to develop technologies for the creation and development of "Enhanced Geothermal Systems," or EGS. Assistance by DOE in development of such technologies is critical if the U.S. geothermal industry is to successfully engineer commercially viable power production from deep heat reservoirs that offer only limited permeability and/or fluid content.

Cost-effective EGS technologies to "mine" heat from beneath areas of hydrothermal circulation will have a profound impact on the geothermal industry. The life of currently commercial geothermal systems will be greatly expanded, making better use of existing power plants. And new EGS technologies will also applicable to other potential geothermal resource production areas, including those previously considered as candidates for Hot Dry Rock (HDR) development.

Development of EGS technology is critical to the long-term viability of the U.S. geothermal industry after all of our high-grade hydrothermal resources have been developed. With assistance by DOE's current and future EGS technology program, the geothermal industry can continue its contribution of environmentally benign electricity to the U.S. power generation mix well into the future.

GEOTHERMAL CO-PRODUCTION

Recent developments with the assistance of DOE incentive funding have resulted in construction of the world's first geothermal minerals recovery facility, using spent geothermal fluids from power plants on the shore of southern California's Salton Sea. Potential exists for commercial recovery of manganese at the Salton Sea, and high-grade silica and other minerals at other geothermal developments in the West. A DOE investment in further development of these "co-production" technologies holds the promise to add another revenue stream to certain geothermal operations, making them more competitive with fossil-fuel power generation while reducing treatment and disposal costs.

GEOTHERMAL DIRECT USE

Direct-use employs low-to intermediate-temperature geothermal resources (100° to 300° F) in systems for industrial processes, space heating, and agricultural production (greenhouses and aquaculture). Currently, there are over 1,000 geothermal direct-use projects in 26 states, and geothermal central heating projects in 18 communities. Recent surveys have shown that this is only a fraction of direct-use potential in the United States, which DOE estimates could potentially serve as many as 7 million households by the year 2010.

Unfortunately, interest in and development of direct-uses of geothermal energy is limited, largely because of reliable information and financial assistance to "jump-start" projects is lacking. This is especially true in rural areas where the necessary technical infrastructure is not available.

The DOE Geothermal R&D Program can play a vital role in promoting and assisting the development of direct-use projects across the West. It is already doing so by providing information and technical assistance, but can do more with increased funding to assist in the critical areas of direct-use resource identification and drilling confirmation. Funding to provide this information and expanded technical assistance can do much to help develop this extensive geothermal energy resource.

DOE funding is also needed to develop improvements in direct-use equipment, reduce the cost of project capital, and lower project operations and maintenance costs. The DOE budget should also provide funds for promotion of economic and efficient cascaded use of geothermal fluids from power production to direct-use developers. In addition, direct-use geothermal funding can help foster public-private partnerships to help "buy down" the up-front risk and financial burdens that often discourage potential geothermal direct-use developers during the initial drilling and resource confirmation stages of potential projects. Once these concerns are satisfied, direct-use geothermal resource development can more easily occur with private project financing, while accruing additional benefits of economic development and employment in rural areas of the West.

Mr. Chairman and Members of the Committee, the Geothermal Resources Council urges your attention to these facts, and hopes you will agree that given current need, the modest $34 million in funding that we request for the U.S. Department of Energy Geothermal R&D Program in fiscal year 2002 is money well invested in our environment and our national energy security. Thank you for your consideration.

PREPARED STATEMENT OF THE LOW IMPACT HYDROPOWER INSTITUTE

INTRODUCTION

With energy issues at the forefront of public concern, the Energy and Water Development Appropriations Subcommittee has the challenge of providing support for domestic energy supplies that are sustainable, environmentally sound, and low cost. In aid of those goals, we urge you to provide $100,000 to the Department of Energy

to fund the Low Impact Hydropower Certification Program, administered by the Low Impact Hydropower Institute. This voluntary program certifies hydropower facilities with low environmental impacts based on eight objective criteria. With the program, hydropower dam owners generating low impact power (from any size facility) can gain market rewards, and consumers gain a credible standard to evaluate hydropower. Funding from the Department of Energy will help build on the program's early success, and help the Institute explore expansion of the certification program to address "incremental" hydro, and other emerging efforts to develop hydropower capacity at existing dams.

WHY CERTIFY LOW IMPACT HYDROPOWER?

Hydroelectric generation presents a dilemma for sustainable energy strategies in this country. On the one hand, hydropower can provide nearly emission-free, sustainable energy generation, with large available capacity (80 percent of the nation's renewable energy), and ancillary services for supporting system reliability. Hydropower dams can also provide additional public benefits, such as flood control and recreation opportunities.

On the other hand, hydropower dam construction and operations have been devastating to the nation's freshwater ecosystems, and the fish and wildlife dependent on them. Hydropower dams degrade water quality, block fish passage, disrupt river cycles and key water habitats, and inundate hundreds of thousands of acres of irreplaceable riverine habitats. If a dam is well sited and well operated, these environmental impacts can be reduced (though not eliminated). Consumers need a credible means to determine which hydropower facilities are well sited and well operated, such that the benefits of the hydropower generation are attained, while minimizing the environmental impacts.

Unfortunately, generation capacity is the most commonly used criterion for identifying environmentally preferable hydropower (if one is used at all). A typical standard is 30 megawatts (MW) of generation capacity. Under a "small hydro" standard, if the hydropower facility generates less than the identified amount of power, it is deemed environmentally preferable. But the size of a facility's generation capacity reveals nothing about its particular site-specific environmental impacts. Under a size criterion, a small dam can be operated in a way that is harmful to the environment and still be labeled environmentally preferable, and a large dam can undergo major changes to reduce the environmental impacts of its operation, and still not be considered environmentally acceptable.

In addition, a small hydro criterion automatically certifies the majority of hydropower dams in the country, but eliminates from consideration the majority of the country's hydropower capacity. Of the over 2,000 hydropower dams in the U.S. owned by entities other than the federal government, approximately 89 percent of the dams are "small" (less than 30 megawatts capacity), but together they provide only 8 percent of the hydropower capacity. The remaining 11 percent of the dams produce 92 percent of the hydropower capacity. Thus, under the small hydro approach, we are classifying as environmentally preferable a large number of dams but not a large amount of power, and we are granting that preferred status without any examination of the particular impacts of those dams.

The Low Impact Hydropower Certification Program resolves these problems by providing an impact-based, site-specific evaluation of hydropower facilities of any size. The program provides a voluntary certification that evaluates existing hydropower dams in the United States against objective environmental criteria in eight key areas—river flows, water quality, fish passage and protection, watershed protection, threatened and endangered species protection, cultural resources, recreation use and access, and whether the facility has been recommended for removal. Interested dam owners apply for certification, and facilities that meet the environmental criteria are certified as "Low Impact." The dam owner can then market this Low Impact hydropower to consumers, or to third party power marketers who bundle "green" power products.

A BRIEF HISTORY OF THE LOW IMPACT HYDROPOWER CERTIFICATION PROGRAM

The Low Impact Hydropower Certification Program grew out of efforts initiated in 1998 by the river conservation organization American Rivers, and the "clean" power marketer Green Mountain Energy, to identify environmentally preferable hydropower for the emerging "green" power markets nationwide. With the help of an Implementation Task Force comprised of representatives from environmental organizations, the hydropower industry, power marketers, government, and other interested parties, the certification program was refined over many months.

In order to ensure the independence of the program, the Institute was established in 1999 as a non-profit public benefit corporation, governed by a fourteen-member Governing Board comprised primarily of representatives from environmental organizations interested in low impact hydropower. In addition, two advisory panels, a Hydropower Industry Advisory Panel, and a Renewables Advisory Panel, participate in Board discussions and provide advice and recommendations. A list of Governing Board and Advisory Panel members is available on our website at www.lowimpacthydro.org. The Institute finalized the certification criteria, and began accepting applications for certification in 2000.

ACCOMPLISHMENTS SO FAR

Although only in its infancy, and despite the uncertainties in energy markets, the certification program is already producing results. The Institute certified its first facility in March, and a second certification decision is expected shortly. The first certified facility, the Stagecoach Dam and Reservoir, located on the Yampa River in Colorado, is owned and operated by the Upper Yampa Water Conservancy District. The second facility under consideration is the Island Park Hydroelectric Project, owned by the Fall River Rural Electric Cooperative, which utilizes water from the Island Park Dam and Reservoir, owned by the United States and operated by the U.S. Bureau of Reclamation, on the Henry's Fork of the Snake River, in Idaho. Several other applications are expected in the coming months. All applications received are posted to the Institute's web site for public review and comment, and all certification decisions are posted as well. Certification decisions are subject to appeal from any commenters in order to ensure a fair and transparent process.

Since Low Impact certification applies to the individual hydropower facility, the Institute does not certify power products. However, other "green" power certifiers have already selected LIHI certification for the hydropower components of their programs, demonstrating its credibility and value. For example, the Green-E Renewable Electricity certification program has adopted LIHI certification for the hydropower components of its program (effective in California in 2001, and elsewhere in 2002)(see www.resource-solutions.org). The Power Scorecard, a rating program for all types of generation, gives LIHI-certified hydropower facilities its highest environmental rating in the hydropower sector (see www.powerscorecard.org). Renew 2000, a "green" power certification program in the Pacific Northwest allows only LIHI-certified hydropower for the hydropower component of its program (see www.cleanenergyguide.com.) The Salmon Friendly Power program, a "green" pricing program developed by For the Sake of the Salmon and Portland General Electric in Oregon uses LIHI-certified power as the only hydropower qualified for its program (see www.4sos.org, click on Salmon Friendly Power).

GOALS AND FUNDING NEEDS

The Institute has multiple goals for the program for fiscal year 2002, including recruitment of additional applications, expanding interest in the program and "green" markets generally, helping to develop the market for Low Impact hydropower, and improving and expanding the certification program itself. In terms of expanding the program, the Governing Board is currently evaluating how to best address "incremental" hydro and other incentives emerging for expansion of hydropower generation at existing dams.

The program is currently funded through grants from charitable foundations, supplemented by application fees. However, foundations are not expected to maintain their grants indefinitely, and though the application fees help to offset processing expenses (including the hiring of independent technical consultants to verify applications), any application fee received in excess of expenses is reimbursed to the applicant. As a result, funding from the Department of Energy is critically important in ensuring the Institute can maintain a quality program.

CONCLUSION

The Institute's Low Impact Hydropower Certification Program, if properly funded, will

—promote sustainable, domestic energy supplies
—help maximize the benefits of hydropower generation while minimizing its environmental impacts
—expand consumer energy options
—support market rewards and incentives for hydropower dam owners interested in producing low impact power

We urge you to demonstrate your commitment to these important goals by providing $100,000 to the Department of Energy to fund the certification program.

PREPARED STATEMENT OF THE AMERICAN WIND ENERGY ASSOCIATION

A STRONG COMMITMENT TO R&D NECESSARY TO CAPTURE WIND ENERGY'S FULL POTENTIAL

Utility-scale wind energy capacity in the U.S. expected to nearly double by mid-2002

Public Demand for Small Wind systems used to power homes, farms and small businesses on the rise

Proposed Administration budget would severely hamper technological advances made through DOE-industry partnerships

The crisis in California has put energy issues back on the radar screen. The upcoming summer could bring the problems in California to other parts of the country, particularly the Northeast and Midwest. With energy prices expected to remain high, particularly natural gas, the importance of investing in domestic, stable-cost, clean energy resources is vital for the nation's energy security.

Wind energy is positioned to be an important part of the solution. In California and other western states, wind energy potential is there to meet the electricity needs. Moreover, wind can help protect against volatile electricity rates. The costs of a wind plant are primarily upfront capital costs, thus the price for electricity is stable over the life of the plant because the fuel, the wind, is free.

Moreover, wind projects can be built quickly, often within six months, not including wind resource assessment and permitting. As we speak, there are new wind energy projects expected to go on line by the end of the year in the west and southwest that will eventually provide electricity for 750,000 people. By comparison, most new fossil-fueled facilities can take up to three years to come online.

Continued investment in domestic energy alternatives like wind power will allow the industry to keep driving down costs and by improving the efficiency of new wind turbines. Wind energy holds the greatest potential of all non-hydro renewables to contribute to our energy needs over the next decade.

Investing in domestic, inexhaustible renewable energy technologies strengthens our national security, spurs new high-tech jobs, and helps protect the environment. There are no downsides to investing in wind and other renewables.

However, the Administration has proposed cutting the wind energy budget by approximately 48 percent in fiscal year 2002. This makes no sense. With the current energy crisis and a call for an increase in energy supply, cutting R&D funding for clean, domestic alternatives is not part of a sound energy strategy. The American Wind Energy Association[1] (AWEA) appreciates this opportunity to provide testimony for the record on the Department of Energy's Fiscal 2002 wind energy program budget before the House Appropriations Subcommittee on Energy and Water Development. AWEA's testimony addresses the following:

Total Request for DOE's Wind Energy Program: $55 million

AWEA requests a funding level of $55 million for the wind energy program to continue DOE's support of wind energy development at the national, state, and local levels. Working in conjunction with the U.S. wind industry, power producers, suppliers, industrial consumers and residential users, DOE provides important technical support, guidance, information, and limited, cost-shared funding for efforts to explore and develop wind energy resources.

Utility-Scale Wind Development: $45 million

There is a continued and necessary need for increased appropriations for cost-shared DOE/industry R&D partnerships. The program is aimed at further driving down the cost of wind power to a level fully competitive with fossil fuel technologies. Additional support is necessary for developing wind turbines capable of operating in areas with lower wind speeds. This would expand wind development potential by 20 times as well as allow the placement of turbines closer to existing transmission lines. In addition to lowering the cost of wind power, R&D support is necessary for enhanced wind site forecasting and power systems integration.

Small Wind Systems: $10 million

A significant boost of DOE's small wind turbine program (machines rated at 75 kilowatts or below) will help achieve greater cost reductions and to increase the availability of this energy option for homes, schools, and businesses.

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[1] The American Wind Energy Association, or AWEA, was formed in 1974. The organization represents virtually every facet of the wind industry, including turbine and component manufacturers, project develops, utilities, academicians, and interested individuals.

Renewable Energy Production Incentive (REPI): $8 million

This program provides financial incentives to municipal utilities to encourage use of renewables. In addition, AWEA suggests that Congress work with the Department of Energy (DOE) to develop long-range alternatives to unpredictable annual funding for REPI.

UTILITY-SCALE WIND DEVELOPMENT: $55 MILLION

From mid-1998 to mid-1999, some 925 megawatts (MW) of new generating capacity were installed in the U.S.—more than twice the amount added in 1985, the previous record year (442 MW) in the U.S. market. In addition, nearly 200 MW of existing capacity were "repowered," with new turbines replacing older, less efficient ones. These additions bring total U.S. wind capacity to about 2,500 MW, or enough power to serve about 600,000 average U.S. households or 1.5 million people.

By mid-2002, installed wind energy capacity in the U.S. is expected to nearly double, to upward of 5,000 MW. The states of Texas, Minnesota, Oregon, Wyoming and Iowa account for most of the new wind energy development. Texas in particular is expected to account for a large portion of new development over the next five years due to state incentives.

In addition, a number of new, large wind developments have been announced. In Nevada, a 260 MW project is underway at the Nuclear Weapons Test Site. In Washington, the "Stateline" project is being developed on the Oregon-Washington border. When completed, the 300 MW wind farm will be the largest wind in the world. In February, the Bonneville Power Administration announced it's intention to purchase 1,000 MW of wind energy and has signed up as one of the purchasers of power from the Stateline project. All of these developments will help alleviate stress on the western power grid, stabilize energy prices and offset pollution associated with conventional power sources.

The impressive growth of the wind industry exhibits a significant change from the three year period (1995–1997) when U.S. markets for wind energy had slowed to only 41 MW installed in 1995, 10 MW installed in 1996, and 11 MW of new capacity installed in 1997. This surge in U.S. utility-scale wind energy capacity is due to two main factors:

Cost-shared DOE/industry R&D partnerships which have helped reduce the cost of wind energy by more than 80 percent since the early 1980's. Today's wind energy costs are 4–6 cents per kilowatt-hour for the largest projects at the best wind sites (based on wind speed and size of project).

Extension of the wind energy Production Tax Credit (PTC), which provides a 1.5 cents per kilowatt-hour credit of electricity produced (the credit is currently 1.7 cents adjusted for inflation). A 2 percent 2-year extension was approved with bipartisan support at the end of 1999, but will expire on December 31, 2001. Legislation to extend the credit for five years has been introduced in both the House (H.R. 876) and Senate (S. 530) by members of the Ways & Means and Finance Committees respectively.

On the international front, wind power is the fastest growing energy source in the world with global installed generating capacity estimated to have increased by nearly 30 percent annually since 1996. Current installed capacity worldwide is over 17,000 megawatts, or as much energy as 5 million California households use.

SMALL WIND SYSTEMS (75 KW AND BELOW): $10 MILLION

More Emphasis Needed on Small Wind Turbines.—Homes consume more electricity than either businesses or industry: ~35 percent of the ~3.2 trillion kWh consumed in 1998. Distributed generation with small customer-sited power plants has great potential for reducing customer energy costs, promoting competition in the marketplace, and strengthening the nation's electrical supply network. Renewable energy technology for homes and farms include solar photovoltaics, concentrated solar thermal, and small wind turbines (up to 75 kW).

DOE has significant programs for technology development and deployment of solar technologies, but not for small wind systems. However, small wind systems arguably have the greatest market potential in the next several decades. Small wind systems are currently much less expensive than solar technologies. For example, a home system sized to provide $150 month worth of electricity would cost $32,000 with a small wind turbine and $80,000 with a photovoltaic solar system. We believe that small wind technology has the potential to cut its costs in half within ten years.

With the exception of California, low electricity prices and the high up-front costs of small wind systems make it very difficult for this technology to gain wide acceptance in the domestic market. This would change if DOE were given the resources to work with America's small wind manufacturers to achieve cost reductions similar

to those already achieved by the large, utility-scale wind industry. In the special case of California, small wind turbine manufacturers are experiencing a surge in sales, which demonstrates that the public really wants cost-effective small wind turbines. Inquiries from around the country have ballooned due to the run up in natural gas and propane costs this winter.

AWEA appreciates that in the fiscal year 2001 Energy & Water Development Conference Report, small wind systems received a $5 million earmark. Doubling that total to $10 million for the program in fiscal year 2002 will continue to ensure that small wind systems receive adequate attention at DOE. We are pleased that the US-DOE Wind Program has taken last year's Congressional direction to heart and that they are working very cooperatively with our small turbine industry.

A Small Wind Turbine Initiative (SWTI) would reduce the costs of small wind systems for homes, farms, and small businesses by promoting deployment leading to higher production volumes, reducing market barriers, and improving the technology. SWTI aims to make small wind turbines cost effective for an estimated 6–10 million potential rural residential users over the next twenty years. This potential market, up to 60,000 MW, could be a major contributor to our nation's domestic energy supply.

RENEWABLE ENERGY PRODUCTION INCENTIVE (REPI): $8 MILLION

Year-to-year uncertainty regarding funding levels for the Renewable Energy Production Incentive (REPI) plays havoc with the long-term planning needs of running a municipally owned utility. Due to insufficient funds for the program, full payments for eligible projects have not been made for a number of years. For this reason, AWEA suggests the Congress work with the Department of Energy (DOE) to develop long-range alternatives to annual funding of this program. The REPI program, authorized by the Energy Policy Act of 1992, encourages municipally owned utilities to invest in renewable energy technologies including wind energy systems. REPI permits DOE to make direct payments to publicly and cooperatively owned utilities for electricity generated from wind, solar, geothermal, and biomass projects.

CONCLUSION

Continued investments in wind energy R&D are delivering value for taxpayers by developing another domestic energy source that strengthens our national security, spurs new high-tech jobs, and helps protect the environment.

Now is not the time to abandon the important advancements that have been made through DOE-industry partnerships. With the California energy crisis threatening to spread across the rest of the country, wind, along with other renewable energy technologies, must continue to play an important role in our nation's energy strategy.

By the same token, utility-scale wind energy—which is right now becoming costcompetitive with other sources of electricity—and small wind energy systems are equally deserving of continued R&D. Just as coal and nuclear energy R&D does not stand still, neither does wind energy R&D.

AWEA appreciates the opportunity to provide testimony to the Subcommittee. We would be pleased to answer any questions that may arise. Thank you.

PREPARED STATEMENT OF THE SOUTHEASTERN UNIVERSITIES RESEARCH ASSOCIATION

Mr. Chairman and members of the Subcommittee: My name is Jerry Draayer and I am President of the Southeastern Universities Research Association (SURA). SURA, a consortium of 53 research universities in the South, manages the Thomas Jefferson National Accelerator Facility (Jefferson Lab) in Newport News, Virginia. Jefferson Lab, as the Committee knows, is home to the Continuous Electron Beam Accelerator Facility (CEBAF), a new $600 million nuclear physics research facility funded by the U.S. Department of Energy.

Mr. Chairman, our purpose in providing the Subcommittee with testimony is three fold. First, we want to thank you and the Subcommittee members for your support of the Science programs funded by the Department of Energy, including Nuclear Physics and to urge your continued support. We are convinced that generous Federal support for basic research is an important investment leading to continued economic growth, employment and prosperity. Secondly, we urge the Subcommittee to favorably consider increasing the fiscal year 2002 funding level for the DOE's Office of Science to $3.68 billion, a fifteen percent increase over last year's funding. Finally, within the Office of Science, we request that the Nuclear Physics budget be increased to $425 million (15 percent above fiscal year 2001) to better address

the backlog of important scientific opportunities that exist in this field. This level of funding would provide support for increased scientific output of Jefferson Lab, and will help build the intellectual infrastructure in our research universities to prepare for and mount experiments.

An expanded Office of Science budget will allow for more complete utilization of these world-class facilities, thus returning more on the investments made for their construction and maximizing their scientific contributions and their tremendous educational value.

CONTRIBUTIONS OF DOE-SUPPORTED SCIENCE TO THE NATION

Mr. Chairman, we would like to thank the Subcommittee for the increased level of funding provided in fiscal year 2001 for the DOE's Science programs. For fiscal year 2001, the Congress provided $3.16 billion for the Office of Science, representing a growth of 12.9 percent over fiscal year 2000. The National Academy of Sciences has noted that much of the U.S. economic growth, quality of life, and security derive from the nation's investment and leadership in science and technology. Therefore, as these investments are the underpinning of our nation's economic growth, we wish to thank the Subcommittee for its leadership in providing increased funding for DOE's science programs.

A commitment to basic research investments has been recognized on both sides of the aisle. Yet despite this broad agreement, from 1987 to 1995 the federal investment in basic research shrank by 2.6 percent a year and as a fraction of gross domestic product, the federal investment in research and development is about half of what it was 30 years ago. In the field of nuclear physics, investments in forefront facilities have made the United States a world leader. Over the last several decades the nation's leadership has been threatened as the funding levels provided have resulted in significantly reduced purchasing power for the field.

As the driver of our Nation's economic success is scientific innovation, we are concerned that the Administration has proposed for fiscal year 2002 to cut the three primary sources of ideas and personnel in the high-tech economy:

—The National Science Foundation is cut by 2.6 percent;

—NASA is cut by 3.6 percent; and

—The Department of Energy is cut by an alarming 7.1 percent.

It is our hope that the Congress will reverse these reductions and continue its strong support for basic science.

Mr. Chairman, the return on investment includes continued economic prosperity, national security, and an improved quality of life. DOE's Office of Science is the primary supporter of science and research in the physical sciences. It is also active across many scientific disciplines, including Basic Energy Sciences, Biological and Environmental Sciences, Nuclear and High Energy Physics, and Fusion Energy Science. And, it has stayed on the cutting edge by introducing new initiatives like the human genome, nanoscience and technology, and advanced scientific computing research. As a consequence, DOE is responsible for a significant portion of federal R&D funding to scientists and students at our colleges and universities.

Mr. Chairman, thanks to the leadership of this Subcommittee, the nation has made a significant investment in the Office of Science programs and the national user facilities, which provide a unique large-scale scientific effort across several scientific disciplines. As the Subcommittee begins its decision making process on the allocation of fiscal year 2002 resources, it is our hope that the members of the Subcommittee would choose to continue to reverse the downward trend in our nation's investment in the physical sciences. Specifically, an increase in funding for Nuclear Physics in fiscal year 2002 will allow us to reverse these trends in our subfield and to help maintain our world leadership position in the physical sciences.

THE THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY (JEFFERSON LAB)

Jefferson Lab, completed in 1994, offers research capabilities and opportunities for the scientific community that are unique in the world. Research at Jefferson Lab is intended to help answer fundamental questions about the structure of matter. Generally, nuclear physics helps answer questions about how matter is formed, how it is held together, and how its constituents parts interact with one another. The Jefferson Lab was built to increase our understanding of a very specific piece of the overall puzzle, to learn more about quarks, the sub-atomic particles that make up each proton and neutron. The major scientific tool at the Jefferson Lab is its accelerator facility which emits a billion times each second a million electrons into a human-hair-width continuous electron beam that is accelerated to almost the speed of light. The experiments at the Jefferson Lab record and analyze the results of the collision of this continuous electron beam with the nucleus of an atom, probing the

protons and neutrons of the nucleus to learn about its constituent parts, the quarks and gluons.

The Federal investment in the Jefferson Lab has already resulted in important spin off developments in the fields of medicine, industry and national defense. For example, the Jefferson Lab is pioneering the development of a Free Electron Laser (FEL) facility that is made possible by the Lab's expertise in superconducting radio frequency (SRF) technology. There is significant interest in the Defense community for application of the FEL technology and by industry for use of the FEL technology for materials processing. Additionally, the technology and expertise at the Jefferson Lab has resulted in the development of a new non-invasive medical imaging technology to help in the early detection of breast cancer.

UPGRADE OF THE JEFFERSON LAB ACCELERATOR

The Jefferson Lab has made remarkable progress in understanding the behavior of strongly interacting matter during the almost two decades that have passed since the parameters of the Continuous Electron Beam Facility (CEBAF) at the Lab was defined. These advances have revealed important new experimental questions best addressed by upgrading CEBAF to a higher energy.

When CEBAF was first created, the capabilities of the technology behind the machine and the energies necessary to answer the fundamental questions were not fully understood. Fortunately, however, the design of the CEBAF accelerator and the unique capabilities afforded by the advances in superconducting radio frequency (SRF) technology allow a straightforward upgrade from the original 4-GeV design energy to a 12-GeV design that is necessary to expand our reach within our current program and address new and compelling physics questions. The energy upgrade is facilitated because of favorable technical developments and the foresight in the original facility design which make it feasible to triple CEBAF's beam energy from the initial design value in a very cost-effective manner. The upgrade can be realized for about 15 percent of the cost of the initial facility, enabling CEBAF's world-wide user community to greatly expand its research horizons and maintain our international leadership in this critical field in the physical sciences.

Mr. Chairman, the Jefferson Lab seeks $3 million of fiscal year 2002 funding to begin preliminary design work for the 12-GeV energy upgrade to put the lab on the path to begin construction in 2004.

CONCLUSION

Mr. Chairman, in conclusion we would urge the Subcommittee to favorably consider increasing the fiscal year 2002 DOE Office of Science budget to $3.68 billion, a fifteen percent increase over last year's funding. This is the same amount that has been recommended by the Energy Sciences Coalition. Furthermore, within the Office of Science, we request that the Nuclear Physics budget be increased to $425 million, 15 percent above fiscal year 2001. This will allow the nation to take advantage of important scientific opportunities that exist in this field and reap the benefits of our nation's investments in these facilities.

Within the $425 million recommended for Nuclear Physics, we would anticipate and request an allocation of $91.43 million for the Jefferson Lab. At this level of funding, the Lab could deliver the most science that the facility capabilities allow. It would permit the Lab to substantially eliminate the six-year backlog of approved and highly meritorious projects. It would permit the hiring of key critical and scientific and technical staff. And it would allow the lab to begin to plan for the energy upgrade. All of these are needed to remain at the forefront of core competencies benefiting the lab complex and the nation.

Mr. Chairman, we appreciate the opportunity to submit testimony for your consideration.

WATER PROGRAMS

PREPARED STATEMENT OF THE SOUTH DAKOTA SCHOOL OF MINES & TECHNOLOGY

Thank you for agreeing to consider this request for funding of the Acid Drainage Technology Initiative (ADTI) through the Federal multi-agency mechanism. The Army Corps of Engineers (USACE) is being requested to provide annual funding of up to $200K, to match the standard set by the Office of Surface Mining (OSM). OSM funding is going primarily to the Coal Mining Sector of ADTI and a predictable base of funding is also needed for the Metal Mining Sector activities, in order to identify

the best science for controlling acid and metal drainage from metal mines and related materials.

The ADTI is a nationwide technology development program with a guiding principle of building a consensus among Federal and State regulatory agencies, universities and consulting firms to predict and find remedies for acid drainage from active and inactive metal and coal mines. It is not a regulatory or policy development program. The Acid Drainage Technology Initiative Metal Mining Sector (ADTI–MMS) is an organization of volunteers committed to the development of the best science and technology-based solutions to mine water quality issues at metal mines. The Review Committee is responsible for developing and implementing the consensus review process for documents, editorial services, international networking and membership coordination. The consensus review process is developed by this Committee is available on the world wide web at: http://www.bucknam.com/~chb/consensu.txt and several draft documents are also being reviewed on the ADTI–MMS web site at: http://www.mackqy.unr.edu/adti.

As you may be aware, it has been estimated that correcting the mine drainage and abandoned mined land problems will cost up to $70 billion. As this figure suggests, it will be necessary to lead off on this effort with an adequate foundation of current technology-based solutions. The ADTI–MMS organization is in the process of preparing and maintaining handbooks to provide that foundation and is prepared to launch the necessary research programs to develop the best science and technologies.

ADTI–MMS is backed through participation from members of numerous mining companies, environmental consulting firms, Federal and State research, land management and regulatory agencies, academic researchers committed to the ADTI mission, and the Western Governors Association. The Western University Consortium, consisting of University of Nevada—Reno, New Mexico Institute of Mining and Technology, University of Idaho, University of Utah and University of Alaska, Fairbanks and other members of the ADTI–MMS University Network (Colorado School of Mines, Montana Tech at the University of Montana, South Dakota School of Mines and Technology, University of Colorado, Berkeley, Northern Arizona University, Montana State University-Bozeman, and the University of New Mexico) provide part of our research foundation under direction of the Mining Life Cycle Center at the University of Nevada, Reno. In addition, the U.S. Army Corps of Engineers Restoration of Abandoned Mined Sites (RAMS) program and the headquarter-based Research Programs are actively pursuing research coupled with on ground cleanups. Coordination with sister organizations in other countries, including Mine Environment Neutral Drainage (MEND)—Canada, Mitigation of Environmental Impact From Mining Waste (MiMi)—Sweden, (other), signifies our position in the international realm.

The ADTI–MMS Review Committee needs funding for technical-professional review and illustrations for ADTI–MMS Workbooks on prediction, sampling and monitoring, modeling, mitigation and pit lakes. We feel that minimal funding (~10 percent of ADTI–MMS annual budget) can provide needed training documentation for what proves to be an expensive multi-decade effort.

The National Mining Association (NMA), the Interstate Mining Compact Commission (IMCC) and several Federal agencies [OSM, BLM, Department of Energy (DOE), and Geological Survey (USGS)] have actively participated in the Acid Drainage Technology Initiative (ADTI) since 1995. This collaborative effort receives funding and other support from industry and several Federal agencies for specific projects. For example, the OSM has provided the ADTI $200,000 for the last three fiscal years which has been a consistent source of funding for activities related to acid mine drainage from coal mining and has been instrumental in accomplishing the ADTI's short-term goals. In addition, the EPA has provided $10,000 for travel and administration, and is currently providing funding for prediction workbook preparation. If each of the Federal agencies, OSM, Environmental Protection Agency (EPA), DOE, Army Corps of Engineers (USACE), BLM, USGS, and other agencies as appropriate [i.e. Bureau of Reclamation (USBR), National Park Service (NPS) and Forest Service (USFS)], were provided funds to commit $200,000 toward ADTI, more than $1 million would be available to support the work of this vital initiative.

In fiscal year 1999, House Report No. 105–581 acknowledged that acid mine drainage is a serious environmental problem and that the U.S. Army Corps of Engineers possessed the experience and capability to assist in the ADTI's efforts. Further, the subcommittee directed the Corps to participate in this initiative with available funds. Since that time, the Corps participated in several workshops with members of the ADTI to exchange information on mining and related environmental issues and to explore the nature and extent of the Corps' involvement. In order to participate along with the Corps, we respectfully request that the USACE be pro-

vided funds to commit $200,000 annually (with other Federal agencies involved, such as OSM, EPA, DOE, BLM, USGS, USBR, NPS and USFS) to further the Corp's goals of ecosystem restoration.

Thank you for your time and interest in this vital area. Your continued funding of this Committee's activities will significantly improve our ability to develop the best science for addressing drainage issues with an organized and predictable schedule.

PREPARED STATEMENT OF THE FIFTH LOUISIANA LEVEE DISTRICT

The possibility exists that within weeks the people of Louisiana will have the unfortunate opportunity to see the integrity of the Mainline Mississippi River Levee System tested beyond its capabilities. Melting snow will begin to merge with excessive rainfall in the upper tributaries feeding into the Mississippi, and combined with recent heavy rains within the lower reaches of the River, we may be witnesses to the inevitable. "Project flood," that once-in-a-hundred-years flood that is imminent.

If not this year, then maybe next year. But eventually, it will happen. Funding for adequate flood control in the Mississippi Valley now will be minimum compared to the potential that exists if flood control projects are not completed as currently planned.

The Mississippi Valley Flood Control Association has requested a total appropriation of $395,000,000 in fiscal year 2002 for Mississippi River and Tributaries (MR&T), to be divided among the seven states covered by the Project.

To guarantee that the Vicksburg District, Corp of Engineers is able to maintain the level of progress needed to ensure that MR&T construction schedules are met, it is imperative that the $51,968,000 requested in the Budget and allocated for construction of Mississippi River Levees within the Division, be funded.

Funding provided in recent years has allowed the U.S. Army, Corp of Engineers to proceed with construction of Levee enlargement projects on the West Bank of the River, starting at the Louisiana-Arkansas State line and extending southward. It is essential that this section of Levee continue to be raised to prevent overtopping of the Levee in areas deficient in height.

The Mississippi River Levee System in Louisiana and Mississippi must be brought to heights and capabilities equal to that of the levees stretching northward; otherwise, upper reaches of the Mississippi River Levee System will become a funnel, protecting states to the north while directing destruction southward. Increased funding for MR&T levee improvement projects in Louisiana and Mississippi is the only means to eliminate this possibility.

PREPARED STATEMENT OF THE LITTLE RIVER DRAINAGE DISTRICT

My name is Dr. Sam Hunter, DVM of Sikeston, Missouri. I am a veterinarian, landowner, farmer and resident of Southeast Missouri.

I am the President of the Little River Drainage District, the largest such entity in the nation. Our District serves as an outlet drainage and flood control District to parts of seven (7) counties in Southeast Missouri. We provide flood control protection to a sizable area of Northeast Arkansas as well. Our District is solely tax supported by more than 3,500 private landowners in Southeast Missouri.

Our District as well as other Drainage and Levee Districts in Missouri and Arkansas is located within the St. Francis River Basin. This is a project item of the Mississippi River and Tributaries Project.

The St. Francis Basin Project was authorized by Congress in 1928 for improvements by the U.S. Army Corps of Engineers. The initial authorization was justified by a projected benefit cost ratio of 2.4:1. Today this ratio is 3.6:1 and the project is still not completed. As you can see this has been a wise investment of our federal tax dollars. Few projects or ventures with funding levels provided by the Federal Government return more than they cost. This one does and we need to complete it in a timely fashion.

Local interests have done their part in providing rights of way, roads, utilities and the like. Our government now needs to fulfill their part of the project and bring it to completion as quickly as possible.

The St. Francis Basin project has had a base funding level of approximately $10,000,000 over the past several years for maintenance. Our last 5 year average has been $9.9 million. That baseline funding level does not need to be diminished. We hereby respectively request funds for fiscal year 2001 for this project of not less than $17,200,000 for maintenance and $5,500,000 for construction. This amount is compatible with the Corps of Engineers capability.

Since the initiation of the project for improvements we have seen many positive changes occur such as: (1) Many miles of all weather roads have been constructed and are usable almost daily each year. (2) Improved flood control and drainage. (3) Development of one of the most fertile and diversified valleys in the world. (4) Growth of towns, schools, churches, industry, commerce, and etc. (5) Improvement of our environment: malaria, typhoid and other such diseases are no longer the norm but seldom occur. (6) A future for our young people to have a desire to remain in the area. (7) Production of a variety of food and fiber products.

As you can see many changes have occurred and we who live there welcome them fully. We, local interests, in Southeast Missouri and Northeast Arkansas want this project brought to completion and adequately maintained. We have waited over 70 years and we believe it is now time to complete a wise investment for our nation.

Our requests to you today is to approve funding for the St. Francis Basin Project of $5,500,000. for construction for the fiscal year 2002 and with funding of not less than $17,120,000 to preform the required and needed annual maintenance of items within that project which have been completed and which are the responsibility of the U.S. Army Corps of Engineers.

The Corps of Engineers has the capability of more than $395,000,000 for fiscal year 2002. We ask you to give consideration to provide funding levels at $395,000,000 for this project for fiscal year 2002. This will provide some new construction but it will also provide the necessary maintenance monies needed each year.

Our great Mississippi River and the other navigable tributaries are valuable assets to our great nation. As far back as 1845 we find records indicating our forefathers and leaders of this nation recognized the Mississippi River as a national problem, a national asset, and a problem local interests could not and should not be responsible for controlling, namely, flood control and navigation. The river has always been a viable asset to our nation and important to the development of our towns along its banks such as New Orleans, Louisiana, Memphis, Tennessee, St. Louis, Missouri, and of course many others along it and its tributaries.

We have locks and dams which are more than 50 years old. They need to be improved and enlarged to meet the needs for our navigation interest to perform in the 21st century. Our competing nations are modernizing and building navigation systems in order to compete with our export of commodities and we need to at least keep pace. We must upgrade our waterways infrastructure in order to compete with the foreign markets and we must improve our aging waterway facilities. No successful private industry does not improve and modernize its internal and external features in order to keep pace with the competition and to meet current demands. Our nation needs to do the same.

It has been proven over and over our waterway transportation system is the safest, the most environmentally acceptable, and the most fuel efficient in moving commodities and materials throughout our nation. It would be totally unacceptable and very unwise to diminish that mode of moving products throughout our nation and expect them to be moved either by rail or by highways. Our highway systems already are in dire need of repair and to add additional demands on them would be extremely costly, very unsafe, and would expend much more fuel which we currently do not have but must import. Hopefully, common sense will prevail and Congress will make the choice to invest into one of the greatest assets we have in our nation. The many locks and dams on our rivers are needed. They were designed to accommodate traffic 50 years ago and it is now time to upgrade, enlarge, and construct them to accommodate the industry as we have it today. We have done the same thing with our vehicler traffic on our roads by upgrading, enlarging, and constructing to meet the modern day demands. It is now time and past time to do the same for our water industry. Former President Eisenhower saw an increase in our car and truck traffic on the horizon and thus we implemented an extensive interstate system. Let's do something in a similar way on our rivers.

We have only a few oil producing fields, therefore, we must look for as many means as possible to conserve our fuel. Utilizing and increasing our waterway transportation industry is one way to do that. We need an energy plan and we encourage Congress to incorporate increased use of water to move products throughout our nation as one way to conserve fuel. Every little bit will help when our oil resources are so small domestically.

In the past few months there has been much unfair criticism of the U.S. Army Corps of Engineers for their study procedures and related work. This organization should have their hands held up high and not with accusing fingers pointed toward them. No other organization, to my knowledge, must stand before Congress each year and justify by a favorable cost/benefit ratio of why they need the funding to do the work Congress has authorized them to do. The Mississippi and Tributaries

Project currently returns back to the Federal Treasury more than $25 dollars for each dollar spent. In any society and to any investor that is a good return on your investment.

The Corps of Engineers does not do anything beyond what Congress has authorized them to do. They can and they will improve our great nation if Congress will only let them and if those groups who oppose them are not given the never ending ability to interfere. Those groups and individuals who oppose the Corps seem to only have to point a finger and we see an investigation occur. They should be required to provide scientific facts and supporting evidence not "innuendos", "perhaps", "maybes", and "could have" type charges before any consideration is given to their allegations. Simply to delay a project or to cast doubt in the citizens eyes through their good use of our news media means they have been successful. Local interests and those who benefit from the Corps projects are fully aware of the results of their tactics. We are sure Congress in their wisdom will do the same. Your assistance in this matter is extremely important. Congressman Barry from Arkansas understands the problem, perhaps, many more of the other 434 will be likewise enlightened.

Recently we have learned six members of Congress have attempted to create a Corp reform caucus whereby the Corps of Engineers projects would be placed under another additional financial and scientific review board. This is absurd and is nothing more than another effort of those who oppose the Corps of Engineers and the work they do to stop any work under the guidelines the Corps of Engineers must operate. It is our hope none of you participate in such a caucus and the efforts being pushed by those who desire same will come to naught.

I wish to thank you very much for your time and kind attention and for taking the time to review the above discourse. We would be very appreciative of anything this committee can do to help us improve our environment, improve our livelihood, and improve the area in which we live and work which ultimately is good for America. We are also very appreciative of all this Committee has done for us in the past. We trust you will hear our pleas and act accordingly.

PREPARED STATEMENT OF THE BOARD OF SUPERVISORS, CONTRA COSTA COUNTY, CALIFORNIA

A TURNING BASIN AT AVON, CALIFORNIA

Request

Contra Costa County requests a $2 million add to the Construction General (CG-continuing construction) Federal Fiscal Year 2002 Civil Works Budget to complete a General Reevaluation Report (GRR) and construct a Turning Basin to −35 feet MLLW at Avon, California.

Background

The Avon Turning Basin will provide necessary modification to the Suisun Bay Channel, increasing the distance between vessels traveling within the channel, and those berthed at terminals in the vicinity. Second, a Turning Basin will be constructed to allow oil tankers to turn vessels within (regularly surveyed and expanded) navigational boundaries, with a uniform depth of −35 feet of water (rather than attempting to turn in shallower areas). Finally, the Turning Basin will provide an emergency anchorage for vessels traveling westward when the railroad bridge (adjacent to HWY 680 between Martinez and Benicia) fails to open.

The recent grounding of the oil tanker CHESAPEAKE TRADER during turning operations in the Suisun Bay Channel has brought attention to and created some urgency for construction of a turning basin at −35 feet MLLW. The potential for an oil spill during a grounding event is significant. The Bar Pilot in question was cited (and suspended in part) for having the vessel outside channel boundaries, creating a liability issue for the Pilots as well. The Bar Pilots have no choice but to turn large vessels outside the narrow (linear) channel. This project is supported by the Bar Pilots, the U.S. Coast Guard, industries using the channels, the Port of Stockton, and the U.S. Army Corps of Engineers.

Avon, California is located at the mouth of the Sacramento San Joaquin Delta, as it flows into San Francisco Bay. The Bar Pilots and local industry have approached the County, concerned that a turning basin was no longer being considered at Avon, Suisun Bay Channel, as part of the JF Baldwin deepening project. Funding was successfully obtained in fiscal year 2001, allowing the Corps to begin reevaluation of the Turning Basin to −35 feet, the existing channel depth. The fiscal year 2002 appropriation would enable the Reevaluation Report to be completed, and con-

struction to occur as part of the San Francisco to Stockton (J.F. Baldwin), authorized project.

PREPARED STATEMENT OF THE SOUTHEASTERN FEDERAL POWER CUSTOMERS, INC.

Mr. Chairman and Members of the Subcommittee: On behalf of the Southeastern Federal Power Customers' ("SeFPC") Operation and Maintenance Committee, I am pleased to provide testimony in support of the Administration's fiscal year 2002 ("fiscal year 2002") budget request for the Army Corps of Engineers' ("Corps") South Atlantic Division ("SAD") and the Great Lakes and Ohio River Division ("LRD").

The SeFPC has enjoyed a long and successful relationship with the Corps' SAD and LRD offices that has greatly benefited the approximately 5.8 million customers that are SeFPC members. As the Subcommittee is aware, the Corps is responsible for operating and maintaining federal hydropower generating facilities. The Southeastern Power Administration ("SEPA") then markets the energy and capacity that is generated from the federal projects in the Southeast. The SeFPC represents some 238 rural cooperatives and municipally owned electric systems in the states of Alabama, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Florida, Virginia, West Virginia, and Illinois, which purchase power from SEPA. In some cases, SEPA supplies as much as 25 percent of the power and 10 percent of the energy needs of SeFPC customers. The SeFPC therefore greatly relies on the power generated at Corps' projects in the SAD and LRD.

It is important to note that the relationship of the Corps, SEPA, and the SeFPC, forged pursuant to the Federal Power Marketing Program, is separate and distinct from other Corps' activities. The Federal Power Marketing Program is designed to pay for itself—consumers are responsible for repaying the federal taxpayer investment in the Corps' multi-purpose hydroelectric facilities. In the rates charged by SEPA to preference customers, a portion of each rate is devoted to future operation and maintenance ("O&M") and renewals and replacement ("R&R") activities at these facilities. In turn, these revenues are deposited in the Treasury and used to reimburse Congressionally appropriated funds for O&M and R&R expenses at the Corps' hydropower facilities. Funds collected from consumers may also be used for the joint costs of dam activities such as recreation, navigation and flood control.

The SeFPC is dedicated to providing reliable and economic power for its consumers. We therefore are concerned that the President has proposed a 14 percent reduction in the Corps' overall O&M account for the upcoming fiscal year. With these reductions in funding, the Corps will not be able to undertake the O&M and R&R work necessary to ensure the long-term reliability of the Southeastern federal hydropower facilities.

We are particularly concerned about the effects of the proposed budget cuts on ongoing O&M work on hydropower infrastructure within the SEPA system of projects. The proposed reductions will impede the Corps' work in the following SEPA projects:

—the $1 million purchase of SF6 Switchyard breakers for the Hartwell hydropower project.
—$750,000 for head cover repairs of Unit 1 at the Carters hydropower project.
—$1.3 million for the excitation replacement of Unit 1 at the Carters project.
—$1.5 million for purchase and installation of SF6 switchyard breakers at the Carters project.

We also are concerned about the President has proposed no new starts for fiscal year 2002 from the Corps' General Construction account. If enacted, the prohibition on new starts would delay the badly needed rehabilitation of the Allatoona hydropower project.

When a generating unit becomes inoperable, SEPA may be forced to purchase expensive replacement power. If this occurs frequently, SEPA must then recover these costs through future rate increases. Such a result is inappropriate because preference customers already have contributed to the Corps' O&M and R&R expenses, thus effectively double-charging the customers and their consumers. In fact, revenue from the rates paid by the preference customers has enabled SEPA to repay, on schedule, the original investment incurred to construct these projects. However, when generating units deteriorate, the operation and maintenance expenses greatly increase. The failure to provide adequate resources for maintenance and rehabilitations impairs the preference customers' ability to repay the federal investment and everyone loses.

PREPARED STATEMENT OF THE AMERICAN RIVERS

American Rivers is joined by over 500 local, regional and national conservation organizations[1] from all 50 states in calling for $25 million in funding for the Upper Mississippi River Environmental Management Program in fiscal year 2002.

The Environmental Management Program (EMP) is the primary habitat restoration and long term resource monitoring program on the Upper Mississippi, and is administered by the U.S. Army Corps of Engineers in cooperation with the U.S. Geological Survey and the five Upper Mississippi River Basin states of Minnesota, Wisconsin, Illinois, Iowa, and Missouri.

OVERVIEW OF THE ENVIRONMENTAL MANAGEMENT PROGRAM

Dams and levees that support navigation and flood control have robbed the Mississippi River of its ability to create and sustain habitat for waterfowl and wildlife. Side channels and backwaters fill in with silt and sediment and are no longer replaced during floods. Instead, they are replaced by state and federal programs.

More than half the river's backwaters and side channels will be lost by the year 2035, likely leading to a catastrophic collapse of the nation's most productive and diverse inland fishery. Loss of river habitat also threatens a $1.2 billion river-recreation industry, which supports 18,000 jobs. As the Corps recently concluded, the Upper Mississippi River is in a "recognized state of decline." Corps scientists predict that the river will experience a shift to less desirable fish species, poorer water quality, and fewer areas that are able to support migratory waterfowl unless restoration efforts are improved and accelerated.

One of the most successful and promising federal efforts to reverse the degradation of the Mississippi River is the Environmental Management Program (EMP). The primary habitat restoration and monitoring program on the Upper Mississippi River, EMP has restored or created 28,000 acres of habitat to date. When the projects currently under construction are completed, it will have protected more than 96,000 acres of habitat.

Habitat restoration projects constructed by the Corps with funding from the EMP include backwater dredging, water level management, island restoration, shoreline stabilization, and side channel improvements. These activities allow the Corps and its project partners (e.g., U.S. Fish and Wildlife Service and/or basin states) to restore habitat degraded by management of the river system for navigation and flood control benefits by restoring natural river processes. Managing water levels to more closely mimic natural high and low water periods in the hydrologic cycle provides key ecological triggers for the growth of marsh plants, which in turn support fish and wildlife populations popular with hunters and anglers. Backwater dredging opens areas of aquatic habitat previously unavailable to aquatic organisms due to excessive sedimentation. In all, these restoration activities are a critical factor in improving the ecological health of the Upper Mississippi River.

Long term resource monitoring provides river managers with critical, systemic scientific analyses of the river ecosystem, which identifies key threats to river health and helps guide management decisions to protect and restore this national resource. These monitoring efforts provide critical information needed to maintain the Upper Mississippi River as a sustainable large river ecosystem supporting multiple uses, including recreation, navigation and commercial fishing.

THE VALUE OF THE UPPER MISSISSIPPI RIVER

Few rivers have had as great an impact on the nation as the Mississippi River.

Generations of explorers, engineers, Native Americans, fur traders, steamboat pilots, writers, painters and musicians have contributed to its legend. The river is a life sustaining force whose presence has contributed to a rich fabric of social, economic, cultural and natural resources.

As the river courses through the nation's heartland, the Mississippi winds through hundreds of communities and thousands of years of human history. Millions make their homes along the river's shores, and millions more use the waterway every year for recreation, to move goods, supply water, and generate power. From the moment it trickles out of Minnesota's Lake Itasca, the Mississippi River shapes the lives of the communities along its banks. The river that inspired Mark Twain continues to inspire millions of people today.

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[1] These groups have endorsed "The River Budget 2002", a report of national funding priorities for local river conservation. A list of groups endorsing the River Budget can be viewed at *www.americanrivers.org.*

People of virtually every ethnic and racial background have claimed homes along the river, and the river's many different names—the Father of Waters, Big Muddy, Old Devil River—underscore the diversity of the people who have lived along its shores. The Mississippi is a confluence of literally hundreds of different cultures.

More than 400 different species of wildlife call the river home as well—one of the world's most diverse ecological systems—including the nation's most ancient lineage of fish and 40 percent of North America's migratory waterfowl. The river's floodplain includes dense forests of maples, cottonwoods, and willows, which support bald eagles, herons, egrets, and double-crested cormorants, rare orchids and many other species.

The heritage resources of the river valley include traces of North America's earliest inhabitants. The river's banks are dotted with remnants of the past, ranging from 10,000 year-old Native American effigy mounds to the remains of Zebulon Pike's expedition to the paddle wheelers that inspired Mark Twain. Attractions like Mark Twain's birthplace in Hannibal, Missouri, historic steamboats and bridges, and river museums link visitors to the river's past.

The river's natural resources, scenic beauty, and heritage are powerful economic engines. Recreation on and along the Upper Mississippi River attracts 12 million annual visitors—four times more than Yellowstone National Park—who spend $1.2 billion annually, supporting more than 18,000 recreation-related jobs. Commercial fishermen continue to harvest carp, buffalo, catfish and freshwater drum, supporting hundreds of jobs and preserving an important link to the river's past. Tourism in counties along the entire Mississippi generates more than $15 billion in annual economic benefits.

Unfortunately, these important economic resources are threatened by land use practices which contribute too much sediment and nutrients, the loss of floodplain forests and wetlands, the loss of side channels and sloughs, outdated methods of channel maintenance, and introduced species like the zebra mussel. Sadly, that "artery of a continent" is becoming clogged with excess sediment and nutrients while critical habitat continues to degrade under a system highly managed to support economic benefits. Scientists tell us that these threats may have serious consequences if left unattended.

THREATS TO THE UPPER MISSISSIPPI RIVER BASIN

The Mississippi was once characterized by "dynamic equilibrium"—sediment and silt may have filled a side channel, but a new side channel was created by the erosive power of flood waters; particular islands and sandbars may have washed away, but new ones were built elsewhere by the river. The overall mosaic of floodplain forest and wetlands, side channels and sloughs, islands and sandbars stayed more or less the same. Periods of both high and low flow were critically important—during floods, powerful currents would build new habitat and fish could migrate onto the river's floodplain to spawn; during periods of low flow, exposed sediments would consolidate and river water would become clearer, aiding the production of marsh plants, a major food source for fish and waterfowl.

Today, the dams that make the river reliably navigable and the levees that temporarily protect floodplain farms have reduced the frequency, extent and magnitude of high flows, robbing the river of the ability to build new side channels and islands, replenish forests and marshes—to sustain itself. Because dams and channel training structures have confined the river's erosive power to a central channel, side channels, which fill with silt and sediment, are no longer replaced during floods. Current land use practices accelerate the loss of side channels by increasing the rate at which sediment is washed off the land into feeder streams. The river's bottom is becoming increasingly uniform, replacing the variety of water depths that contribute to the Mississippi's remarkable diversity of aquatic species. The absence of low flows has sharply reduced the amount and diversity of marsh plants, and elevated water tables have undermined the health of the river's floodplain forest. Marsh plant seeds, buried under layers of accumulating sediment, lay dormant.

THE ENVIRONMENTAL MANAGEMENT PROGRAM: ONE SOLUTION TO RESTORE THE MISSISSIPPI

the value of the Environmental Management Program to the ecological health of the Upper Mississippi River cannot be understated. Continued increases in funding for this important restoration program will translate into more effective restoration projects. With sound science and effective use of restoration funding, the degraded Upper Mississippi has some hope of turning around, and becoming the outstanding, world-class natural resource it once was. Without increased funding, the Upper Mississippi River is at risk of continued declining ecological health, putting at risk the

$1.2 billion in recreation-based economy in the basin, 18,000 or more recreation-based jobs, 400 different species of fish and wildlife, and a natural resource beyond compare.

We strongly urge you to appropriate $25 million to the U.S. Army Corps of Engineers' Upper Mississippi River System Environmental Management Program.

PREPARED STATEMENT OF THE ASSOCIATION OF STATE FLOODPLAIN MANAGERS, INC.

The Association of State Floodplain Managers appreciates the opportunity to express support for fully funding several key programs of the Army Corps of Engineers. These programs can significantly expand the Corps' ability to assist communities in the nation reduce losses due to flooding. We have found that the Flood Plain Management Services (FPMS) and Planning Assistance to States (Section 22) programs provide for important elements of effective floodplain management. The Riverine Flood Hazard Mitigation and Ecosystem Restoration Initiative, and Section 1135 and 206 programs offer new opportunities for use of non-structural options to achieve flood loss reduction. The National Shoreline Study requested by Congress in WRDA 99 has some initial funding proposed in the budget. These are all elements of the Corps' activities that are especially helpful to communities and states around the country in reducing flood losses.

The Association of State Floodplain Managers is an association of over 4,000 state and local officials and other professionals engaged in floodplain management, flood hazard mitigation, flood preparedness, warning and recovery and in working with numerous federal agencies, including the Corps of Engineers. Our members have expertise in the fields of engineering, planning, community development, hydrologic forecasting, emergency response, and water resources.

Three of the programs we are discussing, PAS, FPMS and Ecosystem restoration & mitigation, are all programs which directly support major themes the Corps is pursuing to formulate and implement Civil Works policy. They are based on building strong partnerships with states and local communities as well as other federal agencies. Additionally, that Civil Works policy should help economic growth and prosperity by "combining sound infrastructure management and development with environmental protection and ecosystem restoration". We fully support these strategies for the Corps.

Under General Investigations, Flood Plain Management Services, $8.2 million is requested for fiscal year 2002. The funding level for fiscal year 2001 was that $8.2 Million. The Floodplain Management Services Program funds specific technical assistance requests from states, local governments and tribes. Generally, these address needs for identification of flood hazards in communities under growth pressure, assessing and taking steps to assure the safety of dams and providing the technical information to identify appropriate flood mitigation options, floodproofing, flood warning and hurricane evacuation studies. Without the technical assistance the Corps provides, structures may be built at risk, exposing citizens and the nation's taxpayers to future costs. Clearly, projects funded under FPMS work tangibly to reduce flood losses and costs to the federal government and support the partnership and economic growth/infrastructure management strategies above. There is a growing need to increase the funds in this critical program to help reduce flood losses in the nation, which we hope the Congress mill consider for fiscal year 2002.

The General Investigations, "Coordination Studies With Other Agencies" budget includes $6.5 million for Planning Assistance to States in the budget request for fiscal year 2002, the same as last year's funding. The growing need of localities and local and regional governmental entitles for technical assistance from the Corps has been helped by the Congressional effort. Further, increasing federal efforts to encourage cooperation and capability building among federal agencies and state and local governments have produced more demand for the Corps' guidance and assistance. We hope that the Committee will approve funding at least at the budget request and, hopefully, once again at a measure above the budget request.

The Riverine Flood Mitigation and Ecosystem Restoration program was authorized by Congress last year. This program would provide the Corps with a full-range toolbox to help communities and states. It offers essential flexibility such as the ability to accommodate smaller projects for communities where a traditional structural project might not be justified or the ability to mix structural and non-structural elements to better design an overall project. The continuing authorities nature of the proposed program is important because confidence in a sustained federal commitment is important to communities for development and implementation of these smaller projects. From our knowledge, hundreds of communities in the nation have the potential to benefit substantially from this innovative initiative and are eager

to cost share in this effort. We hope that the Committee will provide the nation's communities with the valuable tools of this program.

Two other important programs need full funding—namely the Section 1135 and 206 programs. Both programs are helping communities restore much of the habitat lost when Corps projects were constructed. Both programs are authorized for $25 Million.

Congress Authorized the National Shoreline Study in WRDA 99 in order to help the nation describe the extent of economic and environmental effects of erosion and accretion of our shorelines. The study is also to help identify appropriate benefits and costs to various levels of federal and non-federal participants in shore protection projects. We support proceeding with such a study so the nation will be better prepared to address and manage our shorelines to benefit everyone. The proposed budget provides $300,000 for starting this study under "General Investigations—Studies not under states". We urge the Committee to provide at least the budget request. In order to complete the study in the time Congress requested, funding of $500–$750,000 would be appropriate.

Thank you for the opportunity to present testimony. Please contact ASFPM Executive Director, Larry Larson, at (608) 274–0123 if further information is needed.

PREPARED STATEMENT OF BUTTE COUNTY, CA

ROCK CREEK-KEEFER SLOUGH FLOOD CONTROL PROJECT, SECTION 205

Butte County in cooperation with the California Reclamation Board and U.S. Army Corps of Engineers (Corps) is currently completing the Feasibility Study Phase of the project review with several important milestones to occur in the near future. The Working Group has established two project construction alternatives. When the components of the alternatives have been agreed upon they will be subject to an Environmental Review through the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) processes.

In October we expect development of the PED Phase (Project Engineering and Design) to start. The NED Plan (National Economic Development Plan is slated to be completed near that date. This will be a General Inquiry Project.

Our goal is to have the project properly reviewed, designed and constructed in the shortest possible time. This does not mean we want to cut any corners or bend any rules. It means we do not want to miss any deadlines or waste any time waiting for something to start which should have already been completed, including project budgeting.

At this time, we are asking The Honorable Members of the United States Senate, to support Federal Funding of $2,100,000, for the U.S. Army Corps of Engineers, to proceed with the PED, in fiscal year 2002, for construction of this critical Flood Control Project in their fiscal year 2003 recommended flood control projects.

If you have any questions concerning this matter, please contact: Stuart Edell, P.E., at Butte County Public Works, 7 County Center Drive, Oroville, CA 95965–3397, Telephone (530) 538–7266, FAX (530) 538–7683, Email sedell@buttecounty.net

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PREPARED STATEMENT OF THE SOUTHERN NEVADA WATER AUTHORITY

INTRODUCTION

It has long been said that the Colorado River is the lifeblood of the West. Today, the Colorado River supplies vital water and power resources for more than 20 million people in Arizona, California and Nevada.

Concerns have been raised about the reliability of these water and power resources following the U.S. Fish and Wildlife Service's 1994 designation of critical habitat for four endangered fish species in the Colorado River Basin.

In response, representatives of the U.S. Department of the Interior, Arizona, California, and Nevada, Native American tribes, along with various stakeholders and water and power agencies along the lower Colorado, have formed a regional partnership, which is developing a first-of-its-kind multi-species conservation program aimed at protecting sensitive, threatened and endangered species of fish, wildlife and their habitat.

The partnership formed a 35-member steering committee, which has been designated by the U.S. Fish and Wildlife Service as an Ecosystem Conservation and Recovery Implementation Team (ECRIT) under the federal Endangered Species Act. The steering committee has retained the services of professional facilitator and tech-

nical consultant teams to help develop a plan for the conservation program. The conservation plan is scheduled for completion in Fall 2002.

PROGRAM DESCRIPTION

The multi-species conservation program will work toward the recovery of listed species through habitat restoration and species conservation, and reduce the likelihood of additional species listings under the federal and California Endangered Species Act.

The MSCP planning area includes the historic floodplain of the lower Colorado River and reservoir full-pool elevations from Lake Mead to the Southerly International Boundary with Mexico. MSCP habitat restoration and preservation activities are intended to address the following habitat types: aquatic, wetland/marsh, riparian and upland desert fringe. It is the intent of the MSCP to re-vegetate native cottonwood-willow and mesquite trees in the floodplain, and remove the non-native salt cedar, or tamarisk, that has become established.

The MSCP will be implemented over a 50-year period. The long-term program is also intended to accommodate current water diversions and power production and optimize opportunities for future water and power development. This comprehensive program will provide long-term environmental compliance for participating federal agencies, pursuant to Section 7 of the federal Endangered Species Act, and non-federal agencies under Section 10. California Agencies will also pursue programs and actions to achieve compliance with California Environmental Quality and Endangered Species Acts.

Over the past four years, interim conservation measures (ICMs) have been developed and implemented to address the immediate critical needs for certain endangered species. ICMs benefiting the endangered razorback sucker, bonytail, and southwestern willow flycatcher were initiated.

PROGRAM DEVELOPMENT COST

Current, program development costs are projected at about $6.7 million over five years for planning needs and implementation of ICMs. A federal/non-federal cost-sharing agreement is in place for development of the program and implementation of interim conservation measures. The federal and non-federal participants shared program development costs on a "50/50" basis. Among the non-federal participants, the shares were distributed as follows: 50 percent of the non-federal share was borne by California, 30 percent by Arizona, and the remaining 20 percent by the State of Nevada.

PROGRAM IMPLEMENTATION

The MSCP will be implemented over the fifty-year period beginning in late-2002. However, MSCP proponents are desirous of implementing a series of "pilot projects" in order to begin evaluating potential habitat restoration and species conservation technologies within the planning area. Additionally, the pilot projects would be supplemented with species and habitat monitoring and research programs, providing the basis for a comprehensive adaptive management approach.

COLORADO RIVER INDIAN TRIBES PILOT PROJECT PROPOSAL

The Colorado River Indian Tribes (CRIT) have played an active role in the restoration of critical habitats for the past eight years. Since 1993, the tribe has restored, preserved and protected over 2,000 acres of riparian, wetland, and aquatic resources on the Lower Colorado River. In particular, the Ahakhav Tribal Preserve project has served as a model for riparian habitat restoration in the southwestern United States for Native American Tribes, the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, and various other public and private agencies. More importantly, it serves as a model for the Lower Colorado River Multi-Species Conservation Program (MSCP).

Located just south and west of Parker, Arizona, in La Paz County, the Ahakhav and Deertail Backwater Restoration Pilot Project is located on the Colorado River on the Colorado River Indian Reservation. The Ahakhav and Deertail Restoration Pilot Project provides numerous opportunities for MSCP covered species conservation and native habitat restoration. Many of the nearly 100 species proposed for coverage, or receiving benefits from MSCP conservation, occur on lands within the pilot project area. Anticipated actions for this pilot project include enhancement of riparian, wetland, and aquatic habitats and continued collaboration with ongoing Native American, federal, and state environmental planning efforts, specifically the MSCP.

PILOT PROJECT AREA DESCRIPTION

The Ahakhav and Deertail backwaters extend from Rivermile (RM) 169 to 174 on the Colorado River. This restoration pilot project plans to restore native riparian, wetland, and aquatic habitats modified through development of the Colorado River water and hydroelectric power resources over the past century. This proposed pilot project would restore over 1,000 acres of native riparian habitat, 200 acres of open water, 250 acres of wetland/marsh complex, and 200 acres of fallowed agricultural land. Over 300 species of birds, 32 species of mammals, 19 fish species, 20 species of reptiles, and 9 amphibian species utilize the sites. In addition, 29 threatened or endangered species are expected to benefit from the proposed pilot project, including the endangered southwestern willow flycatcher, Yuma clapper rail, and razorback sucker.

PILOT PROJECT ACTIONS

In keeping with the overarching intent of the MSCP, habitat restoration at these sites is the primary component of the project. This MSCP pilot project seeks to restore wildlife habitat and some measure of pre-development hydraulic conditions in this area. This will be accomplished through re-excavation and re-connection of historic channel features, installation of water control structures, conversion of agricultural land and riparian re-vegetation activities. The following is a list of pilot project goals and objectives:

—Excavate historic channel features to improve water quality and flow in existing wetlands;
—Convert fallowed agricultural lands into cottonwood-willow forests;
—Re-vegetate stands of native cottonwood, willow, and mesquite trees in areas where exotic plant species have invaded;
—Implement pre- and post-restoration monitoring to measure success and aid in the development of future maintenance and restoration activity recommendations; and
—Provide environmental and cultural education and low-impact recreational opportunities for surrounding communities.

PILOT PROJECT FUNDING

It is proposed that the CRIT Ahakhav and Deertail Restoration Pilot Project of $2.5 million be funded through the U.S. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Operations (LCROP) budget line item.

PREPARED STATEMENT OF THE MONTEREY COUNTY WATER RESOURCES AGENCY (MCWRA)

CASTROVILLE SEAWATER INTRUSION PROJECT

Mr. Chairman, thank you for the opportunity to provide testimony for inclusion in the hearing record of the fiscal year 2002 Energy and Water Development Appropriations bill. The people of the Salinas Valley in California's 17th Congressional District appreciate your willingness to accept our statements in support of the Castroville Seawater Intrusion Project. I would further like to express our deep appreciation for this Subcommittee's efforts on our behalf on past Energy and Water Development Appropriations bills. I am pleased to report that the project is complete and operational and provided over 10,000 acre-feet of recycled water in calendar year 2000.

As in the past seven years, the Monterey County Water Resources Agency has worked diligently to present the Subcommittee with an fiscal year 2002 funding request that is supported by the Administration as well as all the other Small Reclamation Loan Program participants. Through close consultation with the Bureau of Reclamation (Bureau) and other Program participants, we have developed the funding plans that we hope will be included in the President's fiscal year 2002 budget for the Public Law 84–984 Small Reclamation Loan Program. I therefore respectively request that the Subcommittee provide the full request for the project of $1.12 million.

This is the eighth year of an eight-year fiscal strategy designed to meet the requirements of all the projects in the Program while recognizing the fiscal constraints facing all levels of government. Originally, the Program was to provide all appropriations ($16,500,000) over a three-year period. During the past seven years this Subcommittee provided $13.164 million for our project. The current appropriation amount of $1.12 million, when combined with other federal funding which is avail-

able from the U.S. Treasury in the amount of approximately $2.174 million pursuant to the Federal Credit Reform Act of 1990, should yield a total loan amount of $3.294 million for fiscal year 2002 allowing the project to proceed on schedule.

The Monterey County Water Resources Agency (MCWRA) is a local government entity formed under the Monterey County Water Resources Agency Act. It is an agency with limited jurisdiction involving matters related primarily to flood control and water resources conservation, management, and development. The Salinas Valley is a productive agricultural area that depends primarily on ground water as its water supply. The combination of the Valley's rich soils, mild climate, and high quality ground water makes this Valley unique among California's most fertile agricultural lands and has earned the Valley the distinction as the "Nation's Salad Bowl." As agricultural activity and urban development have increased in the past forty years, ground water levels have dropped allowing seawater to intrude the coastal ground water aquifers. Seawater intrusion is extensive adjacent to the coast near the town of Castroville. The Castroville Seawater Intrusion Project will provide 19,500 acre-feet of recycled water annually for agricultural irrigation to over 12,000 acres and help solve the seawater intrusion problem by greatly reducing groundwater pumping in the project area. The Castroville Seawater Intrusion Project is an essential component in the MCWRA's plan to deal with basin-wide ground water overdraft and seawater intrusion.

The amount requested in fiscal year 2002 when combined with the additional Treasury portion is intended to fulfill the Bureau's eighth year of an eight-year loan commitment for assistance to construct the project. As stated above, the funding request that we anticipate is the result of a lengthy and complex financial agreement worked out with the other Loan Program participants and the Bureau. The agreement recognized the tight federal budgetary constraints and represents the absolute minimum annual amount necessary to proceed with the project. The MCWRA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of the Interior in May 1994. Through extensive discussion and negotiations between the MCWRA and the Bureau, a project-financing plan was created. The Bureau made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the repayment contract, the Bureau will disburse funds to the MCWRA over an eight-year period. This means that the MCWRA will receive these funds for five years after the project is operational. The fiscal year 2001 funding provided monies for the fourth year after completion of the project. The MCWRA had to acquire "bridge financing" to meet the needs of the Castroville Seawater Intrusion Project construction costs. Even though the additional private debt service has increased the project costs, the critical problem of seawater intrusion demanded that the project proceed. The Bureau loan is a crucial link in project funding and it is imperative that the annual appropriations, even at the planned reduced rate over eight years, continue. Federal appropriations have been received in fiscal years 1995, 1996, 1997, 1998, 1999, 2000, and 2001 as shown in the table below and must continue for the last year in accordance with the negotiated agreement in order for the projects to be successful. The federal funds requested under the Public Law 84–984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. The MCWRA has spent approximately $36.0 million of its own funds getting to this point.

FEDERAL APPROPRIATIONS [1]

[In millions of dollars]

	Received 1995–2000						Requested 2002		
	1995	1996	1997	1998	1999	2000	2001	Requested 2002	Total
CSIP	1.064	1.5	2.0	2.1	2.6	2.6	1.3	1.12	14.284

[1] Does not include Treasury portion of $15.992 for CSIP.

Mr. Chairman, we urge you and the members of the Subcommittee to give your continued support to the Small Reclamation Program and we urge the inclusion of

funds for the Castroville Seawater Intrusion Project. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years and the Salinas ground water basin will continue to deteriorate, creating a significant threat to the local and state economies as well as to the health and welfare of our citizens.

Again, thank you for your support and continued assistance.

SMALL RECLAMATION PROJECTS LOAN PROGRAM

Mr. Chairman, thank you for the opportunity today to provide this testimony for inclusion in the hearing record on the fiscal year 2002 Energy and Water Development Appropriations bill. But most importantly, let me express my sincere appreciation for your continued support for the Small Reclamation Projects Loan Program, and specifically, the funding for the Salinas Valley Reclamation Project. During the past seven years, this subcommittee provided $9.0 million for our project. I am pleased to report that the funds appropriated thus far have been well spent on our project, which began construction in August 1995. The new facility was dedicated in October 1997 with full operation beginning in April 1998. In calendar year 2000, the plant produced about 10,000 acre-feet (AF) of recycled water.

As in the past, we have been in close consultation with the Bureau of Reclamation (Bureau) and the other Small Reclamation Projects Loan Program participants in an attempt to provide the Committee with a consensus budget request that has the support of the Administration and the Loan Program participants. Based on these discussions, we are hopeful that the Administration will request, with our support and endorsement, $0.557 million for the Salinas Valley Reclamation Project as part of the Bureau of Reclamation's Public Law 84–984 Small Reclamation Projects Loan Program for continuation of loan obligations. This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990, will yield a total loan amount that we believe will meet the federal government's commitment for fiscal year 2002. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's eight-year loan commitment for assistance to construct the project.

The project will ultimately provide 19,500 AF of recycled water per year to land south and west of Castroville where abandonment of wells threatens agricultural production and the loss of a portion of rural America. It will also reduce discharge of secondary treated wastewater to the recently created Monterey Bay National Marine Sanctuary. In addition, the California State Water Resources Control Board specifically indicated its strong support for the Salinas Valley Reclamation Project in a prior letter to the U.S. Bureau of Reclamation.

The Monterey Regional Water Pollution Control Agency (MRWPCA), a joint-powers entity formed under the laws of the State of California, was created in 1971 to implement a plan that called for consolidation of the Monterey Peninsula and northern Salinas Valley wastewater flows through a regional treatment plant and an outfall to central Monterey Bay. The plan also required studies to determine the technical feasibility of using recycled water for irrigation of fresh vegetable food crops (artichokes, celery, broccoli, lettuce, and cauliflower) in the Castroville area. These studies were initiated in 1976 and included a five-year full-scale demonstration of using recycled wastewater for food crop irrigation. California and Monterey County health departments concluded in 1988 that the water was safe for food crops that would be consumed without cooking. Subsequently, the Salinas Valley Seawater Intrusion Committee voted to include recycled water in their plan to slow seawater intrusion in the Castroville area.

In addition, a supplemental water-testing program (October 1997 through March 1998) was initiated to confirm the new plant's removal of what are termed "emerging pathogens." These organisms, which include Cryptosporidium, Giardia, Cyclospora, and E. Coli, were not evaluated in the original five-year field study. The results of the follow-up testing program again verified that the water is safe for irrigation of food crops.

As I indicated, the funding request is the result of a lengthy and complex financial agreement worked out with the other Loan Program participants and the Bureau. The agreement represents the absolute minimum annual amount necessary to continue with the project. The MRWPCA worked under the premise of accommodating the Bureau of Reclamation's budgetary constraints and is expending considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project.

The MRWPCA has received Federal Grant and Loan Funds in Federal fiscal year 1995, fiscal year 1996, fiscal year 1997, fiscal year 1998, fiscal year 1999, fiscal year 2000, and fiscal year 2001 through February 12, 2001, as follows:

FEDERAL APPROPRIATIONS [1]

[In millions of dollars]

	Received 1995–2001							Requested 2002	Total
	1995	1996	1997	1998	1999	2000	2001		
SVRP	.....	2.0	1.5	1.3	1.7	1.7	0.8	0.557	9.557

[1] Does not include Treasury portion of $10.375 for SVRP.

Even though the additional private debt service and bridge financing will increase the project costs, the critical problem of seawater intrusion demands that the project be continued. The Bureau of Reclamation loan is a crucial link in project funding, and it is imperative that annual appropriations continue, even at the planned reduced rate over eight years. The federal funds requested under the Public Law 84–984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. Local funds totaling $14.4 million have already been spent getting to this point.

Mr. Chairman, we urge you and the members of the Subcommittee to give your continued support to the Small Reclamation Projects Loan Program and, specifically, funding for the Salinas Valley Reclamation Project. Your support and continued assistance of this critical project is greatly appreciated.

PREPARED STATEMENT OF THE LEWIS AND CLARK RURAL WATER SYSTEM, INC.

On behalf of the Lewis and Clark Rural Water System (LCRWS), I would like to thank you for the opportunity to provide testimony to the Senate Appropriations Subcommittee on Energy and Water Development in support of fiscal year 2002 funding. First, I would like to thank you for all your efforts on behalf of the Lewis and Clark Rural Water System (LCRWS) last year. Without your steadfast and diligent support, our hopes of providing safe, reliable drinking water to our communities would be impossible.

Our need for the project is even greater today than when we embarked on our effort almost a decade ago. The shallow wells, aquifers prone to contamination, demands of compliance with new federal drinking water standards, and increasing population growth and economic expansion are stressing our existing systems beyond their capacity. The promise of a pure, dependable, Missouri River drinking water system for the nearly 200,000 residents in 22 communities in rural Iowa, Minnesota, and South Dakota can only be realized with your continued support and efforts. In order to meet the fundamental need for clean dependable water in this area, we must once again request your support for funding this vital project in fiscal year 2002.

BACKGROUND

The LCRWS is a bipartisan effort supported by all members of its Congressional delegation including Senators Grassley (R-IA), Daschle (D-SD), Wellstone (D-MN), Johnson (D-SD), Harkin (D-IA) and Dayton (D-MN), and Congressmen Kennedy (R-MN), Latham (R-IA), and Thune (R-SD). Additionally, in recent remarks in Sioux Falls, South Dakota, President Bush expressed his support for LCRWS.[1]

The Senate unanimously passed S. 244, authorizing LCRWS on November 19, 1999. Companion legislation, H.R. 297, passed the House by an overwhelming majority of 400–13 on May 23, 2000. The Lewis and Clark Rural Water System Act of 1999 was signed into law (Public Law 106–246) by President Clinton on July 13, 2000, as a part of the fiscal year 2001 Military Construction Appropriations bills, where $600,000 was appropriated for this project. Further, funds totaling $1 million have been appropriated through the fiscal year 2001 VA–HUD/Energy and Water Appropriations bill (H.R. 4635).

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[1] "A priority is to work with states on important development projects. And Lewis and Clark rural Water Project is a project that will be in my budget, and something that we can work together on." President George W. Bush, Remarks in Sioux Falls, South Dakota, March 9, 2001.

FISCAL YEAR 2002 FUNDING REQUEST

The LCRWS is requesting further funding for this project, through the U.S. Bureau of Reclamation (Bureau), in the amount of $2 million for fiscal year 2002. These funds will be used for final design engineering, environmental compliance, acquisition of easements and property, and associated legal and professional costs. Specific tasks to be accomplished with these funds include acquiring property for well sites, a water treatment plant, and for the raw water pipeline route; completing the Final Engineering Report that will include a Water Conservation Program; completing the Environmental Assessment report; completing final design and initiating construction of at least one radial collector well; initiating final design of the water treatment plant; and initiating final design of the raw water pipeline.

PROJECT DESCRIPTION

Water from an aquifer adjacent to the Missouri River near Vermillion, SD, will be treated in a water treatment facility and delivered to the project's membership through a regional distribution system. Each member utility will take water from the LCRWS at a point of connection and deliver it to the end user through their distribution system. Some members will receive all of their drinking water from LCRWS. Others will blend project water with their existing resources.

Physical Attributes of the Project.—Nearly 412 miles of pipe will be needed to distribute treated drinking water to the project's membership. The largest pipe is expected to be 54 inches in diameter, with the smallest being 6 inches in diameter. One centralized treatment plant will be constructed. The LCRWS will build at least five reservoirs to assist in meeting storage needs. About one day's worth of storage will be included in the reservoirs and in the distribution system. A state of the art communication system will be utilized to allow plant operators to monitor and control the operation of the entire system from one location. A radial well system will be constructed to collect water for treatment and distribution. A series of four to six wells will be needed to give enough capacity for the system.

As dictated by Public Law 106–246, the Bureau will be the federal oversight agency during project construction. A cooperative agreement between the Bureau and the LCRWS is currently being negotiated. Once an agreement is signed, the appropriated funds can be transferred to the project to assist with the pre-construction activities. All project activities are carried out in consultation with the Bureau.

PROJECT ACTIVITIES

Summary of Current Activities.—The following summary of project activities over the past few months demonstrates the project's progress to date in developing the final engineering and environmental documentation. The listing includes both planning and engineering activities, consultations, and data gathering efforts associated with the preparation of documents necessary for compliance with the National Environmental Policy Act (NEPA).

1. Requests for additional capacity from LCRWS have come from existing members and potential new users along the proposed pipeline route. Costs associated with increasing system capacity to meet these requests will be accomplished through means other than the federal authorization for the project. These new requests would require an additional 11 million gallons per day of treated water. This is a fifty-percent increase in project capacity from the original project design.

Authorized System Costs, Year 1993	$272,800,000
Indexed System Costs, Year 2000	343,831,200

2. To ensure compliance with NEPA, the following tasks have been initiated:
—preparation of detailed route maps showing a 2 mile wide corridor for the pipeline routes and project features;
—initial consultation meetings with State Historic Preservation Offices in Iowa, South Dakota, and Minnesota;
—initial consultation meetings with U.S. Fish and Wildlife Service, South Dakota Game Fish and Parks, Iowa Department of Natural Resources, and Minnesota Department of Natural Resources;
—consultation and coordination meetings between the project team members and the project management team from the Bureau; and
—class I file search of archaeological records for pipeline routes in Iowa, Minnesota, and South Dakota.

3. Hydro-geological studies to identify prospective sites for radial collector wells have begun. A preliminary report identifying recommended locations for exploratory drilling and production pump testing has been prepared. Project representatives

have met with affected property owners who have given permission for site access for investigations. A categorical exclusion for the exploratory drilling has been approved and this drilling is scheduled to begin in early April.

April 2002 is the target date for submittal of the final engineering report including a business plan, environmental assessment, and water conservation program. The documents will be submitted to the Bureau and the United States Congress marking the beginning of the mandated 90-day review period.

Public Scoping.—Public meetings will be held throughout the project area to invite public comment on the project planning process. These meetings will be held in early May 2001. Notifications and a project scope statement will be distributed in late April 2001. These meetings will be prime opportunities to better inform the public about the LCRWS and its plans for the future. The Bureau will also be working with tribal organizations throughout the area to gain their input into this process.

PROJECT FINANCING

The projected total cost for the LCRWS project is $272.8 million, in 1993 dollars. A combination of local, state, and federal funding is being used for this project. Each of the three member states has already passed legislation authorizing the state governments to fund 10 percent of the project. Project members will fund an additional 10 percent of the project. The federal government will fund the remaining 80 percent except in Sioux Falls, where the federal cost-share is 50 percent. In addition, Sioux Falls will contribute significantly to the O&M costs of the project, lowering those costs for other project members.

Throughout the past decade, as the LCRWS completed its Preliminary Engineering Report and Environmental Assessment Report, the three states and project members have contributed to financing the project. For every state dollar that has been contributed, the local members have matched those state funds dollar for dollar. To date, over $2 million in state and local funds have been contributed to project activities related to development, administration, public education, and federal authorization.

PREPARED STATEMENT OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT

On behalf of the Metropolitan St. Louis Sewer District (MSD), I would like to thank you for the opportunity to provide testimony to the Senate Appropriations Subcommittee on Energy and Water Development in support of fiscal year 2002 funding. We respectfully request your continued support of fiscal year 2002 funding for MSD projects to minimize the impact combined sewer overflows have on the Mississippi River in the heartland of our country. Authorization for such work, to be performed by the U.S. Army Corps' of Engineers, was contained in the Water Resources Development Act of 1999.

In fiscal year 2001, $3 million was appropriated to start a combined sewer project in an area of south St. Louis City. Additional funding for fiscal year 2002 totaling $5 million is being requested to continue the work on that project, known as Grand & Bates, and for two additional combined sewer projects, Mill Creek Sewer and Southern Arsenal Relief Sewer, in the city of St. Louis. This work has as its goal to reduce floatable materials that collect in combined sewers, and which unless removed, may be discharged into the Mississippi River during storm events. Such materials can be unsightly in the water, may jeopardize water supplies and pose a risk to the aquatic life thriving in the river.

Depending upon weather conditions, the combined sewers serving the city of St. Louis may discharge untreated flows of sewage and stormwater runoff an average of 100 times per year. The cost to totally separate the sewers is too high, estimated at $6 billion, thus we are proposing other methods to reduce the impact these structures have upon the Mississippi River.

Grand & Bates.—MSD is proposing to continue the work on the Grand & Bates project where separation of a small portion of the combined sewer is being recommended and a sewer is being built in a tunnel 100 feet below the surface. The separation will reduce the likelihood of flooding in this neighborhood and, because the drainage is being removed from the combined sewers, will improve the discharges into the Mississippi River.

Mill Creek Sewer, Vandeventer to Grand Avenues.—This sewer is a 15-foot by 18-foot combined sewer system running through the north central portion of the city of St. Louis. Most of the sewer is carved in stone and is nearly 100 years old. The improvements proposed will help stabilize the sewer, thus, reducing the threat of

failure and debris being carried downstream into the Mississippi River. Failure on a system this large can threaten public safety.

Southern Arsenal Relief Sewer, Phase II.—This combined sewer system serves a southern portion of St. Louis City. It is an 8.5-foot by 8.5-foot carved in rock sewer. Numerous voids have been detected along this sewer causing concern for its structural stability.

Due to the size of this system and the fact that it discharges into the Mississippi River, there are concerns about failure of the system, leading to more debris being carried into the river. The voids around the sewer could lead directly into the river, thus increasing the potential for pollution. A public safety concern exists due to the potential condition of this system.

The Mississippi River is the backbone of our country. Its environmental integrity is critical now and in the future. We request that the Subcommittee give strong consideration to appropriating $5 million for these projects.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

Your support and leadership are needed in securing adequate fiscal year 2002 funding for the Department of the Interior with respect to the federal/state Colorado River Basin Salinity Control Program. Congress has designated the Department of the Interior, Bureau of Reclamation to be the lead agency for salinity control in the Colorado River Basin. This successful and cost effective program is carried out pursuant to the Colorado River Basin Salinity Control Act and the Clean Water Act. California's Colorado River water users are presently suffering economic damages in the hundreds of million of dollars per year due to the river's salinity.

The Colorado River Board of California (Colorado River Board) is the state agency charged with protecting California's interests and rights in the water and power resources of the Colorado River System. In this capacity, California along with the other six Basin States through the Colorado River Basin Salinity Control Forum (Forum), the interstate organization responsible for coordinating the Basin States' salinity control efforts, established numeric criteria, in June 1975, for salinity concentrations in the River. These criteria were established to lessen the future damages in the Lower Basin States as well as assist the United States in delivering water of adequate quality to Mexico in accordance with Minute 242 of the International Boundary and Water Commission. The goal of the Colorado River Basin salinity control program is to offset the effects of water resource development in the Colorado River Basin after 1972 rather than to reduce the salinity of the River below levels that were caused by natural variations in river flows or human activities prior to 1972. To maintain these levels, the salinity control program must remove 1,480,000 tons of salt loading from the River by 2015. In the Forum's last report entitled "1999 Review, Water Quality Standards for Salinity, Colorado River System" released in June 1999, the Forum found that additional salinity control measures were necessary to meet the implementation plan that had been adopted by the seven Colorado River Basin States and approved by the Environmental Protection Agency. The Forum identified a "backlog" of salinity control measures which stands at 384,000 tons. This is in addition to future controls designed to lower the River's salt loading by 372,000 tons by 2015 in order to meet the established salinity standards. The Forum has presented testimony to Congress in which it has stated that the rate of implementation of the program beyond that requested by the past President is necessary.

In 2000, Congress reviewed the salinity control program as authorized in 1995. Following hearings, and with the Administration's support, the Congress passed legislation that increased the ceiling authorization for this program by $100 million. Reclamation is now prepared to receive proposals to move the program ahead and the seven Basin States have funds available to cost-share up-front. The seven Basin States have agreed to cost sharing up-front on an annual basis, which adds 43 cents for every federal dollar appropriated.

The President's request for funding the Bureau of Reclamation's Basinwide Salinity Control Program in fiscal year 2002 is unknown at this time. Based upon past appropriations, implementation of salinity control measures has fallen behind the needed pace to prevent salinity concentration levels from exceeding the numeric criteria adopted by the Forum and approved by the EPA. The seven Colorado River Basin states have carefully evaluated the federal funding needs of the program and have concluded that an adequate budget is needed for the plan of implementation to maintain the river salinity standards. The Forum, at its meeting in Henderson, Nevada, in October 2000, recommended a funding level of $17,500,000 for Reclama-

tion's Basinwide Program to continue implementation of needed projects and begin to reduce the "backlog" of projects.

In addition, the Colorado River Board recognizes that the federal government has made significant commitments to the Republic of Mexico and to the seven Colorado River Basin states with regard to the delivery of quality water to Mexico. In order for those commitments to be honored, it is essential that in fiscal year 2002 and in future fiscal years, that Congress provide funds to the Bureau of Reclamation for the continued operation of completed projects.

The Colorado River is, and will continue to be, a major and vital water resource to the 17 million residents of southern California. Preservation of its quality through an effective salinity control program will avoid the additional economic damages to users in California.

The Colorado River Board greatly appreciates your support of the federal/state Colorado River Basin Salinity Control Program and again asks for your assistance and leadership in securing adequate funding for this program.

PREPARED STATEMENTS OF THE COUNTY OF TULARE, CALIFORNIA

Mr. Chairman and Members of the Committee: The County of Tulare, California requests your consideration of an appropriation of $400,000 in the fiscal year 2002 Federal budget for the United States Army Corps of Engineers for continuation of the feasibility study for the White River flood control investigation.

White River is an uncontrolled stream that continues to devastate agricultural lands in Tulare County, flood the community of Earlimart and disrupt commerce on a major California highway arterial, State Route 99.

The Corps of Engineers completed a reconnaissance level study for White River in fiscal year 2000 and determined that there is a Federal interest in proceeding with a 50/50 Feasibility Cost Sharing Agreement (FCSA). The FCSA and Project Study Plan (PSP) as prepared by the Corps are under review and negotiation with the non-federal sponsors.

The Federal fiscal year 2001 budget included $150,000 for the Corps' General Investigation of White River, California.

The local non-federal sponsors urge the subcommittee's appropriation of $400,000 in fiscal year 2002 for the Corps of Engineers continuation of the White River flood control feasibility study.

Mr. Chairman and Members of the Committee: The County of Tulare, California requests your consideration of an appropriation of $400,000 in the fiscal year 2002 Federal budget for the United States Army Corps of Engineers for a feasibility study for the Frazier & Strathmore Creeks flood control project.

The Corps of Engineers has completed a reconnaissance level study of Frazier & Strathmore Creeks and determined that there is a Federal interest in proceeding with a feasibility study. The 50/50 Feasibility Cost Sharing Agreement is under negotiation between the Corps, the State Department of Water Resources and the local non-federal sponsors.

Frazier & Strathmore Creeks are uncontrolled streams that continue to devastate agricultural lands in Tulare County, flood the community of Strathmore and disrupt commerce on a major highway arterial, State Route 65.

The Corps of Engineers estimate the feasibility study will require three years for preparation with a total cost of $2.4 million. Under the 50/50 cost sharing requirement the fiscal year 2002 appropriation bill for the Corps of Engineers general investigation needs $400,000 for the first year of the feasibility study.

The local non-federal sponsors urge the subcommittee's appropriation of $400,000 in fiscal year 2002 for the Frazier & Strathmore Creeks feasibility study by the Corps.

PREPARED STATEMENT OF THE POSO CREEK IMPROVEMENT JOINT POWERS AGREEMENT AGENCIES

Mr. Chairman and Members of the Committee: The Poso Creek Joint Powers Agreement (JPA) Agencies composed of the Cawelo Water District, North Kern Water Storage District and Semitropic Water Storage District in Kern County, California request your consideration of an appropriation of $250,000 in the fiscal year 2002 Federal budget for the United States Army Corps of Engineers for the continuation of the feasibility study for the Poso Creek flood control project, a four year study.

An Agreement Between the Department of the Army and the Poso Creek Improvement Joint Powers Agreement agencies for the Poso Creek Basin Investigation was entered into 25 October 2000. The local non-federal sponsors for the 50/50 cost sharing of the feasibility study with the Corps include the State Department of Water Resources, the County of Kern, the Kern County Water Agency, the Cawelo Water District, the North Kern Water Storage District and the Semitropic Water Storage District.

Poso Creek, is an uncontrolled stream that continues to devastate agricultural lands in Kern County, floods the community of McFarland, and ravages the Kern National Wildlife Refuge. Major highway arterials, State Route 99 and SR 43, have been closed due to Poso Creek floodwaters, resulting in the disruption for several days of commerce by time delaying detours.

The Poso Creek feasibility study, a 4-year study, has been estimated by the Corps of Engineers to cost $2.8 million. The feasibility study has been separated into a Phase 1 and a Phase 2 program, with Phase 1 covering a determination of the feasibility of a flood control and water conservation dam and reservoir on Poso Creek above State Highway 65. Fiscal year 2002 will be the second (2nd) year of the feasibility study and will complete Phase 1 of the study.

The local non-federal sponsors urge the subcommittee's appropriation of $250,000 in the fiscal year 2002 budget for the orderly continuation of the Poso Creek feasibility study by the Corps.

PREPARED STATEMENT OF THE TULE RIVER IMPROVEMENT JOINT POWERS AGREEMENT AGENCIES

Mr. Chairman and Members of the Committee: The Tule River Improvement Joint Powers Agreement Agencies, comprised of the City of Porterville, the Tulare County Flood Control District, the Deer Creek and Tule River Authority, the Tulare Lake Basin Water Storage District and the County of Kings all located in Tulare and Kings Counties, California, request your consideration of an appropriation of $725,000 in the fiscal year 2002 Federal budget for the United States Army Corps of Engineers for completion of the preconstruction engineering and design (PED) for the Tule River, Success Reservoir Enlargement Project.

In addition the Corps and the non-federal sponsors have agreed to proceed with construction of Public Health and Safety components of the project in the recreational areas of Success Reservoir during fiscal year 2002 and $400,000 of Federal funds are needed for cost sharing such construction costs.

The Success Reservoir Enlargement Project would increase the reservoir storage capacity 28,000 a.f. by raising the spillway 10 feet and by widening the existing spillway 165 feet. The additional flood control storage space improves the protection for the City of Porterville and downstream highly developed agricultural lands from a return period flood event occurring once in 47 years to once in 100 years.

The Tule River, California, Success Reservoir Enlargement Project (SREP) was authorized for construction by Section 101(b)(4) of the Water Resources Development Act of 1999 (WRDA 1999), Public Law 106–53 subject to completion of a favorable report of the Chief of Engineers which occurred 23 December 1999.

The Corps of Engineers has commenced design of the SREP, conducted a Value Engineering Conference, and currently, in addition to determining the most economical design for raising the spillway, are preparing construction plans and specifications for public health and safety components of the enlargement project.

The Tule River interests greatly appreciate your continued support for the SREP and request that the Senate Subcommittee on Energy and Water Development include in the fiscal year 2002 appropriation bill for the Corps of Engineers for the SREP $725,000 for PED and $400,000 for construction of Public Health and Safety components of the project.

Thank you for your consideration.

PREPARED STATEMENT OF THE CITY OF SACRAMENTO

Gentlemen: On behalf of the City of Sacramento, I would like to thank you for the opportunity to provide testimony to the Senate Appropriations Subcommittee on Energy and Water Development in support of fiscal year 2002 funding for flood protection projects in Sacramento. I respectfully request that this letter be included in the formal hearing record. First, I would like express my appreciation to the Subcommittee for its efforts in past years to fund flood control measures for the City. Sacramento, California, continues to face the highest flood risk in the nation. During the past several years, the Subcommittee has recognized the dire need for flood

protection in and around the Sacramento area and has provided funds for a variety of previously authorized projects. Flood control is City's number one Federal priority. In order to meet the fundamental need for flood protection in Sacramento, we must once again request your support for funding these vital flood control projects in fiscal year 2002.

This year, the City of Sacramento is seeking $51.4 million in Federal funding to finance both ongoing and newly authorized projects. This figure represents the most recent estimate developed by the Sacramento Area Flood Control Agency (SAFCA) and is derived from their discussions with the U.S. Army Corps of Engineers. A chart summarizing the projects and funding levels is enclosed.

Most importantly, the City is seeking $10.0 million for a "new start" for the South Sacramento Streams Group Project and significant increases in construction funding for Folsom Dam modifications and continuing work on the American River Common Elements projects. These projects, authorized in WRDA 1996 and 1999, will form the backbone of a system of improvements that may someday remove the threat of catastrophic flooding from the streets of downtown Sacramento. The South Sacramento Streams Group Project is ready for construction and when completed will prevent flooding of portions of Sacramento from the south, where four creeks convey foothill runoff through urbanized areas into Beach Lake and the Delta.

The Folsom dam modifications project received $4.0 million in construction funds in fiscal year 2001. In fiscal year 2002, $12.0 million will be necessary to keep this crucial project moving forward. When completed, the modifications to Folsom Dam will provide greater efficiency in managing flood storage in Folsom Reservoir and will greatly enhance Sacramento's flood control options.

The American River Common Elements include 24 miles of levee improvements along the American River and 12 miles of improvements along the Sacramento River levees, flood gauges upstream of Folsom Dam, improvements to the flood warning system along the lower American River, and work on American River levee parity authorized in WRDA 1999. This work is well underway and we are seeking $17 million in fiscal year 2002. These projects represent the last line of defense against flooding in Sacramento and must be completed with all due haste.

The City of Sacramento has been working in cooperation with the SAFCA on the construction of bank protection improvements which are essential to correct harmful erosion threatening the integrity of our existing levees along the banks of the American River. This work is already authorized under the Sacramento River Bank Protection Project, which is used to fund erosion control projects throughout the Sacramento River System. We request that the Subcommittee support our request for $3.0 million for this vital project.

For the American River Watershed (Natomas) improvements, which were authorized by Congress in 1992, we are seeking continued construction appropriations in the amount of $5.0 million for reimbursement to SAFCA for the Federal share of the flood control improvements.

In fiscal year 2001, $3.285 million was provided in PED funds for the American River Watershed plan, which continued previously authorized planning and design of Sacramento flood control projects. For fiscal year 2002, we are requesting your support to secure $1.0 million in PED funds to aid the completion of this necessary project.

Under the Corps' Section 205 Program, we are seeking $3.2 million in fiscal year 2002 for both the off-base and on-base portions of the Magpie Creek project. This project will provide a high degree of flood protection on Magpie Creek and provide for a feasibility study to evaluate alternatives for providing improved flood protection on McClellan Air Force Base in connection with the reuse of that base.

Again, the City of Sacramento greatly appreciates the essential leadership role you have played in obtaining funding for these important flood control projects in previous years and asks for your continued support for funding this year.

The safety of the citizens of Sacramento and the well being of the regional and state economy are dependent on adequate Federal funding for our flood control projects. We stand ready to assist you in whatever way we possibly can. Please contact me if I can provide you with any further information.

The Sacramento Area Flood Control Agency (SAFCA)
FY 2002 Appropriations Request

Project	FY 2001 Approps. ($ millions)	City and SAFCA Request ($ millions)
Folsom Modifications: Modifications to Folsom Dam to provide greater efficiency in managing flood storage in Folsom Reservoir.	4.0C	12.0C
South Sacramento Streams: Prevention of flooding of portions of Sacramento from the south, where four creeks convey foothill runoff through urbanized areas into Beach Lake and the Delta. **NEW START**	0.2PED	10.0C
American River Common Elements: 24 miles of levee improvements along the American River and 12 miles of improvements along the Sacramento River levees, flood gauges upstream of Folsom Dam, and improvements to the flood warning system along the lower American River. Request includes $5.0 million to begin work on levee parity, authorized in WRDA 1999.	10.0C	17.0C
Sacramento Bank Protection: Will correct harmful erosion along the banks of the American River that threatens the integrity of the existing levees.	5.0C	3.0C
American River Watershed (Natomas): Reimbursement to SAFCA for the Federal share of the flood control improvements undertaken by the local project sponsor.	0.0C	5.0C
American River Plan: Funds to continue previously authorized planning and design of Sacramento flood protection projects.	3.285PED	1.0PED
Lower Strong & Chicken Ranch Sloughs (DO5 Pump Station): a feasibility study to restore 100-year level of flood protection to Chicken Ranch Slough drainage to the American River. This area has flooded four times since 1986.	0.3GI	0.2GI
Magpie Creek: Authorized under the Corps' Section 205 program, this project will provide a high degree of flood protection on Magpie Creek.	1.0C	3.0C
Magpie Creek on McClellan AFB: A feasibility study to evaluate alternatives for providing improved flood protection on McClellan Air Force Base in connection with the reuse of that base.	0.0GI	0.2GI
TOTAL	**$23.785**	**$51.40**

C = Construction PED = Preconstruction Engineering and Design
GI = General Investigation

PREPARED STATEMENT OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

On behalf of the Metropolitan Water Reclamation District of Greater Chicago (District), I want to thank the Subcommittee for this opportunity to present our priorities for fiscal year 2002 and, at the same time, express our appreciation for your support of the District's projects in the years past. The District is the local sponsor for three Corps of Engineers priority projects of the Chicagoland Underflow Plan: the O'Hare, McCook and Thornton Reservoirs. We are requesting the Subcommittee's full support for McCook and Thornton Reservoirs, as the O'Hare Reservoir has been completed. Specifically, we request the Subcommittee to include a total of $32,000,000 in construction funding for the McCook and Thornton Reservoir projects

in the bill. The following text outlines these projects and the need for the requested funding.

THE CHICAGOLAND UNDERFLOW PLAN

The Chicagoland Underflow Plan (CUP) consists of three reservoirs: the O'Hare, McCook and Thornton Reservoirs. These reservoirs are a part of the Tunnel and Reservoir Plan (TARP). The O'Hare Reservoir Project was fully authorized for construction in the Water Resources Development Act of 1986 (Public Law 99–662) and completed by the Corps in fiscal year 1999. This reservoir is connected to the existing O'Hare segment of the TARP. Adopted in 1972, TARP was the result of a multi-agency effort, which included officials of the State of Illinois, County of Cook, City of Chicago, and the District.

TARP was designed to address the overwhelming water pollution and flooding problems of the Chicagoland combined sewer areas. These problems stem from the fact that the capacity of the area's waterways has been overburdened over the years and has become woefully inadequate in both hydraulic and assimilative capacities. These waterways are no longer able to carry away the combined sewer overflow (CSO) discharges nor are they able to assimilate the pollution associated with these discharges. Severe basement flooding and polluted waterways (including Lake Michigan, which is the source of drinking water for millions of people) is the inevitable result. We point with pride to the fact that TARP was found to be the most cost-effective and socially and environmentally acceptable way for reducing these flooding and water pollution problems. Experience to date has reinforced such findings with respect to economics and efficiency.

The TARP plan calls for the construction of the new "underground rivers" beneath the area's waterways. The "underground rivers" are tunnels up to 35 feet in diameter and 350 feet below the surface. To provide an outlet for these tunnels, reservoirs will be constructed at the end of the tunnel system. Approximately 93.4 miles of tunnels have been constructed at a total cost of $2.1 billion and are operational. The tunnels capture the majority of the pollution load by capturing all of the small storms and the first flush of the large storms. Another 15.8 miles of tunnels costing $399 million need to be completed. Of this 8.1 miles of tunnel are currently under construction and 7.7 miles are in design, with construction scheduled to begin in 2001.

The completed O'Hare Reservoir provides 343 million gallons of storage. This Reservoir has a service area of 13.7 miles and provides flood relief to 21,000 homes in Arlington Heights, Des Plaines and Mount Prospect. Thornton and McCook Reservoirs have not been built yet, so significant areas remain unprotected. Without these outlets, the local drainage has nowhere to go when large storms hit the area.

Since its inception, TARP has not only abated flooding and pollution in the Chicagoland area, but has helped to preserve the integrity of Lake Michigan. In the years prior to TARP, a major storm in the area would cause local sewers and interceptors to surcharge resulting in CSO spills into the Chicagoland waterways and during major storms into Lake Michigan, the source of drinking water for the region. Since these waterways have a limited capacity, major storms have caused them to reach dangerously high levels resulting in massive sewer backups into basements and causing multi-million dollar damage to property.

Since implementation of TARP, 621 billion gallons of CSOs have been captured by TARP, that otherwise would have reached waterways. Area waterways are once again abundant with many species of aquatic life and the riverfront has been reclaimed as a natural resource for recreation and development. Closure of Lake Michigan beaches due to pollution has become a rarity. After the completion of both phases of TARP, 99 percent of the CSO pollution will be eliminated. The elimination of CSOs will reduce the quantity of discretionary dilution water needed to keep the area waterways fresh. This water can be used instead for increasing the drinking water allocation for communities in Cook, Lake, Will and DuPage counties that are now on a waiting list to receive such water. Specifically, since 1977, these counties received an additional 162 million gallons of Lake Michigan water per day, partially as a result of the reduction in the District's discretionary diversion since 1980. Additional allotments of Lake Michigan water will be made to these communities as more water becomes available from reduced discretionary diversion.

With new allocations of lake water, more than 20 communities that previously did not get lake water are in the process of building, or have already built, water mains to accommodate their new source of drinking water. The new source of drinking water will be a substitute for the poorer quality well water previously used by these communities. Partly due to TARP, it is estimated by IDOT that between 1981 and 2020, 283 million gallons per day of Lake Michigan water would be added to domes-

tic consumption. This translates into approximately 2 million additional people that would be able to enjoy Lake Michigan water. This new source of water supply will not only benefit its immediate receivers but will also result in an economic stimulus to the entire Chicagoland area by providing a reliable source of good quality water supply.

THE MC COOK AND THORNTON RESERVOIRS

The McCook and Thornton Reservoirs of the Chicagoland Underflow Plan (CUP) were fully authorized for construction in the Water Resources Development Act of 1988 (Public Law 100–676). These CUP reservoirs, as previously discussed, are a part of TARP, a flood protection plan that is designed to reduce basement flooding due to combined sewer back-ups and inadequate hydraulic capacity of the urban waterways.

These reservoirs will provide a storage capacity of 15 billion gallons and will provide annual benefits of $104 million. The total potential annual benefits of these projects are approximately twice as much as their total annual cost. The District, as the local sponsor, has acquired the land necessary for these projects, and is meeting its cost sharing obligations under Public Law 99–662.

These projects are a very sound investment with a high rate of return. They will enhance the quality of life, safety and the peace of mind of the residents of this region. The State of Illinois has endorsed these projects and has urged their implementation. In professional circles, these projects are hailed for their farsightedness, innovation, and benefits.

Based on two successive Presidentially-declared flood disasters in our area in 1986 and again in 1987, and dramatic flooding in the last several years, we believe the probability of this type of flood emergency occurring before implementation of the critical flood prevention measure is quite high. As the public agency for the greater Chicagoland area responsible for water pollution control, and as our past sponsorship for flood control projects, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal of construction completion.

We have been very pleased that over the years the Subcommittee has seen fit to include critical levels of funds for these important projects. We were delighted to see the $7,800,000 in construction funds included in the Energy and Water Development Appropriations bill for fiscal year 2001. However, it is important that we receive a total of $32,000,000 in construction funds in fiscal year 2002 to maintain the commitment and accelerate these projects. This funding is critical to continue the construction of the McCook Reservoir on schedule, in particular, to complete construction of the slurry wall and pumping facilities and to accelerate the design of the Thornton Reservoir. The community has waited long enough for protection and we need these funds now to move the project in construction. Delaying this project results in lost benefits and additional inflation costs of $120 million per year. This is unacceptable. We respectfully request your consideration of our request.

SUMMARY

Our most significant recent flooding occurred on February 20, 1997, when almost four inches of rain fell on the greater Chicagoland area. Due to the frozen ground, almost all of the rainfall entered our combined sewers, causing sewage back-ups throughout the area. When the existing TARP tunnels filled with approximately 1.2 billion gallons of sewage and runoff, the only remaining outlets for the sewers were our waterways. Between 9:00 p.m. and 3:00 a.m., the Chicago and Calumet Rivers rose six feet. For the first time since 1981 we had to open the locks at all three of the waterway control points; these include Wilmette, downtown Chicago, and Calumet. Approximately 4.2 billion gallons of combined sewage and stormwater had to be released directly into Lake Michigan.

Given our large regional jurisdiction and the severity of flooding in our area, the Corps was compelled to develop a plan that would complete the uniqueness of TARP and be large enough to accommodate the area we serve. With a combined sewer area of 375 square miles, consisting of the city of Chicago and 51 contiguous suburbs, there are 550,000 homes within our jurisdiction, which are subject to flooding at any time. The annual damages sustained exceed $150 million. If TARP, including the CUP Reservoirs were in place, these damages could be eliminated. We must consider the safety and peace of mind of the two million people who are affected as well as the disaster relief funds that will be saved when these projects are in place. As the public agency in the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping

us achieve this necessary and important goal. It is absolutely critical that the Corps' work, which has been proceeding for a number of years, now proceed on schedule through construction.

Therefore, we urgently request that a total of $32,000,000 in construction funds be made available in the fiscal year 2002 Energy and Water Development Appropriations Act to continue construction of the McCook and Thornton Reservoir Projects.

Again, we thank the Subcommittee for its support of this important project over the years and we thank you in advance for your consideration of our request this year.

PREPARED STATEMENT OF THE GREEN BROOK FLOOD CONTROL COMMISSION

Mr. Chairman and Members of the Subcommittee: My name is Vernon A. Noble, and I am the Chairman of the Green Brook Flood Control Commission. I submit this testimony in support of the Raritan River Basin—Green Brook Sub-Basin project, which we request be budgeted in fiscal year 2002 for $10,000,000 in Construction General funds.

Extremely heavy rains began on Thursday, September 16, 1999, extending over the Green Brook Sub Basin of the Raritan River Basin. These rains were heavily concentrated in the upper part of the Raritan River Basin.

By night fall on that day, the river systems were greatly swollen, particularly the Raritan River. The flood levels in the Raritan River have a direct effect on the Bound Brook Borough and Middlesex Borough portion of the Green Brook Sub Basin.

Bound Brook has streams on three sides: the Green Brook, which empties into the Raritan River on the east end of Bound Brook Borough, the Middle Brook, which borders Bound Brook Borough on the west, and likewise empties into the Raritan River; and the Raritan River itself, which forms the southern boundary of the Borough of Bound Brook.

All three of these streams rose to flood levels during Thursday night, September 16th, and the early hours of Friday, September 17, 1999.

By early morning on Friday, September 17, 1999 water levels around Bound Brook had reached unprecedented levels.

The water surface elevations around three sides of Bound Brook Borough slightly exceeded even the calculations made by the Corps of Engineers in their final General Reevaluation Report of May 1997.

There were tremendous monetary damages. These damages even exceeded the figure predicted by the Corps of Engineers for a 150 year flood ($106,500,000) for Bound Brook Borough alone.

Beyond the monetary damages, there was vast human suffering. The tragic plight of the people of Bound Brook touched the hearts of people throughout New Jersey, and volunteers and food and clothing and rolled-up-sleeves volunteers poured into Bound Brook from all over New Jersey.

All of this raises a very fundamental question: If the Green Brook Flood Control Project, as authorized by Congress, had been completely constructed, would this tragedy have happened?

That's a question which the Green Brook Flood Control Commission has intensely examined. We are greatly relieved to report to you that, although there would have been minor flooding in low spots in Bound Brook, as there always is in every heavy rain storm, the massive flooding and tragic aftermath would have not have happened.

A thorough study of the water levels throughout the area, done by the New York District of the Corps of Engineers since the terrible flood of September 1999, has shown that, although the water reached record levels, it would have been contained by the extra margin of safety, the "free board", which the Corps of Engineers has incorporated in the design of this Project.

The flooding of September 1999 is not the first bad flood to have struck this area. Records show that major floods have occurred here as far back as 1903.

Disastrous flooding took place in the Green Brook Basin in the late summer of 1971. That flood caused $304,000,000 in damages (April 1996 price level) and disrupted the lives of thousands of persons.

In the late summer of 1973, another very severe storm struck the area, and again, thousands of persons were displaced from their homes. $482,000,000 damages was done (April 1996 price level) and six persons lost their lives.

As you no doubt know, actual construction of the Project began in late 2000. This first construction involves the replacement of an old bridge over the Green Brook

which connects East Main Street in the Borough of Bound Brook, Somerset County, New Jersey, with Lincoln Boulevard in the Borough of Middlesex, in Middlesex County, New Jersey.

The protective levee along the bank of the Green Brook will be substantially higher than the old bridge, and the new higher bridge is necessary so as to pass over the levee.

While this new bridge is being built, the Corps of Engineers expects to solicit bids for the second construction contract, known as Segment T. The final plans and specifications for this second segment are essentially complete, and the necessary permits are expected to be received very shortly.

With the continued support of the Congress, this second Segment of the Project will be under construction as the first segment (the new and higher bridge), approaches completion.

Final plans and specifications for the balance of the work to protect the Borough of Bound Brook are in progress. It is the Commission's hope that protection for all of the Borough of Bound Brook will proceed seamlessly during the next several years.

The Green Brook Flood Control Commission was established in 1971, pursuant to an Act of the New Jersey Legislature shortly after the very bad flood of 1971.

The Green Brook Flood Control Commission is made up of appointed representatives from Middlesex, Somerset and Union Counties in New Jersey, and from the 13 municipalities within the Basin. This represents a combined population of about one-quarter of a million people.

The Members of the Commission are all volunteers, and for 30 years have served, without pay, to advance the cause of flood protection for the Basin. Throughout this time, the Corps of Engineers, New York District, has kept us informed of the progress of the project, and a representative from the Corps has been a regular part of our monthly meetings.

We believe that it is clearly essential that the Green Brook Flood Control Project be carried forward, and pursued vigorously to achieve protection at the earliest possible date. This Project is needed to prevent loss of life and property, as well as the trauma caused every time there is a heavy rain.

New Jersey has programmed budget money for its share of the Project in 2002.

We urgently request an appropriation for the Project in fiscal year 2002 of $10,000,000.

The Green Brook Flood Control Commission is dedicated to the proposition that Bound Brook Borough, and the other municipalities, and their thousands of residents, who will otherwise suffer in the next major flood, must be protected. We move forward with renewed determination to achieve the protection which the people of the flood area need and deserve.

With your continued support, we are determined to see this Project through to completion.

Thank you, Mr. Chairman, and Members of the Subcommittee, for your vitally important past support for the Green Brook Flood Control Project; and we thank you for the opportunity to submit this testimony.

GREEN BROOK FLOOD CONTROL

GREEN BROOK SUB-BASIN, RARITAN RIVER BASIN, NEW JERSEY

GREEN BROOK FLOOD CONTROL PROJECT FUNDING

	A	B	C	D	E	F	G
FEDERAL FISCAL YEAR	FEDERAL ADMINISTRATION BUDGET REQUEST	CONGRESSIONAL APPROPRIATION (NOMINAL)	SAVINGS AND SLIPPAGES	EFFECTIVE NET APPROPRIATION TO CORPS OF ENGINEERS	TRANSFER BY CORPS TO (-) FROM (+) OTHER PROJECTS	NET MONEY AVAILABLE FOR WORK ON PROJECT (WORK ALLOWANCE)	CUMULATIVE MONEY RECEIVED BY CORPS SINCE AUTHORIZATION IN 1986
1986	$ 445,000	$ 445,000	$ -19,000	$ 426,000	$ - - -	$ 426,000	$ 426,000
1987	1,370,000	1,370,000	- - -	1,370,000	- - -	1,370,000	1,796,000
1988	1,400,000	1,400,000	- - -	1,400,000	- - -	1,400,000	3,196,000
1989	1,500,000	1,500,000	-68,000	1,432,000	- - -	1,432,000	4,628,000
1990	1,200,000	1,200,000	-116,000	1,084,000	+23,000	1,107,000	5,735,000
1991	2,000,000	2,000,000	-496,000	1,504,000	-98,000	1,406,000	7,141,000
1992	2,600,000	3,169,000	-364,000	2,805,000	- - -	2,805.000	9,946,000
1993	- - -	3,500,000	- - -	3,500,000	- - -	3,500,000	13,446,000
1994	- - -	2,800,000	-594,000	2,206,000	+571,000	2,777,000	16,223,000
1995	2,000,000	2,000,000	- - -	2,000,000	+135,000	2,135,000	18,358,000
1996	3,600,000	3,600,000	-932,000	2,668,000	+193,000	2,861,000	21,219,000
1997	2,781,000	2,781,000	-300,000	2,481,000	0,000	2,781,000	24,000,000
1998	- - -	3,100,000	-189,000	2,911,000	- - -	2,911,000	26,911,000
1999	- - -	9,900,000	-694,000	9,206,000	- 6,500,000	2,706,000	29,617,000
2000	1,000,000	1,000,000	-142,000	858,000	- - -	858,000	30,475,000
2001	4,000,000	4,000,000	- 648,000	3,352,000	- 8,000	3,344,000	33,819,000
2002		$10,000,000	Recommendation of the Green Brook Flood Control Commission For FY2002 to Continue Construction				

REFERENCE:
THIS SUMMARY OF FUNDING FOR THE GREEN BROOK FLOOD CONTROL PROJECT HAS BEEN ASSEMBLED BASED UPON PUBLICLY AVAILABLE INFORMATION.

PRESENTED BY:
GREEN BROOK FLOOD CONTROL COMMISSION
GREEN BROOK, NJ 08812

PREPARED STATEMENT OF THE MERCED IRRIGATION DISTRICT

Mr. Chairman and Members of the Committee: My name is Ross Rogers, General Manager of the Merced Irrigation District. I am respectfully submitting this statement on behalf of the County of Merced, the City of Merced, and the Merced Irrigation District, which jointly form an informal coalition commonly known as the Merced County Streams Group for the purpose of performing maintenance functions along portions of the Merced County Streams Project. The County of Merced, together with the State of California, is the sponsor of the Merced County Streams Project. The El Nido Irrigation District and the Le Grand Athlone Water District are also concerned in this matter.

Federal authorization for the project construction was granted as part of the Supplemental Appropriations Act of 1985. Authorized facilities include constructing dry dams on Canal (Castle Dam) and Black Rascal Creeks (Haystack Mountain Dam), enlargement of the existing Bear Creek Dam, and modifications of levees and channels along more than 25 miles of Fahrens, Black Rascal, Cottonwood, and Bear Creeks. The completed project will provide flood protection worth more than $10,000,000 per year to 263,000 acres of urban and agricultural lands. Total project cost is currently estimated to be $133,000,000 of which $40,000,000 or roughly 31 percent will be paid during construction by the local beneficiaries.

When completed, more than 240,000 residents occupying 55,000 housing units within the greater metropolitan Merced area will live with assurance of 125-year flood protection, while the lower rural area will receive 25-year protection.

The first component of the project, Castle Dam, was completed in 1992. This component was constructed under budget, ahead of schedule, and without a lost-time accident. Without Castle Dam during the intense storms of January, February, March 1995, January 1997 and January, February, March, 1998, the city of Merced would have been partially inundated.

As a result of a request by the County of Merced, the Corps of Engineers has reevaluated project components and will extend the boundaries of the levee and channel portion of the project to better match growth that has taken place in the city of Merced. This willingness to remain flexible throughout the lengthy planning and design process is also a credit to the Corps and its staff.

The Merced County Streams Project is a modification and expansion of an earlier flood project constructed between 1948 and 1957. It has undergone considerable review and modification since first authorized as part of the Flood Control Act of 1970. Approximately $19,397,000 has been spent to date on the Merced County Streams Project. This has been matched with local contributions of approximately $3,000,000. As partners in the construction of this project, the local agency sponsors have worked closely with the Corps to establish an economic balance between costs and benefits. As a result of this combined effort, nonessential project components were first scaled back and eventually eliminated. This scaling to fit the economic reality resulted in substantial Federal and local savings.

On January 15, February 3 and March 25, 1998, due to El Niño-driven storms, Bear Creek overtopped its banks in several locations within and downstream of the city of Merced, flooding 33 homes, county, city and Merced Irrigation District infrastructure, and thousands of acres of prime agricultural land, with total damages in the millions of dollars. The U. S. Army Corps of Engineers, with input from the National Weather Service, estimates that the January 15th and March 25th events were both one-in-100 year events, unprecedented for the area. The greatest storm intensity in both storms centered in northeastern Merced County in and around the watershed of Black Rascal Creek, tributary to Bear Creek, upstream of the Merced County Streams Project's proposed Haystack Mountain Dam site. According to Corps of Engineer's rating tables for the Black Rascal Creek Bypass gaging station, January flows reached 4,300 cubic feet per second (cfs) in a channel with a rated maximum capacity of 3,000 cfs, 143 percent of channel capacity. March flows exceeded 4,700 cfs, or 157 percent of channel capacity. Had the Merced County Streams Project's Haystack Mountain Dam been in place, no flooding would have occurred along Bear Creek during the January, February or March events.

Due primarily to the New Years, 1997 devastating California flood, the U. S. Congress and the California legislature authorized a four year study, identified as: "Sacramento and San Joaquin River Basins Comprehensive Study." The study was authorized under the Flood Control Act of 1962 (Sacramento River) and the 1964 Congressional Resolution (San Joaquin River). According to a brochure distributed by The Reclamation Board of the State of California and the U. S. Army Corps of Engineers, Sacramento District, the study:

" . . . will initially identify problems, opportunities, planning objectives, constraints, and measures to address flooding and ecosystem problems in the study area. It will ultimately develop a strategy for flood damage reduction and integrated ecosystem restoration along with identification of projects for early implementation. Solutions will include consideration of both structural and non-structural measures . . ."

According to the study timeline, in April, 1999, an interim report was presented to Congress. In 2001, a Draft Strategy for Flood Management and Related Environmental Restoration will be completed. By the Spring of 2002, the final Strategy and EIS/EIR, including an implementation plan will be completed.

There is great concern on the part of the City of Merced, County of Merced and the Merced Irrigation District officials that the Merced County Streams Project will be "swallowed up" by the Comprehensive Study, becoming one of many new flood control projects that have not yet received Congressional authorization. The Merced County Streams Project has been authorized by Congress. This important and urgent Project must not lose its priority for Congressional funding or be further delayed while the Comprehensive Study is undertaken.

The project has the support of state and local authorities and funding of the non-Federal portion has been addressed.

We request the Committee's support for inclusion of funds in the fiscal year 2002 budget for the orderly progress of the Merced County Streams Project, which is so vital to the community, state, and the nation.

PREPARED STATEMENT OF THE LOUISIANA GOVERNOR'S TASK FORCE ON MARITIME INDUSTRY

Mississippi River Ship Channel, Gulf to Baton Rouge, LA.—Recommend the Corps be funded $1,221,000 (Construction General) to perform required work on the saltwater intrusion mitigation plan and complete design studies for potential phase III 55-foot channel.

Mississippi River, Baton Rouge to the Gulf, Maintenance Dredging.—Recommend funding of $55,831,000 (O&M General).

Mississippi River Gulf Outlet (MRGO), LA., Maintenance Dredging.—Recommend that Corps be funded $13,111,000 (O&M, General).

Inner Harbor Navigation Canal (IHNC) Lock, LA.—Funding requirements include $25,000,000 (Construction General) to continue construction and mitigation for the IHNC New Lock. Recommend that Corps be funded to continue lock construction and mitigation.

Mississippi River Outlets at Venice, LA.—Recommend funding of $2,943,000 (O&M General).

Intracoastal Waterway Locks, LA.—Recommend funding of $500,000 (general Investigations) to continue the development of plans for replacement of Bayou Sorrel Lock on the Gulf Intracoastal Water Way (GIWW), Morgan City-to-Port Allen alternate route.

Gulf Intracoastal Waterway, LA. and TX.—Recommend funding of $18,195,000 (O&M General). Recommend that Corps be funded increased capability to construct a spare set of miter gates for Leland Bowman Lock and 20 additional mooring buoys at various locations along the GIWW.

Calcasieu Lock, LA.—Recommend funding of $900,000 (General Investigations) funds to continue the feasibility phase of the study to replace Calcasieu Lock on the GIWW.

Calcasieu River and Pass, LA.—Recommend funding of $12,773,000 (O&M General) to continue dredging and operation and maintenance of the Saltwater Barrier.

MRGO Reevaluation Study, LA.—fiscal year 2002 funding requirement is $500,000 (Construction General). Funds are needed to complete a study to determine the advisability of maintaining the 36ft. depth of the MRGO. Recommend that the Corps be funded to complete this study.

J. Bennett Johnston Waterway, Mississippi River to Shreveport, LA.—Fiscal year 2002 funding requirement is $20,000,000 (Construction General) and $9,462,000 (O&M General). Recommend that the Corps be funded to complete work already underway.

As Chairman of the Louisiana Governors Task Force on Maritime Industry, I hereby submit testimony to the Senate Subcommittee on Energy and Water Development on behalf of the ports on the lower Mississippi River, the J. Bennett Johnston Waterway and the Calcasieu River waterway and the maritime interests related thereto of the State of Louisiana relative to Congressional appropriations for fiscal year 2002.

The U.S. Army Corps of Engineers reports that in 1999 a total of 427.9 million tons of foreign and domestic waterborne commerce moved through the consolidated deepwater ports of Louisiana situated on the lower Mississippi River between Baton Rouge and the Gulf of Mexico. Deepening of this 232-mile stretch of the River to 45 feet has been a major factor in tonnage growth at these ports. Due in large part to the efforts of Congress and the New Orleans District of the Corps, Louisiana's ports and the domestic markets they serve can compete more productively and effectively in the global marketplace. Ninety-one percent of Americas foreign merchandise trade by volume (two-thirds by value) moves in ships, and 21 percent of the nation's foreign waterborne commerce passes through Louisianas ports. Given the role foreign trade plays in sustaining our nation's growth, maintaining the levels of productivity and competitiveness of Louisiana's ports is essential to our economic well-being.

In terms of transportation services and global access, Louisiana ports enjoy a distinct competitive advantage. Hundreds of barge lines accommodate Americas waterborne commerce on the lower Mississippi River. The high level of barge traffic on the river is indicated by the passage of more than 229,000 barges through the Port of New Orleans annually. In 1999, 2,345 ocean-going vessels operated by more than 80 steamship lines serving U.S. trade with more than 150 countries called at the Port of New Orleans. The Port's trading partners include: Latin America (33.5 percent); Asia (33.1 percent); Europe (23.5 percent); Africa (9.3 percent) and North America (1.1 percent). During the same year, more than 6,148 vessels called at Louisianas lower Mississippi River deepwater ports.

The foreign markets of Louisiana's lower Mississippi River ports are worldwide; however, their primary domestic market is mid-America. This heartland region currently produces 60 percent of the nation's agricultural products, one half of all of its manufactured goods and 90 percent of its machinery and transportation equipment.

The considerable transportation assets of Louisiana's lower Mississippi River ports enable mid-Americas farms and industries to play a vital role in the international commerce of this nation. In 1999, the regions ports and port facilities handled 229.5 million tons of foreign waterborne commerce. Valued at $35.1 billion, this cargo accounted for 18.4 percent of the nation's international waterborne trade and 27 percent of all U.S. exports. Bulk cargo, primarily consisting of tremendous grain and animal feed exports and petroleum imports, made up 82 percent of this volume.

Approximately 53.3 million tons of grain from 17 states, representing 55.3 percent of all U.S. grain exports, accessed the world market via the 10 grain elevators and midstream transfer capabilities on the lower Mississippi River. This same port complex received 87.3 million short tons of petroleum and petroleum products, 15.5 percent of U.S. waterborne imports of petroleum products.

In 1999, public and private facilities located within the jurisdiction of the Board of Commissioners of the Port of New Orleans, the fourth largest port in the United States, handled a total of 87.5 million tons of international and domestic cargo. International general cargo totaled 11.2 million tons. Although statistically dwarfed by bulk cargo volumes, the movement of general cargo is of special significance to the local economy because it produces greater benefits. On a per ton basis, general cargo generates spending within the community more than three times higher than bulk cargo. Major general cargo commodities handled at the Port include: iron and steel products; coffee; forest products; copper; aluminum products; and natural rubber.

Fostering the continued growth of lower Mississippi River ports is necessary to maintain the competitiveness of our nation's exports in the global marketplace and, consequently, the health of the nation's economy. Assuring deep water access to ports has been a priority of our trading partners around the world. Moreover, an evolving maritime industry seeking greater economies of scale continues to support construction of larger vessels with increased draft requirements. Because it facilitated the provision of deepwater port access, passage of the Water Resources Development Act of 1986, played a most significant role in assuring the competitiveness of ports on the lower Mississippi river and throughout the U.S.

By December, 1994, the Corps completed dredging of the 45-foot channel from the Gulf of Mexico to Baton Rouge, LA (Mile 233 AHP). Mitigation features associated with the first phase of the channel deepening project in the vicinity of Southwest Pass of the river, accomplished in 1988, are nearing completion. We urge the continued funding for this work in fiscal year 2002 to complete construction of improvements to the Belle Chasse water treatment plant. This will complete the approximate $15 million in payments to the State of Louisiana for construction of a pipeline and pumping stations to deliver potable fresh water to communities affected by saltwater intrusion. We further urge that the Corps be provided funding to proceed with design studies for Phase III which will allow deepening of the river to the 55-foot authorized depth.

Along with the Port of New Orleans, the Port of South Louisiana, the nation's largest port with 214.2 million tons of foreign and domestic cargo in 1999, and the Port of Baton Rouge, the nation's seventh largest port with 63.7 million tons of foreign and domestic cargo in 1999, and other lower Mississippi River ports are dependent upon timely and adequate dredging of Southwest Pass to provide deep draft access to the Gulf of Mexico. Based on past experience—spring thaws bringing higher river stages and higher siltation rates—we strongly urge funding in the amount of $55,831,000 under O&M General for maintenance of the 45-foot project channel. Funding includes monies for both dredging and repairs to foreshore dikes; lateral dikes; and jetties. Revetment construction has reduced the number and size of deep draft anchorages. To mitigate this loss, we recommend that the Corps be authorized under the O&M General appropriation to construct new anchorages and maintain new and existing anchorages to accommodate increased ship traffic.

Maintenance of adequate depths and channel widths in the Mississippi River Gulf Outlet Channel (MRGO) is also of great concern. This channel provides deep draft access to the Port of New Orleans principal container terminals and generates an annual economic impact of nearly $800 million. In 1999, 480 general cargo vessels calling on the MRGO Tidewater facilities accounted for 33 percent of the general cargo tonnage handled over public facilities at the Port of New Orleans and 80.8 percent of Louisiana's containerized cargo.

Because of the MRGO's demonstrated vulnerability to coastal storm activity, annual channel maintenance dredging and bank stabilization are essential to assure unimpeded vessel operations. In 1998, heavy shoaling related to Hurricane Georges resulted in the imposition of a draft restriction from the project depth of 36 feet to 25 feet. The amount needed in fiscal year 2002 is $13,111,000 under O&M General. We, however, strongly recommend that the Corps be funded increased capability for bank stabilization projects.

We recognize the need for the Corps to evaluate the feasibility of continuing the maintenance of a deep draft channel in the MRGO because of increased maintenance costs and environmental impacts. Any thoughts of not maintaining a deep draft channel in the MRGO must be preceded with the completion of another deep draft access (IHNC Lock) to the many businesses serviced by the MRGO, even though the Port of New Orleans is planning to relocate the container terminals to

the Mississippi River. We recommend funding to the Corps' full capability to complete this study.

The Inner Harbor Navigation Canal (IHNC) Lock is a critical link in the U.S. Inland Waterway System as well as the Gulf Intracoastal Waterway (GIWW), and provides a connection between the Port of New Orleans Mississippi River and IHNC terminals. In 1998, the Corps approved a plan for replacement of this obsolete facility. The Corps estimates that the lock replacement project will have a cost-benefit ratio of 2.2 to one and will provide $110 million annually in transportation cost savings. In addition to minimizing adverse impacts to adjacent neighborhoods, the project includes a $35 million Community Impact Mitigation Program. The fiscal year 2002 funding requirement of $25,000,000 for the IHNC New Lock for continued engineering and design work, construction, and partial funding of the mitigation program. Therefore, funding the Corps to continue lock construction and fully implement the mitigation program is recommended.

Operation and maintenance of the Mississippi River Outlets at Venice, La. are essential to providing safe offshore support access to energy-related industries. In 1999, these channels accommodated cargo movements exceeding 2.8 million tons. In addition to routine traffic, Baptiste Collette Bayou is used by shallow draft vessels as an alternate route between the MRGO, GIWW and the Mississippi River. The amount needed is $2,943,000 under O&M General.

More than 75.9 million tons of cargo transverse the GIWW in the New Orleans District annually. The amount needed for fiscal year 2002 for Gulf Intracoastal Waterway, Louisiana and Texas is $18,195,000 under O&M General. We recommend that the Corps be funded increased O&M capability to construct a spare set of miter gates for Leland Bowman lock and 20 additional mooring buoys at various locations along the GIWW.

To assure the efficient flow of commerce on the GIWW, approval is urged for $500,000 in GI funds to complete the feasibility study and to develop plans for replacement of the Bayou Sorrel Lock, Morgan City-to-Port Allen alternate route. We further recommend approval of $900,000 in GI funds to continue the feasibility phase of the study to replace Calcasieu Lock on the GIWW.

The Port of Lake Charles, Louisiana, is served by the Calcasieu River, which often does not meet project depth and width requirements. This Port is one of Louisiana's major deep-water ports, benefitting the economy of the state and the nation. In 1999, the Port handled 34.3 million tons of import cargo and 15.8 million tons of export cargo. The Port and private facilities along this waterway provide thousands of jobs for the Lake Charles area. In 1999, 1,056 ships and 7,305 barges used the Calcasieu River waterway. The Port area's growth and continued success depends on the provision of a reliable and safe channel at full project dimensions. We recommend approval for fiscal year 2002 of $12,773,000 under O&M General to continue dredging and operation of the saltwater barrier.

One additional project warrants consideration. The J. Bennett Johnston Waterway, Mississippi River to Shreveport, La. Project provides 236 miles of navigation improvements, 225 miles of channel stabilization works and various recreational facilities. Project completion will stimulate economic growth along the Red River Basin and increase cargo flows through the deep draft ports on the lower Mississippi River. Fiscal year 2002 requirements include $20,000,000 in Construction General and $9,462,000 for Operations and Maintenance. We recommend that the Corps be funded to full capability for this project to complete work already underway.

The need and impetus to reduce the Federal budget is certainly acknowledged; however, reduced funding on any of the above projects will result in decreased maintenance levels which will escalate deterioration and, ultimately, prevent them from functioning at their full authorized purpose. Reduction in the serviceability of these projects will cause severe economic impacts not only to this region, but to the nation as a whole that will far outweigh savings from reduced maintenance expenditures. Therefore, we reiterate our strong recommendation that the above projects be funded to their full capability.

Supporting statements from Mr. J. Ron Brinson, President and CEO of the Port of New Orleans; Mr. Joseph Accardo, Jr., Executive Director of the Port of South Louisiana; Mr. Roger Richard, Executive Director of the Greater Baton Rouge Port Commission; Mr. Terry T. Jordan, Executive Director of the Lake Charles Harbor and Terminal District; Mr. Channing Hayden, President of the Steamship Association of Louisiana; and Capt. Mark Delesdernier, President of the Crescent River Port Pilots Association are attached. Please make these statements along with my statement part of the record. Supplemental graphics relating to my statement have been furnished separately for staff background use. Thank you for the opportunity to comment to the subcommittee on these vital projects.

LETTER FROM JOSEPH ACCARDO, JR.

PORT OF SOUTH LOUISIANA,
LaPlace, Louisiana, April 4, 2001.

Hon. PETE V. DOMENICI,
Chairman, Subcommittee on Energy and Water Development, Committee on Appropriations, U.S. Senate, Washington, DC.

Dear SENATOR DOMENICI: The Port of South Louisiana very much appreciates being given the opportunity to submit this statement and supportive material to signify its endorsement of the statement of Mr. Donald T. Bollinger, Chairman of the Louisiana Governor's Task Force on Maritime Industry.

The Port of South Louisiana is comprised of nearly 54 miles of Mississippi River north of New Orleans and south of Baton Rouge, with more than fifty private and public docks and wharves. The Port of South Louisiana is the largest tonnage port in the United States and third largest in the world, handling more than 245 million short tons of cargo during 1999. Of this total tonnage, more than 123 million tons are shipped in international trade by deep water vessel and 12–2 million tons are shipped in domestic trade by vessels and barges. Each year more than 100,000 barges transport cargo at the Port of South Louisiana and more than 4,000 ships call at the public and private wharves of our Port.

A recent study by Dr. Tim Ryan of the University of New Orleans indicates that nearly 20 per cent of the domestic gross product of the State of Louisiana is dependent upon the maritime industry and one of twelve jobs is created from the economic activity of the maritime industry. Attached you will find statistics which have been developed from the records of the Port of South Louisiana.

The Port of South Louisiana strongly urges the Congress to fund all of the following projects.

1. Mississippi River Ship Channel, Gulf to Baton Rouge, LA (Construction General)
2. Mississippi River, Baton Rouge to the Gulf, Maintenance Dredging and GI Funds For Navigation Study
3. Mississippi River-Gulf Outlet (MR–GO), LA, Maintenence Dredging
4. Inner Harbor Navigation Canal (IHNC) Lock, LA 5. Mississippi River Outlets at Venice, LA
6. Intracoastal Waterway Locks, LA
7. Gulf Intracoastal Waterway, LA and TX
8. Calcasieu Lock, LA
9. Calcasieu River & Pass, LA
10. Mississippi River-Gulf Outlet (MR–GO) Reevaluation Study, LA
11. J. Bennett Johnston Waterway, Mississippi River to Shreveport

The Port of South Louisiana strongly believes that the finding and completion of the above maritime projects will enhance the ability of the ports in the region to be competitive in the global economy and will enhance the ability of domestic industry and agriculture to compete in the export of its products.

If we can provide any further information, please feel free to call upon me.

Your truly,

JOSEPH ACCARDO, JR.
Executive Director/CEO.

LETTER FROM ROGER P. RICHARD

PORT OF GREATER BATON ROUGE,
Port Allen, Louisiana, April 5, 2001.

Hon. PETE V. DOMENICI,
Chairman, Energy & Water Development Subcommittee, Committee on Appropriations, U.S. Senate, Washington, DC.

Dear SENATOR DOMENICI: Maintaining open navigable channels for the Mississippi River and its tributaries is vital to the nation's commerce and national interest. Therefore, the Port of Greater Baton Rouge respectfully requests that your committee give favorable consideration to the following projects:

Mississippi River Ship Channel—Gulf to Baton Rouge, Louisiana (Construction General).—We support full funding of $719,000 in fiscal year 2001 to the U.S. Corps of Engineers General Construction Budget. This will allow for the completion of the saltwater intrusion mitigation plan and the Phase III design studies for the fifty-five foot channel. Both projects are important to the future success of the Port of Greater Baton Rouge.

Mississippi River—Baton Rouge to the Gulf—Maintenance Dredging.—We support maximum funding for maintenance dredging for the Mississippi River and recommend approval of the President's fiscal year 2001 Budget of $63,359,000.

Mississippi River—Gulf Outlet (MR–GO), LA., Maintenance.—We support the President's fiscal year 2001 Budget of $11,286,000 under O & M General to include increase funding to the U.S. Corps budget to increase capability for bank stabilization.

Intracoastal Waterway Locks, LA.—Recommend approval of the President's fiscal year 2001 budget of $686,000 in GI Funds to complete the feasibility study and develop plans for replacement of Bayou Sorrel Lock on the Gulf Intracoastal Water Way (GIWW), Morgan City to Port Allen alternate route.

J. Bennett Johnston Waterway, Mississippi River to Shreveport, LA.—President's fiscal year 2001 is $18,040,000 in Construction General and $8,907,000 for Operations and Maintenance. We support full funding to the U.S. Corps budget to complete work already underway.

As stated in previous correspondence, these projects are vital not only to the Port of Greater Baton Rouge but also to the entire nation. The great Mississippi River is the premier national waterway, providing accessibility to and from foreign countries for the transportation of goods and services used by countless numbers of U.S. companies and individual citizens. The channel must be properly designed and maintained for the benefit of all ports and commerce.

We also earnestly request your support for funding of the other projects included in April 5, 2001 testimony prepared and submitted by Mr. Donald T. Bollinger. A summary of Mr. Bollinger's statement is attached. Our waterway infrastructure must be properly maintained if we are to increase trade and have the confidence of our trading partners around the world. Your cooperation and support of these important projects for the Mississippi River are greatly appreciated.

Sincerely,

ROGER, P. RICHARD,
Executive Director & CEO.

LETTER FROM TERRY T. JORDAN

LAKE CHARLES HARBOR & TERMINAL DISTRICT,
Lake Charles, Louisiana, April 6, 2001.

Hon. PETE V. DOMENICI,
Chairman, Energy & Water Development Subcommittee, Committee on Appropriations, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: The Lake Charles Harbor and Terminal District respectfully requests favorable consideration from you and your committee for the following projects:

Calcasieu Lock, LA.—Recommend approval of President's Fiscal Year 2001 budget of $900,000 (GeneralInvestigations) funds to continue the feasibility phase of the study to replace Calcasieu Lock on the G1WW.

Calcasieu River and Pass, LA.—Recommend approval of the Terminal Presidents fiscal year 2001 Budget of $12,773,000 (O&M General) to continue dredging and operation and maintenance District of the Saltwater Barrier.

This project is vital not only to the Port of Lake Charles, but to many parts of the nation. The Calcasieu River provides a route for oil and gas to enter the country's 11th largest port and ultimately be distributed to the Midwest and Northeast areas. The Port also provides a route for exports such as bagged grains, wood and paper products, dry bulk materials and other commodities, which originate from as far as the Pacific Northwest.

The District also requests support for funding of the other projects included in the testimony of Mr. Donald Bollinger. These projects are extremely important to Louisiana ports as well as the nation.

Yours very truly,

TERRY T. JORDAN.

LETTER FROM MICHAEL R. LORINO, JR.

ASSOCIATED BRANCH PILOTS,
Metairie, Louisiana, April 5, 2001.

Hon. PETE V. DOMENICI,
Chairman, Energy & Water Development Subcommittee, Committee on Appropriations, U.S. Senate, Washington, DC.

MR. CHAIRMAN: The Associated Branch Pilots is an Association of Pilots that have been guiding oceangoing vessels into the entrances of the Mississippi River system for over 125 years. We are called Bar Pilots because we guide the ships past the constantly shifting and shoaling sand bars in the area.

Southwest Pass of the Mississippi River is the main entrance for deep draft oceangoing vessels entering the Lower Mississippi River System. It is the shallowest stretch of the Lower Mississippi River System and the area that requires the greatest effort by the Corps of Engineers to maintain project depth.

In 2000, the Associated Branch Pilots made 11,987 transits on oceangoing vessels through Southwest Pass. Of these ships, 3,290 were of 50,000 dead weight tons or greater and 648 had a draft in excess of 40 feet.

This number of heavily laden vessels calling on the Lower Mississippi River System is a result of having a channel with a depth of 45 feet.

This first phase has proven to be extremely well designed and well maintained by the fact that the maximum draft recommended by my Association for vessels using Southwest Pass has been 45 feet or greater, except for periods of extremely high water that caused shoaling that overwhelmed the dredging efforts. This is in stark contrast to the late 1970's and early 80's when we often had to recommend drafts less than the project depth due to shoaling.

To the world shipping community, this means that calling at ports on the Mississippi River system will be more profitable because larger ships can enter and carry greater amounts of cargo.

This is beneficial to the entire United States because it makes the large quantities of petroleum, agricultural, and manufactured products shipped from the Mississippi Valley more desirable due to increased profitability.

I would also like to comment briefly on the East-West navigation channels near Venice, Louisiana. Tiger Pass and Baptiste Collette provide a shorter, more direct route to Breton Sound and the Gulf of Mexico for offshore supply boats and small tugs and barges. These channels not only represent a savings in time and money for these vessels, but reduce the traffic in the main shipping channel, the Mississippi River and its passes, which is one of the most congested waterways in the country.

The dredging and maintaining of South Pass would contribute to the safety of the overall waterway.

The Associated Branch Pilots also pilot vessels in the Mississippi River Gulf Outlet, a man-made tidewater channel 75 miles long, stretching from the Gulf of Mexico to an intersection of the Intercoastal Waterway in New Orleans.

This channel leads to the Main Container Terminals for the Port of New Orleans, the Roll On, Roll Off Terminal, the Port of New Orleans Bulk Handling Plant, and additional General Cargo Docks. For the Port of New Orleans to remain competitive in the ever growing container trade, the continued maintenance of this channel is crucial. In 2000, 497 ships called on the port using the Mississippi River Gulf Outlet.

Much is being said pro and con concerning the Mississippi River Gulf Outlet. There is, admittedly, an erosion problem in the Mississippi River Gulf Outlet, but any curtailment of shipping traffic in the channel without regard to the long term effect upon the Port of New Orleans would be disastrous. I strongly support approval of funding for both the maintenance dredging/jetty repair project and the erosion/rip rap study for the Mississippi River Gulf Outlet.

Funding of the Corps of Engineers' projects in the Lower Mississippi River System has proven to be money well spent. It has increased exports and imports that have benefited the entire United States. I urge your support of the funding requested to enable the Corps to continue to maintain and improve the most efficient and productive waterway system in the country.

Sincerely,

MICHAEL R. LORINO, JR.,
President.

LETTER FROM CAPTAIN MARK DELESDERNIER, JR.

CRESCENT RIVER PORT PILOTS' ASSOCIATION,
Belle Chasse, Louisiana, April 6, 2001.

Hon. PETE V. DOMENICI,
Chairman, Energy and Water Development Subcommittee, Committee on Appropriations, U.S. Senate, Washington, DC.

MR. CHAIRMAN: I have served as President of the largest pilot association in the United States for the past nineteen (19) years. The Crescent River Port Pilots furnish pilots for ships destined to the Port of Baton Rouge, Port of South Louisiana, Port of New Orleans, Port of St. Bernard, and the Port of Plaquemines.

The Crescent River Port Pilots have piloted and shifted over sixteen thousand one hundred and eighty two (16,182) ships during 2000. We pilot deep draft vessels on more than one hundred (100) miles on the lower Mississippi River and thirty-five (35) miles on the Mississippi River Gulf Outlet.

The lower end of our route on the Mississippi River has a shoaling problem starting with the high water season each year. The shoaling requires daily attention by the United States Army Corps of Engineers to maintain project depth.

Heavy-laden vessel calls on the lower Mississippi River system as a direct result of the completion by the Corps of Engineers of the deepening of the channel from forty (40) feet to forty-five (45) feet.

For several years now, we have had extraordinary success in keeping the river dredges to project depth. This success is a direct result of an experienced and vigilant Corps of Engineers that, through experience, is able to timely bid in dredges to avoid extra dredging cost by waiting too long to start maintenance dredging.

Channel stability sends a positive message to the world's shipping community that schedule cargo for deep draft vessels months in advance is reliable. This makes the port call on the Mississippi River very profitable since the ships can lift greater tonnage.

Keeping project depth is beneficial to twenty-seven (27) states that are directly tied to the Mississippi River Port Complex.

Additionally, I would like to commend on the east and west navigation channels near Venice, Louisiana. Baptiste Collette and Tiger Pass provide a shorter and more direct route to Breton Sound and West Delta in the Gulf of Mexico for oil field support vessels.

The Crescent River Port Pilots also pilot ships in the Mississippi River Gulf Outlet. A man-made channel approximately 75 miles long starting in Breton Sound in the Gulf of Mexico and ending in New Orleans where it intersects with the Intercoastal Waterway.

The Mississippi River Gulf Outlet feeds the main container terminals in the Port of New Orleans. Additional docks, such as Bulk Terminal and general cargo facilities depend on this channel, which handled approximately 980 ship calls last year.

The Mississippi River Gulf Outlet has been a controversial channel since its inception, but being an integral part of the Port of New Orleans, it would be a disaster if it is not kept at project width and depth. The Crescent River Pilots strongly support approval of funding for both the maintenance dredging, and jetty repair projects.

Funding of the United States Army Corps of Engineers projects in the lower Mississippi River system which includes the Mississippi River Gulf Outlet, Tiger Pass, Baptiste Collette, and Southwest Pass has proven to be money well spent.

I urge your support of the funding requested to allow the Corps of Engineers to continue to maintain and improve the most productive waterway system in the world.

Mr. Chairman, thanks for allowing me the opportunity to submit my comments to your subcommittee.

Sincerely,

CAPTAIN MARK DELESDERNIER, JR.,
President.

PREPARED STATEMENT OF THE COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION, INC.

SUMMARY

Mr. Chairman & distinguished Committee members: This statement includes the following:

(A) A plea to recognize and maintain our Nation's inland waterways system as a vital part of the national transportation infrastructure;

(B) A request for support in the following areas:

—Sufficient funding to maintain and improve our nation's inland waterway system;

—O&M funding for federal projects in the Coosa-Alabama Basin and Mobile Harbor;

—Funding to complete a study to improve the navigation channel on the Alabama River

—Funding to remove major obstacles to efficient operation of the Millers Ferry power generation plant

—Funding to commence construction of Mayo's Bar Lock and Dam on the Coosa River;

EXPANDED STATEMENT

Thank you for the opportunity to present my perspective on several topics relating to our Nation's waterways system in general, and to the Coosa-Alabama River Basin in particular. As President of the Coosa-Alabama River Improvement Association, I speak for a large and diverse group of private citizens and political and industrial organizations that sees the continued development of the Coosa-Alabama Waterway as an opportunity for economic growth in our region as well as the Nation.

Our association is concerned about the deteriorating waterway infrastructure throughout the nation. The waterways are vital to our export and import capability, linking our producers with consumers around the world. Barges annually transport 15 percent of the nation's commodities, one out of every eight tons. It is incumbent upon the Federal Government to maintain and improve this valuable national asset. Therefore, we ask Congress to appropriate enough funds for required maintenance and construction to keep the waterways the economic multiplier it is. To maintain the inland waterways facilities and to accommodate vitally needed growth will require approximately $6 billion. The Federal government must commit to improve the waterways infrastructure or risk serious economic consequences and jeopardizing large public benefits.

We are concerned that any budget strategy that reduces funding for the operations and maintenance of inland and intracoastal waterways will have a detrimental effect on the economic growth and development of the river system. We are especially concerned about the President's direction to direct funding away from those waterways suffering temporary downturns in barge transportation. We cannot allow that to happen. In the Alabama-Coosa River Basin, we must be able to maintain the existing river projects and facilities that support the commercial navigation, hydropower and recreational activities so critical to our region's economy. The first priority must be the O&M funding appropriated to the Corps of Engineers to maintain those projects. Since, as of the submission of this statement, the President's Budget Proposal for fiscal year 2002 has not been made available, we request the following projects be funded on a level at least equal to that of fiscal year 2001, with exceptions as indicated:

Project	Fiscal year 2001 appropriation	Association's fiscal year 2002 budget request
Alabama-Coosa River, AL [1] (AL River incl Claiborne L&D)	$5,355,000	$5,355,000
Miller's Ferry L&D	4,999,000	6,999,000
Robert F. Henry L&D	4,962,000	4,962,000
Lake Allatoona, GA	6,000,000	6,000,000
Carters Lake, GA	7,489,000	7,489,000
Lower Alabama River Study (South of Claiborne) feasibility study	150,000	250,000
Mayo's Bar	.....	1,500,000
Totals	27,525,000	32,555,000

[1] Includes dredging from the mouth of the Alabama River through Claiborne L&D to Miller's Ferry. Coosa River not included.

We also support funding O&M for Mobile Harbor at $20,500,000. We cannot allow Mobile Harbor infrastructure to deteriorate because not enough funds are appropriated.

The Corps of Engineers has not dredged the Alabama River since 1999. During the drought months last year, water depths below Claiborne were less than six feet, not enough to sustain barge traffic. That traffic, however, was severely curtailed in 1999 when Kimberly-Clark Corporation ceased its logging operation on the Alabama. In effect, the Corps reprogrammed fiscal year 2000 O&M funds from maintenance of the Alabama River navigation channel to the Port of Pascagoula, Mississippi because of low commercial usage. From all indications, that money will be reprogrammed again this year. We must, however, maintain the navigation channel to preserve the channel's potential of attracting new business into the Alabama River Basin. We request Congress to appropriate funding for the Alabama-Coosa, Miller's Ferry, and Robert F. Henry projects at least equal to that appropriated in fiscal year 2001.

In addition, we ask that $2 million be appropriated to the Miller's Ferry project to purchase a capability to remove river debris that clogs the inlet structure of the power generating plant at the dam. Debris causes the generating plant to lose its efficiency, which in turn drives up the cost of producing electricity. These costs are, of course, passed on to the purchasers of the electricity. An additional benefit is that the debris removing system would obviate the need, thus the manpower and time, to physically remove the debris.

We must improve the infrastructure of the river itself, specifically the navigational reliability below Claiborne Dam. Increased reliability is the only way prospective investors will entertain establishing an industry that uses river transportation. The most affordable and most environmentally friendly solution to increasing navigation reliability on the Lower Alabama River is to improve the training dikes. Mobile District is in the middle of a feasibility study to determine the interest of the Federal Government in such a project. Without an improvement in the navigation reliability on the Lower Alabama River, we cannot hope to attract new river-related industry into the Basin. We ask Congress to appropriate $250,000 to complete the feasibility study already underway.

Recreation has become a major economic factor on our waterways. Boating, fishing, swimming, and camping have become an indispensable economic tool for many of our lake and river communities. One of the projects in the Upper Coosa River Basin needs federal funding to assist in greatly enhancing recreational opportunities in the northwest Georgia and northeast Alabama.

Mayo's Bar Lock and Dam, eight miles downstream of Rome, Georgia, on the Coosa River, is an old federal project constructed in 1913 as part of an overall plan to provide navigation from Wetumpka, Alabama, to Rome. The project was abandoned in 1931. The site of the facility is currently operated as a recreational facility. The lock, however, is unusable as no maintenance has been performed on it since the 1930's. Floyd County, Georgia officials plan to restore and operate the lock to facilitate recreational boat traffic from Rome to Cedar Bluff and Centre, Alabama through Lake Weiss, 57 miles downstream. A 1988 study by the Corps of Engineers found the cost of rehabilitating the lock to be feasible. Cost of the project today is estimated at $3 million. Section 528 of the Water Resources Development Act of 1999 authorized the Corps of Engineers to "provide technical assistance (including planning, engineering, and design assistance)" for reconstruction of Mayo's Bar Lock and Dam. Floyd County is prepared to share the costs of the rehabilitation on a 50/50 basis. We request Congress authorize the Corps of Engineers to assist Floyd County in the construction phase of the lock and in the modification of the dam to accommodate planned water levels. Construction costs for modifying both the lock and the dam is $3 million. We request Congress appropriate the federal share of $1.5 million in fiscal year 2002 to allow the Mobile District to assist Floyd County in the construction of the Mayo's Bar Lock and Dam. We strongly urge the Committee provide funding to benefit northwest Georgia and northeast Alabama.

In summary, we request your support in the following areas:

—Sufficient O&M funding of the US Army Corps of Engineers Civil Works budget to maintain and enhance the US inland waterways system, including the Coosa-Alabama River Basins and Mobile Harbor;

—Funding to purchase a system to remove debris from the intake of the power generating plant at Millers Ferry Dam on the Alabama River;

—Funding for completing the feasibility study of improving the reliability of the navigation channel below Claiborne Dam on the Lower Alabama River;

—Funding federal share for the construction phase of rehabilitating Mayo's Bar Lock and Dam on the Coosa River near Rome, Georgia.

Thank you for allowing us to submit this testimony and for your strong support of the Nation's waterways.

LETTER FROM CLYDE CHAMBLISS

AUTAUGA COUNTY COMMISSION,
Prattville, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for the Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: The Autauga County Commission would like to take this opportunity to ask for your help in funding requests for Coosa-Alabama River Improvement Association for fiscal year 2002.

We are particularly interested in the operations and maintenance funding that keeps the navigation channel open. We feel that top priority should be given in order to attract new river-using industry into the Alabama River Basin. Improvements needed to enhance industry interest into the river basin include extending the Coosa-Alabama Waterway and improving navigational reliability below Claiborne Dam by maintaining and improving training works and dredging. Commercial river transportation development between Mobile and Montgomery is dependent on these improvements. Funding of $2.0 million in fiscal year 2002 and $1.0 million in fiscal year 2003 is needed to install a system to remove debris at the intake gates of Miller's Ferry hydropower generation plant near Camden, Alabama.

We also support efforts to reach an agreement on a water allocation formula between Alabama and Georgia, but cannot support an agreement that could negatively affect the ability of Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River or that seriously hinders the economic development of the State of Alabama and Northwest Georgia.

It is our hope that you will consider the importance of maintaining the Alabama River projects arid provide the funding needed.

Sincerely,

CLYDE CHAMBLISS, JR.,
Chairman.

LETTER FROM PHILLIP A. SANGUINETTI

THE ANNISTON STAR,
Anniston, Alabama, March 26, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for the Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SEN. DOMENICI: I am writing to seek your support of the Coosa-Alabama River Improvement Association's request for an appropriation from the State General Fund in Fiscal Year 2002.

As a member of the Board of Directors for the Association, I strongly endorse its mission of promoting the development of the Coosa and Alabama Rivers for the benefit of the state. CARIA is the only organization in our State that annually works for funding of federal projects on those rivers.

In the water allocation negotiations between Alabama and Georgia, CARIA has been the primary advisor to Alabama's negotiators on navigation issues in the Alabama-Coosa-Tallapoosa basin.

I support the Association's request for $300,000 to improve the training works below Claiborne Dam.

In addition, these are other points to consider: (a.) The state should maintain and improve the training works and dredging so the commercial river transportation between Mobile and Montgomery may continue. (b.) The state should continue efforts to agree on a water allocation formula between the states of Alabama and Georgia, but not a formula that negatively affects the ability of the Mobile District Corps of Engineers to maintain a ninefoot navigation channel on the Alabama River or impedes Alabama's developing of economic potential.

Increased fees and taxes prohibit the development of the waterway. Lowering the freight rates provide a better opportunity to help the trade business.

Thank you for considering these suggestions.

Very truly yours,

PHILLIP A. SANGUINETTI,
President.

LETTER FROM PHIL POWELL

CITY OF CENTRE,
Centre, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for the Energy and Water Development, U.S. Senate, Washington DC.

DEAR SENATOR DOEMENICI: As Mayor of the City of Centre I am writing to express my support for the funding request by the Coosa-Alabama River Improvement Association, Inc. As you are aware this Association is very active in promoting the use of the Alabama River Basin as a functional navigational waterway for the benefit of the entire State of Alabama. As the Association submits its funding request for fiscal year 2002 please keep in mind the importance of keeping the navigational channels open and in operation. Without funds for operations and maintenance of the channel it would be impossible to keep it in operation and functional.

The channel is essential on our efforts to attract new river-using industry and to expend those already in place. Without funds to keep the channel open and accessible for navigation the economies of all communities along the channel will be adversely affected. As you are aware, millions of dollars have been. spent in recent years toward making the Alabama River Basin a functional waterway for barge traffic: Failure to maintain such a facility will be harmful to all concerned.

As Mayor I certainly support the regional efforts to improve and expand the channel. Top priority must be given to the operational and maintenance funding that keeps the channel open. This is the only way new river using industry can be attracted to the Basin area. I also support the regional effort in the following areas:

—To improve and extend the Coos-Alabama Waterway. It is imperative that we improve the navigational reliability below Claiborne Dam.

—To maintain and improve training works and dredging

—The development of commercial river transportation between—Mobile and Montgomery.

It is vital that all affected cities support the Association's request for funding—to install a system to remove debris from in front of the intake gates at Miller's Ferry hydropower generation plant near Camden, Alabama. The funding needed is $2.0 million in fiscal year 2002 and $1.0 million in fiscal year 2003.

Finally, I applaud the efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but I cannot support an agreement that would negatively affect the ability of the Mobile District Corp of Engineers to maintain a nine-foot navigational channel on the Alabama River or that seriously impedes the economic development of the State of Alabama and Northwest Georgia. I do however support the efforts of Floyd County and the City of Rome, Georgia to modernize and make operational Mayo's Bar Lock and Dam to allow recreational boat traffic between Rome and Weiss Lake, Alabama.

On behalf of the entire community of Centre I encourage you to consider these matters carefully as each one, directly or indirectly, affects the economic viability of all cities and towns affected by the waterways.

I appreciate your concern and know you will support the Improvement Association in their efforts to improve our states waterways.

Sincerely,

PHIL POWELL,
Mayor.

LETTER FROM ANNE H. FARISH

CITY OF MONROEVILLE,
Monroeville, Alabama, March 22, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: It has come to my attention that the Appropriations Subcommittee on Energy and Water will be considering budget requests for operations and maintenance funding for the Alabama River projects. I understand that this funding is at risk due to the continuing low level of tonnage on the navigation channel. I cannot stress the importance of maintaining the navigation channel in the Alabama River to attracting new industry and maintaining our current industries.

I support the Coosa-Alabama River Improvement Association's funding request for fiscal year 2002. Top priority must be the operations and maintenance funding that keeps the navigation channel open. I support the regional effort to improve and extend the Coosa-Alabama Waterway. Funding is needed to improve the navigational reliability below the Claiborne Dam and to maintain and improve training works and dredging in order to develop commercial river transportation between Mobile and Montgomery.

I support the efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but could not support an agreement that negatively affects the ability of Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River or that seriously impedes the economic development of the State of Alabama and Northwest Georgia.

Thank you for supporting this request.

Sincerely,

ANNE H. FARISH,
Mayor.

LETTER FROM JIM BYARD, JR.

CITY OF PRATTVILLE,
Pratville, Alabama, April 4, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: I am a member of the Board of Directors for the Coosa-Alabama River Improvement Association, Inc. These are some priority items for your consideration:

—I support the Association's funding request for fiscal year 2002. Top priority must be the operations and maintenance funding that keeps the navigation channel open. We must maintain the channel in order to attract new river-using industry into the Alabama River Basin.

—I support the regional effort to improve and extend the Coosa-Alabama Waterway, including

  —Need to improve the navigational reliability below Claiborne Dam.

  —Need to maintain and improve training works and dredging. Development of commercial river transportation between Mobile and Montgomery depends on these improvements.

—I support the Association's request for funding to install a system to remove debris from in front of the gates at the Millers Ferry hydropower generation plant near Camden, Alabama. The funding needed is $2.0 million in fiscal year 2002 and $1.0 million in fiscal year 2003.

—I support the efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but could not support an agreement that negatively affects the ability of Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River or that seriously impedes the economic development of the State of Alabama and Northwest Georgia.

—I support the efforts of Floyd County and the City of Rome, Georgia, to modernize and make operational Mayo's Bar Lock and Dam to allow recreational boat traffic between Rome and Weiss Lake, Alabama.

Your support of CARIA's request for funding will be greatly appreciated.

Sincerely,

JIM BYARD, JR.,
Mayor.

LETTER FROM SUE L. GLIDEWELL

CITY OF RAINBOW CITY,
Rainbow City, Alabama, March 19, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: As you know, I am a member of the Board of Directors of Coosa-Alabama River Improvement Association, Inc. I am listing below some priority items for your consideration:

(1) You support the Association's funding request for fiscal year 2002. Top priority must be the operations and maintenance funding that keeps the navigation channel open. We must maintain the channel in order to attract new river-using industry into the Alabama River Basin.

(2) You support the regional effort to improve and extend the Coosa-Alabama Waterway.

—Need to improve the navigational reliability below Claiborne Dam.

—Need to maintain and improve training works and dredging. Development of commercial river transportation between Mobile and Montgomery depends on these improvements.

—You support the Association's request for funding to install a system to remove debris from in front of the gates at the Miller's Ferry hydropower generation plant near Camden, Alabama. The funding needed is $2.0 million in fiscal year 2002 and $1.0 million in fiscal year 2003.

(3) You support the efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but could not support an agreement that negatively affects the ability of Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River or that seriously impedes the economic development of the State of Alabama and Northwest Georgia.

(4) You support the efforts of Floyd County and the City of Rome, Georgia to modernize and make operational Mayo's Bar Lock and Dam to allow recreational boat traffic between Rome and Weiss Lake, Alabama.

Your support concerning this will be greatly appreciated.

Sincerely,

SUE L. GLIDEWELL,
Mayor.

LETTER FROM JAMES T. JORDAN

J.T. JORDAN COTTON, INC.
Centre, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington, DC.

DEAR SENATOR DOMENICI: This letter is to let you know that I support the Coosa-Alabama River Improvement Association's funding request for fiscal year 2002. I think the top priority must be the operations and maintenance funding that keeps the navigation channel open. We need to maintain the channel in order to attract new river-using industry into the Alabama River Basin. I also support the regional effort to improve and extend the Coosa-Alabama Waterway.

Some other points that are crucial are: we need to improve the navigational reliability below Claiborne Dam; to maintain and improve training works and dredging; development of commercial river transportation between Mobile and Montgomery which depends on these improvements; support of the Association's request for funding to install to remove debris from in front of the intake gates at the Miller's Ferry hydropower generation plant near Camden, Alabama.

We also need to support the efforts of Floyd County and the City of Rome, Georgia to modernize and make operational Mayo's Bar Lock and Dam to allow recreational boat traffic between Rome and Weiss Lake, Alabama.

We appreciate what you can do and are doing to help us in these endeavors.

Sincerely,

JAMES T. JORDAN,
President.

LETTER FROM SANDY SMITH

MONROEVILLE AREA CHAMBER OF COMMERCE,
Monroeville, Alabama, March 28, 2001.

Hon. PETE V. DOMENICI,
Senate Subcomittee on Appropriations for Energy & Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: On behalf of the Monroeville Area Chamber of Commerce, I am writing in support of the Coosa-Alabama River Improvement Association's funding request for fiscal year 2002. The waterway is a major transportation artery for an economically depressed area. We must maintain a nine-foot navigation

channel on the Alabama River to attract new, river utilizing, additional industry to this part of Alabama. We support the regional effort to improve and extend the Coosa-Alabama waterway, and the need to improve the navigational reliability below Claiborne Dam.

We also support the Association's request for funding to install a system to remove debris from in front of the intake gates at the Miller's Ferry hydropower generation plant near Camden, Alabama. The funding needed is $2.0 million in fiscal year 2002 and $1.0 million in fiscal year 2003.

In addition, we support the efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but cannot support an agreement that negatively impacts the ability of Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River, or that seriously impedes the economic development efforts of the State of Alabama and Northwest Georgia.

Please support our request for funding to improve and maintain our waterways, vital to our continued economic development.

Respectfully submitted,

SANDY SMITH,
Executive Director.

LETTER FROM OTHA LEE BIGGS

MONROE COUNTY COMMISSION,
Monroeville, Alabama, March 29, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy & Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: The Monroe County Commission supports the Coosa-Alabama River Improvement Association's funding request for fiscal year 2002. The Coosa-Alabama waterway system is a major transportation artery for an economically depressed area. In order for this region to receive maximum economical benefits, a nine-foot navigation channel on the Alabama River is needed to attract new industries and to accommodate existing industries. We support the efforts to improve and extend the Alabama waterway to Rome Georgia and the need to improve the navigational reliability below the Claiborne Lock and Dam to Mobile.

We also support the Association's request for funding of $2.0 million for fiscal year 2002 and $1.0 million for fiscal year 2003 to install a system to remove debris in front of the intake gates at the Miller's Ferry hydropower generation plant in Camden, Alabama.

The Monroe County Commission supports the efforts of Alabama and Georgia to agree on a water allocation formula between the two states; however, we cannot support an agreement that negatively impacts the ability of the Mobile District Corps of' Engineers to maintain a nine-foot navigational channel on the Alabama River, or that seriously impedes the economic development efforts of the State of Alabama and Northwest Georgia along the Coosa-Alabama River systems.

We respectfully request your support of the fiscal year 2002 Budget as submitted by the US Corps of Engineers for this most important waterway system.

Respectfully submitted,

OTHA LEE BIGGS,
President of Monroe County Commission and Judge of Probate.

LETTER FROM LYNN A. GOWAN

MONTGOMERY COUNTY COMMISSION,
Montgomery, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: The Montgomery County Commission has a vital interest in the development of the Coosa-Alabama River project which was originally authorized by Congress in 1945. The benefits which accrue to the citizens of this region, and to the nation, fully justify the operation of this economical waterway.

Previously, industry users of this river basin have seen the river as undependable and needing more internal dock facilities before they would consider barge transportation. The value of cargo is important, but much emphasis must be placed on increasing tonnage by attracting new river-using industries into the Alabama River

Basin. Therefore, the top priority must be the operations and maintenance funding that keeps the navigation channel dredged and the locks operational.

Also, improvements are needed to enhance the navigational reliability below Claiborne Dam and improve training works and dredging. Assurance is needed that there will be sufficient releases of water from upstream reservoirs.

The Mobile District is in its second year of a three-year feasibility study and the District cities need a positive benefit-cost ratio. This could be achieved through a $300,000 Federal Budget in fiscal year 2002.

Adequate funding is necessary to ensure that progress is made for further development of the River project and to properly operate and maintain the existing portion. We fully support the testimony provided by the Coosa-Alabama River Improvement Association and urge your favorable consideration of the recommended appropriations for fiscal year 2002.

Sincerely,

LYNN GOWAN,
Acting Chairman.

LETTER FROM RICHARD T. DOZIER

MONTGOMERY MARINA,
Montgomery, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: A great event took place here in Central Alabama in 1972 when the Coosa-Alabama River Navigation System came on-stream.

We, as a region, have failed to pursue commercial users for the system with the vigor required. While there have been some low-water problems, I believe that a bigger user demand would have helped correct those physical problems.

As your committee meets this month, we are in the process of a region-wide assessment of what the system offers this large inland area. A joint 5-county, long-term development study is underway and will assess new facilities and programs to attract users for the system and improve the interface with both rail and truck terminals.

Continuing maintenance and operations funding is critically important to maintain the readiness of this valuable system.

In the meantime, the recreational and residential use of the system has had great growth and created jobs and rising tax base values that have been very beneficial to this river basin region. These activities will only increase in the future. The reliability of the channel is a key ingredient in our planning.

Sincerely,

RICHARD T. DOZIER,
President, Montgomery Marina, Inc.

LETTER FROM JOSEPH F. MATHIS

PRATTVILLE AREA CHAMBER OF COMMERCE,
Prattville, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington, DC.

Dear SENATOR DOMENICI: I am writing to request your support for the Coosa-Alabama River Improvement Associations funding request for fiscal year 2002. Priority must be given to keeping the navigational channel open and the operational maintenance budget in tact.

As a member of the Board of Directors for the Association, I strongly endorse its mission of promoting the development of the Coosa and Alabama River system for the benefit of the State of Alabama. The Association is the only organization that annually works for the funding of the federally funded projects on these rivers.

Major points to consider: maintain and improve the dredging of the channel for commercial traffic between Mobile and Montgomery; continue efforts to agree on a water allocation formula between Alabama and Georgia but not at the expense of negatively impeding the navigation of the rivers; additional funds for the removal of debris for the intakes at Millers Ferry hydropower plant.

Navigational Rivers are a key to the future Economic Development of the State of Alabama. Your support of this request will greatly benefit our state.

Sincerely,

JOSEPH F. MATHIS,
Executive Director.

LETTER FROM STANLEY D. BATEMON

ST. CLAIR COUNTY COMMISSION,
Ashville, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington, DC.

DEAR SENATOR: This is to acknowledge support of continued funding for the Coosa-Alabama River Improvement Association, Inc. and their efforts to maintain the navigation channel in order to attract new river-using industry into the Alabama River basin.

Your support of their efforts will be greatly appreciated.

Yours truly,

STANLEY D. BATEMON,
Chairman.

LETTER FROM JAMIE D. WALLACE

SELMA AND DALLAS COUNTY CHAMBER OF COMMERCE,
Selma, Alabama, March 19, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington, DC.

DEAR SENATOR DOMENICI: Deep in Alabama there runs a river system that has the potential to be an economic catalyst for one of the poorest regions in the U.S., that is the Coosa-Alabama River System.

Here in our area of Selma and Dallas County our concern is with the Historic Alabama River. Our unemployment currently fluctuates between 9–12 percent. We leave no four-lane connector roads on which to ferry our products to market and we are deeply concerned about a river system that will not be able to carry barge traffic unless the integrity of a channel can be maintained. Currently funding is not adequate to do so.

As a strong supporter of the Coosa-Alabama System for many years, the 148 year old Selma-Dallas County Chamber of Commerce encourages you and your committee to take a close look at the points being raised that are necessary to keep this river open for traffic. Currently tonnage is down, but in the South we say its like "which came first the chicken or the egg." Without an adequate channel it is no reliable vehicle to transport goods.

Thank you very much for your consideration and support.

Sincerely,

JAMIE D. WALLACE,
President.

LETTER FROM J. CRAIG STEPAN

WARRIOR & GULF NAVIGATION COMPANY,
Chickasaw, Alabama, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington DC.

DEAR SENATOR DOMENICI: I am J. Craig Stepan, General Manager of Warrior & Gulf Navigation Company. Our company is an active member of the Coosa-Alabama River Improvement Association. I wish to take this opportunity to solicit your support on behalf of the Association and the river system and enterprises it serves.

Primarily, please support the Coosa-Alabama Association's funding request for fiscal year 2002. This funding is imperative to protect the Alabama River as a safe and efficient transportation waterway. Further, your additional support of a re-

gional initiative to improve the waterway below Claiborne Dam and install a debris removal system at Miller's Ferry generating plant near Camden will also be appreciated.

As you know, the states of Georgia and Alabama are working on a plan to equitably allocate the water resources common to the two states. It is important that this project move ahead without compromising the nine foot navigation channel on the Alabama River. Your efforts to secure that protection and to help Floyd County and the City of Rome, Georgia successfully modernize Mayo's Bar Lock and Dam would be appreciated.

Our company and its 200+ employees respectfully request your support for these important projects, and we pledge our best efforts to provide reliable cost efficient transportation services to the Alabama business community.

Very truly yours,

J. CRAIG STEPAN,
General Manager.

LETTER FROM WILLIAM M. FRICKS

ROME CITY COMMISSION,
Rome, Georgia, April 9, 2001.

Hon. PETE V. DOMENICI,
Senate Subcommittee on Appropriations for Energy and Water Development, U.S. Senate Washington, DC.

DEAR SENATOR DOMENICI: As a member of the Coosa Alabama River Improvement Association, I am requesting that you please support the following:

—The Coosa/Alabama River Improvement Association's funding request for fiscal year 2002.
—The regional's effort to improve and extend the Coosa-Alabama waterway.
—Improvements of the navigational reliability below Claiborne Dam.
—Maintain and improve training works and dredging. Development of commercial river transportation between Mobile and Montgomery depends on these improvements.
—Floyd County and the City of Rome Georgia's effort to modernize and make operational Mayo's Bar Lock and Dam to allow recreational boat traffic between Rome and Weiss Lake in Alabama.
—The efforts of Alabama and Georgia to agree on a water allocation formula between the two states, but not a formula that negatively affects the ability of the Mobile District Corps of Engineers to maintain a nine-foot navigation channel on the Alabama River or that seriously impedes the state of Alabama in developing its economic potential.

You are aware, I am sure, that increased fees and taxes stifle waterway commercial development. Lowered freight rates provide a better export market, thus helping the trade business. Waterways provide efficient transportation that tends to lower inflation.

Thank you very much for your consideration of this request.

Sincerely,

WILLIAM M. FRICKS,
Chairman.

PREPARED STATEMENT OF THE CHAMBERS COUNTY-CEDAR BAYOU NAVIGATION DISTRICT

On behalf of the Chambers County-Cedar Bayou Navigation district and the users of the Cedar Bayou Channel, Texas, we extend gratitude to Chairman Domenici, and members of the subcommittee for the opportunity to submit testimony in support of the improvement project for the Cedar Bayou Channel, Texas.

We express full support of the inclusion in the fiscal year 2002 budget for:

Pre-Construction Engineering and Design (O&M) For Cedar Bayou, Texas $750,000

HISTORY AND BACKGROUND

The River and Harbor Act of 1890 originally authorized navigation improvements to Cedar Bayou. The project was reauthorized in 1930 to provide a 10 feet deep and 100 feet wide channel from the Houston Ship Channel to a point on Cedar Bayou 11 miles above the mouth of the bayou. In 1931, a portion of the channel was con-

structed from the Houston Ship Channel to a point about 0.8 miles above the mouth of Cedar Bayou, approximately 3.5 miles in length. A study of the project in 1971 determined that an extension of the channel to project Mile 3 would have a favorable benefit to cost ratio. This portion of the channel was realigned from Mile 0.1 to Mile 0.8 and extended from mile 0.8 to Mile 3 in 1975. In October 1985, the portion of the original navigation project from project Mile 3 to 11 was deauthorized due to the lack of a local sponsor. In 1989, the Corps of Engineers, Galveston District completed a Reconnaissance Report dated June 1989, which recommended a 12 feet by 125 feet channel from the Houston Ship Channel Mile 3 to Cedar Bayou Mile 11 at the State Highway 146 Bridge. The Chambers County-Cedar Bayou Navigation District was created by the Texas Legislature in 1997 as an entity to improve the navigability of Cedar Bayou. The district was created to accomplish the purpose of Section 59, Article 2 XVI, of the Texas Constitution and has all the rights, powers, privileges and authority applicable to Districts created under Chapters 60, 62, and 63 of the Water Code—Public Entity. The Chambers County-Cedar Bayou Navigation District then became the local sponsor for the Cedar Bayou Channel.

PROJECT DESCRIPTION AND REAUTHORIZATION

Cedar Bayou is a small coastal stream, which originates in Liberty County, Texas, and meanders through the urban area near the eastern portion of the City of Baytown, Texas, before entering Galveston Bay. The bayou forms the boundary between Harris County on the west and Chambers County on the east. The project was authorized in Section 349 of the Water Resources Development Act 2000, which authorized a navigation improvement of 12 feet deep by 125 feet wide from mile 2.5 to mile 11 on Cedar Bayou.

JUSTIFICATION AND INDUSTRY SUPPORT

First and foremost, the channel must be improved for safety. The channel is the home to a busy barge industry. The most cost-efficient and safe method of conveyance is barge transportation. Water transportation offers considerable cost savings compared to other freight modes (rail is nearly twice as costly and truck nearly four times higher). In addition, the movement of cargo by barge is environmentally friendly. Barges have enormous carrying capacity while consuming less energy, due to the fact that a large number of barges can move together in a single tow, controlled by only one power unit. The result takes a significant number of trucks off of Texas highways. The reduction of air emissions by the movement of cargo on barges is a significant factor as communities struggle with compliance with the Clean Air Act.

Several navigation-dependent industries and commercial enterprises have been established along the commercially navigable portions of Cedar Bayou. Several industries have docks on at the mile markers that would be affected by this much-needed improvement. These industries include: Reliant Energy, Bayer Corporation, Koppel Steel, CEMEX, US Filter Recovery Services and Dorsett Brothers Concrete, to name a few.

PROJECT COSTS AND BENEFITS

The Corps of Engineers has indicated a benefit to cost ratio of the project of 2.8 to 1. The estimated total cost of the project is $16.8 M with a Federal share estimated at $11.9 M and the non-Federal sponsor share of approximately $4.9 M. Total annual benefits are estimated to be $4.8 M, with a net benefit of $3 M. This project is environmentally sound and economically justified. We would appreciate the subcommittee's support of the required $750,000 appropriation to complete the plans and specifications of the project so that it can move forward at an optimum construction schedule. The users of the channel deserve to have the benefits of a safer, most cost-effective Federal waterway.

PREPARED STATEMENT OF THE CITY OF PHOENIX

Dear Mr. Chairman and Members of the Subcommittee: On behalf of the City Council and the residents of Phoenix, the sixth largest city in the country, I would like to submit the following testimony for the record. I am pleased to present this testimony in support of appropriations to help our city and region continue to foster a partnership with the Federal government to achieve our shared objectives. We have been working with our delegation, this Committee, the Corps of Engineers, the Bureau of Reclamation, and other Federal agencies to promote environmental restoration and flood control needs in the most effective and economical way. We sin-

cerely appreciate the past support of this Committee and trust we will continue our partnership to see several critical projects through to a successful conclusion.

There are several initiatives under way which this Committee has supported in the past and have been included in the President's Budget. Continued support is essential to achieve the public benefits for which the projects are being designed.

RIO SALADO AND RIO SALAO PHASE II

We have been working for nearly seven years with the Corps of Engineers in a cost-shared partnership to study a project to improve the water carrying capacity of the river and restore riparian habitat along the Salt River in downtown Phoenix and Tempe. The habitat was lost over many years as a result of diversion of Salt River flows for irrigation of the surrounding region.

In cooperation, the Corps, the City of Tempe, and we have developed a cost-effective plan called Rio Salado to improve the low flow channel, restore about seven miles of the lost riparian wetlands and provide incidental recreational benefits. The plan has been approved by the Secretary of the Army and the Administration and was authorization in the 1999 Water Resources Development Act (WRDA). Last year, the House and Senate Appropriations Committees approved a credit agreement between the city and Corps, allowing us to proceed using local funding in anticipation of Federal funding. Later in the year, the Congress approved "new start" construction funding for the project as part of the fiscal year 2001 Energy and Water Development Appropriations bill.

The Rio Salado project is the centerpiece of our efforts to revitalize the environment and the economy of a part of our city that has not enjoyed the fruits of progress as have other parts of the city. While we were delighted at receiving a $2 million new start designation in fiscal year 2001, for fiscal year 2002 we are seeking a substantially higher level of funding (a total of $30 million) to allow the project to remain on schedule for completion. We are eager to keep the $81 million dollar Phoenix portion of the Rio Salado project on its planned course of the three-year construction period at a 35 percent local, and 65 percent Federal cost.

The Rio Salado Phase II portion (Rio Oeste) of this environmental restoration project was included in the Corps of Engineers Reconnaissance Study in 1996. The study led to a feasibility level report and authorization of the Rio Salado project, consisting of only a portion of the original reconnaissance level study area. We would like to move beyond the reconnaissance level for the Rio Oeste portion of the project. Rio Oeste would essentially be a continuation of the Rio Salado project and would connect the project west to our 91st Avenue Treatment Plant at the Tres Rios project (discussed below. We are seeking $600,000 for the Corps of Engineers Feasibility Study for Phase II (Rio Oeste). The Feasibility funding will be matched 50 percent by the local sponsor. We strongly urge your support for this appropriation.

TRES RIOS

Ten years ago, the City of Phoenix and its partners undertook an effort to restore the natural environment of the area encompassing the Salt, Gila, and Agua Fria rivers now known as Tres Rios. The purpose of the project is to restore lost sonoran habitat in the arid southwest and to provide important flood protection and modest recreation opportunities for the community in an attempt to bring about economic revitalization to the area.

This is a truly unique project the outcome of which holds promise to benefit the entire nation as well as the Phoenix region in particular. The Bureau of Reclamation has constructed a demonstration project that uses wastewater from the regional wastewater treatment plant to create wetlands near the discharge location. The Bureau's project is authorized under their general research and demonstration authorities under their Title XVI Water and Wastewater Reclamation and Reuse Program. We are seeking the $500,000 in the Bureau's budget to continue the Tres Rios research and demonstration project.

In addition, we embarked on a cost-shared feasibility study with the Corps of Engineers to expand the project to create approximately 800 acres of high quality wetlands along a 7 mile stretch of the Salt and Gila Rivers. The City and the Corps have worked with both the neighboring Gila River Indian River Community and the Holly Acres neighborhood throughout the planning process. The feasibility study is nearing completion and Congress provided an initial $50,000 in fiscal year 2000 and $500,000 in fiscal year 2001 to initiate planning, engineering and design. The City is asking for the continued support of Congress and the Administration in funding this valuable project in the fiscal year 2002 Corps budget at $2.5 million for preliminary engineering and design.

The City is also requesting funding from the Bureau of Reclamation in the amount of $300,000 to allow the Bureau to begin studies on the Agua Fria River groundwater recharge project under the authority of section 1608 of the Bureau's Title XVI Reclamation and Reuse Program. This is an important element of the wastewater management strategy. It would reuse the water from the Tres Rios Project for groundwater recharge. It is important to have that portion of the study completed in about the same time frame as the rest of the study and design work to avoid losing the water coming from the wetlands restoration project.

SUMMARY

All of these projects, the Rio Salado and Phase II of the Rio Salado project (Rio Oeste), Tres Rios, and the Gila River, will act in synergy to restore lost environmental quality and provide for creative management, conservation, and reuse of scarce water quantities in the Phoenix Metropolitan Area. We sincerely appreciate the opportunity to present this request and thank you very much for your support in the past. We would be pleased to provide any additional information you may need.

PREPARED STATEMENT OF THE CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

Mr. Chairman, on behalf of the Confederated Tribes of the Umatilla Indian Reservation, thank you for the opportunity to present the Confederated Tribes' request for appropriations in the fiscal year 2002 budget for the U.S. Army Corps of Engineers. The Confederated Tribes of the Umatilla Indian Reservation (Confederated Tribes) respectfully request an appropriation of $1.2 million for the U.S. Army Corps of Engineers (Corps) for a crucial stream restoration project in the Walla Walla River Basin in Oregon and Washington.

The U.S. Army Corps of Engineers, Walla Walla District, has been authorized under the Water Resources Development Act to conduct a Feasibility Study to restore instream flows to the Walla Walla River in Oregon and Washington. The Walla Walla River Basin is within the homeland of the Umatilla Tribes. Mill Creek, located in the basin, is where the Tribes' Treaty of 1855 was signed, which ceded to the United States 6.4 million acres of the Tribes' lands, but also reserved, among others, the Tribes' right to fish at all usual and accustomed areas.

Historically, the Walla Walla River supported significant runs of spring chinook salmon and summer steelhead, as well as runs of fall chinook, chum and coho salmon. Those runs have been seriously impacted by dewatering of the mainstem Walla Walla River between June through October. The Tribes and the Oregon Department of Fish and Wildlife annually conduct a fish salvage operation just below the Nursery Bridge Dam in Milton-Freewater, Oregon, relocating stranded fish to other parts of the river system. Both Middle Columbia River summer steelhead and Columbia River Basin bull trout are listed species under the Endangered Species Act. As such, the Tribes consider the restoration of instrearn flows and the fisheries in the Walla Walla Basin a high priority.

The Tribes have chosen to co-sponsor the Walla Walla Basin Project with the Corps. Together, we are in the process of finalizing the Project Study Plan, which will be used to direct the scope of the Feasibility Study. Both the Corps and the Tribes believe that the Feasibility Study is the first step in assuring a long-term solution to providing permanent instream flows that will benefit treaty resources and Indian and non-Indian fisheries, while enhancing flows for fish species protected under the Endangered Species Act and maintaining existing agricultural water uses.

The Corps and the Tribes have targeted the end of May 2001 for signing the Project Management Plan and the end of June 2001 for signing the Feasibility Study Cost Agreement. As such, work on the Feasibility Study is expected to begin July 1, 2001, using existing fiscal year 2001 Corps Funds.

In order to ensure the work on the Feasibility Study continues past October 2001, the Corps must have an appropriation for fiscal year 2002. The Feasibility Study is expected to take 18–24 months to complete. However, without funding in fiscal year 2002, the work on the Feasibility Study would be unnecessarily delayed at least a year.

The study will provide a complete analysis that evaluates the feasibility of comprehensive restoration of instream flows, key riparian habitat, addresses fish passage, and restoration of habitat for spring chinook, steelhead, bull trout and pacific lamprey in the Basin, while maintaining agricultural productivity in the Basin

The Corps is authorized to conduct the Feasibility Study under the following project authorization: Reconnaissance Report for the Walla Walla River Watershed (1997) under General Investigation authorized in Senate Committee on Public Works July 27, 1962 (Columbia River and Tributaries).

Currently, there are four alternatives being considered for study. The Corps will be writing an Environmental Impact Statement, under the requirements of the National Environmental Policy Act (NEPA), and as such, these alternatives may be modified or dismissed, and other alternatives added through the EIS process. The four alternatives for restoring instream flow, currently under consideration, are (1) Irrigation Ditch Efficiency, (2) Water Storage; (3) Water Exchange, and (4) Conservation through purchase of Water Rights

Other actions, such as habitat enhancement and fish passage will be considered as part of the overall proposal.

The Confederated Tribes will model its fisheries restoration off the successful Umatilla River Basin Project, which restored instream flows for the lifecycle of fish and agricultural needs. During 2000, Indian and non-Indian people shared in return runs of about 5,000 reintroduced chinook salmon in the Umatilla River.

Since the early 1990's, the Confederated Tribes began working to restore the Walla Walla River. To date, the Confederated Tribes have implemented approximately $10 million worth of restoration projects in the Walla Walla River Basin. The Walla Walla Basin Feasibility Study will provide feasibility analysis and planning necessary to restore essential instream flows for salmon, summer steelhead, bull trout and pacific lamprey to the Walla Walla River.

The instream flow project would complement the millions of dollars worth of Confederated Tribes' sponsored habitat restoration, fish passage improvements, fish production and monitoring and evaluation projects in the Basin. The projects have been implemented in cooperation with Bonneville Power Administration, Oregon and Washington Department of Fish and Wildlife, Walla Walla and Columbia County, Walla Walla Irrigation District, Walla Walla Watershed Council, and the U.S. Army Corps of Engineers.

Many benefits will be accrued by completing the Feasibility Study within 18 months. For agricultural interests, this means a long-term solution to relieve the impacts of agricultural water diversion that presently de-water the Walla Walla River and compete with ESA listed fish instream flow needs. The Study is the next step in a Corps project designed to provide a stable water source that restores instream flows for fish and agricultural needs in the Basin. Consistent funding for the U.S. Army Corps of Engineers to conduct the study will ensure that the project goes forward and these benefits are realized in a timely manner.

Currently, the U.S. Fish and Wildlife Service (FWS) contends that water diversion by local irrigation districts de-water the Walla Walla River, causing take of ESA-protected bull trout. These irrigation districts are: Gardena Farms Irrigation District #13 of Touchet, Washington; Walla Walla Irrigation District of Milton-Freewater, Oregon;, and the Hudson Bay District Improvement Company, also of Milton-Freewater, Oregon.

In June 2000, the Districts and the FWS reached a one year settlement agreement to forgo instituting formal civil ESA penalty proceedings against the Districts in exchange for interim District measures that include development of a long term basin wide conservation plan. The National Marine Fisheries Service plans similar enforcement for take of ESA-protected steelhead in the Walla Walla River.

Choosing to step up to the plate rather than wait for an enforcement action, the Districts chose to commit to improving conditions for the endangered fish. For the year 2000, the settlement agreement included District commitments to monitoring flows, leaving enough water in the River for proper operation of the fish ladders, assisting the Confederated Tribes and Oregon Department of Fish and Wildlife salvage fish stranded due to irrigation diversions, and other measures beneficial to ESA listed fish. Pursuant to agreement requirements, the Districts cooperated with the implementation of the 2000 and 2001 Confederated Tribes' Annual Operations Plan (AOP) that coordinates fisheries restoration projects for each year in the Walla Walla Basin. The settlement conditions are based on District commitments to cooperatively work with other entities in the Walla Walla Basin toward an instream flow conservation plan that protects bull trout, steelhead, and other species dependent on instream flows.

After the 1997 Reconnaissance Report, the Corps set aside approximately $250,000–$275,000 to complete the Feasibility Study. They carried over that funding each year until a non-Federal sponsor was found. The Confederated Tribes and Corps began to negotiate the Project Management Plan in late 1999. At that time, the Corps estimated non-Federal 50 percent cost share to be around $600,000 (with

up to half of the non-Federal share, $300,000 required as cash, to the Corps). Since that time the Corps have diverted the set aside funding to other projects.

In 2000, the Water Resources Development Act was amended to allow non-Federal partners to contribute all of their cost share requirements as in-kind services towards the Feasibility Study. As of March 20, 2001, negotiations on the scope and budget have led to a desire to maintain a total project cost of approximately $4.4 million. Both the Confederated Tribes and the Corps would be responsible for approximately $2.2 million. The Confederated Tribes will contribute it's cost share entirely with in-kind services.

The restoration of instream flows to the Walla Walla River benefits all the people of this Basin across Northeast Oregon and Southeast Washington. As a community, we see that restoration of instream flows to the Walla Walla River is good for us now, good for our children, and good for the region.

The Confederated Tribes and the Walla Walla Basin community have worked together on many projects both in planning and implementation. The Confederated Tribes actively coordinates and works with many resource managers to implement a cohesive watershed restoration of the Basin, including, the Walla Walla Watershed Council, the WRIA 32, Walla Walla 2514 Watershed Planning Unit, the Northwest Power Planning Council, Umatilla and Walla Walla Conservation Districts, Hudson Bay Irrigation District, Gardena Farms Irrigation District #13, Walla Walla Irrigation District, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Oregon Department of Water Resources, Washington Department of Ecology, U.S. Fish and Wildlife Service,

We view the success of the Confederated Tribes' Umatilla Basin Project (http://umatilla.nsn.us/basin.html) as a demonstration that there can be a win-win partnership for restoring instream flow for fish and agriculture.

In anticipation of the benefits that the Confederated Tribes instream flow restoration project could bring to the Walla Walla Basin, "Senator Gordon Smith urged local farmers to work together with the CTUIR [Confederated Tribes] to find solutions on water issues." (East Oregonian, March 12, 2000). The Districts and the Confederated Tribes are demonstrating a commitment to work together to achieve long-term solutions for community needs in the Walla Walla Basin. We urge the U.S. Congress to support these solutions and continue to make the Walla Walla River Basin Restoration Project a priority project for the Basin.

In summary, Mr. Chairman, without the requested appropriation, the Walla Walla Basin Feasibility Study will most likely be delayed at least until fiscal year 2003. The Subcommittee's assistance will prevent delay of long-term solutions for restoring instream flows to the Walla Walla River while protecting endangered fish, restoring salmon, improving water quality and protecting vital agricultural economies. Thank you for your attention to this matter.

PREPARED STATEMENT OF THE SANTA CLARA VALLEY WATER DISTRICT

GUADALUPE RIVER PROJECT

SUMMARY

This statement urges the Committee's support for an Administration budget request of $4 million and an appropriation add-on of $8 million, for a total of $12 million to continue construction of the final phase of the Guadalupe River Flood Protection Project.

Background.—The Guadalupe River is a major waterway flowing through a highly developed area of San Jose, in Santa Clara County, California. A major flood would damage homes and businesses in the heart of Silicon Valley. Historically, the river has flooded downtown San Jose and the community of Alviso. According to the U.S. Army Corps of Engineers (Corps) 2000 Final General Reevaluation & Environmental Report for Proposed Project Modifications, estimated damages from a 1 percent flood in the urban center of San Jose are over $575 million. The Guadalupe River overflowed in February 1986, January 1995, and March 1995, damaging homes and businesses in the St. John and Pleasant Street areas of downtown San Jose. In March 1995, heavy rains resulted in breakouts along the river that flooded approximately 300 homes and business.

Project Synopsis.—In 1971, the local community requested that the Corps reactivate its earlier study. Since 1972, substantial technical and financial assistance have been provided by the local community through the Santa Clara Valley Water District in an effort to accelerate the project's completion. To date, more than $85.8 million in local funds have been spent on planning, design, land purchases, and construction in the Corps' project reach.

The Guadalupe River Project received authorization for construction under the Water Resources Development Act of 1986; the General Design Memorandum was completed in 1992, the local cooperative agreement was executed in March 1992, the General Design Memorandum was revised in 1993, construction of the first phase of the project was completed in August 1994, construction of the second phase was completed in August 1996. Project construction was temporarily halted due to environmental concerns.

To achieve a successful, long-term resolution to the issues of flood protection, environmental mitigation, avoidance of environmental impacts, and project maintenance costs, a multi-agency "Guadalupe Flood Control Project Collaborative" was created in 1997. A key outcome of the collaborative process was the signing of the Dispute Resolution Memorandum in 1998, which resolved major mitigation issues and allowed the project to proceed. Completion of the last phase of flood protection construction is estimated in 2002 and is dependent on timely Federal funding and continuing successful mitigation issue resolution.

Fiscal Year 2001 Funding.—$7 million was authorized in fiscal year 2001 to continue Guadalupe River Project construction.

Fiscal Year 2002 Funding Recommendation.—Based upon the need to continue construction to provide critical flood protection for downtown San Jose and the community of Alviso, it is requested that the Congressional Committee support an appropriation add-on of $8 million, in addition to the $4 million in the Administration's fiscal year 2002 budget, for a total of $12 million to continue construction of the final phase of the Guadalupe River Flood Protection Project.

UPPER PENITENCIA CREEK PROJECT

SUMMARY

This statement urges the Committee's support for an Administration budget request of $300,000 and an appropriation add-on of $240,000, for a total of $540,000 to continue with the feasibility study for the Upper Penitencia Creek Flood Protection Project.

Background.—The Upper Penitencia Creek Watershed is located in northeast Santa Clara County, California, near the southern end of the San Francisco Bay. In the last two decades, the creek has flooded in 1980, 1982, 1983, 1986, 1995, and 1998. The January 1995 flood damaged a commercial nursery, a condominium complex, and a business park. The February 1998 flood also damaged many homes, businesses, and surface streets.

The proposed project on Upper Penitencia Creek, from the Coyote Creek confluence to Dorel Drive, will protect portions of the cities of San Jose and Milpitas. The floodplain is completely urbanized; undeveloped land is limited to a few scattered agricultural parcels and a corridor along Upper Penitencia Creek. Based on the U.S. Army Corps of Engineers' (Corps) 1995 reconnaissance report, 4,300 buildings in the cities of San Jose and Milpitas are located in the flood prone area, 1,900 of which will have water entering the first floor. The estimated damages from a 1 percent or 100-year flood exceed $121 million.

Study Synopsis.—Under authority of the Watershed Protection and Flood Prevention Act (Public Law 83–566), the Natural Resources Conservation Service completed an economic feasibility study (watershed plan) for constructing flood damage reduction facilities on Upper Penitencia Creek. Following the 1990 U.S. Department of Agriculture Farm Bill, the Natural Resources Conservation Service watershed plan stalled due to the very high ratio of potential urban development flood damage compared to agricultural damage in the project area.

In January 1993 the Santa Clara Valley Water District (District) requested the Corps proceed with a reconnaissance study in the 1994 fiscal year while the Natural Resources Conservation Service plan was on hold. Funds were appropriated by Congress for fiscal year 1995 and the Corps started the reconnaissance study in October 1994. The reconnaissance report was completed in July 1995, with the recommendation to proceed with the feasibility study phase. The feasibility study, initiated in February 1998, is scheduled for completion in 2003.

Advance Construction.—To accelerate project implementation, the District submitted a Section 104 application to the Corps for advance approval to construct a portion of the project. Approval of the Section 104 application was awarded in December 2000. The advance construction is for a 2,500 foot long section of bypass channel between Coyote Creek and King Road. The District plans to begin construction on this portion of the project in 2002.

Fiscal Year 2001 Funding.—$300,000 was authorized in fiscal year 2001 for the Upper Penitencia Creek Flood Protection Project for project investigation.

Fiscal Year 2002 Funding Recommendation.—Based upon the high risk of flood damage from Upper Penitencia Creek and the need to proceed with the feasibility study, it is requested that the Congressional Committee support an appropriation add-on of $240,000, in addition to the $300,000 in the Administration's fiscal year 2002 budget, for a total of $540,000 for the Upper Penitencia Creek Flood Protection Project.

LLAGAS CREEK PROJECT

SUMMARY

This statement urges the Committee's support for an Administration budget request of $250,000 and an appropriation add-on of $750,000, for a total of $1 million for planning and environmental updates for the Llagas Creek Flood Protection Project.

Background.—The Llagas Creek Watershed is located in southern Santa Clara County, California, serving the communities of Gilroy, Morgan Hill and San Martin. Historically, Llagas Creek has flooded in 1937, 1955, 1958, 1962, 1963, 1969, 1982, 1986, 1996, 1997, and 1998. The 1997 and 1998 floods damaged many homes, businesses, and a recreational vehicle park located in areas of Morgan Hill and San Martin. These are areas where flood protection is proposed. Overall, the proposed project will protect the floodplain from a 1 percent flood affecting more than 1,100 residential buildings, 500 commercial buildings, and 1,300 acres of agricultural land.

Project Synopsis.—Under authority of the Watershed Protection and Flood Prevention Act (Public Law 566), the Natural Resources Conservation Service completed an economic feasibility study in 1982 for constructing flood damage reduction facilities on Llagas Creek. The Natural Resources Conservation Service completed construction of the last segment of the channel for Lower Llagas Creek in 1994, providing protection to the project area in Gilroy. The U.S. Army Corps of Engineers (Corps) is currently updating the 1982 environmental assessment work and the engineering design for the project areas in Morgan Hill and San Martin. The engineering design is being updated to protect and improve creek water quality and to preserve and enhance the creek's habitat, fish, and wildlife while satisfying current environmental and regulatory requirement. Significant issues include the presence of additional endangered species including the red-legged frog and steelhead, listing of the area as probable critical habitat for steelhead, and more extensive riparian habitat than were considered in 1982.

Until 1996, the Llagas Creek Project was funded through the traditional Public Law 566 Federal project funding agreement with the Natural Resources Conservation Service paying for channel improvements and the District paying local costs including utility relocation, bridge construction, and right of way acquisition. Due to the steady decrease in annual appropriations for the Public Law 566 construction program since 1990, the Llagas Creek Project has not received adequate funding from U.S. Department of Agriculture to complete the Public Law 566 project. To remedy this situation, the District worked with congressional representatives to transfer the construction authority from the Department of Agriculture to the Corps under the Water Resources Development Act of 1999 (Section 501). An initial budget of $235,000 was appropriated and another $215,000 was reprogrammed for the Corps' planning and design.

Fiscal Year 2001 Funding.—$700,000 was authorized in fiscal year 2001 for the Llagas Creek Flood Protection Project for planning and design.

Fiscal Year 2002 Funding Recommendation.—Based upon the high risk of flood damage from Llagas Creek, it is requested that the Congressional Committee support an appropriation add-on of $750,000, in addition to the $250,000 in the Administration's fiscal year 2002 budget, for a total of $1 million for planning and environmental updates for the Llagas Creek Project.

COYOTE/BERRYESSA CREEK PROJECT BERRYESSA CREEK PROJECT ELEMENT

SUMMARY

This statement urges the Committee's support for an Administration budget request of $600,000 and an appropriation add-on of $400,000, for a total of $1 million to continue with the General Reevaluation Report for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

Background.—The Berryessa Creek Watershed is located in northeast Santa Clara County, California, near the southern end of the San Francisco Bay. A major tributary of Coyote Creek, Berryessa Creek drains a large area in the City of Milpitas and a portion of San Jose. The Berryessa Watershed is 22 square miles.

On average, Berryessa Creek floods once every four years. The most recent flood in 1998 resulted in significant damage to homes and automobiles. The proposed project on Berryessa Creek, from Calaveras Boulevard to Old Piedmont Road, will protect portions of the Cities of San Jose and Milpitas. The flood plain is largely urbanized with a mix of residential and commercial development. Based on the U.S. Army Corps of Engineers (Corps) 1993 draft General Design Memorandum, a 1 percent or 100-year flood could potentially result in damages of $52 million with depths of up to three feet.

Study Synopsis.—In January 1981, the Santa Clara Valley Water District (District) applied for Federal assistance for flood protection projects under Section 205 of the 1948 Flood Control Act. The Water Resources Development Act of 1990 authorized construction on the Berryessa Creek Flood Protection Project as part of a combined Coyote Creek/Berryessa Creek Project to protect portions of the Cities of Milpitas and San Jose.

The Coyote Creek element of the project was completed in 1996. The Berryessa Creek Project element proposed in the Corps' 1987 feasibility report consisted primarily of a trapezoidal concrete lining. The Corps and the District are preparing a General Reevaluation Report which involves reformulating a project which is more acceptable to the local community and more environmentally sensitive. Project features will include setback levees and floodwalls to preserve sensitive areas (minimizing the use of concrete), appropriate aquatic and riparian habitat restoration and fish passage, and sediment control structures to limit turbidity and protect water quality. The project will also accommodate the City of Milpitas' adopted trail master plan. Estimated total costs of the General Reevaluation Report work are $3.6 million to be completed in 2003.

Fiscal Year 2001 Funding.—$1 million was authorized in fiscal year 2001 for the Coyote/Berryessa Creek Flood Protection Project to continue the General Reevaluation Report and environmental documents update.

Fiscal Year 2002 Funding Recommendation.—Based on the continuing threat of significant flood damage from Berryessa Creek and the need to continue with the General Reevaluation Report, it is requested that the Congressional Committee support an appropriation add-on of $400,000, in addition to the $600,000 in the Administration's fiscal year 2002 budget, for a total of $1 million for the Berryessa Creek Flood Protection Project element of the Coyote/Berryessa Creek Project.

COYOTE CREEK AT ROCK SPRINGS PROJECT

SUMMARY

This statement urges the Committee to support an earmark of $113,000 within the Section 205 Small Flood Protection Projects Program to continue the Coyote Creek at Rock Springs Feasibility Study.

Background.—Coyote Creek flows through the cities of Milpitas and San Jose. The Rock Springs neighborhood is upstream of the recently completed, Federally-supported flood protection works on Coyote Creek. The neighborhood suffered severe damages to approximately 25 apartment buildings in January 1997 when Coyote Creek flooded in the vicinity of the Rock Springs neighborhood. This event was estimated to be a 15-year event. The neighborhood was almost flooded again in February 1998, when Coyote Creek in the vicinity of the neighborhood was within a foot of overtopping its banks.

Status.—In February 1999, the Santa Clara Valley Water District (District) initiated discussions with U.S. Army Corps of Engineers (Corps) for a Section 205 study to reduce flood damage in Rock Springs neighborhood. A cost-sharing agreement for the Section 205 Small Projects Program $1.16 million three-year feasibility study was signed by the Corps and the District on January 4, 2000. Funding is a 50/50 cost share. Preliminary alternatives consist of a levee or floodwall.

Project Timeline

—District requested Federal assistance from Corps under Section 205—Feb 1999
—Feasibility cost sharing agreement signed—Jan 2000
—Public Workshop—Feb 2000
—Draft Feasibility Report/Environmental Impact Statement (EIS)—Nov 2001
—Final Detailed Project Report/EIS—Mar 2002

Fiscal Year 2001 Funding.—$203,000 was earmarked in the fiscal year 2001 Section 205 appropriation.

Fiscal Year 2002 Funding Recommendation.—Based upon the need to continue the feasibility study to provide critical flood protection for the Rock Springs Neighborhood, it is requested that the Congressional Committee support an earmark of $113,000 within the Section 205 Small Flood Protection Projects Program.

SAN FRANCISQUITO CREEK WATERSHED PROJECT

SUMMARY

This statement urges the Committee's support for an appropriation add-on of $100,000 to conduct a Reconnaissance Study of the San Francisquito Creek Watershed.

Background.—San Francisquito Creek forms the boundary between Santa Clara and San Mateo counties, California and separates the cities of Palo Alto from East Palo Alto and Menlo Park. San Francisquito Creek is one of the last continuous riparian corridors on the San Francisco Peninsula and home to one of the last remaining viable steelhead trout runs. The creek flows through five cities and two counties, from Searsville Lake above Stanford University to the San Francisco Bay near Palo Alto Airport. It is a highly valued resource by these communities. Area between El Camino Real and the bay is subject to flooding during a 1 percent flood and has a flooding frequency of approximately once in 15 years. Over $155 million in damages could occur in Santa Clara and San Mateo counties from a 1 percent flood, affecting 4,850 home and businesses, according to the 1998 Reconnaissance Investigation Report done by San Francisquito Creek Coordinated Resource Management and Planning Organization, a local stakeholder group.

Flooding History.—Overflowed seven times since 1910 with record flooding in February 1998. Flooded significant areas of Palo Alto in December 1955, inundating about 1,200 acres of commercial and residential property and about 70 acres of agricultural land. April 1958 storms caused a levee failure downstream of Highway 101, flooding Palo Alto Airport, the city landfill, and the golf course up to four feet deep. Overflowed in 1982 near Alpine Road, at University Avenue, and downstream of Highway 101, causing extensive damage to private and public property. Overflowed at numerous locations on February 3, 1998, causing severe, record consequences with more than $28 million in damages, based on a March 1999 U.S. Army Corps of Engineers (Corps) Survey Report. More than 1,100 homes were flooded in Palo Alto, 500 people were evacuated in East Palo Alto, and the major commute and transportation artery, Highway 101, was closed.

Status.—Active citizenry anxious to avoid a repeat of February 1998 flood. Since 1955, numerous floodplain management studies have been commissioned by the Corps, the Santa Clara Valley Water District (District), Stanford University, and the San Mateo County Flood Control District. Grassroots, consensus-based Coordinated Resource Management and Planning Organization has productively united local and state agencies with citizens, flood victims, developers, and environmental activists. The cities of Palo Alto, East Palo Alto, Menlo Park, San Mateo County and the District have established a Joint Powers Authority to coordinate creek maintenance issues, to develop a solution to flooding and to address other creek-related issues. The Joint Powers Authority Board has initiated Congressional involvement to authorize a Corps reconnaissance study. Should Federal interest be demonstrated by the reconnaissance study, the next step would be a cost-shared feasibility study. The feasibility study would require six to seven years work and cost $5–6 million. Study elements will include an investigation to define flooding, erosion and other stream needs within the project area; an analysis of alternative solutions; a public participation program followed by preparation of an Engineer's Report; and an Environmental Impact Report. Flood protection alternatives for the San Francisquito Creek project might include raising the levees downstream of Highway 101, storage of flows upstream, channel diversions such as detention basins or auxiliary channels, or instream improvements that increase the capacity of the channel through the urban area. The feasibility study would also include a "no project" alternative. The riparian habitat and urban setting offer unique opportunities for a multiobjective project which could enhance habitat, improve water quality, and provide for recreational use.

Fiscal Year 2001 Funding.—No Federal funding was requested in fiscal year 2001.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Congressional Committee support an appropriation add-on of $100,000 to conduct a Reconnaissance Study of the San Francisquito Creek Watershed.

PAJARO RIVER WATERSHED STUDY

SUMMARY

This statement urges the Committee's support for an Administration budget request of $50,000 for the Pajaro River Watershed Study. It is also urged that the Committee support an Administration budget request of $750,000 to continue the

General Reevaluation Report of the completed U.S. Army Corps of Engineers Pajaro River Project in the City of Watsonville.

Background.—Pajaro River flows into the Pacific Ocean at Monterey Bay, about 75 miles south of San Francisco. The drainage area encompasses 1,300 square miles in Santa Clara, San Benito, Monterey, and Santa Cruz counties. Potential flood damage reduction solutions will require cooperation between four counties and four water/flood management districts. There is critical habitat for endangered wildlife and fisheries throughout the basin. Six separate flood events have occurred on the Pajaro River in the past half century. Severe property damage in Monterey and Santa Cruz counties resulted from floods in 1995, 1997, and 1998. Recent flood events have resulted in litigation claims for damages approaching $50 million. $20 Million in U.S. Army Corps of Engineers (Corps) flood fight funds have been expended in recent years.

Status.—Two separate Corps activities are taking place in the watershed. The first activity is a Corps reconnaissance study authorized by a House Resolution in May 1996 to address the need for flood protection and water quality improvements, ecosystem restoration, and other related issues. The second activity is a General Revaluation Report initiated in response to claims by Santa Cruz and Monterey Counties that the 13 mile levee project constructed in 1949 through agricultural areas and the city of Watsonville is deficient. The reconnaissance study on the entire watershed has been initiated by the San Francisco District of the Corps and will be complete in May 2001. Watershed Stakeholders are working cooperatively to support the Corps' reconnaissance study, which will provide information to help reach an understanding and agreement about the background and facts of the watershed situation.

Local Flood Prevention Authority.—Legislation passed by the State of California (Assembly Bill 807) in 1999 titled "The Pajaro River Watershed Flood Prevention Authority Act" mandated that a Flood Prevention Authority be formed by June 30, 2000. The purpose of the Flood Prevention Authority is "to provide the leadership necessary to . . . ensure the human, economic, and environmental resources of the watershed are preserved, protected, and enhanced in terms of watershed management and flood protection." The Flood Prevention Authority was formed in July 2000 and consists of representatives from the Counties of Monterey, San Benito, Santa Clara, and Santa Cruz, Zone 7 Flood Control District, Monterey County Water Resources Agency, San Benito County Water District, and the Santa Clara Valley Water District. At this time, the Flood Prevention Authority is in the initial stages of formulation. The Flood Prevention Authority would be the logical local sponsor should the Corps reconnaissance study result in a recommendation for a cost-shared feasibility study.

Fiscal Year 2001 Funding.—$50,000 was authorized in fiscal year 2001 for the Pajaro Watershed Reconnaissance Study. In addition, $1.2 million was authorized for continuation of the General Revaluation Report.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Congressional Committee support the Administration's fiscal year 2002 budget of $50,000 for the Pajaro River Watershed Study. It is also requested that the committee support $750,000 for continuation of the General Revaluation Report.

COYOTE CREEK WATERSHED STUDY

SUMMARY

This statement urges the Committee's support for an appropriation add-on of $100,000 to initiate a Reconnaissance Study of the Coyote Creek Watershed.

Background.—Coyote Creek drains Santa Clara County's largest watershed, an area of more than 320 square miles encompassing most of the eastern foothills, the City of Milpitas, and portions of the Cities of San Jose and Morgan Hill. It flows northward from Anderson Reservoir through more than 40 miles of rural and heavily urbanized areas and empties into south San Francisco Bay.

Prior to construction of Coyote and Anderson Reservoirs, flooding occurred in 1903, 1906, 1909, 1911, 1917, 1922, 1923, 1926, 1927, 1930 and 1931. Since 1950, the operation of the reservoirs has reduced the magnitude of flooding, although flooding is still a threat and did cause damages in 1982, 1983, 1986, 1995, and 1997. Significant areas of older homes in downtown San Jose and some major transportation corridors remain susceptible to extensive flooding. The Federally supported lower Coyote Creek Project (San Francisco Bay to Montague Expressway) which was completed in 1996 did protect homes and businesses from storms which generated of record runoff in the northern parts of San Jose and Milpitas.

The proposed Reconnaissance Study would evaluate the reaches upstream of the completed Federal flood protection works on lower Coyote Creek.

Objective of Study.—The objectives of the Reconnaissance Study are to investigate flood damages within the Coyote Creek Watershed; to identify potential alternatives for alleviating those damages which also minimize impacts on fishery and wildlife resources, provide opportunities for ecosystem restoration, provide for recreational opportunities; and to determine whether there is a Federal interest to proceed into the Feasibility Study Phase.

Study Authorization.—The existing study authority is the 1941 Guadalupe River and Adjacent Streams authorization. This authorization is limited in scope to flood protection issues only. Congressional representatives are currently pursuing an updated study resolution to authorize a multipurpose study of the watershed.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Congressional Committee support an appropriation add-on of $100,000 to initiate a multipurpose Reconnaissance Study within the Coyote Creek Watershed.

SANTA CLARA BASIN WATERSHED MANAGEMENT INITIATIVE

SUMMARY

This statement urges the Committee to support an earmark of $240,000 within the Section 206 Aquatic Ecosystem Restoration Program to cost-share Santa Clara Basin Watershed Management Initiative work.

Background.—The Santa Clara Basin Watershed Management Initiative (Initiative) was spearheaded in 1996 by the U.S. Environmental Protection Agency, the State Water Resources Control Board, and the San Francisco Bay Regional Water Quality Control Board for the purpose of establishing a practical management process to oversee the effort to balance natural systems with urban development in the Santa Clara Basin. Recognizing the importance of quality of life and diversity, the Initiative's goal is to establish an on-going process of managing activities and natural processes to maximize benefits and minimize adverse environmental impacts for the benefit of the community as a whole. The Santa Clara Basin watershed includes areas in northern Santa Clara County which drain into San Francisco Bay, and portions of Alameda and San Mateo counties.

The Initiative addresses the integration of activities within the watershed while focusing on water quality protection. Some of the specific issues being addressed include land use and development, water supply, flood management, environmental restoration, and the regulatory process.

The Santa Clara Valley Water District (District) is one of many stakeholders who continue to demonstrate commitment to this multi-year effort by providing funds and actively participating with the Initiative Core and Working Groups. Providing direction, the Core Group includes representatives of the business community, local government, environmental groups, agriculture, resource and regulatory agencies, and other interested stakeholders.

The multi-year planning phase began in 1998 and will result in the development of four major reports focused on the effective management of resources to improve and protect water quality and the aquatic habitat of the Santa Clara Basin. The first of the four reports was the Watershed Characteristics Report, which provided a description of the physical and political characteristics of the Santa Clara Basin. This report will be followed by the Watershed Assessment Report, a preliminary assessment of the watershed's condition based on available data. The Watershed Characteristics Report was completed in April 2000. The Watershed Assessment Report is scheduled to be completed in December 2001. In the mean time, several important technical memos were generated through the stakeholder work process, which allowed the Initiative to move forward with the planning and development of the Watershed Action Plan, which is scheduled to be completed in December 2002. The Watershed Action Plan is the final product of this consensus-based stakeholder process. This will be a comprehensive plan, incorporating stakeholder input and extensive public outreach, and is intended to guide watershed activities as the Initiative moves into its implementation phase.

Section 503(d)(9) of the Water Resources Development Act of 1996, authorizes the U.S. Army Corps of Engineers (Corps) to provide technical and planning assistance in the development of a watershed plan for the Santa Clara Valley. The Initiative has progressed to the point where the Corps' participation is now necessary for continuing the watershed assessment and addressing pressing regulatory issues. Due to inadequate funding of the Section 503 program in recent years, the District requested the Corps to be included in the Section 206 Aquatic Ecosystem Restoration Program in fiscal year 2001 and received an appropriation.

Fiscal Year 2001 Funding.—$100,000 was authorized in fiscal year 2001 to initiate an ecosystem restoration report to address aquatic restoration including control of non-native weeds in the Santa Clara Basin.

Fiscal Year 2002 Funding Recommendation.—In order to continue the Initiative's progress to date, it is requested that the Congressional Committee support an earmark of $240,000 in the Section 206 Aquatic Ecosystem Restoration Program to cost-share Initiative work and the development and implementation of the Watershed Action Plan.

SAN FRANCISCO BAY SHORELINE PROJECT (SILICON VALLEY TIDAL FLOODING PROTECTION)

SUMMARY

This statement urges the Committee's support for an appropriation add-on of $100,000 to conduct a Reconnaissance Investigation to reassess the Federal interest in the protection of the San Francisco Bay Shoreline due to a change in circumstances that may affect the Federal interest.

Background.—After much effort from local agencies and legislators, Congress authorized a tidal flooding study for the Silicon Valley Tidal Flooding Project in its passage of Public Law 94–587, the Water Resources Development Act of 1976. The Santa Clara Valley Water District is one of the project sponsors.

Santa Clara County was originally included in the first phase of the study, which proposed that facilities in Santa Clara County protect portions of the cities of Palo Alto, Sunnyvale, and San Jose. In 1990, the U.S. Army Corps of Engineers (Corps) concluded that the potential incidence of levee failure in the project area was low and suspended the project until adequate economic benefits can be proven under Federal criteria. However, the Santa Clara Valley Water District is concerned that the continued maintenance of historical non-Federal levees may not be able to continue at the same level due to restricted funding and regulatory issues. Additionally, the potential of tidal flooding in Santa Clara County has been aggravated by a significant land subsidence of as much as 6 feet near Alviso. And when high tides coincide with wind generated waves, levee overtopping occurs.

Project Synopsis.—In 1984, the Corps' study identified $15 million to $20 million needed in flood control construction in three areas: Palo Alto, Sunnyvale, and Alviso. The Corps determined the most likely mode of tidal flooding was overtopping, not erosion or levee failure. The Corps attributed significantly fewer potential benefits in making levee improvements because existing non-Federal and non-engineered levees have historically withstood overtopping without stability or erosion failures. The Santa Clara Valley Water District's belief is that the low incidence of levee failure is due to luck and diligent private and public maintenance programs—programs that may not continue under the present regulatory environment and restricted funding. The trend toward tougher regulatory controls restricts levee maintenance, potentially making it economically unfeasible to continue historic levels of maintenance activities. In addition, the potential sale of over 13,000 acres of shoreline salt producing ponds may result in a change in maintenance practices. Lower maintenance levels will leave these levees and surrounding communities vulnerable to significant damages.

The project was temporarily suspended by the Corps until evidence of adequate economic benefits under Federal criteria is provided. Corps staff in Washington D.C. have attempted unsuccessfully to resolve the differences in their standards for freeboard and stability of levees with the Federal Emergency Management Agency. Similar levee failures and floods in California's Central Valley in the winter of 1997 heightened concern regarding the integrity and protection provided by Bay Area levees. Agreeing with the increased concern, the Corps recognized the potential Federal interest and requested reconnaissance funding to reopen the study in fiscal year 1998 and fiscal year 1999. No funds were included in the final congressional authorization.

Fiscal Year 2001 Funding.—No Federal appropriation was authorized in fiscal year 2001 for the San Francisco Bay Shoreline Project.

Fiscal Year 2002 Funding Request.—It is requested that the Congressional Committee support an appropriation add-on of $100,000 for the San Francisco Bay Shoreline Study to conduct a Reconnaissance Investigation.

CALFED BAY-DELTA PROGRAM

SUMMARY

This statement urges the Committee's support for an Administration budget request of $20 million and an appropriation add-on of $40 million, for a total of $60 million for the CALFED Bay-Delta Program. It also urges the Committee's support for the CALFED authorization legislation now being developed in Congress to implement the CALFED program and to resolve California's water supply problems.

Background.—In an average year, half of Santa Clara County's water supply is imported from the San Francisco Bay/Sacramento-San Joaquin Delta estuary (Bay-Delta) watersheds through three water projects: The State Water Project, the Federal Central Valley Project, and San Francisco's Hetch Hetchy Project. In conjunction with locally-developed water, this water supply supports 1.7 million residents in Santa Clara County and the most important high-tech center in the world. In average to wet years, there is enough water to meet the county's long-term needs. In dry years, however, the county could face a water supply shortage of as much as 100,000 acre-feet per year, or roughly 20 percent of the expected demand. In addition to shortages due to hydrologic variations, the county's imported supplies have been reduced due to regulatory restrictions placed on the operation of the state and Federal water projects.

There are also water quality problems associated with using Bay-Delta water as a drinking water supply. Organic materials and pollutants discharged into the Delta, together with salt water mixing in from San Francisco Bay, have the potential to create disinfection-by-products that are carcinogenic and pose reproductive health concerns.

Santa Clara County's imported supplies are also vulnerable to extended outages due to catastrophic failures such as major earthquakes and flooding. As demonstrated by the 1997 flooding in Central Valley, the levee systems can fail and the water quality at the water project intakes in the Delta can be degraded to such an extent that the projects cannot pump from the Delta.

Project Synopsis.—The CALFED Bay-Delta Program is an unprecedented, cooperative effort among Federal, state, and local agencies to restore the Bay-Delta. With input from urban, agricultural, environmental, fishing, and business interests, and the general public, CALFED is developing a comprehensive, long-term plan to address ecosystem and water management issues in the Bay-Delta.

Restoring the Bay-Delta ecosystem is important not only because of its significance as an environmental resource, but also because failing to do so will stall efforts to improve water supply reliability and water quality for millions of Californians and the state's $700 billion economy and job base.

The June 2000 Framework for Action and the August 2000 Record of Decision/Certification contain a balanced package of actions to restore ecosystem health, improve water supply reliability and water quality. It is critical that Federal funding be provided to implement these actions in the coming years.

Fiscal Year 2001 Funding.—No funding was authorized for CALFED Bay-Delta ecosystem restoration and non-ecosystem improvements in the final fiscal year 2001 appropriations legislation.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Committee support an appropriation add-on of $40 million, in addition to the $20 million included in the Administration's fiscal year 2002 Budget, for a total of $60 million for the CALFED Program. It is also requested that the Committee support the CALFED authorization legislation now being developed in Congress to implement the CALFED program and to resolve California's water supply problems.

CENTRAL VALLEY PROJECT: OPERATIONS AND MAINTENANCE OF SAN LUIS UNIT JOINT USE FACILITIES

SUMMARY

This statement urges the Committee's support for an Administration budget request of $5.5 million to continue operations and maintenance of the San Luis Unit Joint Use Facilities.

Background.—The San Luis Unit of the Central Valley Project is located by the city of Los Banos on the west side of the San Joaquin Valley. This unit originates from San Luis Reservoir and extends 102 miles south, spanning Fresno, Kings, and Merced counties. The San Luis Unit is an integral part of the Central Valley Project, delivering water and power supplies from the American, Shasta and Trinity rivers to users located in the service area.

Specific facilities of the San Luis Unit are owned, operated, and maintained jointly with the state of California. These Joint Use Facilities consist of O'Neill Dam and Forebay, San Luis Dam and Reservoir, San Luis Pumping-Generating Plant, Dos Amigos Pumping Plant, Los Banos and Little Panoche reservoirs, and the San Luis Canal. These facilities are essential to the State Water Project's ability to serve numerous agricultural, municipal, and industrial water users in the San Joaquin Valley and Southern California. Funding for the Joint Use Facilities are divided to 55 percent state and 45 percent Federal, under provisions of Federal-State Contract No. 14–06–200–9755, December 31, 1961.

Within the Central Valley Project, the Joint Use Facilities of the San Luis Unit are an important link to the San Felipe Division, which serves as the largest source of water imported into the Santa Clara Valley Water District (District) and the San Benito County Water District. All of the Central Valley Project water delivered through the San Felipe Division must be pumped through O'Neill Dam and Forebay and San Luis Dam and Reservoir.

Project Synopsis.—Annual invoices from the state of California for the Federal share of operation and maintenance costs average approximately $10 million. For several years, Federal funding was inadequate to cover the pro-rated Federal share of Joint Use Facility costs. The District intervened by using the contributed Funds Act to direct a $20 million advance payment of its Central Valley Project capital costs toward an operations and maintenance payment.

As a contractor of both the Central Valley Project and the State Water Project, the District hopes to expediently resolve the issue of unreimbursed operations and maintenance expenses. These expenses are carried by the state without interest, seriously impairing the cash flow and financial management of the State Water Project.

In fiscal year 1998, an agreement was reached between the U.S. Bureau of Reclamation and project contractors to provide direct funding for project conveyance and pumping facilities, reducing annual appropriations from approximately $10 million to $3.5 million.

Fiscal Year 2001 Funding.—$4.551 million was authorized in fiscal year 2001 for operations and maintenance of the San Luis Joint Use Facilities.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Congressional Committee support the $5.5 million in the Administration's fiscal year 2002 budget to continue operations and maintenance of the San Luis Unit Joint Use Facilities.

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM (SOUTH BAY WATER RECYCLING PROGRAM)

SUMMARY

This statement urges the Committee's support for an Administration budget request of $2.5 million and an appropriation add-on of $7.5 million, for a total of $10 million to fund the program's phase 2 study and work.

Background. The San Jose Area Water Reclamation and Reuse Program, also known as the South Bay Water Recycling Program, will allow the City of San Jose and its tributary agencies of the San Jose/Santa Clara Water Pollution Control Plant to protect endangered species habitat, meet receiving water quality standards, supplement Santa Clara County water supplies, and comply with a mandate from the U.S. Environmental Protection Agency and the California Water Resources Control Board to reduce wastewater discharges into San Francisco Bay.

The Santa Clara Valley Water District (District) collaborated with the City of San Jose to build the first phase of the recycled water system by providing financial support and technical assistance, as well as coordination with local water retailers. The design, construction, construction administration, and inspection of the program's transmission pipeline and Milpitas IA Pipeline was performed by the District under contract to the City of San Jose.

Status.—The City of San Jose is the program sponsor for Phase 1, consisting of almost 60 miles of transmission and distribution pipelines, pump stations, and reservoirs. Completed at a cost of $140 million, Phase 1 began partial operation in October 1997. Peak operation occurred in August 2000 with actual deliveries of 10 million gallons per day of recycled water. The system now serves over 300 customers and delivers over 6,000 acre-feet of recycled water per year.

Phase 2 planning is now underway. A study, to be completed in 2001 at a cost of approximately $3.5 million, will provide a master plan for the years 2010 and 2020. Phase 2's near-term objective is to increase deliveries by the year 2010 to 15,000 acre-feet per year.

Funding.—In 1992, Public Law 102–575 authorized the Bureau of Reclamation to work with the City of San Jose and the District to plan, design, and build demonstration and permanent facilities for reclaiming and reusing water in the San Jose metropolitan service area. The City of San Jose reached an agreement with the Bureau of Reclamation to cover 25 percent of Phase 1's costs, or approximately $35 million; however, Federal appropriations have not reached the authorized amount. To date, the program has received $19 million of the $35 million authorization.

Fiscal Year 2001 Funding.—$3.5 million was authorized in fiscal year 2001 for project construction.

Fiscal Year 2002 Funding Recommendation.—It is requested that the Congressional Committee support an appropriation add-on of $7.5 million, in addition to the $2.5 million in the Administration's fiscal year 2002 budget, for a total of $10 million to fund the Phase 2 study and work.

PREPARED STATEMENT OF THE STATE OF ILLINOIS

The State of Illinois supports the following projects in the Administration's fiscal year 2002 budget proposal:

SURVEYS:	
Alexander and Pulaski Counties	$130,000
Des Plaines River (Phase II)	400,000
Illinois River Ecosystem Restoration	825,000
Kankakee River	177,000
Peoria Riverfront Development	311,000
Rock River	300,000
Upper Mississippi & Illinois Navigation Study	3,724,000
Upper Mississippi System Flow Frequency Study	1,200,000
PRECONSTRUCTION ENGINEERING & DESIGN:	
Peoria Riverfront Development	415,000
St. Louis Harbor	284,000
Waukegan Harbor	160,000
Wood River Levee	341,000
CONSTRUCTION:	
Chain of Rocks Canal	3,617,000
Chicago Shoreline	24,000,000
East St. Louis Rehabilitation	1,000,000
Loves Park	1,600,000
McCook & Thornton Reservoirs	10,000,000
Melvin Price Lock & Dam	500,000
Mississippi River Major Rehab:	
Lock & Dam 12	4,906,000
Lock & Dam 24	8,038,000
Olmsted Lock & Dam	34,000,000
Upper Mississippi River EMP	21,000,000

OPERATION AND MAINTENANCE

Illinois supports the Corps' budget for continued satisfactory maintenance and operation of navigation, flood control and multipurpose projects, as well as adequate manpower for public service activities related to the water resources in and bordering the state. Although, the administration's budget request contains nearly $120 million for operation and maintenance for the Corps Districts in Illinois, the Districts anticipate a flat level of funding over the next five years. With inflation, their operations and maintenance activities will be reduced by 15 percent or more. There are concerns that significant cuts to operations and maintenance can severely impact the Corps' future viability and commitment to maintain the inland waterway system, water supply and recreational reservoirs, and to perform harbor maintenance. As an example, there is a need for an additional $4.0 million to satisfy dredging needs and the backlog of maintenance for the Illinois River Waterway. Backlog of maintenance items for the Mississippi River in Rock Island and St. Louis Corps Districts is an additional $17.0 million.

ADDITIONAL FUNDING PRIORITIES

The State of Illinois recommends that additional funding be provided for the following projects in the fiscal year 2002 Corps of Engineers' budget:

Illinois River Basin Restoration

Section 519 of Water Resources Development Act of 2000 authorized the Illinois River Basin Restoration Program, known as Illinois River 2020, to address the serious threats to the Illinois River and its 55 county watershed. Authorized funding for this program totals $100 million. It is a voluntary, incentive-based public-private partnership that utilizes existing Federal programs to restore and preserve the Illinois River and its tributaries. Currently, no funding is included in the fiscal year 2002 budget for this program. To initiate the program in fiscal year 2002, Illinois requests $21,250,000 in the Corps of Engineers' budget as the first part of a 3-year appropriation totaling $100 million.

Chicagoland Underflow Plan

McCook and Thornton Reservoirs—The 1988 Water Resources Development Act authorized the construction of McCook and Thornton reservoirs as components of the Chicagoland Underflow Plan for flood control. The completion of these projects, with their related improvements to water quality, will have a significant impact on reducing the amount of Lake Michigan diversion water required for dilution purposes. The reduction in dilution water will improve Illinois' ability to meet the limits of Lake Michigan diversions and provide for future water supply needs. While $10.0 million is in this year's budget request, we are requesting an additional $22 million in the fiscal year 2002 budget to continue this work at its optimum level of funding.

The Chicago River Lock Rehabilitation

The Chicago River Lock Rehabilitation is an important project for the State of Illinois. It will reduce leakage of Lake Michigan water into the Chicago Sanitary and Ship Canal and thus will reduce Illinois' Lake Michigan diversion. Reducing leakage at the Chicago River Lock is specifically mentioned in the list of activities in the 1996 Memorandum of Understanding that Illinois, the other Great Lakes states and the U.S. Department of Justice signed to resolve the dispute over Illinois' alleged over diversion of Lake Michigan water. As part of the move to lakefront diversion accounting, improved control of Lake Michigan water used at the Chicago River Lock is essential. This project is also needed to ensure the safe operation of the lock itself. This lock is the second busiest lock in the country, and while almost all of the traffic is recreational, its value and importance to Chicago and the state is enormous. Currently, no funding is included in the fiscal year 2002 budget for this purpose. To initiate the rehabilitation of the lock in fiscal year 2002, Illinois requests $4.0 million, which would primarily be used to fund the fabrication of two new gates for the west end of the lock.

Chicago Shoreline

Currently, the fiscal year 2002 budget contains $24 million for this project. There is a need for an additional $2,000,000 of construction general funds to allow the Corps to advance this crucial erosion control project into Lake Michigan Shoreline Reach 5.

Chicago Sanitary & Ship Canal Dispersal Barrier

Section 1202 of the National Invasive Species Act of 1996 authorized the Corps to study, design and construct a barrier in the Chicago Sanitary and Ship Canal to prevent the exchange of nuisance species between the Great Lakes and the Mississippi/Illinois River systems. The Corps is authorized to expend up to $750,000/year to conduct the study. The fiscal year 2001 appropriation of $400,000 provided construction general funds to advance and complete the construction of the project. For fiscal year 2002, Illinois requests that $150,000 be appropriated for monitoring the Invasive Species Barrier. Currently, no funding is included in the fiscal year 2002 budget for this purpose.

Des Plaines River—Phase One

Section 101(b–10) of the Water Resources Development Act of 1999 authorized Phase I of the Upper Des Plaines River Flood Control Project at a total cost of $49 million for the implementation of the six recommended projects. The Federal share is approximately $31.8 million (65 percent) and the estimated non-Federal cost is $17.1 million. The fiscal year 2001 appropriation bill provided $400,000 to start preconstruction engineering and design for Phase I of the project. Illinois requests $4.4 million for a Phase I construction start in fiscal year 2002. Currently, the fiscal year 2002 budget contains no funding for this purpose.

Des Plaines River Feasibility Study—Phase Two

Inasmuch as Phase I of the Upper Des Plaines River Flood Control Project will only reduce flood damages by approximately 25 percent, an expansion of the Phase I Upper Des Plaines River study was authorized in Section 419 of the Water Resources Development Act of 1999. The projected $18,000,000 average annual damages, which will remain in the tributary floodplains of the Des Plaines River after the completion of Phase I project construction, is the basis for the expanded study of Phase II. State funds have already been appropriated for cost sharing in the Phase II study effort. Federal funding is needed to continue cost sharing (50/50) with non-Federal entities in studying additional alternatives to reduce expected damages from future floods. The Federal fiscal year 2001 appropriation bill provided $750,000 to start the Phase II study effort. Currently, the fiscal year 2002 budget contains $400,000 to continue the Phase II study effort. Illinois requests an addi-

tional $450,000 of general investigation funds for the continuation of Phase II of the Upper Des Plaines River feasibility study.

Chain of Rocks Canal Levee

The levee lying along the east bank of the Chain of Rocks Canal has documented design deficiencies, which must be corrected in order to adequately protect the thousands of residents living behind it. Currently, the fiscal year 2002 budget includes $3,617,000 for this purpose. We are requesting additional funding of $500,000 of construction general funds to advance the construction of the remedial work.

Carlyle Lake Conveyance Analysis

The State of Illinois is concerned about the surface drainage flow levels, channel depths, sedimentation trends and their effects on the Kaskaskia River from Vandalia, Illinois to Carlyle Lake and the surrounding vicinity. Therefore, for fiscal year 2002, we are requesting that $475,000 be provided in the Corps of Engineers general investigation funding to initiate the conveyance analyses. Currently, the fiscal year 2002 budget contains no funding for this purpose.

East ST. Louis & Vicinity (Ecosystem Restoration & Flood Damage Protection)

In fiscal year 2001, the Corps of Engineers, St. Louis District, will complete a reevaluation study of the project for flood protection at East St. Louis and Vicinity, Illinois (East Side Levee and Sanitary District), authorized by Section 204 of the Flood Control Act of 27 October 1965 (Public Law 89–298) The project is focusing on the continued problem of flooding within the American Bottoms area. The Water Resources Development Act of 2000 modified Section 204 of the Flood Control Act of 1965, to make ecosystem restoration a project purpose. Accordingly, ecosystem restoration will be included with the flood control project. Illinois requests an appropriation of $700,000 for the Corps of Engineers to initiate the Pre-Engineering and Design of the East St. Louis and Vicinity Project. Currently, the fiscal year 2002 budget contains no funding for this purpose.

Melvin Price Lock and Dam

Illinois also urges that the Corps support the continuation of the recreational features of the Melvin Price Lock and Dam with an additional $600,000 appropriation in fiscal year 2002. The additional funding is needed to initiate the contract award for the recreational facilities and to continue with the visitor center exhibits. Currently, the fiscal year 2002 budget contains only $500,000 for this purpose.

Sections 204, 206, & 1135 Enhancement Projects

Section 204 and 1135 programs offer a wide range of opportunities to address fish and wildlife habitat needs which exist due to past Corps projects and ongoing ecosystem and dredging activities. The Section 206 program provides a proactive tool for Federal participation in aquatic ecosystem restoration initiatives where the need for the aquatic restoration activity does not have to directly relate to a prior Corps sponsored project. The State of Illinois strongly urges full funding of these continuing authorities.

Upper Mississippi River Environmental Management Plan

Section 509 of the Water Resources Development Act of 1999 re-authorized the Upper Mississippi River System Environmental Management Program (EMP) in response to the need for restoring habitat and improving the scientific understanding of the river system. While $21.0 million is in this year's budget request, we believe this program should be pursued at the re-authorized level of $33.17 million as described in Section 509 of the Water Resources Development Act of 1999.

Upper Mississippi and Illinois Rivers Levees and Streambanks Protection Study

Section 458 of the Water Resources Development Act of 1999 authorized the Upper Mississippi and Illinois Rivers levees and streambanks protection study in response to erosion damages to levees and other flood control structures on these rivers. We request $250,000 for the initiation of the Upper Mississippi and Illinois Rivers levees and streambanks protection study in fiscal year 2002. The funding will expedite impact studies of navigation traffic on deterioration of the levees and other flood control structures. Currently, the fiscal year 2002 budget contains no funding for this purpose.

Illinois River Dredged Disposal Sites

Section 102 (g) of the Water Resources Development Act of 1992 directed the Secretary to acquire dredged material disposal areas for the inland navigation project on the Illinois River, at a total Federal cost not to exceed $7,000,000. For fiscal year

2002, we request $1,100,000 of construction general funds to continue acquisition and/or construction of these sites.

Upper Mississippi River Comprehensive Plan

Section 459 of the Water Resources Development Act of 1999 authorized the Upper Mississippi River Comprehensive Plan for the Corps to develop a three-year study to address water resource and related land resource problems and opportunities in the Upper Mississippi and Illinois River Basins. We request $2,000,000 for the initiation of the Upper Mississippi Comprehensive Plan. Currently, the fiscal year 2002 budget contains no funding for this purpose.

East Cape Girardeau & Clear Creek Drainage & Levee District

The Flood Control Act of June 1936 authorized the raising and enlargement of 10.9 miles of levee, construction of gravity drains, closure structures, and seepage control measures in the East Cape Girardeau and Clear Creek Drainage & Levee District. The project was completed except for seepage control measures. Recently, the Clear Creek Drainage and Levee District along with the Preston and Miller Pond Drainage and Levee Districts have requested the St. Louis District Corps to reevaluate the modifications for the interior flooding problem and recommend rehabilitation for the deteriorating hardware of the existing levee. A House Resolution that was adopted in May of 1997 is the authorization vehicle for the Office of the Chief of Engineers to restart the project. However, funds have to be made available for the Corps to initiate the process. Illinois requests an appropriation of $100,000 for the Corps of Engineers to restart the East Cape Girardeau and Clear Creek Flood Control Project. Currently, the fiscal year 2002 budget contains no funding for this purpose.

PREPARED STATEMENT OF THE CALIFORNIA RECLAMATION BOARD

The Reclamation Board is the State agency that furnishes required nonfederal assurances for a majority of the Federal flood control projects in California's Central Valley. The Reclamation Board has been cooperating with the US Army Corps of Engineers in providing flood damage reduction projects since 1917.

The Reclamation Board in general supports the President's fiscal year 2002 budget for the Corps of Engineers for their flood control activities in the Central Valley. The Board recommends modification to the Corps budget as shown below:

		Estimated project costs	Actual cost thru 9/30/00	Allocation for fiscal year 2001	President's budget fiscal year 2002	Board recommends fiscal year 2002
Bay-Delta Ecosystem Restoration (CALFED—Staffing and Regulatory)	Corps					$1,350,000
GENERAL INVESTIGATION—SURVEYS						
Lower Sacramento River Riparian Revegetation (Solano, Yolo)	Corps	$1,970,000	$842,000	$180,000	$100,000	$200,000
	NonFed	1,350,000				
	Total	3,320,000				
Dry Creek (Middletown)	Corps	400,000	122,000	25,000	150,000	253,000
	NonFed	300,000				
	Total	700,000				
Middle Creek	Corps	1,971,000	904,000	381,500	0	350,000
	NonFed	1,285,500				
	Total	3,256,500				
San Joaquin River Basin Corral Hollow Creek	Corps	1,100,000	63,000	49,000	0	140,000
	NonFed	1,000,000				
	Total	2,100,000				
San Joaquin River Basin Tuolumne River and Tributaries	Corps	1,600,000	100,000	25,000	200,000	250,000
	NonFed	1,500,000				
	Total	3,100,000				
San Joaquin River Basin West Stanislaus County	Corps	847,000	480,000	207,000	160,000	250,000
	NonFed	750,000				
	Total	1,597,000				
San Joaquin River Basin, Frazier Creek	Corps	1,600,000	50,000	50,000	25,000	100,000
	NonFed	1,500,000				

		Estimated project costs	Actual cost thru 9/30/00	Allocation for fiscal year 2001	President's budget fiscal year 2002	Board recommends fiscal year 2002
	Total	3,100,000				
PRECONSTRUCTION ENGINEERING AND DESIGN						
San Joaquin River Basin Stockton Metropolitan Area	Corps	700,000	0	0	100,000	130,000
	NonFed	233,000				
	Total	933,000				
Stockton Metropolitan Area (Farmington Dam)	Corps	750,000	0	0	200,000	300,000
	NonFed	250,000				
	Total	1,000,000				
San Joaquin River Basin West Stanislaus County	Corps	750,000	0	0	0	50,000
	NonFed	250,000				
	Total	1,000,000				
Middle Creek	Corps	750,000	0	0	300,000	400,000
	NonFed	250,000				
	Total	1,000,000				
American River Watershed	Corps	28,600,000	19,186,000	2,464,000	2,000,000	3,000,000
	NonFed	0				
	Total	28,600,000				
Strong & Chicken Ranch Sloughs (Sacramento)	Corps	250,000	0	0	0	125,000
	NonFed	750,000				
	Total	1,000,000				
CONSTRUCTION—GENERAL						
Sacramento River Bank Protection	Corps	179,900,000	110,411,000	4,200,000	2,326,000	5,000,000

	NonFed	69,500,000				
	Total	249,400,000				
American River Watershed (Levee Improvements on American and Sacramento Rivers)	Corps	87,000,000	27,888,000	10,400,000	13,000,000	15,000,000
	NonFed	28,600,000				
	Total	115,600,000				
American River Watershed (Natomas) (Reimbursement)	Corps	26,089,000	16,860,000	0	0	5,000,000
	NonFed	12,591,000				
	Total	38,680,000				
American River Watershed (Folsom Dam Modifications)	Corps	97,500,000	2,400,000	3,360,000	4,500,000	8,000,000
	NonFed	52,500,000				
	Total	150,000,000				
South Sacramento County Streams (New Construction Start)	Corps	41,200,000	0	0	0	10,000,000
	NonFed	24,300,000				
	Total	65,500,000				
San Joaquin River Basin—Stockton Metropolitan Area (Section 211 Reimbursement)	Corps	35,700,000	0	3,360,000	1,000,000	10,000,000
	NonFed	12,000,000				
	Total	47,700,000				
Kaweah River (Tulare)	Corps	23,500,000	4,146,000	2,520,000	3,000,000	9,000,000
	NonFed	16,986,000				
	Total	40,486,000				
CONTINUING AUTHORITY PROGRAMS						
Flood Control Act of 1948, Section 205, Flood Damage Prevention					30,000,000	50,000,000
Water Resources Dev. Act, 1996, Section 206, Aquatic Ecosystem Restoration					15,000,000	([1])
Program Water Resources Dev. Act, 1986, Section 1135, Project Modification for Improvement of the Environment Program.					21,000,000	50,000,000

	Estimated project costs	Actual cost thru 9/30/00	Allocation for fiscal year 2001	President's budget fiscal year 2002	Board recommends fiscal year 2002
OPERATIONS AND MAINTENANCE					
Inspection of Completed Works Chico Landing to Red Bluff					100,000
NEW PROJECTS					
Hamilton City Levee Modification and Ecosystem Restoration (Comprehensive Study) (PED)					300,000
West Bear Creek Floodplain Storage Project (Comprehensive Study) (PED)					300,000
San Joaquin River South Delta Flood Conveyance Improvement and Habitat Restoration Program (Comprehensive Study) (FEAS)					400,000
Yolo Bypass Flood Conveyance and Habitat Restoration Program (Comprehensive Study) (FEAS)					500,000
San Joaquin River Public Lands Floodplain Storage and Ecosystem Restoration (Comprehensive Study) (FEAS)					300,000
Upper San Joaquin River Flood Conveyance Improvement and Habitat Restoration Program Comprehensive Study) (FEAS)					300,000
Woodson Bridge Ecosystem Restoration (Comprehensive Study Section 1135)					2,000,000
Beneficial Reuse of Dredged Materials Project (Section 204)					3,900,000
Delta Levee Rehabilitation and Ecosystem Restoration Project (Section 1135)					4,875,000
Pacific Flyway Center—Yolo Bypass (Section 1135)					180,000

[1] Support Program.

PREPARED STATEMENT OF THE COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

Thank you for the opportunity to submit testimony on behalf of the members of this Commission regarding the fiscal year 2002 budget of the Army Corps of Engineers (Corps) and the Bureau of Reclamation. For the Columbia River Fish Mitigation Project (CRFMP), a series of separate construction activities at the Federal Columbia River Power System (FCRPS), the tribes recommend a funding level of $91 million for fiscal year 2002. In addition to CRFMP funding, $1.2 million should be provided so that the Corps can continue the Walla Walla River Feasibility Study, in Washington and Oregon. You should examine the relationship between the capital construction budget and the Corps' operations and maintenance budget. Shortfalls in the operations and maintenance budget are jeopardizing the ability to maintain dam fish passage facilities. The Corps should have the flexibility to transfer, with regional approval, capital construction funds to the O & M category. Further, the capital construction budget should be modified to include all Corps dams on the Columbia and Snake River that impact anadromous fish passage. Currently the budget is limited to run-of-river dams. We also ask that you give the Corps' sufficient authorization to undertake necessary construction and/or reconstruction of salmon production facilities, such as the Mitchell Act facilities, in the Columbia River basin so as to ensure in-place/in-kind mitigation for salmon losses caused by the hydroelectric power system. The Corps should be prohibited from using limited capital construction funds, sorely needed for dam passage improvements, for estuary research. Instead, under WRDA, provide the Lower Columbia River Estuary Program and the Tillamook Estuary Program with $7,377,405 for the coming fiscal year for estuary programs. Finally, the Corps should undertake a system-wide review of Columbia Basin flood control as required under the Biological Opinion issued by the National Marine Fisheries Service. The Bureau of Reclamation should be provided with $5 million to undertake a fast-track feasibility study and to initiate construction of fish passage facilities during reconstruction of the irrigation dam on Keecheelus Reservoir in the Yakima River basin in Washington. In addition, provide sufficient funding to the Bureau of Reclamation to undertake work to provide fish passage at Wallowa Lake Dam, as well as fish production facilities to mitigate for the loss of past natural production caused by the construction of the dam.

Mission Statement.—The Columbia River Inter-Tribal Fish Commission (CRITFC) was formed by resolution of the Nez Perce, Umatilla, Warm Springs and Yakama Tribes for the purpose of coordinating fishery management policy and providing technical expertise essential for the protection of the tribes' treaty-protected fish resources. The CRITFC's primary mission is to provide coordination and technical assistance to the member tribes to ensure that outstanding treaty fishing rights issues are resolved in a way that guarantees the continuation and restoration of our tribal fisheries into perpetuity. The tribes' Wy-Kan-Ish-Mi Wa-Kish-Wit (Spirit of the Salmon), is a framework plan for Columbia Basin salmon restoration that documents threats to fisheries, identifies hypotheses based upon adaptive management principles for addressing these threats, and provides specific recommendations and practices that must be adopted by natural resource managers to meet their treaty obligations and restore the resource. The tribes' plan calls for significantly increasing the survival of salmon during their juvenile and adult migrations through the FCRPS.

Walla Walla River Feasibility Study, in Washington and Oregon.—The tribes believe that $1.2 million should be provided so that the Corps of Engineers can continue the Walla Walla River Feasibility Study, in Washington and Oregon. The Corps is authorized under the Water Resources Development Act to conduct a Feasibility Study to restore instream flows to the Walla Walla River. The Walla Walla River supported significant runs of spring chinook salmon and summer steelhead, as well as runs of fall chinook, chum and coho salmon. Dewatering of the mainstem Walla Walla River between June and October has seriously impacted those runs. Both Middle Columbia River summer steelhead and Columbia River Basin bull trout are listed species under the Endangered Species Act. The tribes consider restoration of instream flows and the fisheries in the Walla Walla Basin a high priority. The Confederated Tribes of the Umatilla Indian Reservation co-sponsor the Walla Walla Basin Project with the Corps. The Feasibility Study is the first step in assuring permanent instream flows that will benefit Indian and non-Indian fisheries, while enhancing flows for fish species protected under the Endangered Species Act and maintaining existing agricultural water uses.

Keecheelus Reservoir in the Yakima River basin.—Provide the Bureau of Reclamation with $5 million to undertake a fast-track feasibility study and to initiate construction of fish passage facilities during reconstruction of the irrigation dam on

Keecheelus Reservoir in the Yakima River basin in Washington. The irrigation dam was constructed early in the last century without fish passage facilities. The structure, now of extremely limited usefulness for irrigation in its current state, must be rebuilt for safety reasons; the structure should be upgraded at the same time to provide passage for juvenile and adult salmon, as well as for bull trout. The area above the dam would provide habitat for stocks of steelhead, sockeye, spring Chinook and bull trout.

Wallowa Lake Dam fish passage and mitigation.—Sufficient funding should also be provided to the Bureau of Reclamation to undertake work to provide fish passage at Wallowa Lake Dam, as well as fish production facilities to mitigate for the loss of past natural production caused by the construction of the dam. The Nez Perce Tribe can provide additional information on this project to the Committee.

Lower Columbia River Estuary Program and the Tillamook Estuary Program.—The Water Resources Development Act of 2000 authorized $30,000,000 for the U.S. Army Corps of Engineers to implement the Lower Columbia River Estuary Program and the Tillamook Estuary Program. The Commission now supports a request for $7,377,405 for 2002 appropriations. This funding is critical to achieving the habitat restoration goals of the two programs. In addition, the Commission supports Senate Bill 835, which last year provided for re-authorization of the National Estuary Program.

Corps' CRFM Project Proposal Undermines Long Term Goals and Objectives.—The Corps' proposed fiscal year 2002 capital construction budget prioritizes projects on a path that runs counter to undertaking critical projects that are necessary to meet recovery goals and performance standards. The fiscal year 2002 Corps' capital construction budget should ascribe to the following tribal priorities:

—Meet juvenile passage performance standards of 80 percent fish passage efficiency and 95 percent survival per project by 2001 and to reduce adult salmon delays and interdam mortality by 50 percent by 2001.

—Meet adult passage; spill efficiency and meeting dissolved gas and temperature water quality standards. The Corps fails to allocate adequate funds to these critical mainstem passage measures. We ask that the Congress direct the Corps to conform to these standards.

Capital Construction Priorities.—For the CRFMP, the tribes prioritize spending for fiscal year 2002 as follows: $24 million for surface flow bypass measures at Bonneville, The Dalles, John Day, and Lower Granite Dams; $34.4 million on necessary adult passage measures (including temperature control and high head passage); $15.7 million for stilling basins and spillway deflectors as dissolved gas abatement measures; and, $16.9 million for optimization of turbine efficiencies, juvenile and adult passage monitoring, Dworshak Dam structural changes to promote temperature control, water quality and spill efficiency monitoring. These actions are geared towards meeting the tribal objectives of achieving 80 percent juvenile fish passage efficiency, 95 percent juvenile survival per project, and a 50 percent reduction in adult mortality by 2001. These actions represent major steps in bringing the FCRPS into compliance with Clean Water Act standards for temperature and dissolved gas.

Specific Project Concerns with the Corps' Fiscal Year 2002 Capital Construction Budget.—Two major areas in that budget are representative of seriously misplaced capital construction priorities:

—$44.2 million for fish guidance projects, including Bonneville Powerhouse 1 Juvenile Bypass Outfall ($36 million), Bonneville Screen Bypass Modifications ($4.8), and John Day Screen Modifications ($3.4). These projects represent 38.1 percent of the Corps' proposed budget for fiscal year 2002. These systems rely on mechanically guiding fish away from turbines and dewatering the remaining flow so that the juvenile salmon can be transported by pipe systems as long as 2 miles to deposit the juvenile in areas deemed safe from predation. Recent studies indicate smolt-to-adult returns are much greater for juveniles that pass the dams via spill instead of via turbines and screen bypass systems.

—$10.3 million for non-supported studies. Several studies proposed by the Corps do not have the support of the regional salmon managers. These studies include work in the estuary and on delayed mortality of fish held in saltwater tanks at Bonneville dam. Other studies include mortality of fish passing through turbines. Much of this work is long term and has questionable methods that will not address key questions the region has agreed require additional study. These studies will not aid the regional managers in making informed decisions.

In addition, the Corps' proposed budget has not been expanded to include other important projects that can have a positive impact on salmon recovery. High head dam passage studies can be used to access previously blocked habitat for salmon. There are no projects to investigate and construct modifications to hydropower projects that would allow them to operate in a manner that can aid in temperature

controls, such as deep-water selective withdrawals, nor are there projects on long-term gas abatement solutions that would allow hydropower projects to better meet the Clean Water Act and improve downstream passage for juveniles.

Operational and Maintenance (O&M) Budget Issues.—Currently the Corp of Engineers allocates approximately $22.5 million for maintenance of its projects in the Columbia Basin. This allocation does not provide the funding necessary to maintain many of the key components of these projects. For example, at Dworshak Dam cool water releases are altered to insure they do not affect the downstream hatchery. Minor modifications, at a cost of approximately $1.5 million, would allow the region to use these cool water releases from Dworshak Dam in the most efficient manner. Erosion in the Lower Monumental Dam spillway and in the stilling basin is severe enough to impact the spill program called for in the Biological Opinion. However, there are no funds in the O & M budget to make the necessary repairs that would eliminate this problem. The Corps could reallocate funds from the capital construction budget to address such critical maintenance issues, based upon the consensus of the regional fish managers. The Corps requires your direction to make this effective use of available funding possible.

In conclusion, the tribes are advising a course of action and a level of funding for salmon recovery projects designed to allow salmon to migrate in rivers in the most natural way possible within the current hydropower system configuration. This philosophy moves away from the current dependence on mechanical bypass systems and manual transportation of salmon. The tribes' approach promotes a more a normative approach to salmon management and helps to achieve a "spread the risk" policy in order to minimize the negative impacts for salmon migrants. Please contact us if you have any questions; we can provide additional information at your request.

PREPARED STATEMENT OF THE SEMINOLE TRIBE OF FLORIDA

The Seminole Tribe of Florida is pleased to submit this statement regarding the fiscal year 2002 budget for the Army Corps of Engineers (COE). The Tribe asks that Congress provide $20 million in the COE's construction budget for critical projects in the South Florida Ecosystem, as authorized in section 208 of the Water Resources Development Act (WRDA) of 1999. On January 7, 2000, the Tribe and the COE signed a Project Coordination Agreement for the Big Cypress Reservation's critical project. The Tribe's critical project includes a complex water conservation plan and a canal that transverses the Reservation. In signing this Agreement, the Tribe, as the local sponsor, committed to funding half of the cost of this approximately $44 million project. Design and planning efforts continue, and the first phase of construction is expected to commence this summer.

The Tribe's critical project is a part of the Tribe's Everglades Restoration Initiative, which includes the design and construction of a comprehensive water conservation system. This project is designed to improve the water quality and natural hydropatterns in the Big Cypress Basin. This project will contribute to the overall success of both the Federal and the state governments' multi-agency effort to preserve and restore the delicate ecosystem of the Florida Everglades. In recognition of this contribution, the Seminole Tribe's Restoration Initiative has been endorsed by the South Florida Ecosystem Restoration Task Force.

THE SEMINOLE TRIBE OF FLORIDA

The Seminole Tribe lives in the Florida Everglades. The Big Cypress Reservation is located in the western basins, directly north of the Big Cypress National Preserve. The Everglades provide many Seminole Tribal members with their livelihood. Our traditional Seminole cultural, religious, and recreational activities, as well as commercial endeavors, are dependent on a healthy Everglades ecosystem. In fact, the Tribe's identity is so closely linked to the land that Tribal members believe that if the land dies, so will the Tribe.

During the Seminole Wars of the 19th Century, our Tribe found protection in the hostile Everglades. But for this harsh environment filled with sawgrass and alligators, the Seminole Tribe of Florida would not exist today. Once in the Everglades, we learned how to use the natural system for support without harm to the environment that sustained us. For example, our native dwelling, the chickee, is made of cypress logs and palmetto fronds and protects its inhabitants from the sun and rain, while allowing maximum circulation for cooling. When a chickee has outlived its useful life, the cypress and palmetto return to the earth to nourish the soil.

In response to social challenges within the Tribe, we looked to our Tribal elders for guidance. Our elders taught us to look to the land, for when the land was ill, the Tribe would soon be ill as well. When we looked at the land, we saw the Ever-

glades in decline and recognized that we had to help mitigate the impacts of man on this natural system. At the same time, we acknowledged that this land must sustain our people, and thereby our culture. The clear message we heard from our elders and the land was that we must design a way of life to preserve the land and the Tribe. Tribal members must be able to work and sustain themselves. We need to protect the land and the animals, but we must also protect our Tribal farmers and ranchers.

Recognizing the needs of our land and our people, the Tribe, along with our consultants, designed a plan to mitigate the harm to the land and water systems within the Reservation while ensuring a sustainable future for the Seminole Tribe of Florida. The restoration plan will allow Tribal members to continue their farming and ranching activities while improving water quality and restoring natural hydroperiod to large portions of the native lands on the Reservation and ultimately, positively effecting the Big Cypress National Preserve and Everglades National Park.

The Seminole Tribe's project addresses the environmental degradation wrought by decades of Federal flood control construction and polluted urban and agricultural runoff. The interrupted sheet flow and hydroperiod have stressed native species and encouraged the spread of exotic species. Nutrient-laden runoff has supported the rapid spread of cattails, which choke out the periphyton algae mat and sawgrass necessary for the success of the wet/dry cycle that supports the wildlife of the Everglades.

The Seminole Tribe designed an Everglades Restoration project to allow the Tribe to sustain ourselves while reducing impacts on the Everglades. The Seminole Tribe is committed to improving the water quality and flows on the Big Cypress Reservation. We have already committed significant resources to the design of this project and to our water quality data collection and monitoring system. We are willing to continue our efforts and to commit more resources, for our cultural survival is at stake.

SEMINOLE TRIBE'S BIG CYPRESS CRITICAL PROJECT

The Tribe has developed a conceptual water conservation plan that will enable us to meet new water quality standards essential to the cleanup of our part of the Everglades ecosystem and to plan for the storage and conveyance of our water rights. The Tribe's Everglades Restoration Initiative is designed to mitigate the degradation the ecosystem has suffered through decades of flood control projects and urban and agricultural use and ultimately to restore the nation's largest wetlands to a healthy state.

The Seminole Tribe's critical project, a part of the water conservation plan, provides for the design and construction of water control, management, and treatment facilities on the western half of the Big Cypress reservation. The project elements include conveyance systems, including major canal bypass structures, irrigation storage cells, and water resources areas. This project will enable the Tribe to meet proposed numeric target for low phosphorus concentrations that is being used for design purposes by state and Federal authorities, as well as to convey and store irrigation water and improve flood control. It will also provide an important public benefit: a new system to convey excess water from the western basins to the Big Cypress National Preserve, where water is vitally needed for rehydration and restoration of lands within the Preserve.

CONCLUSION

Improving the water quality of the basins feeding into the Big Cypress National Preserve and the Everglades National Park is vital to restoring the Everglades for future generations. Congress has acknowledged this need through the passage of the last three Water Resource Development Acts. This Committee has consistently shown its support through appropriating requested amounts over the last three fiscal years. By continuing to grant this appropriation request for critical project funding, the Federal government will take another substantive step towards improving the quality of the surface water that flows over the Big Cypress Reservation and on into the delicate Everglades ecosystem. Such responsible action with regard to the Big Cypress Reservation, which is Federal land held in trust for the Tribe, will send a clear message that the Federal government is committed to Everglades restoration and the Tribe's stewardship of its land.

Completion of the critical project requires a substantial commitment from the Tribe, including the dedication of over 2,400 acres of land for water management improvements and meeting a 50/50 cost share. This summer, the Tribe will initiate the first phase of construction with the main conveyance canal. As the Tribe moves

forward with its contribution to the restoration of the South Florida ecosystem, increasing Federal financial assistance will be needed as well.

The Tribe has demonstrated its economic commitment to the Everglades Restoration effort; the Tribe is asking the Federal government to also participate in that effort. This effort benefits not just The Seminole Tribe, but all Floridians who depend on a reliable supply of clean, fresh water flowing out of the Everglades, and all Americans whose lives are enriched by this unique national treasure.

Thank you for the opportunity to present the request of the Seminole Tribe of Florida. The Tribe will provide additional information upon request.

PREPARED STATEMENT OF THE COACHELLA VALLEY WATER DISTRICT

WHITEWATER RIVER BASIN THOUSAND PALMS FLOOD CONTROL

The U.S. Army Corps of Engineers, with the Coachella Valley Water District as the local sponsor, has completed the feasibility study for the Whitewater River Basin flood control project. This project received a favorable Chief of Engineers Report from Lieutenant General Robert B. Flowers and it was fully authorized in the Water Resources Development Act of 2000.

Project Description

The preferred alternative for a flood protection project in the community of Thousand Palms consists of four levees and the purchase of a 700-acre floodway. The levees total just less than eight miles in length and range in height from 7 to 18 feet. The first three levees collect runoff and sediment flowing from the Little San Bernardino Mountains and the Indio Hills, and they outlet the flow onto the 700-acre floodway. The sediment in the floodway is then available for windblown transport onto the adjacent Coachella Valley Fringe-Toed Lizard Preserve. This preservation of the sand transport system is necessary for the long-term viability of the sand dunes ecosystem of the fringe-toed lizard, a Federally endangered species. A fourth levee also conveys flow along the southern boundary of the preserve to existing flood control structures downstream of the project. The U.S. Fish and Wildlife Service has stated that it supports this preferred alternative. The proposed project would protect 2800 acres of land from flooding. This accounts for the majority of the existing development in the area. The benefit/cost ratio is over 1.3 with a total cost of $28,900,000. The estimated Federal share is 65 percent of the total cost or $18,800,000. The estimated non-Federal share is 35 percent of the total cost or $10,100,000.

Funding Requirements

In the Energy and Water Development Act of 2000, $500,000 was budgeted for Project Engineering and Design (PED). The estimated cost of the PED phase is $2 million. Twenty-five percent or $500,000 is local share. Thus an addition $1 million needs to be appropriated for the PED phase of this project in the Energy and Water Development Act of 2001. In addition the Federal share of $18.8 million needs to be appropriated in future versions of the Energy and Water Development Act.

PREPARED STATEMENT OF THE COUNTY OF SONOMA, CALIFORNIA

Bodega Bay, located in Sonoma County, California, has been dredged by the Army Corps of Engineers since the mid-1940's. The Federal channel has been dredged on an average of every 11 years by the Corps. See Figure 1—Location map of Bodega Bay.

Historically, Bodega Bay has been the home of a commercial fishing fleet. Salmon, herring, dungeness crab and rock cod are among the species of seafood that are caught in the waters outside of the Bay. In the 1980s, millions of pounds of salmon were caught by a commercial fishing fleet of over 600 vessels berthed at Bodega Bay. Today, even with the commercial fishing limitations that have reduced the number of active commercial fishing vessels in the Bay, the Bay remains popular for commercial and recreational fishing. Bodega Bay is home to a U.S. Coast Guard installation, and serves as a Harbor of Refuge for vessels traveling along the California Coast.

Without periodic dredging, Bodega Bay cannot continue as a viable fishing and recreation harbor. The shoaling rate at Bodega Bay is estimated at 10,000 cubic yards per year. The Corps is responsible for financing the dredging of the Federal channel in Bodega Bay, while Sonoma County has historically had the responsibility to provide a site for the dredged material. The existing dredge materials site at

Bodega Bay does not have the capacity to allow the Army Corps of Engineers to conduct its scheduled dredging of the Federal channel in 2002. See Figure 2—location of Federal Channel and Dredge Material site.

APPROPRIATION REQUESTED

—Total of $3.7 million in the U.S. Army Corps of Engineers' Operation and Maintenance Budget, fiscal year 2002. It is important that this funding be specifically designated for use at Bodega Bay to complete dredging in 2002.
—$1.8 Million for preparation of the Bodega Bay dredge materials site through implementation of the Corps' Dredge Material Management Plan (DMMP).
—$1.9 million for dredging the Federal channel.

Sonoma County needs congressional funding for the implementation of the DMMP, estimated at $1.8 million, to prepare the existing dredge material site. Without this funding, dredging the Federal channel will not be possible. A delay of the Federally scheduled dredging cycle into future years may jeopardize the entire project given the current trend to cut funding for civil works projects at the Federal level. Smaller ports are particularly under attack. The risk to the entire project will increase if the project is deferred beyond 2002.

PURPOSE

The existing Dredge Materials Site (located at County's Bird Walk Coastal Access) is at approximately 70 percent capacity (remaining capacity is 58,500 cubic yards). Therefore, the appropriation will be used to remove 73,300 cubic yards of material from the existing dredge material site before the next maintenance dredging of the Federal channel by the Army Corps of Engineers can begin, which is scheduled for 2002.

The most cost-effective site to place the excavated dredge materials is a proposed community park for Bodega Bay approximately 2 miles away. (See Figure 1) This beneficial use of clean fill material would be used to provide play fields, picnic sites, and children's play area for the community.

During the 1991 Federal Bodega Bay Dredging program, dredging of the County marine facilities, and private marinas and wharfs were allowed to piggyback on the Federal program. Each entity was responsible for their incremental dredging costs. We anticipate that most of the agencies will, once again, want to be included in the Federal dredging program. See Figure 2 for location of County, Private Marinas, and Wharfs.

ARMY CORPS OF ENGINEERS—SAN FRANCISCO DISTRICT

The Corps is responsible for dredging the Bodega Bay Federal channel approximately every 11 years. Sonoma County Regional Parks Department has shared information regarding history and concerns about the proposed 2002 dredging for Bodega Bay, including: dredge site preparation, excavation and moving material to the proposed community park site, anticipated costs, environmental concerns, and economic impacts.

The County and Corps have continued to work together on a Dredge Materials Management Plan (DMMP), which could expand the Corps' project scope at Bodega Bay. The San Francisco Corps Office has been supportive in including our request for financial support for Bodega Bay dredging and for the dredge site preparation in legislation.

ENVIRONMENTAL ISSUES

This project does not include any controversial environmental issues.

Studies

All environmental issues relating to the preparation of the dredge material site, moving dredge material to the proposed community park site and dredging of the Bay will be completed by either the Corps, as part of the DMMP, or the County prior to the maintenance dredging of the Bay. The major studies, in addition to the DMMP studies include:

—Hydrographic Analysis and Refinement—allows for accurate measurement of dredge volumes needs.
—Eel Grass Identification—This species needs to be plotted and assessed to predict and avoid serious impact due to the dredging of the channel and marinas.
—Other Endangered Species—Several native plants, animals, and other organisms are native to Doran Marsh and its environs. Project impacts will need to be assessed.

LOCAL EFFORT

Private wharfs, marinas and U.S. Coast Guard will be encouraged to participate with the County to include their dredging needs in the 2002 program. If Congress funds this project in its entirety, the County has enough funding set aside to meet the local match requirements of the DMMP (80 percent Federal/20 percent local).

CONCLUSIONS

Without financial assistance, the Bodega Bay dredging project on line for 2002 will have to be delayed. Any delays places the dredging of Bodega Bay at risk as Federal public works budgets continue to be cut.

Any delay in dredging the Federal Channel will impact the ability to safely navigate within the Bay and will pose a serious health and safety hazard. Some larger vessels are already running aground in the harbor.

Any delay in dredging the Federal Channel could impede its ability to service commercial and sport fishing and its availability as a Harbor of Refuge. Lastly, a delay would cause a significant economic impact on the region.

PREPARED STATEMENT OF THE ASSOCIATION FOR THE DEVELOPMENT OF INLAND NAVIGATION IN AMERICA'S OHIO VALLEY

Mr. Chairman and Members of the Subcommittee: I am Barry Palmer, Executive Director of DINAMO, The Association for the Development of Inland Navigation in America's Ohio Valley. DINAMO is a multi-state, membership based association of business and industry, labor, and state government leaders from throughout the Ohio Valley, whose singular purpose is to expedite the modernization of the lock and dam infrastructure on the Ohio River Navigation System. Largely through the leadership of this subcommittee and the professional efforts of the US Army Corps of Engineers, we in the Ohio Valley are beginning to see the results of 20 years of continuous hard work in improving our river infrastructure.

Lock and dam modernization at Robert C. Byrd Locks and Dam, Grays Landing Locks and Dam, Point Marion Lock, and Winfield Locks are largely complete. These projects were authorized for construction in the Water Resources Development Act of 1986. The immediate problems really are focused on completing in a timely manner lock and dam modernization projects authorized by the Congress in subsequent water resources development acts. Substantial problems remain for adequate funding of improvements at the Olmsted Locks and Dams, Ohio River, IL/KY; Lower Monongahela River Locks and Dams 2, 3 & 4, PA; McAlpine Locks and Dam, Ohio River, IN/KY; Marmet Lock, Kanawha River, WV; and for the Kentucky Locks, Tennessee River, KY. The construction schedules for all of these projects have been severely constrained, and we are requesting increased funding for these construction projects at an "efficient construction rate." Following is a listing of the projects and an efficient funding level determined by the US Army Corps of Engineers to advance these projects, in order to complete construction by 2008 or earlier:

RECOMMENDATIONS FOR FISCAL YEAR 2002

1. For the Robert C. Byrd Locks and Dam modification project, formerly the Gallipolis Locks and Dam on the Ohio River, OH/WV, about $4,000,000 to complete rehabilitation of the dam.

2. For the Winfield Lock Replacement on the Kanawha River, WV, $3,000,000 for continued construction of the lock and relocations related to environmental mitigation.

3. For the Olmsted Locks and Dam, replacing Locks and Dams 52 and 53 on the Lower Ohio River, IL/KY, $75,000,000 for continued construction of the approach lock walls related to the twin 110×1,200 locks and design and initial construction activities for the new gated dam.

4. For improvements to Monongahela River Locks and Dams 2, 3 & 4, PA, $75,00,000 to complete construction of the Braddock Dam, for relocations related to the construction project, and continued design of Lock 4.

5. For the McAlpine Lock Project on the Ohio River, IN/KY, $25,000,000 to complete construction of the cofferdam related to the new 110 feet × 1,200 feet lock addition.

6. For the Marmet Lock Replacement on the Kanawha River, WV, $30,000,000 for real estate acquisition and for initial systems for mitigation of the construction project.

7. For the Kentucky Lock Addition on the Tennessee River, KY, $55,000,000 to continue construction of the new highway and bridge work and to begin construction of the upstream cofferdam.

8. For continuing major rehabilitation of London Locks and Dam, Kanawha River, $8,000,000.

9. For the Ohio River Mainstem Study, including studies related to completing Interim Feasibility Reports for Newburgh, Cannelton, and Meldahl, and for Emsworth, Dashields, and Montgomery Locks and Dams, approximately $30,000,000 to be expended over the next five years. This level of funding is needed to complete the work leading to construction authorization documents for additional capacity at these six lock and dam locations.

10. For Pre-Construction Engineering and Design for the John T. Myers Locks and Dam, Ohio River, IN/KY, $3,500,000–$4,000,000. A new construction start for this project will be required soon, since this project was authorized for construction in the Water Resources Development Act of 2000.

11. For Pre-Construction Engineering and Design for the Greenup Locks and Dam, Ohio River, OH/KY, $3,500,000–$4,000,000. A new construction start for this project will be required soon, since this project was authorized for construction in the Water Resources Development Act of 2000.

For these lock and dam modernization projects the President has not released specific allocations for the fiscal year 2002 Civil Works Budget of the US Army Corps of Engineers. It is expected that these allocations will be woefully inadequate. The "efficient" construction level for fiscal year 2002 and for each and every year into the future has been discussed with Corps officials over a number of years, and DINAMO is confident that the projected funding levels identified above represent the amount of money the Corps can efficiently use. Additionally experience has shown that the Corps could execute completion of these projects by 2008 if adequate funding were provided, i.e. efficient funding levels.

These construction projects, in addition to the Olmsted Locks and Dam, should be completed in a timely and orderly manner. It is important to note that taxes are being generated by a 20 cents per gallon diesel fuel tax by towboats operating on America's inland navigation system. These tax revenues are gathering in the Inland Waterways Trust Fund, in order to finance 50 percent of the costs of these project costs. There is about $400 million in the Inland Waterways Trust Fund. The real challenge is not the private sector contribution to completing these lock and dam construction projects in a timely manner, but rather the commitment of the Federal government to matching its share.

The construction schedules for Ohio River Navigation System projects have slipped from one to six years, depending on the project. Delaying the construction of these vitally needed infrastructure investments is a terribly inefficient practice. Inefficient construction schedules cost people a lot of money. A March 2000 study by the Institute for Water Resources concluded that $1.34 billion of cumulative benefits (transportation savings) for Olmsted, Lower Monongahela River 2, 3 & 4, McAlpine, Marmet, and Kentucky lock and dam modernization projects, in addition to the London Lock rehabilitation, all on the Ohio River Navigation have been lost forever. The benefits foregone represent the cumulative annual loss of transportation cost savings associated with postponing the completion of these projects from their "optimum," or "efficient," schedule. In addition, this study concludes that $534 million of future benefits are at risk but will be foregone (based on fiscal year 2001 schedules) if funding is not provided to accelerate design and construction activities in accordance with "efficient" schedules.

Expenditures for lock and dam modernization are an investment in the physical infrastructure of this nation. The President's $3.9 billion Corps of Engineers Civil Works Budget for fiscal year 2002 will fall at least $1 billion short of what will be needed to meet the nation's water resources needs. Mr. Chairman, we have great confidence in the Corps of Engineers and urge your support for a funding level more in line with the real water resources development needs of the nation. For lock and dam modernization on America's inland navigation system, targeted construction funding ought to be at a level of about $300 million annually. Last year Congress provided about $4.54 billion for the Corps of Engineers program and more than $200 million for lock and dam modernization on America's inland navigation system. It is reasonable that funding for the Corps program should be increased to levels closer to $5 billion and about $350 million for lock and dam modernization on our nation's river system. With this kind of increased funding, as amply supported in both the House and Senate appropriations committee report language in previous years, it is clear that a national lock and dam modernization program could be sustained at a level commensurate with the needs for improving the nation's inland navigation system.

We thank you for the opportunity to present this request and our thoughts on these matters.

PREPARED STATEMENTS OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

MISSISSIPPI RIVER AND TRIBUTARIES PROJECT

The Louisiana Department of Transportation and Development, Office of Public Works and Intermodal Transportation, is the agency designated to represent the State of Louisiana in the planning and orderly development of its water resources. This statement is presented on behalf of the State of Louisiana and its twenty levee boards. It contains recommendations for fiscal year 2002 appropriations for work in Louisiana under the Mississippi River and Tributaries Project.

Louisiana contains the terminus of the Mississippi River, which has the third largest drainage basin in the world, exceeded only by the watersheds of the Amazon and Congo Rivers. The Mississippi River drains 41 percent, or 1¼ million square miles, of the contiguous United States and parts of two Canadian provinces. All of the runoff from major river basins, such as the Missouri and Upper Mississippi, the Ohio including the Tennessee and others, and the Arkansas and White, flow into the Lower Mississippi, which empties into the Gulf of Mexico through Louisiana.

The jurisdiction of levee boards in Louisiana includes one-third of the State's total area. However, the importance of this one-third of the State can be seen by the fact that it contains nearly 75 percent of the State's population and about 90 percent of the State's disposable personal income. Traditionally, the levee district areas are water rich and many have fallen heir to industrial development that ranks high in the nation. It has been estimated that about 60 percent of the State's agricultural products come from levee district areas. So you can see why Louisiana and its twenty levee districts are so interested in seeing the completion of the Mississippi River and Tributaries Project.

In making the following recommendations regarding construction, studies, and some selected operation and maintenance items, the State of Louisiana hopes that Congress and the Administration will honor their prior commitments to infrastructure development and fund our requests.

Since the timing of this meeting is before a detailed budget has been released, the figures presented herein are only approximate and will be revised when more information becomes available. The following projects are of particular concern to us. See the attached "Summary of Recommended Appropriations" for a complete listing of projects in Louisiana.

Operation and Maintenance

Request: Full Capability.

Atchafalaya Basin; Old River Lower Red River, South Bank Levees, (Bayou Rapides Drainage Structure and Pumping Plant); Mississippi River Levees (total MR&T); Channel Improvement (total MR&T).

The operation and maintenance of completed works are essential to achieving the full benefits of projects. In times of budget constraints it is essential that operation and maintenance of projects continue as scheduled in order to maintain their effectiveness, otherwise more expensive maintenance and rehabilitation would be required at a later date.

The above listed projects have reached a point where delayed maintenance is now essential and we urge you to fund these projects to the full capability of the Corps.

Mississippi River Levees (total MR&T)

Request: Full Capability.

The Mississippi River and Tributaries Project above Louisiana is about 90 percent complete, but to a much lesser extent in Louisiana. Because of the improvements upstream, increased flows are a major problem in Louisiana where the project is lagging behind the construction in the upper valley. Of the total request for levee construction, most is needed for Louisiana projects. In the Vicksburg District there is a deficiency of 4 to 7 feet on mainline Mississippi River levees in the Fifth Louisiana Levee District. It is also requested that Federal funds be provided to purchase rights-of-way for this critical work as the Levee District is in an economically depressed area and does not have a tax base capable of producing the funds necessary for both maintenance and rights-of-way purchase.

Channel Improvement (total MR&T)

Request: Full Capability.

Channel improvement and bank stabilization provide protection to the levees and the development behind them, as well as, preventing unsatisfactory alignment where the river's bank is unstable. The funds we are requesting will provide for the dredging and revetment work necessary to accommodate increased flows caused by upstream improvements.

Tensas Basin, Red River Backwater Area

Request: Full Capability.

(Sicily Island Area Levee Project).

The construction of this project must not be delayed by budget constraints.

Morganza to the Gulf of Mexico

Request: Full Capability.

Funds are requested for preconstruction engineering and design. This hurricane protection project is vital for coastal Louisiana and should be constructed as soon as possible.

LOCAL CONTRIBUTIONS FOR FLOOD CONTROL IMPROVEMENTS

Historically, Louisiana has always done its part in cooperation with the Federal agencies concerned with flood control. The Louisiana Board of State Engineers, the forerunner of the Department of Transportation and Development, Office of Public Works and Intermodal Transportation, was created in 1879, the same year as the Mississippi River Commission, to coordinate the planning and construction of the required flood control facilities to protect the State. Since that time, local expenditures for flood control have exceeded $730,000,000. This amount adjusted to present day dollars represents expenditures in excess of $5.5 billion. Nearly one-half of the potential flooded area of the Lower Mississippi River Valley lies in Louisiana. Local expenditures for flood control have increased with the growth of the valley. This record not only meets, but exceeds any National Water Policy local participation requirement ever put into practice.

CONCLUSION

The Mississippi River and Tributaries Project has been underway since 1928 and isn't scheduled for completion until the year 2031—a date that continually keeps moving further into the future. We understand the need for budget constraints, but the past budget requests for the total MR&T Project have not been adequate. We endorse the recommendation of the Mississippi Valley Flood Control Association in their request for $395 million for the MR&T project throughout the whole valley.

The State of Louisiana, Department of Transportation and Development, Office of Public Works and Intermodal Transportation, in particular, wishes to commend the Appropriations Subcommittees on Energy and Water Development and express our appreciation for the foresight and understanding exhibited for water resources projects which are vital to the national interest. We solicit your further consideration of the recommendations presented herein.

MISSISSIPPI RIVER AND TRIBUTARIES SUMMARY OF RECOMMENDED APPROPRIATIONS FOR FISCAL YEAR 2002—STATE OF LOUISIANA

Louisiana projects	Budget schedule	Louisiana request
Operation and Maintenance		
Mississippi River Levees (total MR&T)	$8,500,000	Full Capability
Atchafalaya Basin	10,400,000	Full Capability
Channel Improvement (total MR&T)	43,000,000	Full Capability
Old River Control Structure	6,100,000	Full Capability
Bonnet Carre Spillway	1,900,000	Full Capability
Lower Red River, SBL—Bayou Rapides Drainage Structure & Pumping Plant	6,000,000	Full Capability
Tensas Basin:.		
Boeuf & Tensas Rivers	2,600,000	Full Capability
Red River Backwater Area	3,500,000	Full Capability
Atchafalaya Basin, Floodway System, LA	2,100,000	Full Capability
Baton Rouge Harbor—Devil Swamp, LA	200,000	Full Capability

MISSISSIPPI RIVER AND TRIBUTARIES SUMMARY OF RECOMMENDED APPROPRIATIONS FOR FISCAL YEAR 2002—STATE OF LOUISIANA—Continued

Louisiana projects	Budget schedule	Louisiana request
Bayou Cocodrie and Tributaries	100,000	Full Capability
Mississippi Delta Region, Caernarvon, LA	916,000	Full Capability
Inspection of Completed Works (MR&T)	1,500,000	Full Capability
Mapping (MR&T)	1,100,000	Full Capability
Dredging (MR&T)	18,000,000	Full Capability
Construction		
Mississippi River Levees (total MR&T)	54,000,000	Full Capability
Louisiana State Penitentiary Levee	3,000,000	Full Capability
Atchafalaya Basin	30,000,000	Full Capability
Channel Improvements (total MR&T)	48,000,000	Full Capability
Tensas Basin, Red River Backwater Area	3,882,000	Full Capability
Atchafalaya Basin, Floodway System	10,000,000	Full Capability
Mississippi Delta Region, Davis Pond	4,600,000	Full Capability
Mississippi & Louisiana Estuarine Area (Bonnet Carre)	100,000	Full Capability
Preconstruction Engineering & Design		
Morganza to the Gulf of Mexico	6,500,000	Full Capability
General Investigations		
Donaldsonville to the Gulf of Mexico	1,000,000	Full Capability
Alexandria to the Gulf of Mexico	700,000	Full Capability
Spring Bayou	500,000	Full Capability
West Baton Rouge Parish, LA (recon)	350,000	Full Capability
Collection & Study of Basic Data (MR&T)	600,000	Full Capability

NOTE: The projects listed above are only those in Louisiana (except where noted) and directly affect the State. We realize that there are other projects in the Valley. We endorse the recommendations of the Mississippi Valley Flood Control Association.

FOOD CONTROL, NAVIGATION, HURRICANE PROTECTION AND WATER RESOURCES PROJECTS IN LOUISIANA

The Louisiana Department of Transportation and Development, Office of Public Works and Intermodal Transportation, is the agency designated to represent the State of Louisiana for the coordinated planning and development of water resources, including flood control, navigation, drainage, water conservation and irrigation projects; therefore, this statement is presented on behalf of the State of Louisiana and its twenty levee boards. We are pleased to present the recommendations for fiscal year 2002 appropriations for Louisiana projects. The projects listed herein are in addition to those covered in the statement by the Office of Public Works and Intermodal Transportation for the Mississippi River and Tributaries Project.

Louisiana contains the terminus of the Mississippi River, which has the third largest drainage basin in the world. The Mississippi drains 41 percent, or 1 1/4 million square miles, of the contiguous United States and parts of two Canadian provinces. In addition to the Mississippi River system, Louisiana contends with other interstate waters—the Sabine River, the Red River, the Ouachita River, the Amite River, and the Pearl River. All of these river systems converge toward Louisiana, passing on to the Gulf of Mexico, draining a figure approaching 50 percent of these contiguous 48 states.

Louisiana also plays a strategic part in providing the country with access to world markets through an inland navigation system. Approximately 75 percent of all soybeans, animal feed, and corn grown in the U.S. are shipped through Louisiana. And almost 50 percent of all rice and cereals. Louisiana has the highest waterborne traffic by state. The river flood control systems work in conjunction with the hurricane and coastal protection systems to form a total integrated protection system to protect us from floods of all types. This integrated system protects the inland navigation system. It also protects the petrochemical industry in Louisiana which has the second largest refining capacity in the country producing approximately 15 billion

gallons of gasoline at 19 refineries. Louisiana ranks second in produced natural gas and third for oil production. The pipeline system which supplies much of the country with natural gas and petroleum originates in Louisiana. The petrochemical and oil and gas industries depend almost totally on Federally constructed levee systems to protect them from floods and hurricanes, and depend on the Federally maintained navigation system for transportation. This infrastructure development which benefits the entire country has contributed to the destruction of our marshes and wetlands which still produce a commercial fish and shellfish harvest worth more than $600 million and 40 percent of the Nation's wild fur and hides harvest worth more than $15 million. This wealth of natural resources cannot survive and propagate for the economic benefit of our State and Nation without onshore facilities that require protection from major storms and hurricanes. It would be a national loss if these facilities and infrastructures were not protected. But Louisiana alone cannot support the infrastructure on which the country depends. All these facilities in Louisiana that support and contribute to the economic well-being of the country are protected by flood control measures; flood control measures that the Federal Government has appropriately committed itself to provide.

In making the following recommendations regarding construction, studies, and operation and maintenance items, the State of Louisiana would hope that Congress and the Administration will honor their prior commitments to infrastructure development and fund our requests. We feel that water resources projects are probably the most worthwhile and cost-effective projects in the Federal budget, having to meet stringent economic justification criteria not required of other programs. We ask that this be taken into consideration in the final decision to appropriate the available funds.

Since the timing of this meeting is before a detailed budget has been released, the figures presented herein are only approximate and will be revised when more information becomes available. The following projects are of particular concern to us. See the attached "Summary of Recommended Appropriations" for a complete listing of projects in Louisiana.

Inner Harbor Navigation Canal Lock

Request: Full Capability.

The Inner Harbor Navigation Canal (IHNC) lock has long been considered dimensionally obsolete and is a key to the viability of the Port of New Orleans, the nation's 4th largest.

West Bank Vicinity of New Orleans, LA

Request: Full Capability.

We urge Congress to provide for an accelerated construction schedule for this project to provide hurricane protection to the metropolitan area of New Orleans.

Southeast Louisiana Urban Flood Control

Request: Full Capability.

We urge that the approved five-year construction schedule be maintained by authorizing funds to the full capability of the Corps.

Lake Pontchartrain and Vicinity, Hurricane Protection

Request: Full Capability.

Funding to the full capability of the Corps will allow for the completion of existing construction contracts and to continue with other required work.

Mississippi River Ship Channel, Baton Rouge to Gulf

Request: Full Capability.

The funds will be used to complete existing construction contracts for saltwater intrusion mitigation to the water supply of Plaquemines Parish.

New Orleans to Venice

Request: Full Capability.

This is a hurricane protection project for Plaquemines Parish. The funds requested are needed to continue construction of this important hurricane protection project.

Larose to Golden Meadow

Request: Full Capability.

This is a hurricane protection project which will protect the developed areas along Bayou Lafourche. Funds are needed to complete this project.

Ouachita River Levees

Request: Full Capability.

The Ouachita River Levees are deficient and need to be brought up to Federal standards. We request that specific language be added to the appropriations bill to direct the Secretary of the Army to accomplish this task.

J. Bennett Johnston (Red River) Waterway

Request: Full Capability.

Remaining work consists of additional channel training works, purchase of mitigation lands and construction of recreation features. We urge the approval of funds for fiscal year 2002 based on the previously approved schedule.

Grand Isle and Vicinity

Request: Full Capability.

Funds are requested to address WRDA 99 language to determine any environmental benefits to the mainland coast.

East Baton Rouge Parish, LA

Request: Full Capability.

We are requesting new start language and language to rectify an oversight in the Water Resources Development Act of 1996, authorizing this project to be constructed at the 75/25 cost share in effect at the time of study completion.

Lake Pontchartrain Westshore

Request: Full Capability.

Funds would be used to advance construction. Authorization is expected in the next WRDA.

MR–GO Reevaluation Study

Request: Full Capability.

The Environmental Protection Agency, at the request of local officials, has formed a task force to re-examine the navigation project based on the amount of economic benefits and the safety issues of possible storm damage.

Orleans Parish, LA

Request: Full Capability.

This project is in addition to the Southeast Urban Flood Control projects already under construction in Orleans Parish. The funds requested would be used to advance preconstruction engineering and design.

Jefferson Parish, LA

Request: Full Capability.

This project is in addition to the Southeast Urban Flood Control projects already under construction in Jefferson Parish. The funds requested would be used to advance preconstruction engineering and design.

Calcasieu Lock, LA

Request: Full Capability.

The Calcasieu Lock is becoming congested due to an increase in traffic. The funds will be used to advance the feasibility study.

ST. Bernard Parish, Urban Flood Control

Request: Full Capability.

Flood control improvements are needed to reduce the repetitive damages to residential development, which is consistent with Administration policy. The funds will be used to advance the feasibility study.

Calcasieu River Basin, LA

Request: Full Capability.

This study will address the feasibility of measures to reduce flooding and restore fish and wildlife habitat in the study area. The funds will advance the feasibility study.

Ascension Parish Flood Control Study

Request: Full Capability.

The Ascension Parish Flood Control Study was recommended in the Amite River and Tributaries Reconnaissance Report. The parish has decided to proceed to the feasibility phase and funds are required in fiscal year 2002 to start the study.

New Study Requests

Request: Full Capability.

Several new study requests will address a comprehensive look at the hurricane protection system, urban flood control, ecosystem restoration and beneficial use of dredged material. See attached Summary Sheet for individual projects.

Continuing Authorities Projects

We urge you to discontinue the practice of earmarking funds and to raise the program limits for Section 205 projects to $60 million.

Coastal Wetlands Planning, Protection and Restoration Act

The passage of the Coastal Wetlands Planning, Protection and Restoration Act has been a positive force for Louisiana. We support the continued funding for this program.

Baton Rouge Infrastructure

Request: $10,000,000.

The Water Resources Development Act of 1999 authorized $10,000,000 for water resources related infrastructure for the parishes of East Baton Rouge, Ascension and Livingston. This request is for the appropriation these funds.

Red River Basin Chloride Control Project

Request: Full Capability.

The construction of the Red River Chloride Control Project will enhance further economic development in the Red River Valley and make the Navigation Project prove even more economically beneficial than previously anticipated.

Operation and Maintenance

Request: Full Capability.

It is essential that operation and maintenance not be delayed which would hamper the effectiveness of the projects and cause more expensive maintenance at a later date. We urge you to continue funding O&M to the Corps' full capability.

CONCLUSION

We wish to express our thanks to the Appropriations Subcommittees on Energy and Water Development of the House and Senate for allowing us to present this brief on the needs of Louisiana. Without reservation, practically every single project in Louisiana which has been made possible through actions of these committees has shown a return in benefits many times in excess of that contemplated by the authorizing legislation. The projects which you fund affect the economy of not only Louisiana, but the nation as a whole. The State of Louisiana appreciates the accomplishments of the past and solicits your consideration of the appropriations requested for fiscal year 2002.

FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION AND WATER RESOURCES PROJECTS IN LOUISIANA

Louisiana projects	Budget schedule	Louisiana request
Construction:		
Inner Harbor Navigation Canal Lock	$15,000,000	Full Capability
West Bank Vicinity of New Orleans, LA	31,000,000	Full Capability
Southeast Louisiana Urban Flood Control	100,000,000	Full Capability
Lake Pontchartrain and Vicinity, Hurricane Prot.	19,700,000	Full Capability
Mississippi River Ship Channel, LA	1,200,000	Full Capability
New Orleans to Venice, Hurricane Protection	2,000,000	Full Capability
Larose to Golden Meadow, Hurricane Protection	4,700,000	Full Capability
Ouachita River Levees	5,300,000	Full Capability
J. Bennet Johnston (Red River) Waterway, LA	28,000,000	Full Capability
Grand Isle and Vicinity	200,000	Full Capability
Comite River Diversion	15,400,000	Full Capability
MR-GO Reevaluation Study	1,080,000	Full Capability
Baton Rouge Infrastructure	0	10,000,000
Red River Chloride Control	0	Full Capability

FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION AND WATER RESOURCES PROJECTS IN LOUISIANA—Continued

Louisiana projects	Budget schedule	Louisiana request
Preconstruction Engineering and Design:		
Lafayette Parish, LA	500,000	Full Capability
Orleans Parish, LA	300,000	Full Capability
Jefferson Parish, LA	500,000	Full Capability
West Shore, Lake Pontchartrain, LA	300,000	Full Capability
East Baton Rouge Parish, LA [1]	1,000,000	Full Capability
Authorized Studies:		
Intracoastal Waterway Locks (Bayou Sorrel), LA	500,000	Full Capability
Calcasieu Lock	900,000	Full Capability
Louisiana Coastal Area-Ecosystem RestorationFeasibility Study (COAST 2050)	1,750,000	Full Capability
St. Bernard Parish, Urban Flood Control	600,000	Full Capability
Calcasieu River Basin, LA	500,000	Full Capability
Ascension Parish, LA (Amite River & Tribs)	425,000	Full Capability
Amite River Ecosystem Restoration	600,000	Full Capability
Atchafalaya, Chene, Boeuf and Black	300,000	Full Capability
Hurricane Protection Improvements	500,000	Full Capability
St. Charles Parish, Urban Flood Control	400,000	Full Capability
Plaquemines Parish, Urban Flood Control	450,000	Full Capability
New Study Requests:		
Louisiana Coastwide Dredging	0	100,000
Lake Pontchartrain Basin Comprehensive Study	0	500,000
Gulf Intracoastal Waterway Bank Stabilization	0	100,000
Southern LA Floodproofing Evacuation Routes	0	100,000
Acadiana Navigation Channel, LA	0	100,000
Operation and Maintenance [2]		[2]

[1] New start language is needed to initiate construction in fiscal year 2002.
[2] Full Capability of Corps.

PREPARED STATEMENT OF THE BOARD OF MISSISSIPPI LEVEE COMMISSIONERS

Mr. Chairman and Members of the Committee: I am James E. Wanamaker, Chief Engineer for the Board of Mississippi Levee Commissioners, Greenville, Mississippi, and I have the privilege of presenting this statement on behalf of this Board and the citizens of the Levee District. The Board of Mississippi Levee Commissioners is comprised of 7 elected commissioners representing the counties of Bolivar, Issaquena, Sharkey, Washington, and parts of Humphreys and Warren counties in the Lower Yazoo Basin in Mississippi. The Board of Mississippi Levee Commissioners is charged with the responsibility of providing protection to the Mississippi Delta from flooding of the Mississippi River and maintaining major drainage outlets for removing the flood waters from the area. These responsibilities are carried out by providing the local sponsor requirements for the Congressionally authorized projects in the levee district.

The funding of the flood control projects also provide assistance to the overall economics of the Mississippi Delta through the employment of individuals by contractors completing these necessary projects. The region encompassed by the Mississippi River & Tributaries Project is included in the recently authorized Delta Regional Authority. The employment of the local work force and purchases from local vendors by the contractors on these projects provides income to the most impoverished counties included in the Delta Regional Authority.

The foresight used by the Congress in their authorization of the many features of the Mississippi River & Tributaries Projects is exemplary. This project has proven to be one of the most cost effective projects ever undertaken by the United States. The Board remains aware that budget constraints, along with the again extremely

low administration budget, is making it very difficult to fund projects at levels deemed necessary to maintain timely construction to provide the much needed flood protection to the Mississippi Delta. Without the Congressional adds to the budget over the last several years, construction would be lagging far behind throughout the entire Lower Mississippi Valley. The Mississippi Valley Flood Control Association will be submitting a general statement to support an appropriation of $395 million for fiscal year 2002 for surveys, advanced engineering, construction, and the operation and maintenance of the Mississippi River & Tributaries Project. We must always remember that the Lower Mississippi River receives flood waters from 41 percent of the Continental United States.

The Mainline Mississippi River Levee throughout the Valley is the backbone for providing flood protection to the Delta areas. Following the 1973 flood, it was determined that 69.1 miles of Mainline Mississippi River Levees in Mississippi were deficient in grade and section. The Corps of Engineers currently has 18 miles of our levee under construction. The administration budget for Mississippi River Levees of $42.1 million will not allow any new construction starts on this vital project. We are asking that the Congress appropriate $54.1 million for construction of Mainline Mississippi River Levees to allow construction to proceed in an orderly manner. Until such time all of our levees are completed to grade and section, the Mississippi Delta will remain exposed to severe flooding from the Project Design Flood on the Mississippi River. It is estimated that the State of Mississippi alone would suffer damage in excess of $1.8 billion with over 20,000 homes flooded, displacing more than 56,000 people by an overtopping of the levee system in Mississippi.

As the Vicksburg District Corps of Engineers proceeded with the development of a draft report for the remaining features of the Yazoo Backwater Project, the Board of Mississippi Levee Commissioners initiated a consensus process involving State and Federal resource agencies and major private environmental groups. After the initial meeting the National Wildlife Federation, the Mississippi Wildlife Federation, the Audubon Society, the Gulf Restoration Network, and the Sierra Club elected to withdraw from this consensus building process. The only private environmental group to remain in the process was Ducks Unlimited. The consensus process involved over 50 hours of meetings of these agencies, organizations, and local citizens over an 18 month period. We remain very disappointed in the attitude taken by the U.S. Fish & Wildlife Service and Environmental Protection Agency during this process. These agencies did not participate as resource agencies as anticipated, but as advocates of their own plan for the area. The consensus process resulted in a modification of alternatives being considered by the Corps of Engineers for this project. At this time, the Vicksburg District has completed the draft report which includes a recommended plan that is supported officially by the Board of Mississippi Levee Commissioners, County Boards of Supervisors of Issaquena, Sharkey, Washington, Warren, Humphreys, and Yazoo. The Board of Mississippi Levee Commissioners and the Corps of Engineers have each hosted public meetings in the project area and found the vast majority of individuals living in the project area support the recommended plan. This support is given by these local individuals living in the project area even though water levels will be 7 feet deeper with the recommended plan than the 1982 plan before the pumps are operated, and 62,500 acres of developed land will be taken out of production and reforested as part of this project. We are currently requesting an appropriation of $6 million for this project, which will allow the Vicksburg District to initiate the design of this project, initiate real estate activities and right-of-way acquisition for this project.

As with all infrastructure, the need for maintenance is required to keep the projects functioning as designed. The Big Sunflower River Maintenance Project is a case where the local sponsors have provided the necessary minor maintenance for over 50 years. It has been identified that major maintenance is required to restore the capacity of this project to move flood waters through the Mississippi Delta. We are requesting an appropriation of $6.4 million to allow work to continue on this project. Construction on Item 3 has been completed and right-of-way for Item 2 is being acquired. This appropriation will allow the work on Item 2 to continue and to purchase rights-of-way for future items.

Work on the Upper Yazoo Project is continuing with the completion of Items 4–A and 4–B bringing protection in the Delta to the City of Greenwood. We are requesting an appropriation of $15 million for the Upper Yazoo Project which will allow contracts to be awarded on Items 5–A, 5–B, and Item 7 structures. It is imperative that work on this project be continued to provide an adequate outlet for the flood control reservoirs that hold back flood waters from the Mississippi Delta. Without an adequate outlet for these reservoirs, stages inside the reservoirs will continue to rise threatening an overtopping of the emergency spillway, whereby, we lose all control of flood waters in the basin.

Maintenance of our Mainline Mississippi River Levee System continues as a major feature carried out by the basins' Levee Boards. The Flood Control Act of 1928 clearly delineates Federal and local responsibilities in the maintenance activities required for this project. We are requesting $9.5 million for the maintenance of Mississippi River Levees to allow the Corps of Engineers to carry out the Federal responsibilities for major maintenance along the Mainline Mississippi River Levee System.

As we pointed out earlier, all projects need to be maintained to keep them functioning as designed. Work on our 4 flood control reservoirs are no exception to this need. We are asking for an appropriation for maintenance of Arkabutla Lake of $11.5 million; Enid Lake $7.5 million; Grenada Lake $7.8 million; and Sardis Lake of $18 million. The increased funds requested for this project will be utilized to complete the bank protection along these dams, repair water wells, treatment storage facilities and other maintenance needs. We are also requesting an appropriation of $1.2 million for the tributaries features of the Yazoo Basin which will allow for continued bank stabilization and shore line protection work.

In closing, I must take a minute to reflect on the criticism being focused on the Corps of Engineers' study process utilized in reviewing projects. I must point out that the focus of the criticism primarily on the Upper Mississippi Navigation Study relies on activities taking place prior to the publication of a draft report. No one knows what that draft report would have contained had the process been allowed to continue. Even after a draft report is published, the current process allows thorough review of the report and the recommended plan by government agencies, private organizations and individuals throughout the project area and the Nation. All of the comments received by the Corps through that draft report must be addressed prior to a final report being made before construction of any project proceeds. Far more studies performed by the Corps of Engineers throughout the Nation fall by the wayside than results in actual construction taking place. We feel that the current process provides a thorough review and an adequate opportunity for proponents and opponents to review and express their thoughts.

We are grateful to the Committee for providing us the opportunity each year to present our requests.

PREPARED STATEMENT OF THE ST. FRANCIS LEVEE DISTRICT OF ARKANSAS

My name is Jake Rice, III and my home is in Marion, Arkansas, located on the West side of the Mississippi River in the St. Francis River Basin. I am the Chief Engineer of the St. Francis Levee District of Arkansas. Our District is the local cooperation organization for the Mississippi River and Tributaries Project and the St. Francis Basin Project in Northeast Arkansas. Our District is responsible for the operation and maintenance of 160 miles of Mississippi River Levee and 75 miles of St. Francis River Tributary Levee in Northeast Arkansas.

The St. Francis Basin is comprised of an area of approximately 7,550 square miles in Southeast Missouri and Northeast Arkansas. The basin extends from the foot of Commerce Hills near Cape Girardeau, Missouri to the mouth of the St. Francis River, seven miles above Helena, Arkansas, a distance of 235 miles. It is bordered on the east by the Mississippi River and on the West by the uplands of Bloomfield and Crowley's Ridge, having a maximum width of 53 miles.

The Mississippi River and Tributaries Project and the St. Francis Basin Project provide critical flood protection to over 2,500 square miles in Northeast Arkansas alone. This basin's flood control system is the very lifeblood of our existence. Our resources and infrastructure are allowing the St. Francis Basin and the Lower Mississippi Valley to develop into a major commercial and industrial area for this great nation. The basin is quickly becoming a major steel and energy production area. The agriculture industry in Northeast Arkansas and the Lower Mississippi Valley continues to play an integral role in providing affordable food and clothing for this nation. This has all been made possible because Congress has long recognized that flood control in the Lower Mississippi Valley is a matter of national interest and has authorized the U.S. Army Corps of Engineers to implement a flood control system in the Lower Mississippi Valley that is the envy of the civilized world. With the support of Congress over the years, we have continued to develop our flood control system in the Lower Mississippi Valley through the Mississippi River and Tributaries Project and for that we are extremely grateful.

Although, at the current level of project completion, there are areas in the Lower Mississippi Valley that are subject to major flooding on the Mississippi River. The level of funding that has been included in the President's Budget for the overall Mississippi River and Tributaries Project is not sufficient to adequately fund and

maintain this project. This level of funding will require the citizens of the Lower Mississippi Valley to live needlessly in the threat of major flood devastation for the next 30 years. Timely completion of this project is of paramount importance to the citizens of the Lower Mississippi Valley.

Therefore, we support the amount of $395,000,000 requested by the Mississippi Valley Flood Control Association for use in the overall Mississippi River and Tributaries Project. This is the minimum amount that the Executive Committee of the Association feels is necessary to maintain a reasonable time line for completion of the overall Mississippi River and Tributaries Project. Also, the amounts that have been included in the President's Budget for the St. Francis Basin Project; construction, operation and maintenance have not been sufficient to fund critical projects. These declined amounts have resulted in a significant backlog of work within the St. Francis Basin. Therefore, our District is requesting $4,502,000 for St. Francis Basin Project construction funds and $6,978,000 for St. Francis Basin operation and maintenance funds. The amounts requested for the St. Francis Basin Project are a part of the total amounts requested for the Mississippi River and Tributary Appropriations of the Civil Works Budget.

As your subcommittee reviews the Civil Works Budget of fiscal year 2002 Appropriations for the Mississippi River and Tributaries Project, please consider the significance of this project to the Lower Mississippi Valley and to the Nation's security, economy and infrastructure. As always, I feel the Subcommittee will give due regard to the needs of the Lower Mississippi River Valley as it considers appropriations for the Mississippi River and Tributaries Project. I would like to sincerely thank the Subcommittee for its' past and continued support of the Mississippi River and Tributaries Project.

Also, I would like to express our continued support for the U.S. Army Corps of Engineers and the fine water resource projects that they perform. However, we find the Corps under constant attack from a variety of organizations and special interest groups. A few members of Congress are even proposing to reform the Corps. In our opinion, leadership at the Corps is of the highest level of professional integrity, and the processes in place result in projects that are essential to the well being of this great nation. I can think of no other agency that provides such a vital service to the citizens of this country. The Corps of Engineers is the worlds' premiere engineering and construction agency. They have the expertise and technical ability to perform any task or solve any problem that this nation could possibly face. We depend on their services daily. I would like to respectfully request that you and your Subcommittee help us defend the U.S. Army Corps of Engineers from these unjustified attacks and accusations and to promote them as the fine agency that they are and have been for the past 225 years.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of this distinguished Committee, my name is Wallace Gieringer. I am retired as Executive Director of the Pine Bluff-Jefferson County (Arkansas) Port Authority. It is my honor to serve as Chairman of the Arkansas River Basin Interstate Committee, members of which are appointed by the governors of the great states of Arkansas, Colorado, Kansas, Missouri, and Oklahoma.

First, we wish to thank you very much for the foresight, wisdom and resourcefulness you and your colleagues demonstrate each and every year in providing solutions to our nation's water resource problems.

Your efforts are especially important today due to our nations growing dependence on others for energy and the need to protect and improve our environment. Greater use and development of one of our nation's treasures—our navigable inland waterways—will help remedy these problems. At the same time, these fuel-efficient and cost-effective waterways keep us competitive in international markets.

As Chairman of the Interstate Committee, I present this summary testimony as a compilation of the most important projects from each of the member states. Each of the states unanimously supports these projects without reservation. I request that the copies of each state's individual statement be made a part of the record, along with this testimony.

Mr. Chairman, the Interstate Committee continues to identify Montgomery Point Lock and Dam as our top priority. This urgently needed project at the confluence of the McClellan-Kerr Arkansas River Navigation System and the Mississippi River is vital to the five-state area and beyond. Without Montgomery Point some $5 billion in Federal and private investments, thousands of jobs, growing exports in world trade and future economic development are endangered.

Continuing problems caused by the lowering of the Mississippi River continue to plague McClellan-Kerr entrance channel users. During times of low water on the Mississippi River the entrance channel is drained of navigable water depth. As the Mississippi River bottom continues to lower, the McClellan-Kerr moves toward total shutdown. Thus, the entire Arkansas River Navigation System is at risk, and its long term viability is threatened without Montgomery Point.

Use of the temporary by-pass channel increases navigation hazards and existing dredge disposal areas are virtually full. Ongoing dredging and disposal of material can mean environmental damage. Construction needs to continue as rapidly as possible before limited dredge disposal areas become inadequate.

The good news is that you, your associates and the Congress have all recognized the importance of constructing Montgomery Point!

The Corps of Engineers awarded a $186 million construction contract on July 19, 1997. Last year Congress appropriated $40 million to continue construction of the lock and dam. Work is progressing well and the project is 50 percent complete.

Mr. Chairman and Members of the Committee, continuing Congressional support is essential at this crucial time in the history of the project. An appropriation of $45 million for fiscal year 2001 will insure that Montgomery Point is in operation as soon as possible at the lowest possible cost.

The Interstate Committee also respectfully recommends the following as important priorities:

$2,000,000 is needed to continue the most important Arkansas River Navigation Study, AR & OK. In addition to your past support, WRDA 2000 directed the Corps to "expedite completion of the Arkansas River Navigation Study, including the feasibility of increasing the authorized channel depth from 9 feet to 12 feet."

Approximately 95 percent of the lower Arkansas already enjoys a 12-foot or greater channel depth. A 12-foot channel can mean one-third or more cargo in each barge with resultant energy savings, reduction in greenhouse gases and other environmental advantages. Lock chambers on the McClellan-Kerr were built to accommodate a 12-foot channel.

While navigation is the primary purpose of the McClellan-Kerr, navigation needs and flood control are closely related. Chronic high flows and channel restrictions result in decreased navigation traffic, as well as continued flooding in the vicinity of Fort Smith, Arkansas, and reduced recreational use.

This study addresses the navigation System Operating Plan and navigable depths to improve navigation conditions on the river, as well as the performance of flood control measures and the impacts of high/low flows on environmental quality and recreation uses.

The Arkansas River Basin Interstate Committee urges the Committee to fund the Section 206 Aquatic Ecosystem Restoration program to the programmatic limit of $25 million, so that funds will be available to match the committed $2 million from the State of Colorado's Great Outdoors Colorado Trust Board. The Colorado funds are contingent upon receiving the Federal funds. These funds are for the Arkansas River Fisheries Restoration Project.

Equus Beds Groundwater Recharge Project—Wichita, Kansas. Continuation of a City of Wichita, Groundwater Management District No. 2 and State of Kansas project to construct recharge facilities for a major groundwater resource supplying water to more than 20 percent of Kansas' municipal, industrial and irrigation users. Almost one billion gallons of water have already been recharged. The total project will capture and recharge in excess of 100 million gallons per day and will also reduce on-going degradation of the existing groundwater quality by minimizing migration of saline water. Continued Federal funding is requested in the amount of $6,840,000 for fiscal year 2002.

Again this year we urge the Committee to provide funding in the amount of $2.5 million to initiate the installation of tow haulage equipment on the 3 locks on the Arkansas River portion of the McClellan-Kerr Arkansas River Navigation System in Oklahoma.

Mr. Chairman, Members of this Committee, we respectfully request that you and members of your staff review and respond in a positive way to the attached individual statements from each of our states which set forth specific requests pertaining to those states.

We sincerely appreciate your consideration and assistance.

SUMMARY STATEMENT

Mr. Chairman and members of the Committee, we are grateful that you, your associates, the Congress and the Administration have all recognized the urgency of Constructing Montgomery Point Lock and Dam on the McClellan-Kerr Arkansas

River Navigation System. Continuing Congressional support is essential. We respectfully urge the Congress to appropriate $45 million for use in fiscal year 2002 to continue construction and insure that this urgently needed lock and dam is in operation as soon as possible at the lowest possible cost.

We also urge you to provide $2,000,000 for the most important Arkansas River Navigation Study, AR & OK. This study addresses the Navigation System Operating Plan to improve navigation conditions during high flows on the river, as well as the performance of flood control measures, and the feasibility of increasing the authorized channel depth from 9 feet to 12 feet.

Other projects are also vital to the environment, social and economic well-being of our region and the nation. We request your support and urge you to favorably consider the following:

—Support continued funding for the construction, and Operation and Maintenance of the McClellan-Kerr including an additional $800,000 to complete bank stabilization work on the right bank to stabilize the navigation channel in the vicinity of the Little Rock Port.

—Continue construction authority for the McClellan-Kerr. It is vitally important that the Corps develop a permanent solution to the threat of cutoffs developing in the lower reaches of the system and to construct these measures under the existing construction authority.

—Provide funding and direct the Corps to complete installation of tow-haulage equipment for all the locks and dams on the McClellan-Kerr.

—Provide funds and direct the Corps of Engineers to begin construction of the Arkansas River Levees Project as authorized by Section 110 of the Water Resource Development Act of 1990.

—$1.3 million needs be specifically provided and the Corps directed to begin rehabilitation construction on the Plum Bayou Levee (including the Old River and Baucum Levees).

—Provide $7 million to initiate repair and rehabilitation of the power units at the Ozark-Jetta Taylor Lock and Dam Powerhouse which first went into operation in 1970.

—Provide funding in the amount of $1,175,000 to complete pre-construction engineering and design on the North Little Rock, (Dark Hollow), AR, Project.

—Provide funding in the amount of $1,845,000 to complete Fourche Bayou Basin, Little Rock, AR, Project.

Please help prevent a crisis for the Arkansas River Navigation System and the multi-state region it serves by appropriating $45 million for use in fiscal year 2002 for Montgomery Point Lock and Dam.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee.

ARKANSAS RIVER BASIN FOR FISCAL YEAR 2002

Mr. Chairman and members of the Committee, thank you for the opportunity to present testimony to this most important committee. I am retired as Executive Director of the Pine Bluff-Jefferson County Port Authority and serve as Arkansas Chairman for the Interstate Committee. Other committee members representing Arkansas, in whose behalf this statement is made, are Messrs. Wayne Bennett, soybean and rice farmer from Lonoke; Colonel Charles D. Maynard, U.S. Army, retired, from Little Rock; Barry McKuin of Morrilton, President of the Conway County Economic Development Corporation; and N. M. "Buck" Shell, transportation specialist of Fort Smith and Van Buren, Arkansas.

2000 was a memorable year in the history of the McClellan-Kerr Arkansas River Navigation System—and you helped make it so! Last year Congress continued to recognize the urgent need for Montgomery Point Lock and Dam by appropriating $40 million. This much needed facility is under construction near the confluence of the McClellan-Kerr System and the Mississippi River. To each of you, your staff and the Congress—our most heartfelt thanks!

The Corps of Engineers awarded a $186 million contract for construction of the lock and dam proper on July 19, 1997. The cofferdam and the diversion channel have been completed, and placement of concrete is progressing well. When completed, Montgomery Point will protect over $5 billion in public and private investments, thousands of jobs and world trade created as a result of the McClellan-Kerr Arkansas River Navigation System. Without Montgomery Point Lock and Dam the future of our wonderful navigation system remains threatened. Time is of the essence.

Montgomery Point Lock and Dam is a time sensitive project as economic growth along the entire McClellan-Kerr River is being deterred awaiting completion! As the

Mississippi River bottom continues to lower, the McClellan-Kerr moves toward total shutdown. Existing dredge disposal areas are virtually full. Ongoing dredging and disposal of material can mean environmental damage. Construction must continue as rapidly as possible if the project is to be in place before disposal areas become inadequate.

Use of the temporary by-pass channel increases navigation hazards making it imperative that work on the lock and dam be completed as quickly and as safely as possible.

We are very grateful that you, your associates, the Congress, and the Administration have all recognized the urgency of constructing Montgomery Point. Appropriations of $156.2 million have been made to date for engineering, site acquisition and construction for this project which should be completed in 2003 according to the Corps' optimum construction schedule.

Mr. Chairman and Members of the Committee, continuing Congressional support is essential at this crucial time in the history of the project. We respectfully request and urge the Congress to appropriate $45 million for use in fiscal year 2002 to continue construction. Adequate funding will insure that the urgently needed facility is in operation as soon as possible at the lowest possible cost. (This amount, and other dollar amounts requested herein, were obtained from the Corps in response to our questions about what could be efficiently expended for each project if directed to do so and funded by the Congress.)

On another crucial matter, $2,000,000 is needed for the most important Arkansas River Navigation Study, AR & OK. We want to especially express thanks Mr. Chairman for the Committee's past support. In addition to your action, taking into account the need to realize the total economic potential of the McClellan-Kerr System, WRDA 2000 directed the Corps to "expedite completion of the Arkansas River Navigation Study, including the feasibility of increasing the authorized channel depth from 9 feet to 12 feet."

Approximately 95 percent of the lower Arkansas already enjoys a 12-foot or greater channel depth. A 12-foot channel can mean one-third or more cargo in each barge with resultant energy savings, reduction in greenhouse gases and other environmental advantages. Lock chambers on the McClellan-Kerr were built to accommodate a 12-foot channel.

While navigation is the primary purpose of the McClellan-Kerr System, navigation needs and flood control are closely related. Chronic high-water flows and channel restrictions result in decreased navigation traffic, as well as continued flooding in the vicinity of Fort Smith, Arkansas, and reduced recreational use.

This study addresses the navigation System Operating Plan and navigable depths to improve navigation conditions on the river as well as the performance of flood control measures and the impacts of high/low flows on environmental quality and recreation uses.

Other projects are vital to the environment, social and economic well-being of our region and our nation. We recognize the importance of continued construction of needed features to the McClellan-Kerr Arkansas River Navigation System and strongly recommend that you favorably consider the following in your deliberations:

—Support continued funding for the construction, and Operation and Maintenance of the McClellan-Kerr Arkansas River Navigation System including an additional $800,000 to complete bank stabilization work on the right bank to stabilize the navigation channel in the vicinity of the Little Rock Port.

—Continue construction authority for the McClellan-Kerr Arkansas River Navigation Project until remaining channel stabilization problems identified by the Little Rock District Corps of Engineers have been resolved. It is vitally important that the Corps continue engineering studies to develop a permanent solution to the threat of cutoffs developing in the lower reaches of the navigation system; and for the Corps to construct these measures under the existing construction authority.

—Provide funding and direct the Corps to complete installation of tow haulage equipment for all the locks and dams on the McClellan-Kerr Arkansas River Navigation System. This efficiency feature will reduce lockage time by as much as 50 percent while permitting tonnage to double in each tow with only a minor increase in operating cost.

—Provide funds and direct the Corps of Engineers to begin construction of the Arkansas River Levees Project as authorized by Section 110 of the Water Resource Development Act of 1990. $400,000 is needed in fiscal year 2002 to continue engineering and design for these levees which have been previously studied in the cost-shared Arkansas River, Arkansas and Oklahoma Feasibility Study. $1.3 million needs be specifically provided and the Corps directed to begin rehabilita-

tion construction on the Plum Bayou Levee (includes the Old River and Baucum Levees).

—Provide $7 million to initiate repair and rehabilitation of the power units at the Ozark-Jetta Taylor Lock and Dam Powerhouse which first went into operation in 1970. This project is vitally needed to correct problems which have plagued the slant axis turbines since they were first put in operation and to continue the reliable production of power from this facility. Having reliable power production facilities is vital to the economic well being of this region of the country.

—Provide funding in the amount of $1,175,000 to complete pre-construction engineering and design on the North Little Rock, (Dark Hollow), AR, Project.

—Provide funding in the amount of $1,845,000 to complete Fourche Bayou Basin, Little Rock, AR, project. This will allow the U.S. Army Corps of Engineers to cost-share with the City of Little Rock on purchase of 1,750 acres of bottomland hardwood for environmental preservation and establishment of nature appreciation facilities.

We also urge the Congress to continue to encourage the Military Traffic Management Command to identify opportunities to accelerate use of the nation's navigable waterways to move military cargoes thereby helping contain the nation's defense costs.

In conclusion, Mr. Chairman, please help prevent a crisis for the Arkansas River Navigation System and the multi-state region it serves by appropriating $45 million for use in fiscal year 2002 for Montgomery Point Lock and Dam.

The entire Arkansas River Navigation System is at risk, and its long-term viability is threatened. The system remains at risk until Montgomery Point is constructed. Some $5 billion in Federal and private investments, thousands of jobs, and growing exports are endangered.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to provide testimony to your most important subcommittee and urge you to favorably consider our request for needed infrastructure investments in the natural and transportation resources of our nation.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE (COLORADO)

Mr. Chairman and members of the Committee, we greatly appreciate the opportunity to present testimony before this committee. My name is Steve Arveschoug. I am General Manager of the Southeastern Colorado Water Conservancy District and serve as Colorado Chairman for the Interstate Committee.

The City of Pueblo and 21 other project partners request that funding be committed in the fiscal year 2002 Energy and Water Appropriations Bill for the Arkansas River Fisheries Restoration Project. The U.S. Army Corps of Engineers are completing the final stages of the Ecological Restoration Report and Environmental Analysis for the project and have scheduled the plans and specification for construction to be completed between August 2001 and January 2002. The City of Pueblo has secured a funding commitment of $2 million from the State of Colorado is Great Outdoors Colorado Board that is contingent upon the Federal government committing Section 206 Aquatic Ecosystem Restoration funds to complete design and start construction in fiscal year 2002.

Congress annually appropriates funds within the Energy and Water Appropriations Bill for U.S. Army Corps of Engineers general construction projects that includes funding for Section 206 Aquatic Ecosystem Restoration projects. The commitment of project funds within this appropriations bill is needed to have the Great Outdoors Colorado Trust Board enter into a contract with the City of Pueblo to commit their funds to the project.

The City Council and the project partners thank you for your previous support for this project and request your continued support of legislation to provide funding in fiscal year 2002. This request is the top priority of the Pueblo City Council in the upcoming Federal budget. The City Council requests the following wording be included in the Energy and Water Appropriations Bill or other Appropriations Bills that would commit funding in fiscal year 2002 for the Arkansas River Fisheries Restoration Project:

The Committee approves the expenditure of up to $1.75 million in fiscal year 2002 on the Arkansas River Corridor Legacy Project from the Section 206 provision of this bill. The Committee is particularly cognizant of the State of Colorado is designation of funds to comply with non-Federal cost-sharing requirements of Section

206, and the State's need for a Federal commitment to the project, which is currently ranked as a priority for the Corps.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to provide testimony to your most important subcommittee and urge you to favorably consider our request for needed infrastructure investments in the natural and transportation resources of our nation.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE (KANSAS)

SUMMARY STATEMENT

The critical water resource projects in the Kansas portion of the Arkansas River Basin are summarized below. The projects are safety, environmental and conservation oriented. In addition, we state our unanimous support for the fiscal year 2002 request of $45 million for continued construction of the authorized Montgomery Point Lock and Dam Project to maintain viable navigation for commerce on the McClellan-Kerr Navigation System.

We request your continued support for these important Bureau of Reclamation projects:

—*Equus Beds Groundwater Recharge Project.*—Continuation of a City of Wichita, Groundwater Management District No. 2 and State of Kansas project to construct recharge facilities for a major groundwater resource supplying water to more than 20 percent of Kansas municipal, industrial and irrigation users. Almost one billion gallons of water have already been recharged. The total project will capture and recharge in excess of 100 million gallons per day and will also reduce on-going degradation of the existing groundwater quality by minimizing migration of saline water. Continued Federal funding is requested in the amount of $6,840,000 for fiscal year 2002.

—*Cheney Reservoir.*—On the North Fork of the Ninnescah River providing natural treatment of inflows in the upper reaches of Cheney Reservoir to control poor water quality due to non-point source pollution from agricultural runoff. Continued funding in the amount of $125,000 is requested for fiscal year 2002.

We request your support of these equally important Corps of Engineers projects:

—*Arkansas City, Kansas Flood Protection.*—To protect homes and businesses from catastrophic damages resulting from either Walnut River or Arkansas River flooding. Previous funding is appreciated and continued Federal funding is requested in the amount of $5 million for fiscal year 2002, the level needed by the Corps of Engineers.

—*Walnut River Basin, Kansas.*—Feasibility study is needed to fully understand and recommended ecosystem restoration strategies to protect and extend the useful life of public water supply. Funding is requested in the minimum amount of $200,000.

—*Grand Lake Feasibility Study.*—Follow-on flood control study to determine the most cost-effective solution to real estate inadequacies of Federal flood control easements around Grand Lake. Funding request in the amount of $1.7 million.

—*Grand (Neosho) Basin Watershed Reconnaissance Study*—To evaluate non-structural measures to reduce flood damages in southeastern Kansas and northeastern Oklahoma. Funding request is for $100,000.

—*Continuing Authorities Program.*—Several smaller Kansas communities, including the metropolitan area of Wichita, have previously requested funding from the Small Flood Control Projects Program and the Emergency Streambank Stabilization Program. We request funding to be authorized at the full programmatic limits.

—*National Streamflow Information Program (NSIP).*—Funding at the level needed by the USGS for a vital national baseline network of stream gages needed to meet national interests.

Finally, we are very grateful that both the Corps of Engineers and Bureau of Reclamation have the expertise needed for the development and protection of water resources infrastructure. It is essential to have the integrity and continuity these agencies provide on major public projects. Your continued support of these vital agencies, including funding, will be appreciated.

STATEMENT

Mr. Chairman and members of the committee, I am Gerald H. Holman, Senior Vice President of the Wichita Area Chamber of Commerce, Wichita, Kansas and

Chairman of the Kansas Interstate Committee for the Arkansas Basin Development Association (ABDA). I also serve as Chairman of ABDA. This statement is submitted on behalf of the entire Kansas Delegation.

We join with our colleagues from the states of Oklahoma, Arkansas and Colorado to form the multi-state Arkansas River Basin Interstate Committee. We are unified as a region and fully endorse the statement of the Arkansas River Basin Interstate Committee.

In addition to the important projects listed below, continued construction to completion of the Montgomery Point Lock and Dam Project is essential to maintain viable navigation for commerce on the McClellan-Kerr Navigation System. This inland waterway is vital to the economic health of our area. Likewise, your support is vital to maintain its future viability. Construction is well underway and continued funding authorization is needed. We state our unanimous support for the $45 million needed by the Corps of Engineers for fiscal year 2002 to maintain the most economical and cost efficient construction schedule.

The critical water resources projects in the Kansas portion of the Arkansas River Basin have been reviewed by the Kansas delegation. The projects are safety, environmental and conservation oriented and all have regional and/or multi-state impact. We are grateful for your past commitment and respectfully request your continued commitment.

We ask for your continued support for these important Bureau of Reclamation projects on behalf of the Wichita/South Central Kansas area:

Equus Beds Groundwater Recharge Project.—This is the continuation of a Bureau of Reclamation project jointly endorsed by the City of Wichita, Groundwater Management District No. 2 and the State of Kansas. This model technology has proven the feasibility of recharging a major groundwater aquifer supplying water to nearly 600,000 irrigation, municipal and industrial users. The demonstration project has successfully recharged almost one billion gallons of water from the Little Arkansas River. The recharge project is also helping to protect the aquifer from on-going degradation caused by the migration of saline water.

The demonstration project has confirmed earlier engineering models that the full scale aquifer storage and recovery project is feasible and also capable of meeting the increasing water resource needs of the area to the mid 21st century. Presently, the Equus Beds provides approximately half of the Wichita regional municipal water supply and is vital to the surrounding agricultural economy. Through the recharge project, a greater reliance on the aquifer is planned for the future. The project is also an essential environmental protection strategy, which must be implemented.

Governor Graves supports this much needed project in order to secure the quality of life and economic future for more than 20 percent of the state's population.

The full scale design concept for the aquifer storage and recovery project calls for a multi-year construction program. Phase One is estimated to cost $17.1 million. Construction is planned to begin in early 2002. The total project involving the capture and recharge of more than 100 million gallons of water per day is estimated to cost $110 million over 10 years. All interested parties fully support this project as the needed cornerstone for the area agricultural economy and for the economy of the Wichita metropolitan area. The aquifer storage and recovery project is a vital component of Wichita's comprehensive and integrated water supply strategy estimated to cost $350 million at completion.

We are grateful for your consistent, previous cost share funding support since fiscal year 1995 as a compliment to funds provided by the City of Wichita. We request continued cost share funding for Phase One of the full-scale aquifer storage and recovery project in the amount of $6,840,000 for fiscal year 2002.

heney Reservoir.—The reservoir provides approximately 50 percent of Wichita's regional water supply. Two environmental problems threaten the water quality and longevity of the reservoir. One is sedimentation from soil erosion and the other is non-point source pollution, particularly the amount of phosphates entering the reservoir resulting in offensive taste and odor problems. A partnership between farmers, ranchers and the City of Wichita has proven beneficial in implementing soil conservation practices and to better manage and therefore reduce and/or eliminate non-point source pollution. Lansat 7 imaging and digital elevation modeling have been employed to identify high priority areas. To date, over 1,900 environmental projects have been completed within the 543,000-acre watershed. This partnership must continue indefinitely to protect the reservoir and to extend the life of the Wichita regional water supply. The City of Wichita is providing funding for this critical, nationally acclaimed model nonpoint source pollution project. We request continued Federal funding in the amount of $125,000 for fiscal year 2002. With funding from Section 319 of the Clean Water Act being phased out, we request another funding source to continue this vital program.

Many of our agricultural communities have historically experienced major flood disasters, some of which have resulted in multi-state hardships involving portions of the state of Oklahoma. The flood of 1998 emphasized again the need to rapidly move needed projects to completion. Our small communities do not have the necessary funds or engineering expertise. Major losses also took place in the Wichita metropolitan area. Projects in addition to local protection are also important. This Committee has given its previous support to Kansas Corps of Engineers projects. We request your continued support for the projects listed below:

—*Arkansas City, Kansas Flood Protection.*—Unfortunately, this project was not completed prior to the flood of 1998. The flood demonstrated again the critical need to protect the environment, homes and businesses from catastrophic damages from either Walnut River or Arkansas River flooding. When the project is complete, damage in a multi-county area will be eliminated and benefits to the state of Oklahoma just a few miles south will also result. The Secretary of the Army was authorized to construct the project in fiscal year 1997. We request your continued Federal support in the amount of $5 million for fiscal year 2002, the level needed by the Corps of Engineers.

—*John Redmond Reservoir Reallocation Study.*—John Redmond Reservoir remains a primary source of water supply for many small communities in Kansas. It is suffering loss of capacity ahead of its design rate due to excessive deposits within the conservation pool. The flood pool remains above its design capacity. Funding provided in fiscal year 2001 should be sufficient for the Corps of Engineers to complete a study which will ascertain the equitable distribution of sediment storage between conservation and flood control storages and also evaluate the environmental impact of the appropriate reallocation. No additional funding is requested in fiscal year 2002. However, funding may be requested in fiscal year 2003.

—*Walnut River Basin, Kansas.*—The concern for the protection and restoration of wetland and riparian areas has increased in response to greater public understanding of ecological and economic value. Riparian corridor and wetland preservation and protection practices are increasingly more important as corrective measures for nonpoint source pollution thereby extending the useful life of public water supply lakes in the basin. An initial Corps reconnaissance report has been certified yet a feasibility study is needed to fully understand and recommend solutions to ecosystem restoration. Funding is requested in the minimum amount of $200,000 for fiscal year 2002.

—*Grand Lake Feasibility Study.*—A need exists to complete evaluation of water resource problems in the Grand-Neosho River basin in Kansas and Oklahoma to evaluate solutions to upstream flooding problems associated with the adequacy of existing real estate easements necessary for flood control operations of Grand Lake, Oklahoma. A study authorized by the Water Resources Development Act of 1996 was completed in September of 1998 and determined that if the project were constructed based on current criteria, additional easements would be required. A Feasibility study is necessary to determine the most cost-effective solution to the real estate inadequacies. Changes in the operations of the project or other upstream changes could have a significant impact on flood control, hydropower, and navigation operations in the Grand (Neosho) River system and on the Arkansas River basin system. We request funding in the amount of $1.7 million in fiscal year 2002.

—*Grand (Neosho) Basin Watershed Reconnaissance Study.*—A need exists for a basin-wide water resource planning effort in the Grand-Neosho River basin, apart from the issues associated with Grand Lake, Oklahoma. The reconnaissance study would focus on the evaluation of institutional measures needed to improve the quality of the aquatic and terrestrial habitat in the basin and to assist communities, landowners, and other interests in southeastern Kansas and northeastern Oklahoma in the development of non-structural measures to reduce flood damages. The study could also address the land losses due to streambank erosion which the basin experiences on an annual basis and which contributes to the degradation of the habitat in the basin. We request funding in the amount of $100,000 in fiscal year 2002 to conduct the study.

—*Continuing Authorities Programs.*—We support funding of needed programs including the Small Flood Control Projects Program (Section 205 of the 1948 Flood Control Act, as amended) as well as the Emergency Streambank Stabilization Program (Section 14 of the 1946 Flood Control Act, as amended). Smaller communities in Kansas (Pittsburgh, McPherson and Medicine Lodge) have previously requested assistance from the Corps of Engineers under these programs. Section 205 Feasibility studies are underway to address flooding problems in Wichita, Augusta and Coffeyville. We urge you to support these

programs to the $50 million programmatic limit for the Small Flood Control Projects Program and $15 million for the Emergency Streambank Stabilization Program.

The Planning Assistance to States Program under section 22 of the Water Resources Development Act of 1974, as amended, provides Federal funding to assist the states in water resource planning. The state of Kansas is grateful for previous funding under this program which has assisted small Kansas communities in cost sharing needed resource planning as called for and approved in the Kansas State Water Plan. We request continued funding of this program at the level which will allow the state of Kansas to receive the $500,000 limit.

Also, Ecosystem Restoration Programs are relatively new programs which offer the Corps of Engineers a unique opportunity to work to restore valuable habitat, wetlands, and other important environmental features which previously could not be considered. Preliminary Restoration Plan studies are underway at Newton, Garden City and Neosho County. We urge you to support section 1135 of the Water Resources Development Act of 1986 and Section 206 of the Water Resources Development Act of 1996 at their $25 million programmatic limits.

—*National Streamflow Information Program (NSIP).*—For more than 100 years, the USGS has operated a multipurpose streamgaging network supported primarily by other Federal, State and Local agencies. Streamflow data from those stations is used for planning and decisions related to agriculture, industry, urban water supplies, riverine and riparian habitat, navigation and flood hazard verification. The loss of about 22 percent of the streamgaging stations since 1971 has resulted in a commensurate loss in valuable streamflow information. In 1998, the USGS completed a study on the ability of the streamgaging network to meet Federal needs. A NSIP program was recommended to produce information for multiple current and future uses. We recommend funding the NSIP program to cover the entire cost of a baseline network of stream gages needed to meet national interests in order to ensure the long-term stability of this vital network.

Finally, we are very grateful that both the Corps of Engineers and Bureau of Reclamation have the expertise needed for the development and protection of water resources infrastructure. It is essential to have the integrity and continuity these agencies provide on major public projects. Your continued support of these vital agencies, including funding, will be appreciated. Our infrastructure must be maintained and where needed, enhanced for the future.

Mr. Chairman and Members of this Committee, we thank you for the dedicated manner in which you and your colleagues have dealt with the Water Resources Programs and for allowing us to present our needs and funding requests.

Thank you very much.

PREPARED STATEMENT OF THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE (OKLAHOMA)

SUMMARY STATEMENT

The water resource needs for the State of Oklahoma have been carefully reviewed and the following accurately represents the needs of the citizens of our region.

We continue to hold as our number on priority the continued construction of Montgomery Point Lock and Dam in Arkansas. The completion of this project is critical to the continued use of the navigation system and the continued growth of the entire region. We request an appropriation of $45 million for fiscal year 2001.

We strongly urge the Committee to provide funding in the amount of $2.5 million to initiate the installation of tow haulage equipment on the 3 locks and dams on the Arkansas River portion of the McClellan-Kerr Arkansas River Navigation System in Oklahoma.

The Arkansas River System Operations Feasibility Study, Arkansas and Oklahoma. This study would optimize the reservoirs in Oklahoma and Arkansas that provide flows into the river with a view toward improving the number of days per year that the navigation system will accommodate tows. WRDA 2000 also directs the Corps of Engineers to expedite the study including the feasibility of increasing the authorized channel depth from 9' to 12'. We request funding in the amount of $2 million, to continue the study in fiscal year 2001.

We request the Committee to provide funding for the following studies:

—Illinois River Watershed Reconnaissance Study, $100,000.

—Grand(Neosho) Basin Reconnaissance Study, $100,000.

—Grand Lake Feasibility Study, $1.7 million.

—Lake Tenkiller Reallocation Study, $500,000.
—Wister Lake Reallocation Study, $450,000.
—Oologah Lake Water Quality Study, $515,000.

We also urge the Committee to provide adequate funding for the following Programs:

—Section 205, Small Flood Control Projects Program, $50 million, program limit.
—Section 14, Emergency Streambank Stabilization Program, $15 million, program limit.
—Sections 1135 and 206, Ecosystem Restoration Programs and Flood Plain Management Services Program, $25 million each, program limits.

On a related matter, we have deep concerns about the attempt to re-authorize the Endangered Species Act without significant beneficial reforms. We strongly urge you to take a hard look at any bill concerning this re-authorization and insure that it contains reasonable and meaningful reforms.

STATEMENT

Mr. Chairman and members of the committee, I am James M. Hewgley, Jr., Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

It is my privilege to present this statement on behalf of the Oklahoma members of our committee in support of adequate funding for water resource development projects in our area of the Arkansas River Basin. Other members of the Committee are: Mr. Ted Coombes, Tulsa; Mr. Edwin L. Gage, Muskogee; Mr. Terry McDonald, Tulsa; and Mr. Lew Meibergen, Enid.

Together with representatives of the other Arkansas River Basin states, we fully endorse the statement presented to you by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to present our views of the special needs of our States concerning several studies and projects.

Montgomery Point Lock and Dam—Montgomery Point Arkansas. As we have testified for the past several years, we are once again requesting adequate appropriations to continue construction of this most important and much needed project. The shippers and users of the McClellan-Kerr Arkansas River Navigation System have been seriously impacted by droughts in the past, and last year with the lowest flows in recorded history at Memphis, on the Mississippi River. This again demonstrates the absolute need for completion of this critical project, as such an event will drain the navigation water from the 10 mile White River Entrance Channel to the McClellan-Kerr System.

We respectfully request the Congress to appropriate $45 million in the fiscal year 2002 budget cycle to continue construction on the current project schedule. This will help insure the project is completed and in operation in a timely manner at the lowest possible cost.

Mr. Chairman, it is my pleasure to point out to this distinguished Committee that this navigation system has brought low cost water transportation to Oklahoma, Arkansas and the surrounding states. There have been over $5 billion invested in the construction and development of the McClellan-Kerr Arkansas River Navigation System by the Federal Government and the public and private sector, resulting in the creation of over 50,000 jobs in this partnered project.

Tow Haulage Equipment—Oklahoma. We also request funding of $2.5 million to initiate the installation of tow haulage equipment on the locks located along the Arkansas River Portion of the McClellan-Kerr Arkansas River Navigation System. Total cost for these three locks is $4.5 million. This project will involve installation of tow haulage equipment on W.D. Mayo Lock and Dam#14, Robert S. Kerr Lock and Dam#15, and Webbers Falls Lock and Dam#16, on the Oklahoma portion of the waterway. The tow haulage equipment is needed to make transportation of barges more efficient and economical by allowing less time for tows to pass through the various lock and dams.

We are hopeful that the President's budget includes funds to advance work for flood control and other water resource needs in Oklahoma. Of special interest to our committee is funding for the Skiatook and Tenkiller Ferry Lakes Dam Safety Assurance Projects in Oklahoma and that construction funding has been provided for those important projects. We are also pleased that funding is included to continue reconnaissance studies and initiate feasibility studies in the North Canadian River Basin for Warr Acres, Oklahoma, and for the Cimarron River Basin in Kansas and Oklahoma.

Arkansas River System Operations Feasibility Study, Arkansas and Oklahoma.—We are requesting funds to continue the Arkansas River Navigation Study, a feasibility study which is examining opportunities to optimize the Arkansas River sys-

tem. We want to express our appreciation for the Committee's past support for this important study. In addition to your action, taking into account the need to realize the total economic potential of the McClellan-Kerr System, WRDA 2000 directed the Corps of Engineers to "expedite completion of the Arkansas River Navigation Study, including the feasibility of increasing the authorized channel depth from 9 feet to 12 feet."

Lock chambers on the McClellan-Kerr were built to accommodate a 12 foot channel. Approximately 95 percent of the lower Arkansas already enjoys a 12 foot or greater channel depth. A 12 foot channel can mean one-third or more cargo in each barge with resultant energy savings, reduction in greenhouse gases and other environmental advantages.

While navigation is the primary purpose of the McClellan-Kerr System, navigation needs and flood control are closely related. Chronic high-water flows and channel restrictions result in decreased navigation traffic, as well as continued flooding in the vicinity of Fort Smith, Arkansas, and reduced recreational use.

The system of multipurpose lakes in Arkansas and Oklahoma on the Arkansas River and its tributaries supports the McClellan-Kerr Navigation System, which was opened for navigation to the Port of Catoosa near Tulsa, Oklahoma, in 1970. The navigation system consists of 445 miles of waterway that wind through the states of Oklahoma and Arkansas. This study would optimize the operation of the reservoirs in Oklahoma and Arkansas that provide flows into the river with a view toward improving the number of days per year that the navigation system would accommodate navigation.

This study could have significant impact on the economic development opportunities in the states of Oklahoma, Arkansas, and the surrounding states. Due to the critical need for this study, however, we request funding of $2 million, which is the amount the Corps can efficiently spend in fiscal year 2002 should the Congress approve and appropriate the funds.

Illinois River Watershed Reconnaissance Study.—The Tulsa District has the capability to utilize $100,000 to conduct a reconnaissance study of the water resource problems of the Illinois River Basin in fiscal year 2002. The Illinois River watershed is experiencing continued water resource development needs and is the focus of ongoing Corps and other agency investigations. However, additional flows are sought downstream of the Lake Tenkiller Dam and there are increasing watershed influences upstream of Lake Tenkiller which impact the quality of water available for fish and wildlife, municipal and industrial water supply users, and recreation users of the Lake Tenkiller and Illinois River waters. We are requesting funding in the amount of $100,000 for this study.

Grand (Neosho) Basin Reconnaissance Study.—The Tulsa District has the capability to utilize $100,000 to conduct a reconnaissance study of the water resource problems in the Grand (Neosho) Basin in Oklahoma and Kansas. There is a need for a basin-wide water resource planning effort in the Grand-Neosho River Basin, apart from the issues associated with Grand Lake, Oklahoma. The reconnaissance study would focus on the evaluation of institutional measures to improve the quality of the aquatic and terrestrial habitat in the basin and to assist communities, landowners, and other interests in southeastern Kansas and northeastern Oklahoma and in the development of structural and non-structural measures to reduce flood damages. The study could also address the land losses due to streambank erosion which the basin experiences on an annual basis and which contributes to the degradation of the habitat in the basin. We therefore request funding in the amount of $100,000 in fiscal year 2002 to conduct the study.

Grand Lake Feasibility Study.—A study authorized by the Water Resources Development Act of 1996 was completed in September of 1998 and determined that if the project were constructed based on current criteria, additional easements would be acquired. A Feasibility Study is now required to determine the most cost-effective solution to the real estate inadequacies. Changes in the operations of the project or other upstream changes could have a significant impact on flood control, hydropower, and navigation operations in the Grand (Neosho) River system and on the Arkansas River Basin system, as well. The Tulsa District has capability to utilize and this committee strongly urges the Congress to appropriate $1.7 million for this study in fiscal year 2002.

Lake Tenkiller Reallocation Study.—The Tulsa District can execute this study in fiscal year 2002 if funding in the amount of $500,000 is appropriated to conduct a reallocation study of the water storage of Tenkiller Ferry Lake, Oklahoma. Tenkiller Ferry Lake is located on the Illinois River approximately 7 miles northeast of Gore, Oklahoma, and 22 miles southeast of Muskogee, Oklahoma. Construction of the existing project began in June 1947 and the dam was completed in May 1952. The proposed study would involve reallocation of the authorized project purposes among

competing users of the project's flood control, hydropower and water supply resources.

Wister Lake Reallocation Study.—We request funding of $450,000 to conduct a reallocation study of the water storage of Wister Lake, Oklahoma. Wister Lake is located on the Poteau River near Wister, Oklahoma. The lake was completed in 1949 for flood control, water supply, water conservation and sediment control. Wister Lake is the primary water resource development project in the Poteau River Basin. It provides substantial flood control, municipal and industrial water supply, and recreation benefits for residents of LeFlore County, Oklahoma, and the southeastern Oklahoma region. Originally constructed for flood control and water conservation, seasonal pool manipulation was initiated in 1974 to improve the project's water supply and recreation resources. The conservation pool level was permanently raised in the Water Resources Development Act of 1996. A reallocation study, which would include National Environmental Policy Act (NEPA) coordination, is required. NEPA and other resource evaluation and coordination would include the assessment of cultural and fish and wildlife impacts, potential mitigation measures, and reallocation studies.

Oologah Lake Water Quality Study.—Tulsa District can utilize $515,000 for ongoing water quality studies at Oologah Lake and in the upstream watershed. The lake is an important water supply source for the city of Tulsa and protection of the lake and maintaining and enhancing the quality of the water is important for the economic development of the city. The Corps of Engineers is working closely with the city and with the Oklahoma Water Resources Board to insure a unified approach to analysis and preservation of the lake water quality. We request the study be funded and that the Corps of Engineers be directed to conduct the studies at full Federal expense. We therefore urge this Committee to provide funding in the amount of $515,000 to move this study forward.

Continuing Authorities Program.—We also support funding of needed programs including the Small Flood Control Projects Program, (Section 205 of the 1948 Flood Control Act, as amended) as well as the Emergency Streambank Stabilization Program, (Section 14 of the 1946 Flood Control Act, as amended). Smaller communities in Kansas (Iola, Liberal, Medicine Lodge, McPherson, Parsons, Altoona and Coffeyville) have previously requested assistance from the Corps of Engineers under these programs. We urge you to support these programs to the $50 million programmatic limit for the Small Flood Control Projects Program and $15 million for the Emergency Streambank Stabilization Program.

Ecosystem Restoration Programs.—Ecosystem Restoration Programs are relatively new programs which offer the Corps of Engineers a unique opportunity to work to restore valuable habitat, wetlands, and other important environmental features which previously could not be considered. We urge you to support section 1135 of the Water Resources Development Act of 1986 and Section 206 of the Water Resources Development Act of 1996 at the $25 million programmatic limits.

Challenge 21 Program.—The Challenge 21 Program has the possibility of providing great assistance to communities which have experienced disastrous flood events like those that took place in Kansas with the flood of 1998. The Challenge 21 Program will focus on opportunities to move homes and businesses from harm's way through structural and non-structural measures and through comprehensive watershed planning efforts. We support funding of this important initiative.

Planning Assistance to States.—We also support the full funding of the Planning Assistance to States (PAS) Program to the full programmatic amount of $10 million. The PAS program (Section 22 of the 1974 Water Resources Development Act) authorizes the Corps of Engineers to use its technical expertise in water and related land resource management to help States and Indian Tribes solve their water resource problems. The program is used by many states to support their State Water Plans. As natural resources diminish, the need to manage those resources becomes more urgent. We urge your continued support of this program as it supports States and Native American Tribes in developing resource management plans which will benefit citizens for years to come. The program is very valuable and effective, matching Federal and non-Federal funds to provide cost effective engineering expertise and support to assist communities, states and tribes in the development of plans for the management, optimization, and preservation of basin, watershed, and ecosystem resources.

On a related matter, we would share with you our concern that the Administration has not requested sufficient funds to meet the increasing infrastructure needs of the inland waterways of our nation. The Administration's request that there be no new starts undertaken so funds will be available to complete projects already underway, may only delay those much needed projects until there are serious safety concerns or, worse yet, complete failure of some existing infrastructure. While this

strategy may look good on paper, it may actually cause more expense in the long run if/when there is a major failure of significant infrastructure. We encourage the Congress to appropriate sufficient construction funds to spend down the Inland Waterways Trust Fund. We further urge the Congress to continue to fund construction and major rehabilitation at a level to keep the fund spent down in the future. We would respectfully remind the Congress that cost sharing was your idea and as the industry has stepped up to meet that challenge the Congress seems to be backing away from it's responsibility of matching much needed funds. Moving the completion dates out is an unacceptable exercise since 50 percent of the funds comes from the Waterways Trust Fund. This will not only waste Federal funds, but those from the trust fund as well.

We strongly urge the Appropriations Committee to raise the Corps of Engineers' appropriation to $5 billion to help get delayed construction projects back on schedule and to reduce the deferred maintenance backlog which is out of control. This will help the Corps of Engineers meet the obligations of the Federal Government to people of this great country.

As an example of deferred maintenance in the Tulsa District we offer the following for your consideration. The 10 most critical, deferred items in the district are: Waurika Project Office, replace inflatable fabric dam (chloride control project) $340,000; Robert S. Kerr Project Office (navigation), repair downstream weir and tainter gate, Lock and Dam 14, $290,000; Canton Project Office, repair tainter gates, replace chains w/cables and seals, $3,540,000; Texoma Project Office, replace service gate roller chains, $540,000; Fall River Project Office, repair stilling basin, $355.000; Fall River Project Office, repair Elk City stilling basin, $200,000; Eufaula Project Office, rehabilitate area office roof, heating, ventilation and air conditioning, and electric, $415,000; Fall River Project Office, repair sluice gates and liners, $320,000; Fall River Project Office, repair sluice gates and liners, $305,000; Fort Gibson Project Office, repair roller chains emergency closure gate,$200,000. This brings the total just for these 10 most needed, deferred projects to $6,505,000.

An example of the 10 most critical deferred projects on the McClellan-Kerr Navigation System in Oklahoma are (all are Robert S. Kerr Project Office): the second item above, which is number 2 in the District; repair tainter gates at Chouteau Lock & Dam (number 11 in the District), $685,000; streambank stabilization at Marine Terminal and downstream dike repair (number 29 in the District), $470,000; construct navigation signs (number 30 in the District), $685.000; retrofit ss switchgear with solid state trip units (number 33 in the District), $100,000; refurbish governors (number 35 in the District), $800,000; replace acb's with vacuum units, (number 59 in the District), $475.000; replace bridge bearing pad Lock and Dam 17 (number 64 in the District), $270,000; repair support cells, Lock 15 us/rw (number 71 in the District), $415,000; miscellaneous repairs to miter gates Lock & Dam 15 (number 75 in the District), $200,000. This brings the total for the 10 most critical navigation maintenance projects to $4,390,000.

Within the Tulsa District there are a total of 331 deferred maintenance projects, for a total deferred cost of $114,191,000. We would respectfully remind this Committee that this is only one district of the Corps of Engineers. The total deferred operation and maintenance for the Corps of Engineers is $450,000,000. This is a "scrubbed list" that contains only the most critical deferred projects. Delayed preventive maintenance is risky business at best. One failure of a major structure could have catastrophic consequences in loss of services, infrastructure and possibly life.

Concerning another related matter, we have deep concerns about the attempt to re-authorize the Endangered Species Act without significant beneficial reforms. If a bill is passed through without reforms, it will be devastating to industry and the country as a whole. We strongly urge you to take a hard look at any bill concerning this re-authorization and insure that it contains reasonable and meaningful reforms. This Interstate Committee would recommend that funding be withheld for this program until reforms are enacted and the bill reauthorized.

Mr. Chairman, we appreciate this opportunity to present our view on these subjects.

PREPARED STATEMENT OF THE BOARD OF LEVEE COMMISSIONERS FOR THE YAZOO MISSISSIPPI DELTA

This statement, made today on behalf of the citizens represented by the Yazoo Mississippi Delta Levee Board, is not only in support of the funding request contained herein, but also for the general funding testimony for fiscal year 2002 as submitted by the Mississippi Valley Flood Control Association. The Association is requesting funding in the amount of $395 million for the Mississippi River and Tribu-

taries Project (MR&T), a figure based on the Association's professional assessment of the capabilities of the Corps of Engineers, Mississippi Valley Division.

In the aftermath of the devastating 1927 Mississippi River Flood, the Flood Control Act of 1928 established a national priority on the development of a comprehensive flood control plan to reduce the likelihood of such a devastating event happening again in the lower Mississippi valley. As we look back today, some 73 years later, that plan, the MR&T, has returned $23 in benefits for each dollar expended and represents a true American public works success story.

Unfortunately, a substantial amount of uncompleted work on the project remains, necessarily exposing many areas to the risks of flood. Consequently, the YMD Levee Board urges Congress to provide funding at a level which will allow the MR&T to continue at a pace commensurate with the national priority to protect people and property from the ravages of flooding. To avoid potentially hazardous work stoppages and delays in award of needed new projects; we again must depend upon the men and women of Congress to add the necessary funding to the Administration's budget, which will allow the Corps of Engineers to proceed with their work, at full capacity.

What follows is a brief overview of the projects within our district with merit special mention:

MISSISSIPPI RIVER LEVEES AND CHANNELS MAINTENANCE

Within our Levee District, the U.S. Army Memphis Engineer District is continuing its studies and design efforts to address the problems of significant underseepage and bolls which occur during high river stages at the Hillhouse area in Coahoma County, Miss. We urgently hope that a solution for this potentially levee threatening situation can be devised in the months ahead.

UPPER YAZOO PROJECTS (UYP)

This plan, originally released in 1936, includes a system of flood control reservoirs that would discharge into a system of channels and levees, which could safely convey headwater from the hills to the Miss. River. While considerable construction progress has been made on the UYP, the YMD Levee Board is requesting assistance from Congress to secure supplemental funding for fiscal year 2002 so that ongoing construction and contract awards can proceed beyond the city of Greenwood.

YAZOO HEADWATER FLOOD CONTROL RESERVOIRS

Four major flood control reservoirs exist in Mississippi to control the release of headwater into the Yazoo River system—Arkabutla, Sardis, Enid and Grenada reservoirs. These have prevented significant flood damages by allowing drainage from the hills to be released into the Delta at the proper rate. The proper maintenance and operation of these reservoirs is critical to all persons residing downstream and hence, the YMD Levee Board is requesting funding which will allow the Corps to make necessary operational repairs and improvements.

SUNFLOWER RIVER CHANNEL MAINTENANCE PROJECT

The Sunflower River System, the primary drainage outlet for 10 counties, is subject to the same siltation factors as all Delta streams, and has been determined by the Corps to have a 40 percent reduced flow capacity. Following the completion of studies, the first item of work on the project has been completed and right-of-way acquisition is being completed for the disposal sites on the second item of work. Additional funding is critically needed for the second construction contract and additional right-of-way acquisition below the Holly Bluff area and we join our sister Mississippi Levee Board in urging Congress to provide these badly needed additional funds.

DEMONSTRATION EROSION CONTROL PROJECT (DEC)

While these measures to control erosion and sedimentation in streams are primarily located outside our district, we support the continued funding of the DEC due to the substantial amounts of the sediments controlled by these projects would eventually end up within the Coldwater-Tallahatchie-Yazoo River System. Such sedimentation would necessarily result in significant additional maintenance on the system to prevent loss of system capacity.

YAZOO TRIBUTARIES STUDY

The last phase of the MR&T project in the Yazoo Basin, this study will identify work necessary for proper drainage and flood control on the major tributaries in the Yazoo River System. We urge adequate funding for the timely completion of this study so that construction improvements might begin as the UYP progresses upstream.

YAZOO BACKWATER

The Yazoo Backwater Project, under the jurisdiction of the Mississippi Levee Board, is designed to reduce the effects of backwater flooding incidents in the South Delta and is very important to the people of that region. Consequently, we support the position of our sister Levee Board in requesting additional funding so that this project might proceed in a timely manner.

PREPARED STATEMENT OF THE LOS OSOS COMMUNITY SERVICES DISTRICT

Honorable Subcommittee Members: The Los Osos Community Services District (LOCSD) respectfully submits this testimony in support of Representative Lois Capps' Water Resources Development Act (WRDA) request to appropriate $7.8 million in Federal fiscal year 01–02 to pay for design of the Los Osos Wastewater Project, Los Osos, California. WRDA Design funding for the Los Osos Wastewater Project was authorized in Section 219(a)27 of HR4577 of 2000.

The Los Osos Community Services District serves a population of 14,600 people within a 3,500-acre territory adjacent to the Morro Bay National Estuary in San Luis Obispo County. The regulatory agency responsible for protecting ground water quality for Los Osos, the Central Coast Regional Water Quality Control Board (RWQCB), has determined that discharge from private septic systems is the principle source of nitrate contamination of the shallow portion of the Los Osos Groundwater Basin. The RWQCB has issued twenty four separate Cease and Desist Orders and a Time Schedule Order requiring LOCSD to replace the septic systems in a 2,500 acre "Zone of Prohibition" with a community sewer. The RWQCB has also ordered a moratorium on new construction and intensification of existing uses within the Zone of Prohibition.

In addition to the outstanding RWQCB orders, The Morro Bay National Estuary Program (MBNEP) has determined that construction of a Los Osos Community Sewer is a high priority for protecting the Morro Bay National Estuary. In EPA's approved plan for protecting Morro Bay, "Turning the Tide for Morro Bay", the MBNEP states that, "Another important source of nutrients to Morro Bay is generated from leaking and failing septic tanks in Los Osos. The Community of Los Osos/Baywood Park, with a population of 14,600, is located directly on the edge of Morro Bay and is still served by onsite septic systems. It is possible that some of the degraded groundwater is entering the bay—A wastewater system needs to be developed, funds need to be obtained, incentives need to be developed, and education activities need to be undertaken to resolve this long term problem."

The Health Officer for the County of San Luis Obispo has issued health warnings regarding the high level of bacteria and pathogens in surface water. According to Dr. Richard Lichtenfels of County Health, "the Department agrees that the standing pools do represent a health threat. Until a public sewer and comprehensive surface water drainage system is built, this office will continue to monitor the standing pools and appraise the community of the potential for disease transmission."

Finally, nitrate contamination of the shallow groundwater basin from septic discharge has forced the three Los Osos water purveyors to abandon production from the unconfined layer and to substitute groundwater from the lower confined aquifer. As a result the community has started to experience salt-water intrusion in portions of the deep groundwater layer.

To address these problems, LOCSD has selected a community wastewater system that the RWQCB has described as viable and technically sound. Following is a summary of the collection, treatment, and disposal components of the proposed system:

Collection System.—A gravity collection system would be designed to transport raw wastewater from approximately 4750 sites to the treatment facility in 204,000 linear feet of PVC pipe with ten lift stations in low spots around the perimeter of the collected area.

Treatment Facility.—A treatment facility at the TriW site would be designed to produce tertiary treated wastewater with a quality suitable for public contact (Ca. Health Code Title 22) using the extended aeration process followed by filtration and ultra violet light disinfection. Since the proposed site is downtown, the proposed

treatment facility would be covered and odor-scrubbed to avoid use conflicts. As a side benefit, the surface of the covered portion of the facility would be used for an off-leash dog park, sports fields and trails.

Disposal System.—The disposal system would be designed to recharge the groundwater basin with the low nitrate level tertiary treated wastewater using subsurface leachfields in areas with adequate separation to groundwater on both sides of the Los Osos fault trace. This disposed tertiary water is recharged into the groundwater table so that the District can harvest additional well water down gradient to augment the community's sustainable water supply.

LOCSD has performed the environmental review required by the State of California and has certified a Final Environmental Impact Report on this proposed project. In the environmental review process, LOCSD has coordinated with both the United States Fish and Wildlife Service (USF&WS) and the United States Environmental Protection Agency (USEPA). LOCSD has submitted formal consultation requests with USF&WS and USEPA for mitigation of Rare and Endangered Species Habitat Mitigation and for preparation of a watershed wide all species Habitat Conservation Plan. LOCSD expects the USF&WS to issue a positive biological opinion on LOCSD's proposed project this fall.

LOCSD has also prepared a preliminary design engineering report to evaluate alternative solutions and to provide cost estimates for the proposed solution. LOCSD adopted the Los Osos Wastewater Facilities Project Report on March 15, 2001. The Project Report estimates that the proposed project will cost $84.6 Million for the project described above including all design, construction, land acquisition and habitat mitigation. Without grant funding, the proposed project would cost the average single family property owner approximately $107 per month including approximately $80 per month in debt service charges and $27 per month in operating user fees. This monthly cost is over five times the cost paid by the average wastewater customer in California according to the State Water Resources Control Board.

According to the 1990 U.S. Census, over a third of Los Osos residents are classified as low to very low income. LOCSD is concerned that construction of the project without significant grant funding would displace these residents and dramatically change the social fabric of our community. If Federal funding is available to pay for 75 percent of the project capital cost ($64,000,000), the average monthly cost per residence drops from $107 per month to approximately $45 per month per residence. Although the $45 per month is still twice the average cost paid by residences in other parts of California, it would likely displace fewer residents and cause less hardship.

LOCSD believes that its proposed project warrants Federal participation because it addresses a Federal problem in regards to preservation of the Morro Bay National Estuary. As documented earlier, the EPA approved recovery plan for Morro Bay identifies LOCSD's project as a "priority action" for preserving the National Estuary. In addition, the District believes that this project should be viewed as a Federal demonstration project for how other communities can address water supply concerns at the same time they respond to Federal water quality mandates and how communities can locate a treatment facility in a downtown area by taking advantage of innovative technology such as odor-scrubbing. Additionally, the downtown location results in energy savings as compared to pumping the raw waste to and from a site at the perimeter of town.

LOCSD respectfully requests that the Subcommittee approve the funding request submitted by Representative Lois Capps for this project.

PREPARED STATEMENT OF THE SANTA CRUZ PORT DISTRICT

For Corps of Engineers Reconnaissance study of the Arana Gulch Watershed which adversely affects the Navigation of Santa Cruz Harbor—$100,000

Santa Cruz Harbor is an active small craft harbor at the north section of Monterey Bay, California. It was authorized as a federal navigation project in 1958, constructed in 1964, and expanded in 1972. A 1986 joint-venture between the U.S. Army Corps of Engineers and the Santa Cruz Port District provided for a permanent sand bypass system to solve the ocean-driven shoaling problem at its entrance. The Port District has successfully operated that system for the past fifteen winters. However, the Port District has been unable to solve the siltation problem emanating from the three-square mile watershed which terminates at the north end of Santa Cruz Harbor.

Silt from Arana Gulch fills berths, fairways, and channels in the harbor, making them hazardous and unusable. At this time, the siltation is not solvable by the existing sand bypass system. The soil characteristics of the watershed make beach dis-

posal impractical at this time. Arana Gulch sediment must either be taken upland or delivered by barge offshore—both of these disposal options are quite wasteful. They are also extremely expensive and cost the Port District hundreds of thousands of dollars each year. Additionally, the 1998 El Niho storms brought 15,000 cubic yards of material into the north harbor alone from Arana Gulch. The event was declared a federal disaster, and FEMA and the State of California are spending in excess of $500,000 to return the harbor to charted depths.

On June 25, 1998, the House Committee on Transportation and Infrastructure passed Resolution Docket 2565 authorizing the Secretary of the Army to review the Arana Gulch watershed siltation problem.

The Port District respectfully requests that $100,000 be appropriated for the Arana Gulch reconnaissance study for fiscal year 2002.

For Corps of Engineers Reconnaissance study of memorandum of agreement on Dredging between Santa Cruz Port District and Corps of Engineers as authorized by 1998 Water Resources Development Act, Section 526—$100,000

In 1986, the United States Congress and the Santa Cruz Port District signed a Memorandum of Agreement (joint-venture L.C.A.) on the acquisition of a sand bypass system for Santa Cruz Small Craft Harbor. This $2.7 million agreement, authorized under WRDA 1984, provided that, once in place, the system would be operated and maintained by the Port District.

The bypass project has been extraordinarily successful. The harbor, once the scene of long closures and countless accidents because of shoals and breaking surf, is now 100 percent open to navigation all year round. The federal government no longer has to appropriate yearly O&M funds as it did from 1964 to 1986. The savings over the past ten years is estimated at $9+ million. The savings over the life of the project (2014) is estimated to be well in excess of $28 million in 1986 dollars.

The Port District is quite satisfied with the operational project and will carry out its responsibilities through 2014. However, an inequity exists in the original cost-share formula, which the Port District asked Congress to redress. Congress responded by including Section 526 in the Water Resources Development Act of 1998:

"SECTION 526. SANTA CRUZ HARBOR, CALIFORNIA.

The Secretary may—

(1) modify the cooperative agreement with the Santa Cruz Port District, California, to reflect unanticipated additional dredging effort, and

(2) extend the agreement for 10 years."

The San Francisco District of the U.S. Army Corps of Engineers has advised that in order to study the equities the 1986 Memorandum of Agreement. A reconnaissance study should be performed.

Accordingly, the Port District requests a $100,000 appropriation for such study.

The benefit to the federal government in this redress of past inequities is that the Port District is willing to extend the successful joint-venture from its current termination date of 2014, to 2024.

PREPARED STATEMENT OF THE NAPA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

BACKGROUND

The Napa River is the main waterway into which all tributaries on the Napa Valley flow. The river reaches its highest flow and the main point of concentration of storm water in the heart of the downtown city of Napa. The original town of Napa was established at the head of the navigable Napa River channel in 1848 as its only port for transportation and commerce until the railroad extended from Benicia to Napa in 1902.

The project is located in the city and county of Napa, California. The population in the city of Napa, approximately, 67,000 in 1994, is expected to exceed 77,000 this year. Excluding public facilities, the present value of damageable property within the project flood plain is well over $500 million. The Napa River Basin, comprising 426 square miles, ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reaches of the river, flood conditions are aggravated by high tides and local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, 1986 (flood of record), 1995, and 1997. In 1998, the river rose just above flood stage on three occasions, but subsided before major property damage occurred.

Over the years, the community has expressed a strong desire for increased flood management. Since 1962, twenty-seven major floods have struck the Valley region, exacting a heavy toll in loss of life and property. The flood on 1986, for example, killed three people and caused more than $100 million in damage. The town of Napa is particularly vulnerable to floods: during a typical 100-year flood, more than 325,000 gallons of water flow through the downtown river area per second, with the potential of inundating 2 million square feet of businesses and offices and nearly 3,000 homes.

Flood damage in downtown Napa has recurred in January 1993, January and March 1995, January 1997, and February 1998, resulting in disaster declarations and Damage Survey Reports filed with FEMA, reaffirming the urgent need to implement the cost-effective project. In March 1995 and January of 1997, additional flood disasters occurred.

Damages throughout Napa County totaled about $85 million from the January and March 1995 floods. The floods resulted in 27 businesses and 843 residences damaged countrywide. Almost all of the damages from the 1986, 1995, and 1997 floods were within the project area.

Locally developed flood measures currently in place provide minimal protection and include levees, floodwalls, pump stations, upstream reservoirs, restrictive flood plain management ordinances, and designated flood evacuation zones. Vast areas of flood plain are restricted to agricultural and open space uses, precluding development that would be damaged by flooding. These local measures still leave most of the city of Napa vulnerable to frequent damaging floods. Congress has authorized a flood control project since 1944, but due to expense, lack of public consensus on the design and concern about environment impacts, a project had never been realized. The most recent Corps of Engineers project plan consisted of a deepening and channelization project. In mid-1995, Federal and state resource agencies reviewed the plan and gave notice to the Corps that this plan had significant regulatory hurdles to face.

APPROVED PLAN—PROJECT OVERVIEW

In an effort to identify a meaningful and successful plan, a new approach emerged that looked at flood control from a broader, more comprehensive perspective. Citizens for Napa River Flood Management was formed, bringing together a diverse group of local engineers, architects, aquatic ecologists, business and agricultural leasers, environmentalists, government officials, homeowners and renters and numerous community organizations.

Through a series of public meetings and intensive debate over every aspect of Napa's flooding problems, the Citizens for Napa River Flood Management crafted a flood management plan offering a range of benefits for the entire Napa region. The Corps of Engineers served as a partner and a resource for the group, helping to evaluate their approach to flood management. The final plan produced by the Citizens for Napa River Flood Management was successfully evaluated through the research, experience and state-of-the-art simulation tools developed by the Corps and numerous international experts in the field of hydrology and other related disciplines. The success of this collaboration serves as a model for the nation.

Acknowledging the river's natural state, the project utilizes a set of living river strategies that minimize the disruption and alteration of the river habitat, and maximizes the opportunities for environmental restoration and enhancement throughout the watershed. This strategy replaces the former project and now entails flood plain acquisition and restoration of a geomorphically stable river channel, replacement of bridges and environmentally sensitive stream bank treatment in the urban reaches of the city of Napa.

The Corps has developed the revised plan, which provides 100-year protection, with the assistance of the community and its consultants into the Supplemental General Design Memorandum (SGDM) and its accompanying draft Environmental Impact Statement/Environmental Impact Report (SEIS/EIR). These reports were released for public comment in December of 1997 and underwent final review by Corps Headquarters. Construction of the project began last summer. The coalition plan now memorialized in the Corps final documents includes the following engineered components: lowering of old dikes, marsh plain and flood plain terraces, oxbow dry bypass, Napa Creek flood plain terrace, upstream and downstream dry culverts along Napa Creek, new dikes, levees and flood walls, bank stabilization, pump stations and detention facilities, and bridge replacements. The benefits of the plan include reducing or elimination of loss of life, property damage, cleanup costs, community disruption due to unemployment and lost business revenue, and the need for flood insurance. The plan will protect access to businesses, public services,

and create opportunities for recreation and downtown development, boosting year-round tourism. In fact, the project has created an economic renaissance in Napa with new investment, schools and housing coming into a livable community on a living river. As a key feature, the plan will improve water quality, create urban wetlands and enhance wildlife habitats.

The plan will protect over 7,000 people and over 3,000 residential/commercial units from the 100-year flood event on the Napa River and its main tributary, the Napa Creek, and the project has a positive benefit-to-cost ratio under the Corps calculation. One billion in damages will be saved over the useful life of the project. The Napa County Flood Control District is meeting its local cost-sharing responsibilities for the project. A countywide sales tax, along with a number of other funding options, was approved three years ago by a two-thirds majority of the county's voters for the local share. Napa is California's highest repetitive loss community. This plan is demonstrative of the disaster resistant community initiative, as well, as the sustainable development initiatives of FEMA and EPA.

PROJECT SYNOPSIS

Fiscal year 2001 Funding.—The 2001 appropriations bill included $4,000,000 to continue construction of the project. These funds were utilized to create 450 acres of marsh and flood plain terraces in the most southern reach of the project.

Necessary fiscal year 2002 Funding.—Funding for the Napa River Project during 2002 in the amount of $12,000,000 is needed to continue construction of the project. The funding is sought for demolition of buildings and fixtures on 24 parcels that have been acquired by the non-Federal sponsor, relocation of the Napa Valley Wine Train rail line for an approximate 3 mile distance, as well as relocation of the attenuate buildings serving this public utility, construction of marsh and flood plain terraces for an approximate 3 mile distance. Included in this amount is the reimbursement to the non-Federal sponsor for expenditures in excess of 45 percent of the total project costs to date. By the end of June, 2001 the non-Federal sponsor will have expended $42,000,000.00.

NAPA VALLEY WATERSHED MANAGEMENT

BACKGROUND

Napa Valley watershed faces many challenges and stresses to its environmental health and flood management abilities. From a healthy river point of view, the Napa River has been on a recovery path since its low point in the 1960's, when the last of the native salmon were taken from the system by severe water pollution and habitat destruction. Steelhead trout have survived as a remnant population of two hundred that is presently in need of higher quality and more extensive spawning areas for recovery to a significant population. Beginning populations of fall run Chinook salmon have taken up residence in the watershed in those few areas available for spawning. While the chemical and wastewater pollution of earlier years has been effectively dealt with, excess sediment is still a critical stress on the salmon population, as it is to the spawning and rearing areas of the river in the estuarine zone upstream of San Pablo Bay, populated by delta smelt, splittail, green sturgeon and striped bass.

The U.S. EPA and Region II Water Quality Control Board have prioritized the River as an impaired water body because of the sediment production. The excess sediment generated in the watershed suffocates spawning areas, reduces the stream's flood-carrying ability, fills deep pools, increases turbidity in the stream and estuary, carries with it nutrients that bring significant algae blooms during the summer and fall, and changes the morphological balance of the streams and river toward more unstable conditions.

Over time, both private and public diversions and levees have been constructed in a chaotic way. The accumulated encroachment has constrained the river and its riparian corridor to approximately one third of its optimum morphological width for much of its length. The Napa Valley has also been extensively drained in the last century, eliminating nearly all of the sloughs and extensive wetlands that once covered the valley floor. Combined with increasing agricultural and urban development, the narrowed channel and loss of wetlands has greatly changed the river and its major tributaries, limiting its flood management capabilities. The river now regularly scours extensively on both bed and banks generating large amounts of sediment that settle in the lower river and estuary, only to be stirred and moved by the tides during the dry season. Loss of tidal wetlands in the lower river due to 70 years of dike construction has resulted in a much smaller area to disperse sediment,

exacerbating losses in all types of riverine and estuarine-related complex habitats in the system.

In an effort to address these conditions and to develop local tools for improving natural resource management, the Corps and the Napa County Flood Control and Water Conservation District is currently developing a Napa Valley Watershed Management Plan (WMP) which would identify problems and opportunities for implementing environmentally and economically beneficial restoration in the Napa Valley watershed providing ecosystem benefits, such as flood reduction, erosion control, sedimentation management, and pollution abatement. The plan, which is the feasibility study the District is requesting funds for, would include the identification, review, refinement, and prioritization of restoration and flood protection opportunities with an emphasis on restoration of the watershed's ecosystem (e.g.: important plant communities, healthy fish and wildlife populations, rare and endangered habitats and species and wildlife and riparian habitats). The development of the plan would be an iterative process, providing technical planning, and design assistance to local entities to foster restoration of watershed ecosystem.

The purpose would be to complete the WMP by providing technical, planning, and design assistance to the non-Federal interests for carrying out watershed management, restoration and development on the Napa River and its tributaries from Soscol Ridge, located approximately 5 miles south of the city of Napa, to Mt. St. Helena, the northern most reach of the Napa River watershed, California. The watershed plan would look at the upper Napa Valley watershed including Napa, Yountville, St. Helena, Calistoga, and the unincorporated areas of Napa County north of Soscol Ridge. A management program incorporating flood protection and environmental restoration would be developed as a result of the watershed plan.

To address the above mentioned and other local, regional, and national watershed concerns, the Napa County Board of Supervisors appointed a Napa County Watershed Task Force (WTF) to identify community based and supported solutions. The WTF submitted their recommendation for further action to the Napa County Board of Supervisors. Preliminary watershed analysis is being completed with an understanding that additional scientific and technical decisions and solutions would be incorporated into the Napa Valley watershed plan.

The U.S. Army Corps of Engineers, San Francisco District (Corps) and the Napa County Flood Control and Water Conservation District (NCFCD) developed the Napa Valley Watershed Project Management Plan with input from the Napa County Planning Department (NCPD), Napa County Up-Valley Cities, Napa County Watershed Task Force (WTF), Napa County Resource Conservation District (RCD), Regional Water Quality Control Board (RWQCB), the San Francisco Estuary Institute (SFEI), and other regional and local stakeholders. Coordination of a local and regional restoration programs would be critical in the planning process to provide a watershed management plan that identifies the best management practices for the watershed and supports potential spin off projects to be implemented independently of the WMP. The regional monitoring and assessment strategy being developed by regional interests would be a component in the development of the feasibility report. The monitoring and assessment strategy incorporates different indicators, classifications, and potential pilot projects to provide benchmarks for future restoration activities.

In an effort to identify problems and opportunities for implementing beneficial restoration in the Napa Valley Watershed, the Napa County Flood Control District is seeking that the Napa Valley Watershed Management Study be continued by the Corps of Engineers. The authority for this study is the Northern California Streams Study Authority stemming from the Rivers and Harbors Act of 1962, Public Law 87–874. Specifically, the Napa County Flood Control District is working closely with the Corps in the feasibility report in examining the watershed management needs, including flood control, environmental restoration, erosion control, storm water retention, storm water runoff management, water conservation and supply, wetlands restoration, sediment management and pollution abatement in the Napa Valley, including the communities of Napa, Yountville, St. Helena, Calistoga and the incorporated areas of Napa County.

PROJECT SYNOPSIS

Fiscal year 2001 Budget Funding.—The fiscal year 2001 appropriations bill included $50,000 to continue the Napa Valley Watershed Management Study.

NECESSARY FISCAL YEAR 2002 FUNDING.—Funding for the Napa Valley Watershed Management Study during fiscal year 2002 in the amount of $600,000 is needed to have the Corps of Engineers continue the feasibility study to examine watershed management needs.

MILLIKEN-SARCO-TULOCAY CREEKS GROUNDWATER BASIN STUDY

BACKGROUND

The groundwater basin underlying the unincorporated area east of the City of Napa is in overdraft. This area is referred to as the Milliken-Sarco-Tulocay groundwater basin, or MST. The Board of Supervisors enacted a Groundwater Conservation Ordinance in an effort to limit all new and permitted users in the MST area to a very restrictive amount of groundwater until such time as a recharge project can be implemented to reverse the declining water table. The Napa County Flood Control District also took action by contracting with the United States Geological Survey (USGS) to perform an update to their 1977 study of the MST groundwater basin. This study will determine the extent of the problem, the recharge characteristics, the inter-basin communication capabilities, the solutions that are likely to succeed and the groundwater budget for the area. The three year USGS study has been underway for a year and early results confirm that the groundwater basin is in decline and is in need of serious recharge efforts.

There is a sense of urgency in establishing a recharge program to address this decline in water inventory available to the residents and businesses within the basin. A number of potential solutions have been identified and must be further assessed to ascertain their viability in solving the groundwater problems existent in the basin.

Possible solutions include the following:

—Recharge enhancement at the infiltration galleries: The 1977 USGS study revealed that 95 percent of the recharge of the groundwater basin occurred at 23 isolated locations along the creeks and tributaries, generally where the arable soils meet the foothills. Enhancing recharge in these areas may have a dramatic impact on the overall water balance equation for the basin. The USGS work will give a general analysis of this possible solution, but a reconnaissance level evaluation must be done to evaluate cost effectiveness.

—Importing recycled water: Recycled water will soon be available at the south end of this basin. Great opportunities exist for recycled water usage within the south and middle sections of the basin, especially at an existing golf course located in the middle section. Benefit would be gained by substituting recycled water for pumped groundwater, thereby leaving groundwater for others in the area. Substituted water could be used by this golf course and nearby agriculture.

—Importing surplus groundwater from another basin: A unique opportunity exists to import surplus groundwater from a construction project into the north basin. The project at hand is a depressed underpass, that gets into the local groundwater table (not the MST basin), results in year round pumping, and creates a year round surplus that would be available for substitution for groundwater within the MST basin (which is located about 3 miles east of the project site.) The most likely user is a golf course located in the north basin.

—Other possible solutions include: Construction of very small local reservoirs to enhance recharge; Construction of small reservoirs to provide water for agriculture; and, Importing treated water, which, in addition to political problems, would involve finding other imported water to make the treating and delivering agency whole.

Additionally, there are likely many more possibilities, all of which need to be identified, developed, and evaluated. All of these possibilities need to be studied at the reconnaissance level to determine their feasibility.

At the heart of this reconnaissance level evaluation must be the environmental analysis. As an example, the property owners constructing reservoirs have impacted the ecology of the area, which results in lessening the sustaining flows to the Napa River. Another example is the continuous decline in the groundwater table, which results not only in the one time expenditure of effort, materials and energy to drill deeper wells, but more tragically, in the ongoing expenditure of energy associated with pumping from deeper depths.

Following directly on the environmental benefits within the groundwater basin itself are the other benefits flowing from bringing the basin into balance. USGS staff believes that the basin, if in balance and in its naturally recovered condition, will actually return to its original state of flowing to the Napa River. This would provide tremendous benefit, not only to Milliken, Sarco, and Tulocay Creeks, in the local setting, but also to the Napa River, both by stream flow and by underground flow. Additional water into the Napa River system during protracted portions of the year would greatly restore and enhance the local watershed ecosystem.

Action is needed. The sooner steps are taken to identify and address the problem, the smaller the cost of implementing solution measures.

Request

In an effort to identify problems and opportunities for implementing solutions in the MST groundwater basin, Napa County Flood Control District is seeking to have the Corps initiate a reconnaissance study to evaluate all prospective water sources that could alleviate the widespread water quantity problems and identify and implement engineering measures to restore ecological recovery of the MST groundwater basin and associated groundwater infiltration and recharge in the Napa River watershed. Such measures could include conjunctive use; recharge enhancement and importing recycled and potable water.

Necessary fiscal year 2002 Funding.—Funding for the Napa Groundwater Recharge Study during fiscal year 2002 in the amount of $100,000 is needed to have the Corps initiate the reconnaissance study to examine groundwater needs in the basin.

PREPARED STATEMENT OF THE CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

Presented herewith is testimony in support of $20,000,000 for the construction appropriation necessary for the U.S. Army Corps of Engineers to continue the Tropicana and Flamingo Washes flood control project. Also, testimony in support of $5,000,000 appropriation to reimburse the non-Federal sponsors, Clark County and the Clark County Regional Flood Control District, for work performed in advance of the Federal project pursuant to Section 211 of the Water Resources Development Act (WRDA) of 1996. This project is located in the rapidly growing Las Vegas Valley in Southern Nevada.

The Las Vegas Valley continues to experience unprecedented growth. This growth has occurred over the past 20 plus years. People have moved into the area from all parts of the nation to seek employment, provide necessary services, retire in the Sunbelt, and become part of this dynamic community. It is estimated that 5,000 people relocate to the Las Vegas Valley every month of the year. Currently the population is exceeds 1.3 million. The latest statistics show that more than 30,000 residential units are built annually. Once all of these factors are combined, the result is that the Las Vegas Valley continues to be one of the fastest-growing areas in the nation.

The Federal project being constructed by the Corps of Engineers (Corps) is designed to collect flood flows from a 160 square mile contributing drainage area. The Corps project includes four debris basins, four detention basins, 28 miles of primary channels, and a network of lateral collector channels. The debris basins are designed to collect flood flows from undeveloped areas at the headwaters of the alluvial fans and trap large bedload debris before it enters the channels and causes erosion damage. The detention basins will function to greatly reduce the magnitude of the flood flows so that the flows can be safely released and conveyed through the developed urbanized area at non-damaging rates. The outflow from the debris basins and the reduced flows from the detention basins will be contained in the primary channel system that will also serve as outfalls for the lateral collector channels. While this latter element (lateral collector channels) is considered a non-Federal element of the entire plan, it is being funded locally because it is a necessary element for the plan to function properly and afford flood protection for the community. Since flood flow over the alluvial fans, which ring the Las Vegas Valley, is so unpredictable in terms of the direction it will take during any given flood, all of the components of the Corps' plan are critical.

Torrential rains deluged the Las Vegas Valley the morning of July 8, 1999, causing widespread drainage problems and major damages to public and private properties. Some of the largest rainfall depths occurred over the southwest portions of the Las Vegas Valley resulting in significant flows in the Tropicana and Flamingo Washes. The runoff that resulted from this intense rainfall caused widespread street flooding and record high flows in normally dry washes and flood control facilities. The news media reported two deaths resulting from this flood event, one of which was a drowning in the Flamingo Wash. Damages to public property resulting from this storm are estimated at $20,500,000. The President declared Clark County a Federal disaster area on July 19, 1999, recognizing the severity of damages to public and private properties. Significant damages could have been avoided if the Corps' Tropicana and Flamingo Washes Project had been fully implemented. However, those features of the Corps' project that were completed worked to mitigate dam-

ages. The storm of July 8, 1999, further reemphasizes the need to expeditiously implement all flood control projects in the Las Vegas Valley.

The Feasibility Report for this project was completed in October 1991, and Congressional authorization was included in the WRDA of 1992. The first Federal appropriation to initiate construction of the project became available through the Energy and Water Resources Development Appropriations Bill signed into law by the President in October 1993. The Project Cooperation Agreement (PCA) was fully executed in February 1995. Federal appropriations to date have totaled $121,645,000, allowing the project to continue to be implemented. The total cost of the project is currently estimated at $271,000,000, primarily due to the delay in anticipated Federal appropriations.

The local community has already constructed certain elements of the Corps' plan. These project elements require modifications in order to fit into the Corps' plan and fulfill the need for a "total fan approach" to the flooding problems of the Las Vegas Valley. The Red Rock Detention Basin was constructed by Clark County in 1985, and modifications by the Corps were completed in December 1996. The flood flow released from the basin has been reduced, and the basin's capacity to hold floodwaters was enhanced, thereby increasing the level of downstream protection provided by this feature. Although the Red Rock Detention Basin expansion was the first feature completed, the immediate benefit realized by the community was the removal of approximately five square miles and 4,754 parcels from the alluvial fan flood zones shown on the Federal Emergency Management Agency's Flood Insurance Rate Maps.

The non-Federal sponsors also constructed the Flamingo Detention Basin. This facility was completed in February 1992, and is one of the main components of the Federal project. Under the Corps' plan, the flood flows released from this feature will be reduced and the storage capacity increased. The non-Federal sponsors have been working with the development community in order to remove the excess sand and gravel from the impoundment area of this facility. Our goal is to have local contractors remove surplus material from the basin for their own use at no cost to either the Federal or local governments, thus providing a significant cost savings on this project. The work performed by the non-Federal sponsors, construction of Red Rock Detention Basin and Flamingo Detention Basin, prior to the Project Cooperation Agreement being executed have been accounted for in Section 104 credits and total $9,906,000.

As non-Federal sponsors for this important flood control project, both the Clark County Regional Flood Control District and Clark County are looking forward to the construction start of each feature of this project and the project's ultimate completion.

The non-Federal sponsors request $20,000,000 for the continued construction of this project. Funding at this level will allow the Corps of Engineers to:

Complete construction of the following:

—Lower Flamingo Diversion Channel

—R–4 Debris Basin and Channel

—Red Rock Outlet and Scour Protection

Start construction of the following:

—Upper Flamingo Diversion Channel

—F–1 Debris Basin and Channel

—F–2 Debris Basin and Channel

In 1996, the local sponsors were notified that Federal funding would be reduced for the Corps' flood control project in Las Vegas due to reductions in the Corps' overall Federal budget. Our community has already suffered a five-year delay in project completion due to past reductions in Federal funding. Any further delays in Federal funding, in the fastest growing community in the nation, will mean increased project costs due to lost opportunities compounded by inflation. It might also mean further loss of life.

In order to provide the required flood protection in a timely fashion, the non-Federal sponsors are implementing certain features in advance of the Federal government pursuant to Section 211 of WRDA 1996. An amendment to the PCA was fully executed on December 17, 1999, that formalizes the provisions of Section 211 of WRDA 1996. Section 211(f) of WRDA 1996 identifies the Tropicana and Flamingo Washes Project as one of eight projects in the nation to demonstrate the potential advantages and effectiveness of non-Federal implementation of Federal flood control projects. The work funded by the non-Federal sponsors and completed to date pursuant to Section 211 of WRDA 1996 totals approximately $24,604,855 and includes features that were designed by the non-Federal sponsors and constructed by either the Federal government or the non-Federal sponsors. These features are summarized in the following table:

Project Element	Nature of Work	Sponsors' Costs
Tropicana Detention Basin Outfall—Russell Road Box Culvert.	Design, Construction & Construction Management.	$88,298
Tropicana Detention Basin Outfall—Valley View Boulevard Box Culvert.	Design, Construction & Construction Management.	174,240
Blue Diamond Channel—Las Vegas Beltway (Segment 7A).	Design (Project element constructed by Corps).	430,210
Blue Diamond & Red Rock Channels—Las Vegas Beltway (Segment 7B, 8 & 9).	Design, Construction & Construction Management.	23,552,950
Red Rock Channel—Las Vegas Beltway (Segment 10A)	Design (Project element constructed by Corps).	359,157
Total Sponsors' Costs		24,604,855
Estimated Federal Share		18,453,641
Fiscal year 2001 Appropriations		1,600,000
Remaining Federal Share		16,853,641

The non-federal sponsors are grateful for the $1,600,000 in the fiscal year 2001 Energy and Water Development Appropriation Bill. For fiscal year 2002, we are asking the committee to appropriate funding of $5,000,000 of the remaining $16,853,641 to reimburse the non-federal sponsors the federal proportionate share (75 percent) of the completed work pursuant to Section 211 of WRDA of 1996 and the PCA amendment. This amount is requested in light of the language in contained in the fiscal year 2000 Energy and Water Development Bill, Senate Report 106–58, which states in part, "The Committee expects—every effort to even out reimbursement payments to lessen future budgetary impacts." The non-federal sponsors contributions to the project are for the primary purpose of providing flood protection as quickly as possible.

In summary, the Tropicana and Flamingo Washes project is an important public safety project designed to provide flood protection for one of the fastest growing urban areas in the nation. We ask that the committee provide the Secretary of the Army with $20,000,000, in fiscal year 2002, in order to facilitate continued design and construction of additional phases of this critical flood control project. We are also asking that the committee provide the Secretary of the Army with $5,000,000 to reimburse the non-federal sponsors the federal proportionate share of the work completed by the sponsors in advance of the federal government.

The committee is aware that flood control measures are a necessary investment required to prevent loss of life and damages to people's homes and businesses. Flood control is a wise investment that will pay for itself by preserving life and property and reducing the probability of repeatedly asking the federal government for disaster assistance. Therefore, when balancing the federal budget, a thorough analysis would prove that there is substantial future federal savings in disaster assistance that supports sufficient appropriations through the Civil Works Budget.

Prepared Statement of San Bernardino County Administrative Office

SANTA ANA RIVER MAINSTEM PROJECT

Project Description

The Santa Ana River Mainstem Project includes seven interdependent features: Mill Creek Levee, Oak Street Drain, San Timoteo Creek, Lower Santa Ana River, Seven Oaks Dam, Prado Dam and Santiago Creek. Seven Oaks Dam, Mill Creek Levee, Oak Street Drain, San Timoteo Creek Reaches 1, 2 and 3A and the Lower Santa Ana River Reaches 1, 2, 3, 4, 5, 6, 7, 8 and 10 are complete. Completion of all of the features will provide (a) the necessary flood protection within Orange, Riverside and San Bernardino Counties; (b) enhancement and preservation of marshlands and wetlands for endangered waterfowl, fish and wildlife species; (c) recreation amenities; and (d) floodplain management of the 30 miles of Santa Ana River between Seven Oaks Dam and Prado Dam.

San Bernardino County Features Status

Seven Oaks Dam.—Construction completed.

San Timoteo Creek.—Reach 1 construction was completed in September 1996. Construction on Reaches 2 & 3A was completed in June 1998. Overall, construction

is approximately 60 percent complete. CEQA was approved on December 19, 2000 and NEPA is scheduled for approval in March 2001.

Project Authorized.—Public Law 94–587, Section 109, Approved October 22, 1976. Public Law 99–662, Water Resources Development Act of 1986

Total Project Cost.—$1.4 billion—Includes $473 million local share

Requested Action.—Support of the Santa Ana River Mainstem Project.

SAN TIMOTEO CREEK

Project Description

The San Timoteo Creek is a major tributary to the Santa Ana River in the east San Bernardino Valley. A large watershed of approximately 126 square miles drains into the Creek which flows through the Cities of Redlands, Loma Linda and San Bernardino before discharging into the Santa Ana River. The existing Creek, in all three Cities, was an earthen bottom and partially improved embankments reinforced with rail and wire revetments.

Major storm flows along the Creek in 1938, 1961, 1965, 1969 and 1978 caused considerable damage to the Creek itself as well as overtopping the banks and causing loss of life and severe property damage.

The Energy and Water Development Appropriations Act of 1988 authorized improvement of San Timoteo Creek as part of the Santa Ana River Mainstem Project. The improvements include the construction of approximately 5.5 miles of concrete-lined channel from the Santa Ana River upstream through the Cities of San Bernardino, Loma Linda and Redlands plus the construction of debris retention facilities at the upstream end of the project in the form of in-channel sediment storage basins.

Project Status

Overall project construction is 60 percent complete. An alternative design has been developed for Reach 3B, the upstream 40 percent of the project, that will include the construction of approximately 0.2 mile of improved channel and 18 in-channel sedimentation basins. Plans for the final phase will be developed during the remaining 2000/2001 fiscal year with completion of construction anticipated in May 2003.

Completed Reaches

Reach 1:
—0.7 mile of Channel—Completed—September 1996
—Waterman Avenue Bridge—Completed—September 1996
Reach 2:
—1.9 miles of Channel—Completed—October 1997
—Redlands Boulevard Bridge—Completed—March 1998
Reach 3A:
—0.8 mile of Channel—Completed—June 1998

Remaining Construction and Schedule

Reach 3B (Phase 1):
—900 feet of channel.
—Plans and Specifications—December 2000—February 2001
—Construction Start—April 2001
—Construction Completion—December 2001
Reach 3B (Phase 2):
—0.2 mile of channel and 18 sedimentation basins along 2.2 miles of channel.
—Right-of-Way Acquisition—December 2000—July 2001
—Plans and Specifications—January 2001—July 2001
—Construction Start—September 2001
—Construction Completion—May 2003

Estimated Project Cost

The total estimated project cost is approximately $71,000,000 with the Federal participating cost at 75 percent or $53,250,000 and the local participating cost at 25 percent or $17,750,000. The cost of the remainder of the project (Reach 3B) is estimated to be $41,000,000, with the Federal share at $30,750,000 and the local share at $10,250,000.

Requested Action.—Approval of continued funding for the San Timoteo Creek Project.

SAN SEVAINE CREEK WATER PROJECT

Project Description

The San Sevaine Creek Water Project will provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino Valley. A 137-acre area is being set aside to protect a sensitive plant community, wetlands and wildlife enhancement. In addition, several water conservation basins will percolate an estimated 25,000 acre-feet of storm water runoff per year into the Chino Groundwater Basin benefiting agricultural, municipal and industrial water users in the Valley. The increased water conservation will occur as the result of an additional 5,400 acre-feet of water storage which will reduce the need to purchase imported water.

Project Status

The loan application was signed by the Bureau of Reclamation on April 11, 1996 and approved by the Secretary of Interior on May 9, 1996, starting the 60-day congressional approval process. As of July 25, 1996 the San Sevaine project completed the 60-day calendar for review by congress as required under the Small Reclamation Loan Act. On December 17, 1996, the project Repayment Agreement was approved by the Board of Supervisors of the County of San Bernardino and approved on January 8, 1997, by the Bureau of Reclamation. Initial Federal funding began in the 1997/1998 fiscal year and has continued on until the present fiscal year. The Bureau is attempting to complete the funding of this project by year 2002.

Although considerable levee, channel and interim basin work has already been completed at various locations on this major water project, continued Federal assistance in the form of a Small Project Loan is urgently needed to allow for the construction of major improvements that will provide a fully integrated and functional project. Without these funds, it will be decades before local interests can accrue sufficient funds to construct this vital project.

The California Water Commission has consistently since the late 1980's supported the construction of this project.

Federal Authority.—Public Law 84–984, as amended 1956

Bureau of Reclamation Grant Contribution.—Approximately $27.4 million

Bureau of Reclamation Loan Contribution.—Approximately $19.2 million

Total B of R Project (not additive).—Approximately $52.9 million

Total local contribution.—$33.7 million

1997/98 fiscal year Federal budget.—$1.333 million (received $10.525 million)

1998/99 fiscal year Federal budget.—$1.177 million (received $1.637 million)

1999/00 fiscal year Federal budget.—$10.18 million ($3.94 million received to date, another $4.5 million has been requested)

2000/2001 fiscal year President's Budget.—$11.21 million (approved)

2001/2002 fiscal year Proposed.—$11.223 million

The District and County have coordinated with the Bureau of Reclamation and the National Water Resources Agency (NWRA) in a cooperative effort to obtain the continued funding for this project. The District and County appreciate the continuing support provided by the Bureau of Reclamation for this project.

Requested Action.—Support proposed fiscal year 2001/2002 budget in the amount of $11.223 million.

MOJAVE RIVER FORKS DAM FEASIBILITY STUDY

The Mojave River flows north out of the San Bernardino Mountains into the desert communities of Victorville and Barstow. The Mojave River Forks Dam (Dam) is an ungated facility designed and constructed by the U.S. Army Corps of Engineers to alleviate flooding. Since that time, environmental regulations such as the Endangered Species and Clean Water Acts and the recent water rights adjudication have changed the river's usage. The study will consider factors such as the current water rights adjudication while facilitating balance among the River's competing usage and diverse interest. Alternatives include modification of the Dam's operation and outlet works, construction of a release tower and operable gates and construction of one or more off-line detention basins.

The San Bernardino County Flood Control District supports this feasibility phase study to evaluate viable water conservation alternatives while optimizing the balance between environmental, flood control and water supply needs.

Requested Action.—Approval of $250,000 for Mojave River Forks Dam Study.

SAN BERNARDINO COUNTY FEASIBILITY STUDY

Wilson Creek originates in the San Bernardino Mountains and flows in a southwesterly direction through the City of Yucaipa, San Bernardino County. The study would investigate methods to control erosion and reduce the impacts to the downstream open space areas, residences and commercial areas within the watershed. The runoff creates a large volume of debris and sediment within the City of Yucaipa. Flooding along this Creek is threatening to damage residential and commercial development and infrastructure facilities.

The San Bernardino County Flood Control District supports this feasibility study to evaluate the system and determine appropriate methods of protection through new facilities and management of the existing floodplain.

Requested Action.—Approval of $500,000 for San Bernardino County Study.

UPPER SANTA ANA RIVER WATERSHED FEASIBILITY STUDY

The area will focus on the watershed of the Santa Ana River and tributaries located above Prado Dam, primarily in San Bernardino County. The study is to describe all watershed characteristics and uses, to define problem areas under present and future conditions and assist the County and local interests in developing a long-term master plan for watershed management in the interest of improving specific water resource uses including environmental preservation and restoration, urbanization water supply and conservation and water-related recreation activities.

The San Bernardino County Flood Control District supports this feasibility study. Santa Ana Watershed Project Authority is the local sponsor of the study.

Requested Action.—Support of Upper Santa Ana River Watershed Study.

PREPARED STATEMENT OF AMERICAN RIVERS

American Rivers and more than 530 local, regional, and national conservation and community groups [1] from throughout the country urge you to appropriate full funding for the U.S. Army Corps of Engineers' Challenge 21, Section 1135, and Section 206 programs in fiscal year 2002. Specifically, we urge you to appropriate $30 million for the Challenge 21 program, $25 million for the Section 1135 program, and $25 million for the Section 206 program.

Although many Army Corps projects have produced benefits, including flood protection and cost-effective transportation, Army Corps projects also have altered natural hydrologic regimes, disturbed riverine ecosystems, destroyed wetlands, and encouraged development in high hazard floodplains. These activities have had a severe and adverse consequence on the nation's environmental and economic health.

The loss of important riverine, wetland, and floodplain habitat as a result of Army Corps projects and other activities, have harmed wildlife, water quality, and recreational opportunities. Army Corps projects and project operations are among the leading reasons North America's freshwater species are disappearing as quickly as tropical rainforest species and five times faster than land-based species. As importantly, by reducing the natural flood attenuation capacity of the nation's rivers and wetlands these losses also have severely aggravated flooding and flood damages.

During the past 25 years, the Federal government has spent more than $140 billion for traditional flood control works and flood damage recovery. Despite these expenditures, however, billions of public and private dollars are spent each year on costly repairs and reconstruction of floodplain property and associated infrastructure damaged by floods. Average annual flood losses continue to rise and now exceed $4 billion. Nearly 10 million homes are located in flood prone areas, placing $390 billion in property at risk.

The Challenge 21, Section 1135, and Section 206 programs are designed to help restore our nation's damaged rivers and floodplains, and to implement environmentally and fiscally sound flood control projects. These programs have proven successful and popular. Appropriations must be increased to meet the high demand for these initiatives.

The Challenge 21 Program.—(Or the Flood Mitigation and Riverine Restoration Program, Sec 212 WRDA 1999): Increasingly, flooded communities are implementing non-structural solutions to reduce flooding. These solutions include moving fre-

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[1] Each of these organizations has signed on to the River Budget: National Priorities for Local River Conservation in fiscal year 2002. The River Budget is a consensus report that summarizes where the people who work to save the nation's rivers believe we can make the best investments of tax dollars to benefit our communities, wildlife, and water quality. A complete list of these organizations is included at the end of this testimony.

quently flooded homes and business out of the floodplain, and working to return the floodplains of rivers and creeks to a condition where they can naturally moderate floods. In addition to reducing flood losses, non-structural projects help meet many other goals of riverside communities, including improving water quality, increasing opportunities for recreation, and improving and restoring wildlife habitat. Unfortunately, however, most Federal spending does little to support non-structural solutions to flood damage reduction.

Challenge 21, a non-structural flood damage reduction program authorized in 1999, is explicitly designed to help support such community-driven efforts. Challenge 21 allows the Army Corps to relocate vulnerable homes and businesses in smaller communities, restore floodplain wetlands, increase opportunities for riverside recreation, and improve quality of life in riverside communities. Challenge 21 also authorizes the Army Corps to work with other Federal agencies to more efficiently and effectively help local governments both reduce flood damages and conserve, restore, and manage riverine and floodplain resources. Individual Challenge 21 projects cannot exceed $25 million, and local communities must provide 35 percent of the cost.

The Water Resources Development Act of 1999 requires the Army Corps to study appropriate locations for Challenge 21 projects in 23 separate locations. Five additional Challenge 21 projects were authorized in the Water Resources Development Act of 2000.

Challenge 21 currently is authorized for only five years. In April 2003, the Army Corps must report to Congress the results of an independent review to evaluate the efficacy of the program in achieving the dual goals of flood hazard mitigation and riverine restoration, and make recommendations concerning continuation of the Challenge 21 program. But before the Army Corps can make a meaningful assessment, it must have the funding to implement the program.

Unfortunately, though $20 million was authorized to be appropriated for fiscal year 2001, the program has received no funding. Failure to appropriate adequate funds to implement the environmentally appropriate, common sense, and community supported flood control projects authorized by this program will doom both specific projects, and the entire program to failure. This is a failure that our nation can ill afford.

The Section 1135 And 206 Programs.—The Section 1135 Program (Project Modification for Improvement of the Environment), allows the Army Corps to modify the structures and operations of existing Army Corps projects to improve the quality of the environment where those projects have contributed to the degradation of the environment. The program also authorizes the restoration of areas harmed by Army Corps projects. Non-Federal interests must provide 35 percent of the cost, and modifications may not interfere with a project's original purpose.

The environmental impacts of existing Army Corps projects, many constructed before Federal laws requiring mitigation, are enormous. The impacts to the Everglades are perhaps the most highly publicized example. However, many other Army Corps projects also have caused significant environmental harm. For example, the Army Corps' operation and maintenance of the navigation channel in the Missouri River has caused the loss of more than 90 percent of the river's critical side channels, sandbars and wetlands, and is jeopardizing the continued existence of three Federally listed endangered species. The Army Corps' operations and maintenance of the navigation channel in the Upper Mississippi and Illinois Rivers has contributed to the severe degradation of those rivers, and is jeopardizing the continued existence of two Federally listed endangered species. The Army Corps' operation and maintenance of the navigation channel in the Apalachicola River in Florida has resulted in the smothering of over one-quarter of the Apalachicola River's banks with spoil dredged from the River. The Army Corps' construction and maintenance of the Mississippi River Gulf Outlet in Louisiana has caused the destruction of thousands of acres of valuable Louisiana marsh, and those losses continue at an alarming rate.

Despite the significant adverse impacts of Army Corps projects throughout the nation, the Section 1135 program has never been fully funded. As a consequence, even though this program has been authorized since 1986, only 45 Section 1135 projects had been completed or were under construction as of 1999. It is clear that the interest in this program is far more intense than these project numbers indicate. In fiscal year 2001, 355 Section 1135 projects had to compete for funding totaling only $21 million.

The Section 206 Program (Aquatic Ecosystem Restoration), allows the Army Corps to undertake small-scale projects to restore the aquatic environment, regardless of the existence or impact of Army Corps' projects in the area. Projects carried out under this program must improve the quality of the environment, be in the public

interest, and be cost-effective. Individual projects under this program may not exceed $5 million, and non-Federal interests must provide 35 percent of the cost.

The Army Corps reports that between 1996 (when Section 206 was enacted into law) and 1999, six projects had reached the planning and/or design phase under this program. The interest in this program far exceeds the level of funds being appropriated, however, and many communities are unable to participate in this program due to inadequate funding. In fiscal year 2001, 185 projects under the Section 206 program had to compete for funding totaling only $19 million.

Many communities are working with Army Corps districts to restore lost wetlands, side channels, and other riverine habitat. Many of these restoration projects are designed to offset the habitat losses and other environmental impacts of Army Corps levee, dam, and dredging projects that were constructed before Federal laws required mitigation. Unfortunately, however, far more community-driven projects are being rejected due to inadequate funding. Without adequate funding, increasing numbers of critical projects will either be rejected outright or will languish for years before being completed. Both the Section 1135 and 206 programs should be fully funded so that communities can work with the Army Corps to reverse damage done, and to ameliorate the environmental and economic impacts caused by altering our nation's rivers, floodplains, and wetlands.

Again, we strongly urge you to appropriate full funding for the U.S. Army Corps of Engineers' Challenge 21, Section 206, and Section 1135 programs in fiscal year 2002.

PREPARED STATEMENT OF THE WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

INTRODUCTION

Mr. Chairman and Members of the committee, the Water Replenishment District of Southern California respectfully submits the following testimony requesting federal assistance for the Alamitos Barrier Recycled Water Project.

DISTRICT BACKGROUND

The Water Replenishment District of Southern California (WRD), governed by an elected five member Board of Directors, was formed in 1959 to manage the Central and West Coast Groundwater Basins located in southern Los Angeles County. The District's service area encompasses 420 square miles with nearly 4 million people in 43 cities. WRD's primary objectives are to replenish the groundwater basin, halt seawater intrusion and ensure quality groundwater for area residents. Groundwater is an important source of water in southern Los Angeles County, comprising approximately 40 percent of total water needs in our District and in some of our cities, 100 percent. Groundwater reserves also provide an emergency supply of water if imported supplies are lost during earthquakes, drought or other natural disasters. It is essential that this valuable resource be protected.

REPLENISHING GROUNDWATER BASINS WITH IMPORTED AND RECYCLED WATER

The WRD now purchases approximately 75,000 acre-feet annually of imported water from the Colorado River and Northern California to artificially replenish the groundwater basins. Replenishment from percolation of storm water simply is not enough. The District also purchases about 60,000 acre feet per year of recycled water to replenish the groundwater basins.

As a result of years of overpurnping prior to the formation of the District, seawater was drawn into the basins, contaminating and forcing the shutdown of numerous wells. Wells were constructed along the coast to halt the intrusion of seawater, which also replenished the basin. Approximately 30,000 acre-feet per year of the District's expensive imported water purchases are used for injection into these wells.

Southern California's gradual loss of entitlements to both Colorado River and Northern California water and its drought history has convinced us that a more reliable supply of water for these seawater barrier wells must be developed to protect our critical groundwater resource.

The District's goal is to minimize the use of imported water and replace whenever possible with recycled water and local storm water runoff. The District has an aggressive program to increase the use of recycled water and storm water.

ALAMITOS BARRIER RECYCLED WATER PROJECT

Working together with the Orange County Water District and the City of Long Beach, the District is proceeding with plans to build a 3000 acre-feet per year reclamation plant to replace, initially, 50 percent of the imported water now being injected into the Alamitos Seawater Barrier, one of three widespread barrier systems for which the District provides water. The second stage will expand the treatment plant to provide 100 percent (6000 to 8000 acre-feet per year) substitution of imported water. Orange County Water District is involved because this particular barrier system extends into Orange County. The City of Long Beach has title to the recycled water that is to be fed to the new plant. The proposed plant is consistent with the Metropolitan Water District's Integrated Resources Plan, which anticipates 800,000 acre-feet per year of additional water reclamation by the year 2020.

Construction of the first phase to deliver 3000 acre-feet per year is in progress and is scheduled for completion June 2002. The second phase bringing the project up to at least 6000 acre-feet would commence in the future upon approval by regulatory authorities.

Feedwater for the project will be recycled water that would otherwise be discharged into the San Gabriel River. Advanced treatment equipment, including microfiltration, reverse osmosis, and ultra violet light will be put in 2 place to purify the water and meet the stringent requirements of the State Department of Health Services and the Regional Water Quality Control Board.

Amortizing the construction cost, adding operation and maintenance costs and backing out anticipated reimbursements from the Metropolitan Water District's Local Resources Program, the cost of water produced from the plant will initially be about $600 per acre-foot, which is more that the current cost for imported water, although well within the range of costs typically experienced.

We, therefore, are requesting federal funds to ease the burden on our local ratepayers. The California Water Commission has recommended this project for your consideration during your funding deliberations. The total cost of the project is estimated at $16 million with the federal portion totaling $4 million. $3.4 million has already been appropriated for Long Beach area projects, of which $1.7 million has been allocated to this project. We currently are seeking a total of $2.3 million for fiscal year 2002 for this protect. To date, we have been reimbursed $0.9 million.

Federal assistance with this project will enhance project economics and ensure the viability of our precious groundwater basins into the next century. We appreciate your consideration in the appropriation process.

PREPARED STATEMENT OF THE STATE OF SOUTH CAROLINA

Mr. Chairman and distinguished Members of the Committee; on behalf of the citizens of the Palmetto State, thank you for this opportunity to submit for the record comments regarding the fiscal year 2002 Water and Energy Appropriations Bill.

I can not emphasize too strongly the social and economic benefits of the capital investments of the federal government in a wide variety of projects throughout South Carolina. Whether making our ports more accessible for global trade or enhancing the interior waterways and beaches of South Carolina, your interest and commitment to my state has had a long lasting and positive impact. It is my hope that proven cooperation and collaboration between state and federal agencies regarding ongoing and future projects will continue to enhance the quality of life for all South Carolinians. Thank you for your committee's interest and investments in the Palmetto State.

My comments reflect input from my staff and also from principal state agencies that work most closely with the USACE Charleston and Savannah District Offices. These agencies include the State Ports Authority, the S. C. Department of Natural Resources, the S. C. Department of Health and Environmental Control, S. C. Energy Office and the S. C. Department of Commerce. Attached to my testimony, as "Supporting Documents" are all letters received from state agency directors as well as individual descriptions of the on-going and planned, USACE projects throughout South Carolina. All of the projects listed and described in the "Supporting Documents" are critical for South Carolina. All of the projects recommended for full financing in the President's budget have my full support. I also request, however, that your committee finance as many additional projects not recommended in the President's budget as possible. My comments below are not intended to emphasize one project more than another but to highlight comments made by state agency directors regarding the importance of several of these projects to the state. Please review the letters from S. C. agency directors for their input on projects of importance to them.

South Carolina has made great strides in expanding economic opportunities for its citizens both in terms of expansion of the capital base and creation of jobs. We are, however, a small state and our relative prosperity is reliant to a significant degree upon financing such as that available through your Appropriations Committee. I want to emphasize to you and your colleagues the importance I place on the value of the partnership between the state and federal governments in making life more fulfilling for all of my fellow citizens.

Again, thank you for this opportunity for input into the challenging decision making process you face in apportioning limited funds among many needs across the United Stated. I do want to re-emphasize that all of the projects listed in the "Supporting Documents" are of importance to South Carolina.

GENERAL INVESTIGATIONS

A total of $1.185 million is needed for fiscal year 2002 to keep the Atlantic Intracoastal Waterway Feasibility Analysis proceeding in a phased approach. This study will investigate existing and future commercial shallow draft navigation needs and will review ways to improve safety and navigation efficiency and reduce operations and maintenance costs. Additional financing of $530,000 is needed for this critical analysis. I request that your committee add this amount so the study can proceed.

The Port of Charleston is rapidly expanding and continues to fulfill its role as a major port for the eastern United States. The S. C. Ports Authority is believes that to keep the port fully competitive in global movement of goods it may be necessary to deepen the ship channel more than its current 45 feet. The Authority requests $100,000 for the Charleston Harbor (Deepening Analysis) to be undertaken. I concur that it is necessary before any further investment is made to deepen the channel and enlarge the Wando River Turning Basin.

In the Upstate of South Carolina, the Reconnaissance Study for the Reedy River for aquatic ecosystem restoration, flood damage reduction, and streambank restoration needs pursuing. The S. C. Department of Natural Resources has conducted a watershed management report and all information generated by that effort can be used in the production of this report necessary for the environmental rebuilding of this watercourse. $100,000 is needed for this general investigation.

CONSTRUCTION

The President's recommended full financing of the Charleston Harbor (Deepening & Widening) at a level of $6,365,000 is truly welcome so that this national asset can continue to function competitively for world markets. Continuing capital allocation for this project has sizable benefits not only for South Carolina but also for the nation.

Construction of the Lake Marion Regional Water Project is vital for the economic rebirth of one of the poorest areas of the state. Most Corps of Engineer's financing is directed toward the coastal counties of South Carolina. However, there are needs of an economic and infrastructure nature inland. This project conforms to economic development planning by two councils of government within the state. Moreover, it will also rely on surface water and not ground water sources. This project should be financed at the full level of $11.648 million.

The J. Strom Thurmond Dam & Lake Construction shows potential for increased efficiency and a reduction in operation and maintenance costs. The President has recommended $6.5 million in his budget but a further $3.0 million is needed to complete the generator rewind of units 3 and 4. Moreover, the project will increase dissolved oxygen in tail water and improve water quality in the Savannah River downstream to Augusta, Georgia and beyond. The need for heightened hydroelectric output at this station as well as the project at the Hartwell Dam and Lake are critical in this time of high electricity demand. The required $3.0 million should be added to this project.

OPERATION & MAINTENANCE (O&M)

The Operations and Maintenance Program as it relates to Harbor Maintenance at Charleston, Georgetown, and Port Royal is critical for the continued full functioning of these facilities. A further $2.26 million is needed for dredging of the Lower Winyah Bay and continued effort toward a dredged materials management plan is needed at Georgetown. At Port Royal a further $2.21 million is required for dredging of the entrance channel. These additional funds are necessary for optimal operations of the important S. C. ports.

Dredging of the Atlantic Intracoastal Waterway from Charleston to Port Royal, Dike Maintenance, and Bank Stabilization will require a further $2.823 million for this important project to be completed. Funding in the President's budget is for only

partial completion of identified work elements. This project should be fully funded for the AIWW to operate at peak design capacity.

Operation and Maintenance of Facilities at Dams along the Savannah River North of Augusta, Georgia. At the Hartwell Dam and Lake, an additional $5.3 million is needed to repair the powerhouse and switchyard equipment. At the Richard B. Russell Dam and Lake, a further $215,000 is needed to install waterview performance monitoring. At the J. Strom Thurmond Dam and Lake a further $2.182 million is needed for additional maintenance of recreation areas and to replace asbestos cable trays in the powerhouse. Full federal financing relating to all three facilities would ensure their continuing vital participation in the economic life of the two affected states, guarantee that water quality is at highest levels, and offer improved recreational opportunities for the citizens of S. C. and Georgia.

Mr. Chairman, in closing, we in South Carolina are mindful of the impact that the economic downturn is having on the ability of the federal government to continue sizable budget surpluses. Moreover, we are aware that resources are not unlimited and priorities must be established. However, South Carolina contributes uniquely to the national welfare. Healthy military installations, coastal geography, interstate trade routes and key ports are all contributors to a growing economy and individual prosperity within South Carolina and the Southeast. However, not all areas share equally and that is why projects like the Lake Marion Water Distribution Project are so critical. In order to keep South Carolina moving forward, I beseech you to look favorably on projects relating to my state and to our sister state of Georgia. We have made giant strides forward in South Carolina in part because of your investment of federal dollars in a wide variety of projects. I look forward to continuing cooperation with you and your committee.

Please let me know if you need further information and, again, thank you for this opportunity to give input into your decision making process.

PREPARED STATEMENT OF THE CITY OF LOS ANGELES BOARD OF HARBOR COMMISSIONERS

Mr. Chairman and Members of the Subcommittee: We are John Wentworth, President of the City of Los Angeles Board of Harbor Commissioners, and Larry A. Keller, Executive Director of the Port of Los Angeles. Together, we oversee the activities of the Port of Los Angeles, the largest container seaport in the United States. Our testimony speaks in support of continuing the Federal role in carrying out the major navigation improvements underway at the Port which underpin our country's decisive role in global trade.

We thank this Subcommittee for its unwavering support of the Pier 400 Deep-Draft Navigation and Landfill Project completed last April ahead of schedule and under budget. The Maersk Sealand shipping company, now the world's largest shipping line, has entered a long-term lease agreement with the Port for a state-of-the-art container terminal on Pier 400 scheduled to open for business in 2002. Last year, you helped us begin the Preconstruction Engineering Design stage of the Main Channel Deepening Project, the second phase of the navigation improvements under the 2020 Infrastructure Development Plan at the Port of Los Angeles.

Today, we present testimony evidencing the need for Federal funding that will help start the Main Channel Deepening Project in 2002. While President Bush's fiscal year 2002 Budget Blueprint discourages Congressional funding of new construction starts and ordinary operation and maintenance projects, it does give priority to projects that, "provide significant national benefits in the Corps' principle mission areas—commercial navigation . . ." and "gives priority to funding port and harbor . . . activities that support significant commercial navigation."[1] By all objective standards, the Main Channel Deepening Project squarely meets the President's tests as do the Port's operation and maintenance projects that support our commercial navigation initiatives. Therefore, we respectfully ask the Subcommittee to fund our appropriations requests fully.

THE IMPORTANCE OF THE 2020 INFRASTRUCTURE DEVELOPMENT PLAN TO THE UNITED STATES ECONOMY

In the early 1980s, the San Pedro Bay ports of Los Angeles and Long Beach, and the Army Corps of Engineers, acknowledged that both ports would experience a dramatic increase in Pacific Rim and Latin American trade volumes over the next several decades. The forecast has proved true, far exceeding our expectations! Con-

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[1] A Blueprint for New Beginnings: A Responsible Budget for America's Priorities", Chapter 30, "Corps of Engineers", Page 147.

sequently, infrastructure development at the Port of Los Angeles is now more critical than ever, with more than 31.5 percent of U.S. containerized trade entering the United States through the San Pedro Bay port complex. Pacific Rim and Mexican trade with the United States are at an all-time high. These increased trade volumes have solidified the Port of Los Angeles as a pivotal player in the global trading network.

With a more robust Asian economy, we can best describe the potential for increased two-way trade with just the Pacific Rim as colossal. To illustrate, in the last year, nine start-up shipping lines have entered the trans-Pacific trading network and are calling at the San Pedro Bay ports. Seven of these shipping lines call at the Port of Los Angeles. In 2000 alone, the Port and its customers recorded an unprecedented 27 percent increase in containerized cargo from the Pacific Rim valued at more than $235 billion. These goods went on to stores and manufacturing plants across the United States supporting jobs and local economies.

In 2000, China accounted for 55 percent of the overall Pacific Rim trade with the United States and is the primary importer of American goods. Changes in China's trade policies and investment practices make it a favorable market for American businesses and would boost the continued buoyance of the United States economy and the strong purchasing power of American consumers seeking competitively priced retail merchandise. If the Bush Administration is successful in reaching trade agreements with China, Singapore and Latin America, trade volumes through the Port of Los Angeles will increase even more dramatically. We have forecast 2001 as the year of continued burgeoning trade opportunities with Latin America. Trade between Mexico and Southern California, for instance, has increased 152 percent since 1994. These increases in 2000 resulted in the Port handling 4.9 million containers contributing to the industry's recognition of our facility as the busiest container port in the United States.

In the late 1970s, the Port of Los Angeles quite accurately forecast the current surge in the international trade needs of the Southern California region, and the Nation. In the early 1980s, the Port entered a long-term cooperative planning effort with the Corps, known as the 2020 Infrastructure Development Plan. The 2020 Plan acknowledges the phenomenal growth of trade through the Port of Los Angeles and the San Pedro Bay ports as a whole. It is a blueprint for the Port's infrastructure development and its adaptation to changes in maritime technology and to the projected growth in trade volumes well into this century. The Main Channel Deepening Project marks the second phase of the 2020 Plan begun with the Pier 400 Deep-Draft Navigation and Landfill Project. The Port of Los Angeles is aggressively moving forward with the 2020 Plan to meet its infrastructure needs in the face of these extraordinary prospects in global trade.

The Main Channel Deepening Project began in February 1999 when the Port and the Los Angeles District Corps executed a Memorandum of Agreement that would expedite the preliminary study phase required to engage the Corps in a Federal navigation project. Under the authority provided by Section 203 of the Water Resources Development Act of 1986, Public Law 99–662, the Port undertook the Feasibility Study in cooperation with the Corps. In anticipation of a favorable Chief of Engineer's Report, Congress authorized the Main Channel Deepening Project in the Water Resources Development Act of 2000, and on December 29, 2000, the Feasibility Study was approved enabling the Port to proceed with the Main Channel Project.

MAIN CHANNEL DEEPENING PROJECT

The Port of Los Angeles requests that your Subcommittee include the final appropriation of the Federal share of $2,650,000 for the Preconstruction Engineering Design (PED) phase of the project to deepen the Main Channel and also earmark $5,000,000 to begin the two-year channel dredging phase immediately following completion of the PED in August 2002. The total cost for the Main Channel Project is approximately $153,000,000. The Corps estimates the Federal share at approximately $42,000,000, and a local share of about $11,000,000,000.

Deepening the Main Channel in calendar year 2002 is critically important. The Main Channel's current depth of −45 feet Mean Lower Low Water (MLLW) is inadequate to accommodate the new state-of-the-art container vessels designed to hold more than 6,000 TEU's. These ships draft as much as −48 feet in depth. The recent Chief of Engineers Report concurred with the Feasibility Study recommending that the Corps dredge the Main Channel to at least −53 feet, including a modest allowance for varied tidal conditions and under-keel clearance. The project also includes dredging approximately 6.6 million cubic yards of sediment from the Turning Basin, the West and East Basins, and the East Basin Channel. Presently, five of the major

container shipping lines calling at the San Pedro Bay have vessels that draft −46 feet fully loaded. Yet to call at the Port, these vessels must come in partially loaded to navigate the main harbor channel safely. While unavoidable, this makes for an inefficient shipping system.

One of the Port's clients, the China Shipping Company, recently ordered six 9,000 TEU container ships and its partner, CMA–CGM (Compagnie Maritime d'Affrètement-Compagnie Générale Maritime)—also known as "The French Line"—ordered three 6,600 TEU container ships, all of which draft at −48 feet. They will call exclusively at the Port of Los Angeles from the Pacific Rim beginning in 2004. Without this construction, the Port would be unable to service its clients' infrastructure needs and provide a state-of-the-art functional gateway for imports consumer goods and manufacturing parts into the American stream of commerce. Simply, Mr. Chairman, there are no other ports on the west coast of the United States with the current infrastructure capacity to serve these container ships or absorb the volume of container throughputs even now. These state-of-the-art container ships represent the new competitive requirements for international shipping efficiencies in this century. Consequently, it is imperative that Congress appropriate the requested funding that will enable the Main Channel construction to begin in August 2002 with completion scheduled for early 2004, in time to receive these deeper draft container vessels.

ONGOING MAINTENANCE OF THE LOS ANGELES HARBOR AND BREAKWATER

For the Army Corps of Engineers Operation and Maintenance Program, the Port of Los Angeles seeks $5,700,000 to continue the hydrographic surveys, and the ongoing maintenance dredging of the Federal channels and turning basins, and to continue engineering studies and rehabilitation of the Federal breakwater at the Los Angeles Harbor. The efficient operation of the completed Pier 400 Project relies on the ongoing maintenance of the existing Federal navigation channels and the hydrographic surveys.

CONTINUED FUNDING OF THE LOS ANGELES HARBOR MODELS

Furthermore, the Port of Los Angeles also requests a total appropriation of $3,165,000 for the San Pedro Bay Models at the Corps of Engineers' Waterways Experiment Station (WES) at Vicksburg, Mississippi. This funding is critical for the Corps' maintenance of the Los Angeles Harbor Model studies and the Wave Gauge Program. Our request includes $165,000 for the maintenance of the physical model of the San Pedro Bay to maintain operational readiness for the continued study of navigation improvements at the Port, and $3,000,000 to upgrade the wave gauges, wave generators, and computer systems that are now outdated. We expect this rehabilitation program to take five years to complete at a cost of $11,000,000.

The information derived from these tools is critical to the validation of the numerical and physical models used for the design of ongoing projects under the Port's 2020 Plan. For example, during the state-of-the-art design of the Pier 400 Project, the scientists and engineers at WES, the Port of Los Angeles and the Corps' Los Angeles District used eight separate, but related models, to site the land reclamation element of the project and its effect on tidal resonance. As a result, maintenance of the hydraulic and physical models at WES, and their prototype data acquisition facilities, continue to be an essential resource for the Corps' Los Angeles District and for the Port of Los Angeles.

THE ECONOMIC IMPACT OF THE 2020 INFRASTRUCTURE DEVELOPMENT PLAN

Cargo throughput for the San Pedro Bay, and the Port of Los Angeles in particular, has a tremendous impact on the United State's economy; this fact cannot be over emphasized. The ability of the Port to meet the continued demand of this phenomenal growth in global trade is dependent upon the construction of sufficiently deep water channels that will accommodate the largest state-of-the-art deep-draft cargo container vessels that are already in service. These new vessels provide greater efficiencies in cargo transportation, thereby offering American consumers lower prices on imported goods and more competitive exports from the United States to foreign markets. However, for American seaports to keep up, they must, without delay, make the necessary infrastructure improvements that will enable them to participate in the new global trading arena.

The Main Channel Deepening Project—as part of the overall 2020 Plan—is clearly a commercial navigation project of national significance, from which the United States derives great economic benefit. The by-product of this project is the creation and sustaining of more than one million permanent well-paying jobs; more than $1 billion in wages and salaries; and, sales and income tax revenues, including in-

creased U.S. Customs Service revenues going to the Federal treasury. The return on the Federal investment is real and quantifiable, and we expect it to surpass the cost-benefit ratio as determined by the Corps of Engineers' project Feasibility Study many times over. The Federal investment in the Main Channel Deepening Project will ensure that the Nation's largest container port, the Port of Los Angeles, remains at the forefront of the new global trade network well into the 21st century.

IN SUMMARY

Mr. Chairman, the Port of Los Angeles respectfully urges your Subcommittee to include the following earmarks from the fiscal year 2002 budget, the following funds to support the Corps of Engineers' projects on behalf of the Port of Los Angeles:

—$2,650,000 to fund the final Preconstruction Engineering Design phase of the Main Channel Deepening Project;

—$5,000,000 to begin construction of the Main Channel Deepening Project;

—$5,700,000 for maintenance dredging and rehabilitation of the Federal breakwater;

—$3,165,000 for ongoing maintenance of the Los Angeles Harbor Model and Wave Gauge Programs at WES;

Thank you, Mr. Chairman, for the opportunity to submit this testimony in support of continued Congressional support of the Main Channel Deepening Project and other important Federal navigation projects at the Port of Los Angeles. The Port has long valued your Subcommittee's support for and understanding of the importance of the port industry to the economic vitality of the United States, and, in particular, the role of the Port of Los Angeles in contributing to this country's economic vigor.

PORT OF LOS ANGELES—LOS ANGELES HARBOR DEPARTMENT

OPERATIONS AND MAINTENANCE FISCAL YEAR 2002 APPROPRIATIONS

Critical to the efficient operation of the Port of Los Angeles' navigation system are the required ongoing maintenance of existing federal navigation channels and breakwaters. Essential to such maintenance are the hydraulic and physical models of the San Pedro Bay, used by the Corps of Engineers at their Waterways Experiment Station (WES) at Vicksburg, Mississippi, to study oceanic conditions. These are essential resources for the Port and the Corps.

Ongoing Maintenance of Federal Channels.—$5,700,000 is needed in fiscal year 2002 to continue hydrographic surveys; ongoing maintenance dredging of the Federal channels and turning basins; and, ongoing engineering studies for rehabilitation of the Federal breakwater. This work is essential to protect the Los Angeles Harbor complex from damage by deep ocean waves and to provide an optimal wave climate for safe and efficient terminal operations.

San Pedro Bay Models.—A total of $3,165,000 is needed in fiscal year 2002 to modify and maintain the San Pedro Bay Models at WES:

—$165,000 for the maintenance of the physical model to maintain operational readiness for the continued study of navigation improvements at the Port;

—$3,000,000 to begin a model enhancement program that would provide state-of-the-art wave generators, wave gauges, and computer systems to replace the current outdated and aged systems; the development of state-of-the-art numerical models for the analysis of tidal currents, and the development of prototype measurement instruments to calibrate the upgraded models. This program is expected to take five years to complete at a cost. of $11,000,000.

PORT OF LOS ANGELES CHANNEL DEEPENING PROJECT

The Port of Los Angeles and the U.S. Army Corps of Engineers acknowledged, more than fifteen years ago, that a dramatic increase in Pacific Rim trade volumes would occur over the next several decades. As such, the Port and the Corps started a long-range infrastructure development plan that would enable the Port to meet the forecast demands of increased trade and provide its customers with first-rate facilities and services. The forecast has proved true, and infrastructure development is critical. Pacific Rim trade with the United States is at an all-time high, and the Pacific Rim is the primary importer of American goods. In addition, trade between Mexico and Southern California's five-county area has increased 152 percent in the past seven years. As a result, the Port handled 4.9 million containers in 2000—a 27 percent increase over 1999—making it the busiest container port in the United States. This burgeoning trade has resulted in the manufacture of larger state-of-the-art container ships that draft as much as −48 feet. Consequently, the Port must deepen its federal channels from their present depth of −45 feet to −53 Mean Lower Low Water (MLLW) to accommodate the industry's shift to the larger con-

tainer vessels. In addition to greater navigability, deepening the Main Channel would improve navigation safety and shipping efficiencies and provide a ready resource of dredged material to create new land for future terminal development. Furthermore, the economic benefits include nearly 1,300 Port-related jobs locally, during the two years of construction, along with increased U.S. Customs Service collections and other federal tax revenues.

Congress authorized the Main Channel Deepening Project in Section 1010(b)(5) of the Water Resources Development Act (WRDA) of 2000. The Port and Corps have estimated the total project cost at $153,000,000, of which the federal share is $42,000,000 and the local share is $111,000,000.

Preconstruction Engineering and Design (PED).—$2,650,000 is needed in fiscal year 2002 to continue the PED phase and to complete the construction plans and project specifications.

New Construction Start.—$5,000,000 is needed to start construction in calendar year 2002. With an estimated one-year PED phase, project plans and specifications will be completed in April 2002. Assuming a three-month bid solicitation period, the Port expects construction to begin in August 2002.

PREPARED STATEMENT OF THE CITY OF NORWALK

Mr. Chairman, thank you for this opportunity to submit testimony on behalf of the City of Norwalk, California. The City of Norwalk respectfully requests your favorable consideration of two U.S. Army Corps of Engineers projects that are critically important to our community.

First, the City of Norwalk, CA requests $450,000 from the Army Corps of Engineers' Small Flood Control Account (Sec. 205) for the preparation of a comprehensive Drainage System Master Plan and citywide Urban Runoff Plan.

The City of Norwalk lies on the coastal plain tributary to the San Gabriel River System. The City manages in collaboration with the Los Angeles County Flood Control District several miles of storm drain system elements. There exists a need to prepare a Drainage System Master Plan to identity system deficiencies in both the City and County facilities serving the City. Also of concern are recent regulatory requirements from EPA and the Los Angeles Regional Water Quality Control Board in relation to non-point source control of contaminated urban runoff emanating from City streets and discharging into local river systems through the city and county storm drain systems. Preparation of a citywide Urban Runoff Plan is proposed to address that issue.

This project includes the following program elements that address both the drainage master planning and urban runoff issues:

—*Drainage System Master Plan*.—This program would provide for the preparation of a comprehensive drainage system master plan for the City. It would cover both City and County controlled system and would identify updated hydrology and determine hydraulic deficiencies, which may exist in this sub-regional system, which is tributary to the San Gabriel River.

—*Urban Runoff Plan*.—This work effort would provide for the development of a citywide Urban Runoff Plan to assure compliance with all federal EPA regulations—National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Load (TMDL), as well as State Water Quality Control Board regulations. Specific programs aimed at identifying potential non-point source locations for floatable and dissolved pollutants on the city's street system and entering its storm drain system would be identified. This Water quality management plan would identify potential Best Management Practices and would assess programmatic cost estimates for their development and implementation over the programs planning horizon.

The identification of projects and a program for improved flood control facilities will diminish the likelihood of flooding, thereby, increasing public safety and health for the City's constituents and reducing the risk of property loss and expenditure of future local, regional, state and federal funds for post disaster mitigation. Development of an Urban Runoff Plan will help to assure the city's public health and the development and implementation of programs to eliminate contaminated urban runoff from reaching regional flood control and river systems, which eventually drain into the Pacific Ocean.

Second, the City of Norwalk requests $300,000 from the Army Corps of Engineers' General Investigations (GI) Account for technical assistance in planning and design for water infrastructure projects in the City. The City was authorized for environmental infrastructure planning and design assistance in the Water Resources Development Act of 2000.

The City's water facilities need to be upgraded to provide a safe and more reliable water supply, particularly in the event of an emergency such as a major earthquake. The increased system reliability will also significantly increase the City's fire fighting capabilities, thus greatly enhancing water quality, public health and safety.

The projects for which funding for technical assistance is requested are outlined below.

—*Fire Hydrant Upgrading*.—This project would provide for technical assistance to prepare a design for the upgrading of undersized fire hydrants and devices throughout the City. A Water System Seismic Reliability Study prepared by the U.S. Army Corps of Engineers identified severe system deficiencies in this area and recommended upgrading and replacement of these hydrant assemblies.

—*Citywide Groundwater Study*.—This element of the request would provide for technical assistance to conduct a citywide Groundwater Quality Study. This study would inventory and assess the threat from groundwater contamination from a variety of potential sources within the community. Assuring water quality for its primary water supply source is a key element in the city's water system infrastructure reliability program. A comprehensive inventory and determination of potential threats to the water supply from underground contaminants will be conducted and a mitigation plan encompassing local, regional, state and federal resources prepared.

—*Central Norwalk Transmission Main*.—This request is for technical assistance to provide for the design of a water supply transmission main as identified in the City's Water System Seismic Reliability Study prepared by the U.S. Army Corps of Engineers. This pipeline will interconnect two separate city water systems and provide an opportunity for an upgraded interconnection with an adjacent water purveyor to provide additional system backup in the event of a major earthquake.

Mr. Chairman, again, on behalf of the City of Norwalk, I request the Committee's support for these critically important projects.

PREPARED STATEMENT OF THE CITY OF INGLEWOOD, CALIFORNIA

Mr. Chairman, thank you for this opportunity to submit testimony on behalf of the City of Inglewood, California. The City of Inglewood respectfully requests your favorable consideration of an environmental infrastructure project that is critically important to our community.

The City of Inglewood, CA requests $750,000 from the Army Corps of Engineers' General Investigations (GI) Account for studies, plans, specifications and estimates for the design and construction of transmission pipelines. The City was authorized for environmental infrastructure planning and design assistance in the Water Resources Development Act of 2000.

The City has approximately 16 miles (83,200 liner feet) of transmission pipeline ranging in diameter from 18 inches to 36 inches. These pipes vary in age from 30 to 50 years old. Due to the age, soil conditions and pipe materials, a majority of the pipes are susceptible to rupture. Therefore, it is highly recommended to replace a majority of these pipes to insure continued water supply to the residence of Inglewood.

The City of Inglewood's Capital Improvement Plan for 1999–2002 outlines the City's need to enhance the City's water, sewer and storm drainage infrastructure. The Plan includes numerous projects to affect a better overall quality of life and an improved state-of-readiness in the event of natural disasters (e.g., earthquakes).

The projects include improvements of the water, sewer, and storm drain systems, street construction, traffic modification to improve traffic flow and reduce traffic accidents, redevelopment projects, and park facilities programs. Many of these projects are necessary to enhance public safety and provide the citizenry with much needed additional sources of water, particularly in time of emergency events. The City will upgrade its infrastructure through the use of City generated revenue, and state and federal assistance where possible.

Mr. Chairman, again, on behalf of the City of Inglewood, I request the Committee's support for this critically important project.

PREPARED STATEMENT OF THE CITY OF HUNTINGTON BEACH

Mr. Chairman, thank you for this opportunity to submit testimony on behalf of the City of Huntington Beach, California. The City of Huntington Beach respectfully requests your favorable consideration of four U.S. Army Corps of Engineers projects that are critically important to our community.

First, the City of Huntington Beach requests $1.75 million from the U.S. Army Corps of Engineers' General Investigations Account for technical assistance to provide plans, specifications and estimates for the design of the Coastal Bluff Erosion project. The City received $211,000 in the fiscal year 2001 Energy and Water Appropriations bill for the Reconnaissance Level study for the project.

The coastal bluff, which is adjacent to Pacific Cast Highway (SR1) above several thousand feet of the City's beach, has eroded over time. The cause is drainage from inland sources and wave and wind action on the beach emanating from the Pacific Ocean. This erosion has become a serious safety concern. The erosion has affected existing bike, pedestrian coastline trails and park facilities located on the bluff and could eventually threaten Pacific Coast Highway, which runs parallel to the bluff.

The proposed solution entails stabilization of the bluff, mitigating sources of erosion and reconstruction of public facilities, including lighting, fencing, and trails. These improvements would also be constructed to provide access in compliance with current Americans with Disabilities Act (ADA) requirements. Stabilization of the bluff and reconstruction of park facilities on the bluff top would mitigate an unsafe condition and provide greater public access to the beach.

The coastal beach bike and pedestrian trail, park facilities and access roads are key elements adding to the economic viability of the beach as a tourist attraction. If the bluff area is left in its present condition, access to and enjoyment of the beach in that area will be limited. This limitation places serious constraints on the beach facilities as an economic resource to the City, region and State. The Bluff Top Park and the adjacent bike trails are regional coastal facilities used by over 750,000 visitors per year.

Second, the City of Huntington Beach requests $1 million from the U.S. Army Corps of Engineers' Small Flood Control Account (Sec. 205) for the replacement of deficient facilities and equipment in drainage pump stations and new pumping units in existing empty pump bays throughout the City.

Huntington Beach is a ninety-year-old coastal community. Some portions of the City are actually below sea level. Because of this fact many residents depend upon County and City storm drain channels and pump stations to keep storm water moving off their streets during heavy rainfall. In recent years several areas within the City have experienced flooding on public and private property to differing levels. Several of the City's pump stations are at the end of their statistical design life. Mechanical equipment including pumps and motors are in need of replacement. Additionally they are undersized given the level of development both within Huntington Beach and in upstream communities, which drain into the City. In order to alleviate the problem, the City needs to replace, upgrade or augment the flood control pump stations.

Replacement and repair of the City's flood control facilities will reduce the risk of damage to both public and private property. Additionally this program will assist the City in helping to remove areas from Federal Emergency Management Agency (FEMA) flood plain designations.

This flood control project does have regional impacts and goals. Huntington Beach is situated at a major outfall for the Santa Ana River and its tributaries. This means that runoff from upstream cities ends up in our flood control facilities. A residual impact from this run-off has been that it brings with it non-point source pollution from other areas outside the City. In recent years, the City has conducted studies of its storm drain pumping system comprised of several large capacity facilities. Construction of recommended improvements to these facilities could alleviate potential flooding affecting upstream tributary areas, some of which are outside the City.

It is anticipated that at least $6 million (Current $) in additional funding including federal and local dollars will be needed in future appropriations to complete this program. Two of the City's Pump Stations have recently been improved utilizing FEMA Hazard Mitigation grants.

Third, the City of Huntington Beach requests $1 million from the U.S. Army Corps of Engineers' General Investigations Account for technical assistance to provide for studies, plans, specifications and estimates for the design and construction of sewer and drainage projects. The City received an authorization for planning and design assistance under the Environmental Infrastructure Program in the Water Resources Development Act of 2000.

During the past several years the City has experienced increasing problems with the integrity of its sewer and drainage system infrastructure. Surface and ocean water quality is directly affected by the physical integrity of the respective systems. Studies conducted through the Corps of Engineers Seismic Reliability Program completed in 1999 identified several key projects to rehabilitate and/or replace physical facilities including storm drain pump stations, sewer lift stations and pipelines. The

need exists for funding for the planning, design and construction of various sewer and drainage systems improvements to provide off stream surface water diversion or treatment and the avoidance of sewage spills of exfiltration from pipelines.

Environmental infrastructure improvements are needed to insure that surface and ocean water quality standards are met through the control of storm water flooding and runoff contamination, and sewer system integrity through facility rehabilitation and main relining projects. Failure to stem sewage spills, exfiltration, flooding and runoff contamination not only represents a significant public health and safety issue for the community, but would also have significant adverse economic impact on the City, Region and State. Huntington Beach has over eight miles of City and State beaches within its boundaries. Each year Huntington Beach attracts approximately 9,000,000 State, National and International visitors. Tourism is a major industry in Orange County and the State of California. Visitors to the City rely upon clean, safe beaches. This represents an economic resource not only to Huntington Beach but to the State and Nation as well.

Finally, the City of Huntington Beach requests $650,000 from the U.S. Army Corps of Engineers' Aquatic Restoration Program (Sec. 206) for technical assistance for the City's Aquatic Restoration Program.

During the past several years, the City has experienced increasing problems with urban runoff emanating both within the City and from upstream of the City through both local and County operated flood control facilities. Surface and ocean water quality are directly affected by inorganic and organic and floatable contaminants, which discharge to the Pacific Ocean from these facilities. A site adjacent to the City flood control channel would be an ideal location for creation of an artificial maintainable vegetative filter area project for the combined benefit of watershed cleanup and aquatic restoration.

In 1999 City beaches were closed or posted with warnings of bacterial contamination in the surf zone. Extensive investigations indicated that the potential source of the contamination might be urban runoff. Such runoff originates from numerous unknown sources and travels through the regional flood control systems. A short-term strategy for alleviating this problem has been the utilization of City storm water pumping stations to divert runoff to the sewer system for treatment prior to discharging to the ocean. Failure to stem urban runoff contamination not only represents a significant public health and safety issue for the community, but would also have significant adverse economic impact on the City, Region and State.

Mr. Chairman, again, on behalf of the City of Huntington Beach, I request the Committee's support for these four critically important projects.

PREPARED STATEMENT OF THE PORT OF GARIBALDI

Mr. Chairman and members of the Subcommittee: My name is Don Bacon. I am Port Manager of the Port of Garibaldi, Oregon, located on Tillamook Bay on the Oregon Coast. We appreciate the opportunity to present our views on appropriations issues to the Committee.

APPROPRIATIONS REQUEST

The Port of Garibaldi requests a $550,000 appropriation for operations and maintenance (O & M) of Tillamook Bay and Bar, Oregon. The funding will allow the U.S. Army Corps of Engineers' (Corps) Portland District to prepare a Major Maintenance Report ($300,000) and Plans and Specifications ($250,000) for the Tillamook Bay North and South Jetties. I also recommend that the Committee include legislative language directing the Corps to prepare and complete the Major Maintenance Report and Plans and Specifications in fiscal year 2002, given the threats to navigation, public safety and public property should the jetty system fail. Earlier this month the Port and Tillamook County declared an emergency because of the development of sinkholes in the North Jetty.

REPORT ON THE TILLAMOOK BAY JETTY SYSTEM

In December 2000, The Board of Commissioners of the Port of Garibaldi and Tillamook County prepared a report on the Tillamook Bay jetty system and bar to inform legislators and other concerned parties of the need to restore the jetties and their bar to safe, acceptable engineering standards. Excerpts of that report are included below. We will provide the committee with a copy of the full report.

There are three major issues currently associated with the deterioration of the system.

(1) There is a clearly documented increasing hazard to navigation from erosion around the ocean ends of both jetties and resultant damage to the bar which is causing an escalating loss of life in boating accidents every year.

(2) There is a potentially significant loss of land mass containing recreational facilities and permanent structures in one area where the north jetty has already breached near its root.

(3) There is data currently being collected (but incomplete at this time) which suggests a possible relationship between the deteriorated condition of the jetties and bar and the degree of flooding in some land areas surrounding Tillamook Bay.

The report contains a history of construction and repair of the jetties by the Corps, an overview of construction and repair results, a summary of an independent engineering report solicited by the Port and the Corps' own evaluations of the jetties' present condition, reasons for restoration of the jetties and bar, and the Commissioners' endorsement of repair of the jetty system and bar as both an urgent public safety measure and possible contribution to mitigation of flooding in the estuary. It also includes a letter from U.S. Coast Guard Station Tillamook Bay which explains several problems with the jetty system, and their support for restoration and repair of the system.

BACKGROUND

Since settlement in the 1800s, Tillamook County's primary industries have been dairy, water and timber oriented. Tillamook Bay and the five rivers which feed it have historically furnished an abundance of shellfish, salmon and other species of fresh-water and ocean food fish. Over the past century the area has become renowned as one of the West's premier sport fishing locations.

Tillamook County's economy has always depended on prime conditions in Tillamook Bay, its estuary and watershed for cultivation and use of these natural resources. However, human activities including forestry, agriculture and urban development have adversely impacted the entire Bay area by increasing erosion rates and landslide potential in the forest slopes and significantly reducing wetland and riparian habitat. All five rivers entering Tillamook Bay now exceed temperature and/or bacteria standards established by the Oregon Department of Environmental Quality. The installation of a north jetty on Tillamook Bay begun in 1912 caused increased erosion of the Bay's westerly land border, Bayocean Spit, on the ocean side. The Spit breached in 1950. This allowed the Bay to fill with ocean sands on its southern and western perimeters and caused a major reduction in shellfish habitat, sport-fishing area, and an increase in the cross-section of the bar. A south jetty begun in 1969 helped stabilize the Spit and created the navigation channel presently in use.

Increasingly poor water quality in the Bay's feeder rivers and a substantial loss of marine life over the past twenty-five years enabled Tillamook Bay to become part of the National Estuary Program in 1992. The Project's scope of study included the estuary and watershed. One of the stated goals in the Project's final Comprehensive Conservation and Management Plan is "the reduction of magnitude, frequency and impact of flood events." This goal was found to be consistent with the scope of study of the Corps' Feasibility Study for Water Resources in Tillamook County now being conducted, and was incorporated into this new project.

Previous Corps' evaluations of jetty systems clearly state the adverse effects of jetty deterioration and infilling of channels and bars on tidal prism (the rate at which water flows into and out of the Bay) and indicate that they may influence flooding in a bay's estuary. During the past thirty-six months measurements have been taken of differential water levels in Tillamook Bay and its estuary and speeds of tidal flows during normal and high water events. This data suggests an increase in the cross-section of the Tillamook Bay bar and some channel infilling which may be affecting esturine flooding. These measurements are of stated interest to the Corps. The Port of Garibaldi, many Tillamook County businesses which have been victims of flooding, and some governmental agencies concerned with various aspects of the flooding issue are supporting continuing gathering of these measurements of water levels and tidal flow speeds.

While the conditions of jetties and their resultant bars invariably and continually affect the bay on which they are constructed, their basic function is the creation of a safe channel between ocean and harbor for the transit of maritime traffic. As originally designed and constructed, the Tillamook Bay jetties accomplished this. Due to their present state of deterioration, that initial effectiveness has been substantially reduced.

RESULTS IN BRIEF

Tillamook County has suffered a series of devastating floods since the winter of 1996. The storms caused by El Niño/La Niña events have increased the rate of deterioration of Tillamook Bay's jetties and bar. Their present condition is raising increasing navigational safety issues. The north jetty is now breached in an especially sensitive location near its root where the wall protects inhabited land, and the eroded area is increasing in size. A significant quantity of water flowing through this area would result in loss of the existing land mass adjacent to it and the structures on it. A second area of deterioration on the north jetty at the beach line is threatening to breach. But in either location, an infill of the channel with sands would reduce the navigability of the channel, further slow the rate of tidal flow and impact the cross-section of the bar. An even greater degree of danger to boaters than that which presently exists would surely be created.

The Bayocean Spit breach in 1950 buried one-third the Bay's shellfish habitat under ocean sands and did extensive damage to esturine lands. The lost shellfish habitat has never been recovered. The direction of tidal flow in the Bay is such that a breach in the north jetty would cause additional buildup of ocean sands to the inside edge of the Spit. This infill would eventually deposit toward the south end of the Bay and demolish even more shellfish habitat and sport fishing area, adversely impacting Tillamook County's already reduced economy. The harbor area would certainly suffer some degree of damage, resulting in increased commercial hardship.

But the most serious impact of jetty and bar deterioration has been on navigational safety. The United States Coast Guard Tillamook Bay Station has publicly commented on the transit danger to sport, commercial and their own vessels due to erosion effects which now constitute a maritime hazard. Many local sport and most commercial fishermen have abandoned Garibaldi as a permanent berth and sought harbor facilities where channel navigation is easier and transit of the bar less treacherous. The Coast Guard has formally requested that the Corps "restore the north and south jetties to their original dimensions, and remove materials from the original construction that may now pose a maritime hazard."

PRINCIPAL FINDINGS

Since the last repair to the south jetty, approximately 302 feet have been lost to erosion, 215 feet of that amount since 1998. The north jetty was designed and authorized by the USACOE to be 5,700 feet in length. As of December, 2000, approximately 275 feet of the ocean end of the north jetty is eroded and remains below mean lower low water level—submerged, in other words. In 1990 the USACOE capped the head of the north jetty from its above-water point going landward for a distance of 161 feet in an unsuccessful attempt at erosion control. The north jetty remains at least 300 feet short of its engineering-approved and authorized length.

Because of the increased magnitude of storms since 1996, both jetties have suffered far more damage than that normally expected to occur to such structures. Erosion and displacement of large support stones at the ocean ends of both jetties is particularly severe, and the submerged ends of both structures are being pushed southward. These two areas, adjacent to popular sport fishing locations, are now identified by the Coast Guard as extremely dangerous locations. Water swirls around the displaced boulders causing eddies sometimes strong enough to suck small boats into them. Even in calm, flat seas, water breaks over these boulders into waves powerful enough to throw smaller vessels onto the jetties. (This was the case on September 22, 2000, when a sport fishing boat inadvertently drifted inside the 200 foot exclusion zone and was dashed onto the end of the south jetty. Two people were killed and a third injured, this incident being the most recent loss of life this year in the accident record of the Tillamook Bay jetties and bar.)

Conclusion. On behalf of the Port of Garibaldi and Tillamook County, I thank the Committee for giving me this opportunity to provide testimony on the Tillamook Bay Jetty System.

PREPARED STATEMENT OF THE CITY OF SANTA BARBARA, CALIFORNIA

OPERATIONS AND MAINTENANCE DREDGING

As your distinguished Subcommittee writes the fiscal year 2002 Energy and Water Resources Appropriations Bill, I would like to bring a very important Corps of Engineers project to your attention.

About 400,000 cubic yards of sand piles up every winter at Santa Barbara Harbor, and in years of severe storms, the accumulated sand can close the channel bringing local fishing and other businesses in the Harbor to a standstill.

There is an important Federal interest in maintaining dredging at the Harbor. It provides slips and moorings for over 1,150 commercial, emergency and recreational boats. It is also an important part of Coast Guard operations on California's central coast.

The President's fiscal year 2002 Budget Request includes $2,020,000 for operations and maintenance dredging for Santa Barbara Harbor. I respectfully request that the U.S. Senate, through your Subcommittee, maintain that level of funding included in the President's Budget Request.

NEW CONSTRUCTION PROJECT—DREDGE ACQUISITION

The President's fiscal year 2002 Budget recommendation also includes project funding for a potential new construction project in Santa Barbara. The City of Santa Barbara and the Corps of Engineers have pursued a proposal to design and construct a dredge for annual operation and maintenance dredging of our harbor.

Federal funding for this project has been previously appropriated. However, the City of Santa Barbara at this time is unable to contribute the required 20 percent local sponsor funding. The City remains interested to the dredge acquisition project and together with the U.S. Corps of Engineers requests an additional $100,000 in order to prepare the necessary plans and specifications for the project.

The President's fiscal year 2002 Budget Request includes $100,000 for the dredge acquisition project for the Santa Barbara Harbor. I respectfully request that the U.S. Senate, through your Subcommittee, maintain that level of funding included in the President's Budget Request.

Thank you for the opportunity to submit this statement.

PREPARED STATEMENT OF THE CITY OF NEWARK, NEW JERSEY

Chairman Domenici and members of the Subcommittee, thank you for giving me the opportunity to submit testimony about two projects under your jurisdiction which are very important to the people of Newark, New Jersey and the surrounding region. The Passaic River Streambank Restoration Project, known as the Joseph G. Minish Passaic River Waterfront Park and Historic Area, is an important part of the overall economic, land use and transportation development plan of the City of Newark. And the implementation of our proposal for a Regional Hydroelectric Power Generation demonstration project will help the City of Newark to become more energy efficient and self-reliant, through the generation of power at an existing water treatment facility.

The Joseph G. Minish Park/Passaic Riverfront Historic Area project addresses the restoration and rehabilitation of approximately 9,000 linear feet of Passaic River shoreline from Bridge Street to Brill Street in the City of Newark. This encompasses the eastern boundary of Newark's Central Business District, as well as the edge of the City's densely populated Ironbound neighborhood.

The project is divided into three phases. Phase I consists of 6,000 feet of bulkhead replacement (Bridge Street to Jackson Street) and 3,200 feet of wetlands restoration (Jackson Street to Brill Street). The second of three sections of this phase will begin construction within the next few months, and the objective is to conclude this phase as soon as possible. The Army Corps of Engineers will expend the $15 million which is still available to apply toward Phase I elements. The State of New Jersey has been the primary cost-sharing sponsor of Phase I, with significant City investment and support. Some additional funding will be needed for Phase I, according to the U.S. Army Corps of Engineers February 28, 2001 project fact sheet, and City Engineering professionals are coordinating with the Corps to complete all elements of the bulkheading and its integration with significant Combined Sewer Overflow facilities and related Phase I costs.

Phases II and III consist of the construction of a 40 foot-wide promenade along the river's edge, on top of the completed bulkhead work, and includes the construction of parkland on the inland side of the promenade, between the river and Newark's downtown. This restoration will provide a new focal point for downtown development activities, reconnect Newark to its riverfront and maritime history, and allow neighborhood residents direct access to the riverfront as part of a much-needed recreation complex.

An appropriation of $15 million for the continuation of construction on the Newark Riverfront Project is requested, so that this integral element in Newark's revitalization can move forward as planned, and can be utilized by the Army Corps of

Engineers, in fiscal year 2002. It will enable the City, State and Corps to complete all critical Phase I elements, and to proceed with a Phase II City/Corps cooperative program agreement on the next set of essential Phase II and Phase III elements. This will include the walkway/greenway component above and behind the bulkheading, and the critical connective infrastructure that will be needed to insure access and maximum effectiveness and utilization of this project for the community and key stakeholders and project partners.

This project was authorized at a level of $75 million in the 1996 Water Resource Development Act, and has been fully planned by the Army Corps of Engineers. The streambank restoration and bulkhead replacement, which is the first phase of the overall project, began in the fall of 1999 utilizing the fiscal year 1999 and 2000 appropriations. The fiscal year 2000 appropriation has been used for the initial section of bulkhead construction, which is now complete. The fiscal year 2001 allocation allowed for continued construction of the bulkhead down to Penn Station, funded design of the walkway and park area, and could allow walkway construction to begin. Prior appropriated funds have been utilized to fully design the bulkhead, a segment of naturalized streambank, and a system of walkways and public open spaces. Adjacent, currently dormant, sites have become desirable locations for development of commercial properties, due to the projected walkway, park and open space facilities. However, the current funding will only take us through the construction of bulkhead and some of the mud flats restoration, not to a usable facility.

A supplemental appropriation of $15 million is requested so that this integral element in Newark's revitalization can move from partial construction to the beginning of full project build-out. This investment in Newark's future will help us to improve the economic status of our nation's third oldest major city. The development of the riverfront now is a critical element in the overall plan for Newark's downtown revitalization. This linear park will serve as a visual and physical linkage among several key and exciting development projects. It is adjacent to one of the oldest highways in the nation, Route 21, which is undergoing a multi-million dollar realignment and enhancement. A light rail system, the Newark-Elizabeth Rail Link, which will connect Newark's two train stations, and ultimately, Newark International Airport and the neighboring City of Elizabeth, will provide users with access to mass transportation. Conversely, the riverfront will become a destination served by that system, providing an important open space and waterfront opportunity for residents of one of the most densely populated cities in the nation.

The environmental benefits of the project include flood control, riverbank and wetlands restoration, creation of urban green space, and enhancement of water quality in the Passaic River. These improvements will allow the Passaic River to be converted from one of the nation's most troubled waterways to a cultural and recreational asset. Ongoing and planned greenway projects will provide pedestrian and bicycle access to the waterfront from Newark's residential neighborhoods as well as the City's five major institutions of higher learning.

The riverfront development will complement and provide a visual and physical connection with the new, $170 million New Jersey Performing Arts Center, which opened in the Fall of 1997 and has been incredibly successful. Further north along the riverfront, also accessible from the riverfront walkway when it is fully built, the City of Newark and Essex County have opened Riverfront Stadium, home to a minor league baseball team as well as community sporting events such as the Project Pride Bowl. Also in close pedestrian proximity is the site for the new Newark Sports and Entertainment Arena, which is expected to bring two million visitors a year into the area. In addition, NJ Transit is just completing construction of a new concourse, which is directly adjacent to the riverfront. Once the park and walkway are completed, rail and bus passengers will be able to exit the Penn Station north concourse directly onto the riverfront area. On the eastern portion of Minish Park, residents of a crowded community, Newark's Ironbound, will have direct access to the river and its streambank for active and passive recreation for the first time.

The riverfront will be the nexus of these activities, creating a vibrant downtown center that will provide economic development opportunities for the citizens of Newark and our region. Visitors from throughout the nation are expected to come to visit our revitalized city, and participate in the exciting growth and development taking place. There is tremendous potential for Newark's riverfront to mirror the success of other riverfront developments throughout the country, and Newark stands ready to accept the challenges such developments present.

The City of Newark has completed conducting a master plan study for the entire riverfront area, which will guide us in tying together these incredibly exciting, and challenging, projects. We are coordinating redevelopment plans with private developers, public agencies, and non-profit partners. We have a once in a lifetime oppor-

tunity to coordinate several major development activities into a virtually seamless development plan. The appropriation of $15 million which Newark requests will serve to incorporate the Army Corps of Engineers' construction into our overall economic development plan to reinvigorate Newark. I urge you to support this appropriation request, and help us to continue Newark's revitalization.

The second project presented for your consideration concerns the generation of power through the City of Newark's own water system. Although not yet faced with the severe challenges faced in other parts of the country, Newark is seeking to proactively address the need for alternative energy sources. The City of Newark is also confronted with a series of challenges to its water and power supply resources.

Accordingly, the City is seeking to develop the ability for the generation of hydroelectric power through the addition of in-line turbines at existing water transmission facilities. Newark has an extensive water collection and treatment system, spread over a large area in northern New Jersey. It feeds approximately 100 MGD to the City and it's out of town customers. The City maintains and operates five storage reservoirs, nine dams, six outlet structures and 64 square miles of woodland. It operates 80 miles of transmission aqueducts, structures, right-of-way and pump stations, interconnected with other major water purveyors. Distribution reservoirs are operated, along with their inlet and outlet gates, a rechlorination plant, and a water testing laboratory. Newark's extensive local water system includes 500 miles of distribution mains and pipelines, 5,000 hydrants, and 10,000 control valves. Although viewed primarily as a water supply system, the potential for power generation is present, and the time is right to begin its utilization.

The City's Pequannock Water Treatment facilities and aqueduct downstream of the Charlotteburg Dam and Reservoir present a unique opportunity to recover energy that is currently dissipated in the diversion of water through various dam gatehouse and intake structures, pipeline, and downstream screen chambers. Further, the potential hydroelectric power and energy represented in the conveyance could, most of the time, offset the existing power and energy requirements of the water treatment facilities themselves, including the loads present at dams and treatment facilities.

With this potential in mind, the City performed an evaluation of the power production and energy generation potential of its system. An extensive technical study of the power generation potential of Newark's entire collection, treatment and transmission facilities has been prepared, showing the possibilities of surplus energy generation, and is available for review. It explores the potential generation and disposition of power from several of Newark's operations. As a pilot project, the least complex element of the system can stand alone, and is submitted and described herein.

This project proposes to construct a Water Turbine Hydroelectric Facility at the City's Cedar Grove balancing reservoir. Utilizing the existing infrastructure, this proposed facility would take advantage of the hydrostatic head on the transmission aqueduct between the West Milford Treatment plant (elev. 700 feet) and the Cedar Grove Reservoir (elev. 380 feet). The proposed site lies alongside a power company easement, which would make connection to the grid quite simple. The fairly static flow provided by the interceptor makes this a logical location for a turbine regulator set up. This method of energy recovery would be the least invasive as it could be implemented without significant disruption of our present system. It represents the clean and renewable production and use of energy "on-site", which is currently wasted. The project may also alleviate the relatively frequent interruptions and curtailments of power delivery that are currently experienced at the Pequannock Water Treatment facilities.

This proposed facility would be capable of offsetting the City's electrical operating expenses in additional to the needs of its Water & Sewer Utility, and could potentially offset the cost to construct concrete storage tanks at the Cedar Grove site in order to meet Federal compliance for the elimination of open potable drinking water reservoirs. It provides Newark with a unique energy recovery and use opportunity.

An appropriation of a total of $12 million is sought, with $2 million for planning and design, and $10 million for construction of the project. It is anticipated that the energy generated through the facility would offset this initial investment within the current decade. Your support for innovative hydroelectric energy generation will enable the City of Newark to impact on its own environmental and economic concerns.

In closing, I would like to extend my thanks to the entire New Jersey delegation for its ongoing support, especially to subcommittee member Rodney Frelinghuysen for his advocacy of Newark's critical projects. The time and attention of this subcommittee are deeply appreciated.

PREPARED STATEMENT OF THE CITY OF MIAMI BEACH, FLORIDA

The City of Miami Beach appreciates the opportunity to submit for the record (1) testimony on an innovative new beach erosion control initiative, and (2) testimony in support of the request by Miami-Dade County for beach renourishment funds.

INNOVATIVE BEACH EROSION PREVENTION AND SAND RECYCLING SYSTEM DEMONSTRATION PROJECT

Dade County, Florida has approximately 15 miles of sandy beaches. The Miami Beach Segment makes up 10.5 miles or 70 percent of that beach front area. The Miami Beach Segment is bounded to the north by Baker's Haulover inlet and to the south by Government Cut Inlet. The construction of these inlets, just after the turn of the century, left the Miami Beach Segment isolated between two complete barriers to along-shore sand migration. As a result, the Miami Beach Segment continuously loses sand through natural processes but can only regain sand through artificial means.

In the years that followed the construction of the inlets, the Miami Beach shoreline steadily receded. By the mid-1970's the shoreline had receded more than 500 feet and most of the sandy beaches had been lost. Property owners were forced to build seawalls, bulkheads and other hardened structures to prevent the coastal infrastructure from being undercut by the encroaching tides.

In 1975, the U.S. Army Corps of Engineers (ACOE), in partnership with Dade County, initiated the Dade County Beach Erosion Control and Hurricane Surge Protection Project. At that time, Dade County and the ACOE entered into a 50 year contract for the joint management of Dade's sandy beaches. In 1979, the ACOE constructed a flood control dike (sand dune) and an "engineered" beach along the entire length of Miami Beach. The project added more than 300 feet to the width of the severely eroded beaches. The new beach was a tremendous success and has been credited for contributing significantly to the resurgence of our local economy.

The sand used to nourish the beaches was hydraulically dredged from deposits of sand about a mile off our coast. More than 16 million cubic yards of sand were used during the initial beach construction and an additional 5 million cubic yards have been used in the periodic renourishment of segments of the project. However, the near shore deposits of sand which have been the source for the renourishment projects have been exhausted. There is not enough sand remaining to meet the immediate needs of the critically eroded shoreline areas nor are there any strategic reserves to be used in the event that our shorelines are ravaged by a hurricane or other natural disaster.

Engineers have determined that Miami Beach loses sand to erosion at an average rate of 250,000 cubic yards per year, with that rate increasing ten-fold during years of heavy storm activity. Faced with a continuing need for a quarter million tons of sand per year for the maintenance of our beaches and an exhausted supply of local sand, the City of Miami Beach realized that immediate action was needed to avert a crisis. Our initial reaction was to try to locate alternate sources of beach-quality sand. The City advertised its interest in locating sand sources, traveled across Florida & the Caribbean to visit potential sources, compiled a database of source location & quality information, and secured an invitation for the Army Corps of Engineers to conduct testing of several potential sources of high-quality carbonate sands in the Turks & Caicos Islands.

The City remains committed to identifying alternate sources of sand and expediting the evaluation of the environmental, physical and economic viability of the potential sources, to ensure that sufficient quantities of beach-quality sand are available to fulfill our future needs. However, we have realized that continuing to pump sand on to our beaches without addressing the underlying causes of the erosion, will leave us in an endless cycle of needing more, increasingly expensive sand.

If the erosion cycle can be successfully slowed, it would reduce the demand for additional sand and save millions of dollars in renourishment costs; not to mention the elimination of the environmental, public and legal challenges to renourishment projects. To achieve this goal, the City embarked upon a program to develop innovative technologies which will help prevent beach erosion processes.

Analysis of our coastal system revealed the presence of several "hot spot" areas along our shoreline which accounted for the majority of the sand losses. Analysis of the data also revealed the presence of an area of substantial sand accretion (accumulation) in a near shore area near the southern end of Miami Beach.

The causative factors behind these hot spots have been linked to changes in the shape (compass orientation) of the coastline and benthic topographical anomalies in the nearshore area. The worst of these hot spots exist within two half-mile long areas along our shoreline. These two hot spots have been shown to be responsible

for the loss of almost 200,000 cubic yards of sand each year. The hot spots also accelerate the erosion of the adjacent beaches for as much as a mile to the north, as the sand from the adjacent beaches slough down to fill the voids within the hot spots. With beach renourishment costs of about $14/cubic yard of sand, these hot spots are responsible for the loss of more than 2.5 million dollars annually.

After detailed examination of the available data and careful consideration of the possible alternatives, our coastal engineers have designed a series of detached breakwater structures which will significantly reduce the rate of erosion within these hot spot areas and help to stabilize large sections of our beach. The size and configuration of these structures have been carefully "tuned" to the specific conditions at each of the hot spot areas. Our coastal engineers estimate that the elimination of each hot spot will widen and stabilize approximately one mile of beach. It is believed that these benefits can be gained without significant negative impacts to the down drift beach areas or offshore reefs. Sea turtle nesting in the area will also be enhanced by the widening and stabilization of more than two miles of beach.

The City of Miami Beach and Dade County have jointly initiated an emergency effort to develop and construct breakwater reef structures in the location of the two worst hot spots. Preliminary estimates indicate the breakwater structures will cost approximately $700,000 each. The required funding for the first of set of these structures has already been appropriated and construction is scheduled to begin in mid-2001.

The City's master plan is to develop a series of erosion control breakwaters, positioned in key areas along the shoreline, to widen the beaches and slow the erosion process. Concurrent with the efforts to slow the beach erosion process, we plan to initiate a feasibility study/demonstration project to pursue an innovative and promising potential solution to our sand shortage problem. Our coastal engineers have identified the presence of a highly accretional near-shore area at the southern end of Miami Beach. The area is accreting sand at a rate of more than 200,000 cubic yards per year. Sand is accreting in the area because of the navigational Jetty that juts 1500 yards out to sea, along the north side of the Government Cut Inlet, at the southern tip of Miami Beach. The jetty structure acts as a barrier, blocking the natural, southerly migration of the near shore sand lens, which causes the migrating sand to pile-up on the north side of the structure. As more and more sand piles-up, the sand lens builds and creeps offshore toward the end of the jetty. Because the seaward end of the jetty extends out to the first line of coral reefs which parallel our shoreline, the jetty and the reef line together form a 'trap' which prevents most of the sand from being able to move further south. This near-shore sand lens is continuing to build and will eventually 'over-top' the reef and smother living corals. If authorized, the City will seek to have the overfill accumulating at the southern end of the segment "back passed" or pumped back up to the eroded beaches at the northern end of our beach segment.

The ultimate goal is to utilize the breakwater structures to slow the erosion process, stabilize the beaches and cut the demand for new sand. Then, periodically, the excess fill that accumulates will be recycled back to the beaches at the north end of the system and the cycle will start over. This Sand Recycling System, if successful, will allow for the continued, effective maintenance of our beaches, while offering substantial financial and environmental benefits.

Local government has already made a substantial investment in the development of this process. If approved, this $2,300,000 appropriation request will allow the City to complete a thorough engineering analysis of the entire system, obtain the necessary Federal and State permits, and contract for the renourishment of a mile long section of beach utilizing back-passed sand. This project will serve as a demonstration of the effectiveness of the Sand Recycling System and the importance of regional sediment management.

SUPPORT FOR MIAMI-DADE CONSTRUCTION REQUEST

The City of Miami Beach would first like to thank the members of the subcommittee for all their efforts in the past to provide support for the State of Florida's beaches and in particular, those of Miami Beach.

Beaches are Florida's number one tourist "attraction." Last year, beach tourism generated more than $16 billion dollars for Florida's economy and more tourists visited Miami Beach than visited the three largest national parks combined.

In addition to their vital economic importance, beaches are the front line defense for multi-billion dollar coastal infrastructure during hurricanes and storms. When beaches are allowed to erode away, the likelihood that the Federal government will be stuck with astronomical storm recovery costs is significantly increased.

The Florida Department of Environmental Protection estimates that at least 276 miles (35 percent) of Florida's 787 miles of sandy beaches are currently at a critical state of erosion. This includes the entire six miles of Miami Beach. As a result of the continuing erosion process and more dramatically, recent intense storms which have caused tremendous damage to almost all of the dry beach and sand dune throughout the middle segment of Miami Beach. Three years ago, most of the Middle Beach dune cross-overs were declared safety hazards and closed, as the footings of the boardwalk itself were in immediate jeopardy of being undercut by the encroaching tides. If emergency measures, costing approximately $400,000 had not been taken by the City, there would have been considerable risk of coastal flooding west of the dune line in residential sections of Miami Beach. As you can see, this example points to the commitment we as a beach community have to our beaches, but federal assistance remains crucial. While we are thankful of the substantial commitment made by the subcommittee in the fiscal year 2001 Energy and Water Conference Report, there is still much work to be done. Our beaches must be maintained not only to ensure that our residents and coastal properties are afforded the best storm protection possible, but also to ensure that beach tourism, our number one industry, is protected and nurtured.

In 1987, the Army Corps of Engineers and Metropolitan Dade County entered into a fifty year agreement to jointly manage restore and maintain Dade County's sandy beaches. Since then, Metropolitan Dade County has been responsible for coordinating and funding the local share of the cost for the periodic renourishment of our beaches.

In order to ensure that adequate funding will continue to be available, the City of Miami Beach supports and endorses the legislative priorities and appropriation requests of Metropolitan Dade County, as they relate to the restoration and maintenance of Dade County's sandy beaches. Specifically, the City respectfully adds their strong support for the efforts of Miami-Dade County and wholeheartedly supports their fiscal year 2002 request for beach renourishment funds.

Your support would be appreciated, Mr. Chairman. The City of Miami Beach thanks you for the opportunity to present these views for your consideration.

PREPARED STATEMENT OF ASSOCIATION OF STATE DAM SAFETY OFFICIALS, INC.

Chairman Domenici and Members of the Subcommittee: The Association of State Dam Safety Officials (ASDSO) is pleased to offer this testimony on the President's proposed budget for the U.S. Army Corps of Engineers (USACE) for fiscal Year 2002.

The Association of State Dam Safety Officials is a national organization of more than 2,000 state, federal and local dam safety officials and private sector individuals dedicated to improving dam safety through research, education and communications. Our goal is to save lives, prevent damage to property and maintain the benefits of dams by preventing dam failures. Several devastating dam failures occurring in the 1970s focused attention on the potential catastrophic results of dam failures. These dramatic failures demonstrate that dams should always be properly constructed, operated and maintained to continue to provide important benefits and prevent failures.

UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

National Dam Safety Program Act

The National Dam Safety Program Act, enacted as part of the Water Resources Development Act of 1996, is set to expire in fiscal year 2002. The reauthorization of the Act will be a priority for ASDSO in the 107th Congress.

Total authorized program funds for fiscal year 2002 are $6.4 million, including $4 million for grants to participating states, $1 million for research, $500,000 for the dam inventory, $500,000 for training, and $400,000 for additional Federal Emergency Management Agency (FEMA) staff. The U.S. Army Corps of Engineers has only a small part of this important program—the National Inventory of Dams. ASDSO supports funding for all National Dam Safety Program Act activities at the authorized levels for fiscal year 2002.

The current National Inventory of Dams (NID) is the result of an evolutionary process. The USACE continues to work closely with ASDSO, FEMA, and other state and federal agencies to update and publish the NID. The success of the NID maintenance and publication program can be attributed to the cooperative participation of the 50 states and Puerto Rico (as facilitated by ASDSO), and 17 federal agencies, who provide information on approximately 77,000 dams currently in the NID.

The Interagency Committee on Dam Safety (ICODS) created a subcommittee to advise the USACE on the update of the NID. The NID Subcommittee provides guidance and recommendations concerning the data elements, format, and publication media for the NID. Its membership consists of representatives of non-federal and federal agencies who participate in the NID.

A web-enabled version of the 1998–1999 NID update was posted to the Internet in January 1999. Updated data received by USACE is posted quarterly to the online database.

The USACE and ASDSO are continuously improving the process of inventory data collection and transmission by the states and federal agencies to take advantage of current PC computers, software and the Internet. Software tools have been recently developed to improve the process of managing, inputting, and transmitting NID data. User training for the states and federal agencies on these software tools is starting in March 2001.

This modest, yet vital, funding through the USACE will enable the states to continue to update the inventory providing valuable information to dam safety officials, city, county and state officials, and many others who are affected by dams and the watersheds they create.

Additionally, funding of $7 million was authorized in the Water Resources Development Act of 2000 (WRDA), Public Law 106–541, Section 524, to allow for an inventory of dams constructed in Minnesota using funds from the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC). While ASDSO supports the overall intent of this language, we have serious concerns that the geographic limitation to Minnesota will leave out a significant number of WPA and CCC dams.

ASDSO has identified more than 1,800 dams in 14 states that had been constructed with WPA and CCC funds. Of these, only 450 were in Minnesota. The requirement in WRDA 2000 to limit the entire $7 million inventory fund to Minnesota will result in unequal treatment for these states.

Additionally, it has been noted that there are 2,100 unsafe dams in the United States, which have deficiencies that leave them highly susceptible to failure. Previous funding of this program has given the USACE, through state dam safety officials, the ability to maintain the inventory of dams, and determine which are unsafe.

An alarming number of dams across the country are showing signs of age and lack proper maintenance. Downstream development is increasing, which exacerbates the problem. Most older dams were built without adequate spillways to release water in heavy rains, which causes water to run over the top. Inadequate spillway capacities are the most common deficiency and a major cause of dam failures. Dam safety officials estimate that thousands of dams are at risk of failing or are disasters waiting to happen. One-fourth of all U.S. dams are more than 50 years old, and by the year 2020, that figure is expected to increase to 85 percent. ASDSO estimates that it would cost $2 billion over the next five years to begin to rehabilitate all the documented unsafe dams in the United States.

ASDSO respectfully requests that the national dam inventory be fully funded at the authorized amount of $500,000 in fiscal year 2002. Additionally, ASDSO requests that the Minnesota Dam Safety provision of Public Law 106–541, Section 524 be fully funded at $7 million, and that the use of the funds be allowed to encompass all dams constructed under the Works Progress Administration and the Civilian Conservation Corps regardless of their location in the United States.

State-By-State Statistics on Dams and State Safety Regulation

State	Total Dams in National Inventory[1]	Total Dams Under State Regulation[2]	High-Hazard Potential State Dams[3]	State-Determined Deficient Dams[4]	State Dam Safety Budget (x thousand)	No. State Staff Dedicated to Dam Safety Regulation	No. State Regulated Dams Per FTE Staff (to nearest whole no.)
Alabama***	1,570**	1,704**	184**	150**	$0	0	>1,704**
Alaska	112	78	16	NR	$84**	1	78
Arizona	315	214	73	23	$500	8	27
Arkansas	927	427	98	25	$264	4.2	102
California	523	1,238	392	0	$6440	68	18
Colorado	1,666	1,833	304	190	$950	14	131
Connecticut	707	3,000	236	11	$472	6	500
Delaware***	73*	98*	9*	NR*	NR*	NR*	NR*
Florida	678	800	72	NR	$5000	32	25
Georgia	4917	3350	385	65	$423	10	335
Hawaii	129	129	56	0	$135	2	65
Idaho	343	431	100	NR	$305	7.5	57
Illinois	1,232	1,278	167	NR	$335	4.5	284
Indiana	1,463	1,200	243	NR	$340	5	240
Iowa	3233	3283	77	NR	$25	0.3	10,943
Kansas	6,077	9,899	200	51	NR	NR	NR
Kentucky	1012	981	208	0	$2017	14	70
Louisiana	381	311	12	0	NR	3.1	100
Maine	617	840	20	65	$46	1	840
Maryland	287	395	57	8	$415	6	66
Massachusetts	1,528	2,921	333	21	$558	6	487
Michigan	869	1153	82	NR	$400	4.5	256
Minnesota	932	852	40	NR	$237	2.7	316
Mississippi	3,328	3,470	262	48	NR	2	1735
Misscuri	4,088	625	437**	23	$288	6	104
Montana	3,523	2,865	97	12	$190	5	573
Nebraska	2,078	2,078	99	0	$284	5.2	400
Nevada	323	577	106	8	$115	2	289
New Hampshire	613	3,223	87	0	$535	7	460
New Jersey	824	1,666	188	60+	$590	10	167
New Mexico	533	488	173	6	$486	6	81
New York	1,970	5,740	381	52	$648	6	957
North Carolina	2,851	4,586**	988**	139**	$801	16	287
North Dakota	799	1,521	27	3+	$200	4	380
Ohio	1,766	2,703	502	450	$1200	15	180
Oklahoma	4,523	4,393	145	3	$185	1.8	2441
Oregon	833	3,733	122	0	$255	3.1	1204
Pennsylvania	1,412	2,916	746	28	$1698	22.5	130
Puerto Rico***	36	36	33	2	$466	8	5
Rhode Island	185	510	16	40	$78	1.1	510
South Carolina	2,252	2,293	151	3	NR	5.5	417
South Dakota	2,443	2,303	48	4	NR	2.5	901
Tennessee	1,135	621	151**	20	$275	7	89
Texas	6,838	7,247	818	403	$568	6	1208
Utah	654	1,948	214	41	$458	5	390
Vermont	348	2,000	53**	NR	$222**	2.3**	870
Virginia	1,597	494	105	50	$351	6	82
Washington	653	880	116**	31	$348	6.3	140
West Virginia	537	350	245	40	$335	6	59
Wisconsin	1,291	3,402	192	NR	$486	6.5	523
Wyoming	1,216	1,332	64	3	$104	3.4	392
TOTAL	78,240 /51	100,415 /51	9930 /51	2082 /40	$30,112 /45	377 /49	31,617 /49
AVERAGE	1534	1969	195	52	$669	7.7	>645*

SOURCE: Association of State Dam Safety Officials

1 - Includes dams of any size that are likely to pose a significant threat to human life or property in case of failure, and all other federal and non-federal dams > 25' high that impound > 15 acre-feet; and dams > 6' high that impound > 50 acre-feet.
2 -- Estimated number of all dams under state regulatory control
3 - High-Hazard by state definition derived from state inventory in column 2. Individual states' definitions may differ from the federal (National Inventory of Dams) definition. * indicates figure taken from NID and based on NID definition.
4 - Dams with identified deficiencies by state definition (varies state to state) derived from state inventory in column 2
NR = Not Reporting. Some states do not keep data on these categories.
+ High hazard dams only
* Since Alabama has no dam safety staff, the average number of regulated dams per FTE staff is actually larger than this.
***FY2000 data not provided by Alabama, Delaware and Puerto Rico.

**Individual State Notes:
AL: The Alabama legislature has not established a dam safety program. Last state report to NID was in 1979-1980.
AK: Significant salary/benefits reduction due to staff change. Grants not included in this figure.
MO: Significantly larger than previous submission, which included only Class 1 dams. Revised number includes both Class 1 and Class 2 dams, which better meets NID standards.
NC: Hurricane Floyd (Sept 1999) and more accurate assessment techniques account for significant changes in data since last report.
TN: Total number of regulated, high hazard dams. There are an additional 62 high hazard "farm ponds" that are not regulated.
VT: There are another 132 Significant Hazard potential dams where there is also loss of life potential. Budget includes new position not yet filled.
WA: According to the federal (NID) standards, there are 310 high hazard potential dams in the state of Washington.

Prepared Statement of the American Society of Civil Engineers

Chairman Domenici and Members of the Subcommittee: The American Society of Civil Engineers (ASCE) is pleased to offer this testimony on the President's proposed budget for the U.S. Army Corps of Engineers (USACE) for fiscal Year 2002.

ASCE was founded in 1852 and is the country's oldest national civil engineering organization. It represents more than 125,000 civil engineers in private practice, government, industry and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a 501(c)(3) non-profit educational and professional society.

UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

National Dam Safety Program Act

The National Dam Safety Program Act, enacted as part of the Water Resources Development Act of 1996, is set to expire in fiscal year 2002. The reauthorization of the Act will be a priority for ASCE in the 107th Congress.

Total authorized program funds for fiscal year 2002 are $6.4 million, including $4 million for grants to participating states, $1 million for research, $500,000 for the dam inventory, $500,000 for training, and $400,000 for additional Federal Emergency Management Agency (FEMA) staff. The U.S. Army Corps of Engineers has only a small part of this important program—the National Inventory of Dams. ASCE supports funding for all National Dam Safety Program Act activities at the authorized levels for fiscal year 2002.

The current National Inventory of Dams (NID) is the result of an evolutionary process. The USACE continues to work closely with the Association of State Dam Safety Officials (ASDSO), the Federal Emergency Management Agency (FEMA), and other state and federal agencies to update and publish the NID. The success of the NID maintenance and publication program can be attributed to the cooperative participation of the 50 states and Puerto Rico (as facilitated by ASDSO), and 17 federal agencies, who provide information on approximately 77,000 dams currently in the NID.

The Interagency Committee on Dam Safety (ICODS) created a subcommittee to advise the USACE on the update of the NID. The NID Subcommittee provides guidance and recommendations concerning the data elements, format, and publication media for the NID. Its membership consists of representatives of non-federal and federal agencies who participate in the NID.

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The USACE and ASDSO are continuously improving the process of inventory data collection and transmission by the states and federal agencies to take advantage of current PC computers, software and the Internet. Software tools have been recently developed to improve the process of managing, inputting, and transmitting NID data. User training for the states and federal agencies on these software tools is starting in March 2001.

This modest, yet vital, funding through the USACE will enable the states to continue to update the inventory providing valuable information to dam safety officials, city, county and state officials, and many others who are affected by dams and the watersheds they create.

Additionally, funding of $7 million was authorized in the Water Resources Development Act of 2000 (WRDA), Public Law 106–541, Section 524, to allow for an inventory of dams constructed in Minnesota using funds from the Works Progress Administration (WPA) and the Civilian Conservation Corps (CCC). While ASCE supports the overall intent of this language, we have serious concerns that the geographic limitation to Minnesota will leave out a significant number of WPA and CCC dams.

ASDSO has identified more than 1,800 dams in 14 states that had been constructed with WPA and CCC funds. Of these, only 450 were in Minnesota. The requirement in WRDA 2000 to limit the entire $7 million inventory fund to Minnesota will result in unequal treatment for these states.

In the recently released ASCE 2001 Report Card for America's Infrastructure Dams received a grade of D. Additionally, it has been noted that there are 2,100 unsafe dams in the United States, which have deficiencies that leave them highly susceptible to failure. Previous funding of this program has given the USACE, through state dam safety officials, the ability to maintain the inventory of dams, and determine which are unsafe.

An alarming number of dams across the country are showing signs of age and lack proper maintenance. Downstream development is increasing, which exacerbates the problem. Most older dams were built without adequate spillways to release water in heavy rains, which causes water to run over the top. Inadequate spillway capacities are the most common deficiency and a major cause of dam failures. Dam safety officials estimate that thousands of dams are at risk of failing or are disasters

waiting to happen. One-fourth of all U.S. dams are more than 50 years old, and by the year 2020, that figure is expected to increase to 85 percent. ASCE estimates that it would cost $2 billion over the next five years to begin to rehabilitate all the documented unsafe dams in the United States.

ASCE respectfully requests that the national dam inventory be fully funded at the authorized amount of $500,000 in fiscal year 2002. Additionally, ASCE requests that the Minnesota Dam Safety provision of Public Law 106–541, Section 524 be fully funded at $7 million, and that the use of the funds be allowed to encompass all dams constructed under the Works Progress Administration and the Civilian Conservation Corps regardless of their location in the United States.

Navigable Waterways

This navigable waterway system has improved our quality of life and has provided a foundation for the economic growth and development of the United States. Our flood control works, water transportation systems, and multi-purpose projects all contribute to our national prosperity. The benefits are realized as flood damages prevented, reduced transportation costs, and increased trade.

Unfortunately, in recent years, national investment in water resources projects has not kept pace with our level of economic and social expansion. Over the last 30 years the U.S. population has increased more than 40 percent while the GDP has grown from $2.5 to $7.5 trillion. Meanwhile, capital investment in public water resources infrastructure decreased by 70 percent. For example in the 1970s, the U.S. Army Corps of Engineers civil works construction appropriations were in the $4 billion range. However, in the 1990s the funding dropped to an average of $1.6 billion a year. The combination of a decline in investment coupled, with an expanding population and economy, has created an "investment gap."

The ASCE 2001 Report Card for America's Infrastructure gave navigable waterways, which includes ports, harbor, inland waterways, and flood damage reduction infrastructure, grade of D+.

Currently the U.S. Army Corps of Engineers reports a backlog of over 500 active projects, with a Federal cost to complete these projects of about $38 billion. At the current levels of funding it would take 25 years to complete the active projects in the backlog without making allowances for considering additional project authorizations.

More than 44 percent of lock chambers are over 50 years of age. Many locks are undersized for modern commercial barge movements. Many deep-draft channels are undersized for the wider and deeper mega-container ships that are becoming standard for international cargo movements. There is currently a backlog of $9 billion of needed waterway improvements. In addition, a maintenance backlog of $238 million will be experienced in fiscal year 2001, resulting in further unrepaired wear and tear on lock chambers and channels.

Nationwide, queuing delays at locks total some 550,000 hours annually, representing an estimated $385 million in increased operating costs borne by shippers, carriers, and, ultimately, consumers. Construction of new locks with additional capacity and major rehabilitation of older locks is essential to maintain the efficiency of the system.

According to the American Association of Port Authorities, more than 90 percent of the nation's top 50 ports in foreign waterborne commerce require regular maintenance dredging. These ports move approximately 93 percent of all U.S. waterborne commerce each year. If these ports are not dredged many port facilities and navigation channels will be non-navigable in less than a year.

According to a U.S. Department of Transportation report on intermodal freight connectors, connectors to ports, as opposed to other freight terminals, received the smallest level of funding and were found to be in the worst condition, having twice the percentage of mileage with pavement deficiencies when compared to non-interstate National Highway System routes.

Serious problems are likely if current levels of investment continue. Demands on the waterway system are expected to double by 2020, while the current system can barely accommodate current traffic levels. In the short term, service will be sustained; however, the aging infrastructure and deferred maintenance created by insufficient investment levels will result in degraded system performance, safety concerns, increased delays, higher transportation costs for goods and services, and negative impacts on GDP and employment.

ASCE respectfully requests that the Operation and Maintenance, General, and Construction General be fully funded at the requested amounts of $1.745 billion, and $1.324 billion respectively in fiscal year 2002.

Flood Damage Reduction Infrastructure

The nation's flood control infrastructure consists of more than 400 major Federal dams and reservoirs, 8,500 miles of levees and dikes, and hundreds of smaller local flood protection projects. Since 1950, this infrastructure has prevented nearly $500 billion in riverine and coastal flood damage, returning nearly $6 in flood protection for every $1 invested, and preventing, on average, $22 billion in flood damages annually.

The existing stock of Federal infrastructure is generally well-maintained; however, unfunded, critical maintenance amounted to $82 million in fiscal year 2001. In addition, over $15 billion of flood damage reduction infrastructure is awaiting construction, but has been postponed because of insufficient funding. This represents investments for needed major rehabilitations to existing projects, as well as new projects to service current needs.

The significant portion of the 100,000-panel flood map inventory maintained by FEMA is outdated and may not accurately reflect flood prone conditions in the country. This is especially true in areas of rapid population growth where the flood plain can change with alterations to the original landscape resulting from new development. On average, $5 billion in flood damages occur each year, and the new construction of homes and infrastructure in the floodplains continues to increase.

The need exists for continued investment in flood prevention, including both structural and nonstructural approaches. It should be noted that flood control structures once designed to protect agricultural land now must also protect homes and industrial structures. Additionally, there is an urgent need to update flood hazard boundary maps and to identify flood hazards in unmapped areas.

Urban development in flood prone areas continues to increase by 1.5 percent-2.5 percent per year. In addition, at-risk coastal areas are growing much more rapidly than other locations. In contrast to the increasing development in flood prone areas, investments in Flood Damage Reduction infrastructure have decreased by almost 70 percent in real terms over the past three decades. The combination of these two trends makes it likely that residual flood damages could increase substantially in the years ahead. For example, in the Highland Lakes area of central Texas, the number of structures located in the floodplain has increased over 180 percent during the last 10 years. Over $18 million in federal and local funding is estimated to be needed to provide engineering and mapping to accurately identify flood prone areas in this basin alone.

ASCE respectfully requests that the Operation and Maintenance, General, and Flood Control, Mississippi River and Tributaries be fully funded at the requested amounts of $1.745 billion, and $280 million respectively in fiscal year 2002.

PREPARED STATEMENT OF LOUIS J. HECTOR, VICE PRESIDENT, TRANSPORTATION AND INFRASTRUCTURE, STATE OF NEW YORK, EMPIRE STATE DEVELOPMENT CORPORATION; RICHARD GIMELLO, EXECUTIVE DIRECTOR, NEW JERSEY MARITIME RESOURCES, STATE OF NEW JERSEY, DEPARTMENT OF TRANSPORTATION; RICHARD M. LARRABEE, DIRECTOR, PORT COMMERCE DEPARTMENT, THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

Mr. Chairman and members of the Subcommittee, we appreciate the opportunity to share with you our collective request for navigation channel funding.

The flow of international and domestic commerce through the bistate gateway has increased dramatically in recent years, evidence of a thriving international trade environment and the importance of Federal and non-Federal investments in water and landside facilities. Without adequate channels and intermodal connectors linking the terminals to the highways and rail lines, the nation's business cannot be accomplished in an efficient way. We see our role—the role of the governmental agencies charged with responsibility for the port—as helping make commerce work for our country through the infrastructure.

BACKGROUND

To demonstrate why Federal funds for navigation projects in our region are monies well spent, we quickly recite some statistics from the year 2000. Last year $82 billion in cargo flowed through our marine terminals, an increase of 13-percent increase over 1999. For the first time, total container volumes surpassed the 3 million TEU (20-foot equivalent units) mark in 2000, a 7-percent increase over 1999. Loaded TEUs were 2,246,194 in 2000, a 10.8-percent increase. For the first time in 20 years, ship calls topped the 5,000 mark with 5,124 commercial vessels, representing a 7.3-percent increase. Overall vessel traffic in the port has increased more than 12

percent since 1991. Total cargo volumes (bulk and general cargo combined) grew by 9.7 percent in 2000.

While the Port of New York and New Jersey serves a huge local market it is also the major gateway to the United States. The port handles 11 percent of all ocean-borne general cargo imported into the nation. It also serves a significant market in the Midwestern United States. In fact, 40 percent of the Midwest bound cargo that flows through North Atlantic ports comes through the Port of New York and New Jersey. As you might imagine, and as our senators know very well, the working port serves not only the national interest but also our bistate region where the Port supports more than 166,000 jobs and contributes $21 billion to the regional economy.

We are grateful for the funding that this Subcommittee has provided to projects in our port. In addition to the required non-Federal match there also will be significant, related investments in a wide range of port-related infrastructure. The public and private investments are in response to market demands. Those demands clearly indicate that commerce will flow strongly through our port at rates that will test the capacity of our infrastructure in the channels, at the terminals and on access facilities even as construction is underway. Our conservative analysis of a few years ago projected annual growth at 4 percent and a doubling of cargo in our region by the end of the decade. However, as you can see in the 2000 statistics, real growth actually has exceeded that pace. Given the above, we think that funding the projects at our recommended levels is well justified and consistent with the best interests of this country as it works to meet the demands of world commerce. The navigation channels that are under construction, or soon will be, serve the major terminal areas of the Port. The improvement work by the Corps of Engineers will ensure that essential navigation infrastructure will be in place to accommodate post-Panamax ships currently deployed in international commerce.

Mr. Chairman, the Federal government and we, your partners, should undertake major capital projects in timeframes that provide project benefits when they are needed and not long after they are required. That is why we are investing $4 billion over the next several years on an ambitious construction schedule to increase the capacity and efficiency of the land and water infrastructure that is required to serve the nation's business.

The Port Authority of New York and New Jersey, alone, is committing $1.8 billion in port redevelopment projects over the next five years while some of our private partners have committed spending over $500 million in marine terminal investments. As we already noted, trade volumes have skyrocketed, placing "future" demands on the port facilities today and portending even more to come. Steamships, planned and under construction, are only getting larger, promising greater volumes of cargo on each call and requiring deeper channels to allow the vessels safe and efficient operation. And with greater efficiency in all aspects of our transportation system, the nation benefits by becoming more competitive. In fact the Army Corps of Engineers estimates that the nation will enjoy $270 million in annual transportation cost savings due to larger vessels calling on the Port of New York and New Jersey.

Discussed below are select projects and appropriation amounts that we seek for fiscal year 2002. Please know that these are in addition to other, continuing projects, currently under study or requiring maintenance that are in the Corps of Engineers budget.

DISCUSSION

Kill van Kull—Newark Bay Channels, NY & NJ (Phase II)

The deepening of the Kill Van Kull and Newark Bay Federal channels to 45 feet would serve Port Newark and the Elizabeth Port Authority Marine Terminal, the busiest and largest container facilities on the East Coast, as well as terminals on the Arthur Kill. The Port of New York and New Jersey achieved a major milestone in this project by witnessing the beginning of the final phase of construction in 1999. Since that time, the project is fully underway, on schedule and under budget. Of nine planned construction contracts, one is complete and two are nearing completion. A fourth contract was awarded in March and bids were received for a fifth contract. In April, bids for a sixth contract will be received. The Port Authority of New York & New Jersey as local sponsor for this project has approved the local share of funding and is committed to completing construction with the Corps of Engineers by the end of 2004. It is a goal mandated by the users of the Port who have waited a long time for the 45-foot depth. We seek $44 million, the amount budgeted by the President, to keep the project on track.

NY & NJ Channels: Arthur Kill Channel, NY & NJ

The Arthur Kill Channel, NY & NJ, Howland Hook Marine Terminal (HHMT) project authorization was initiated in 1986 and most recently revised in the 1999 WRDA. The project's controlling depth is currently 35 feet. The planned channel improvements include: (1) deepening the existing 35-foot channel to 41 feet below MLW from its confluence with the Kill van Kull Channel to the Howland Hook Marine Terminal and (2) deepening to 40 feet below MLW from the HHMT to the Petroport and Tosco facilities in New Jersey. The Army Corps estimates that the project will result in an annual public benefit of $70 million The Port Authority has already invested nearly $52 million in 2000 including the purchase of land to expand the terminal at HHMT. Another $475 million has been committed in the Port Authority's five-year capital plan to further expand capacity and improve the productivity of the terminal.

The Port Authority Board of Commissioners has approved an amount representing the full local share and we are eager to get the project underway. The HHMT currently serves 18 shipping lines and employs 800 people—an increase of 200 over 1999—on peak days and is expected to increase to a range of 1000 to 1200 employees in 2001. Howland Hook is the fastest growing marine terminal in the harbor, handling approximately 20 percent of the Port of New York and New Jersey's cargo. In the last year alone, the terminal's volumes grew an amazing 72 percent. Lastly, we note that HHMT is the Defense Department's Northeast Strategic Port of Embarkation in the event of a national emergency, which gives it a special role to play in the national defense strategy. Yet vessels serving national security interests will not be able to fully load at the terminal until the project is completed.

The Port of New York and New Jersey is the number one refined petroleum port in the nation and ranks with the Port of Houston, Texas, in terms of total volume. Many of the petroleum facilities are located along the Arthur Kill, including the Tosco Bayway Refinery. Deepening the Arthur Kill to the Tosco Refinery will reduce the need to lighter the large tankers at the anchorages in New York Harbor. If lightering were no longer necessary, the potential for an environmental accident as a result of the double handling of this sensitive cargo would be eliminated. Last year, the President's budget request included this project for the start of construction and Congress approved $4 million. The President's budget requests $15 million. We are aware of recommendations that include as much $50 million for the Arthur Kill project. We would welcome funding at a level as high as that. However, we also understand that the capability of the Corps of Engineers in fiscal year 2002 is approximately $20 million. We respectfully request that the Subcommittee provide at least that amount in order to keep pressure on the Corps of Engineers to complete this important project on an expedited basis.

New York Harbor and Adjacent Channels: Port Jersey, NJ

The 1986 WRDA authorized construction of the Port Jersey Channel to 41 feet. The Port Jersey Channel, located in Bayonne, NJ, presently serves approximately one-half dozen shipping lines calling at Global Marine Terminal. In addition, the channel provides access to the Port Authority Auto Marine Terminal and would serve a new terminal that is contemplated for a portion of the former Military Ocean Terminal at Bayonne. As the only privately owned container terminal in the port, Global pays approximately $12,000,000 in Federal, state, and local taxes annually. More than 300 vessels, carrying more than 325,000 twenty-foot equivalent units, call annually at the terminal. Well over 600 terminal employees, with an annual payroll of $28 million, and 3,000 indirect jobs depend on this facility for their livelihood. In addition, Global Terminal has recently invested over $50 million in new container cranes and other handling equipment. They also plan to invest another $40 to $50 million in facility improvements to efficiently handle the growth of cargo projected for this area of the Port. Recognizing the demand of ocean carriers and responding to a critical need to provide deeper water on an emergency basis, the State of New Jersey in 1997 constructed a 38-foot channel leading to Global at a cost of $14,000,000. We anticipate that the project will be done over two years and that with an appropriation $22 million for fiscal year 2002, the amount requested in the President's budget, we will be able to make the level of progress needed at that location and ensure the timely initiation of the second of the two planned contracts.

New York & New Jersey Harbor Project

Congress last year authorized the New York & New Jersey Harbor navigation project that builds on the improvement projects described earlier in this statement. This is a comprehensive deepening of the entrance channels (to 53 feet) and those serving the major terminal areas of the bistate port (to 50 feet). This harbor-wide

project will take the Port's navigation infrastructure into the 21st century. It will ensure that the United States will have world class channel dimensions at its principal Atlantic gateway to meet the demands of international shipping. The Corps of Engineers has made good progress in the project thus far. The Port Authority and New York District Engineer signed the PED agreement at the end of 2000. This preconstruction and engineering design phase is expected to last 2 to 3 years. The Port Authority is currently investigating ways to shorten construction schedules to bring 50' channels to the Port meet the demands of our customers sooner. Therefore we request that the Subcommittee support the continued engineering and design work on the project with an appropriation of $8 million, which is greater than the budgeted figure.

NY & NJ Estuary Restoration Project

The implementation of a restoration and remediation plan for the Hudson-Raritan Estuary is a significant part of any future improvement strategy for the harbor. The Corps of Engineers' feasibility study on harbor restoration is an important step in determining potential Federal and non-Federal projects to improve the quality of the natural resource. To that end, we respectfully request that funds in the amount of $3 million be appropriated for the second year of this valuable effort.

Ambrose Shoal

Last year, the conferees of the Energy & Water Development bill for fiscal year 2001 directed the Corps of Engineers to remove dangerous, high elevation areas near the entrance to the Ambrose Channel. It was an urgent matter, prompted by incidents that were evidence that what markings are in place at that location are insufficient to protect vessels from the hazard. Thanks to you, and prompt work by the Corps of Engineers, it appears that the work will be completed in the current fiscal year.

Section 102 Restrictions

The conferees last year again adopted a limitation on Corps of Engineers agreements entailing credits and reimbursements for advances by non-Federal sponsors. Such a provision effectively preempts initiative on the part of non-Federal sponsors to bring about a completed project at a lower cost. We strongly urge the Subcommittee not to renew that restriction or to at least provide the Secretary with some flexibility in that regard. As partners with Congress and the Corps of Engineers in pursuit of beneficial projects, we think that if a project can be expedited through the advancement of funds, it is in the long term interest of all parties, most especially the public.

CONCLUSION

Mr. Chairman, the Port of New York and New Jersey directly serves a substantial portion of the United States, reaching into the Midwest and beyond. As the evolution of the shipping industry has continued the port sector has witnessed the shift to a smaller number of major intermodal gateways that require the deeper channels. We have seen that shift occurring in our region. Major steamship lines that are adding large ships to their fleets have committed to new and expanded facilities in our harbor. We are responding by making investments in channels, berths, terminal infrastructure and rail and road improvements. We are also implementing a new rail and barge feeder service program to speed containerized cargo to their destinations with less impact on the environmental and greater efficiency. This program will entail even greater expenditures by the public and private sectors at the state and local level. The Federal role in meeting the requirements of world commerce is even more crucial because the navigation channels are the essential first step.

Thank you for this opportunity to advise you on the Corps of Engineers projects of concern to our States and region.

PREPARED STATEMENT OF THE UPPER MISSISSIPPI RIVER BASIN ASSOCIATION

[In millions of dollars]

	President's request	UMRBA recommendation
Construction General:		
Upper Miss. River System Environmental Mgt. Program	21.000	33.170

[In millions of dollars]

	President's request	UMRBA recommendation
Major Rehabilitation of Locks and Dams	13.744	16.954
Operation and Maintenance: O&M of the UMR Navigation System	138.216	177.216
General Investigations:		
Upper Mississippi and Illinois Waterway Navigation Study	3.724	[1]
Upper Mississippi River System Flow Frequency Study	1.200	1.200
Upper Mississippi River Comprehensive Plan	0.000	2.000
Upper MS & IL Rivers Levees & Streambank Prot. Study	0.000	.250
Research & Development	24.000	29.000
Stream Gaging (U.S. Geological Survey)	.700	.700

[1]Sums as necessary.

Introduction

The Upper Mississippi River Basin Association (UMRBA) is the organization created in 1981 by the Governors of Illinois, Iowa, Minnesota, Missouri, and Wisconsin to serve as a forum for coordinating river-related state programs and policies and for collaborating with Federal agencies on regional issues. As such, the UMRBA works closely with the Corps of Engineers on a variety of programs for which the Corps has responsibility. Recent concerns about the Corps' planning process, proposals for management reform, and controversies surrounding the Upper Mississippi River Navigation study are serious matters. However, these issues do not obviate the fundamental need for a wide variety of on-going Corps water resource programs and projects. Of particular interest to the basin states are the following:

Environmental Management Program

The 1999 Water Resources Development Act (WRDA) reauthorized the Upper Mississippi River System Environmental Management Program (EMP), which was originally authorized in 1986. What was at first a novel approach to interagency environmental management, has now become a widely recognized and respected regional program.

The EMP consists of two primary components: the construction of individual projects to rehabilitate or enhance critical habitat areas and a long term monitoring program to track the environmental health of the river system. The habitat projects, which vary in size and range in cost from about $500,000 to $14 million, employ different techniques, including such measures as island creation, water level control features, side channel closures or openings, and selective dredging to remove sediment. The long term monitoring program supports six field stations throughout the river system that routinely collect standardized data on water quality, sediment, fish, invertebrates, and vegetation at over 150 sites. In addition, scientists conduct applied research, assessing habitat conditions and historic landscape changes, and use modeling and statistical analysis to help characterize and understand ecological processes.

The 1999 WRDA increased the annual authorized appropriations for the EMP from $19.455 million to $33.17 million. Despite this clear indication from Congress and the public that the EMP is an important program, the President's fiscal year 2002 budget request for the EMP is only $21 million, well below the authorized funding level. In four of the past five years, Congress has chosen to increase EMP funding above that requested by the Administration. The states are hopeful that Congress will again affirm its support for this important program by providing the full authorized amount of $33.17 million for the EMP in fiscal year 2002.

The fiscal year 2002 budgeted amount of $21 million will be used to initiate construction on 8 habitat projects, continue construction of 3 projects, and complete construction of 2 projects. The design of 3 projects will be completed, while design work continues on 5 others. In addition, approximately $6.3 million will be used to support the on-going long-term resource monitoring, research, and analysis. Funding will be used to support the work of the state field stations and continue analyzing the data collected at those stations to guide habitat restoration efforts.

If an additional $12.17 million is provided in fiscal year 2002, significant additional habitat restoration work can proceed, including completion of design work on 2 projects, initiation of construction of 2 projects, and advancing construction of 7 projects. In addition, critical bathymetric surveys can be completed. Bathymetry, which is the topography of the river bottom, is used to predict habitat impacts from flood events, define essential habitats for large river species, and identify opportuni-

ties for habitat restoration. In addition, enhanced funding would insure that land cover/land use data coverage for the entire river system could be rapidly completed. Such information is needed for a wide variety of management activities, including best management practices to address nutrient loss and impacts.

Major Rehabilitation of Locks and Dams

Given that most of the locks and dams on the Upper Mississippi River System are over 60 years old, they are in serious need of repair and rehabilitation. For the past 15 years, the Corps has been undertaking major rehabilitation of individual facilities throughout the navigation system in an effort to extend their useful life. This work is critical to ensuring the system's reliability and safety.

The UMRBA supports the Corps' fiscal year 2002 budget request of $13.744 million for major rehabilitation work at three locks and dams on the Upper Mississippi River. Half of this amount is to be provided by the Inland Waterways Trust Fund. Funding for Lock and Dam 12 ($4.906 million) and Lock and Dam 24 ($8.038 million) will support continuing work, including rehabilitation of lock machinery and concrete resurfacing. Funding to address the Lock and Dam 3 outdraft problem ($800,000) will support continuing work on the reevaluation report and draft Environmental Impact Statement. The funds that the Corps has requested are expected to be sufficient to accomplish the work scheduled at these three sites. However, an additional $3.21 million could be used to initiate major rehabilitation work at Lock and Dam 11 as well.

Operation and Maintenance (O&M) of the Upper Mississippi River Navigation System

The Corps of Engineers is responsible for operating and maintaining the Upper Mississippi River System for navigation. This includes channel maintenance dredging, placement and repair of channel training structures, water level regulation, and the daily operation of 29 locks and dams on the Mississippi River and 7 locks and dams on the Illinois River. The fiscal year 2002 budget includes approximately $138 million for O&M of this river system, including $101.657 million for the Mississippi River between Minneapolis and the Missouri River, $13.068 million for the Mississippi River between the Missouri River and Ohio River, and $23.491 million for the Illinois Waterway.

These funds are critical to the Corps' ability to maintain a safe and reliable commercial navigation system. The efficiency of this system is vital to the agricultural economy of the region. In addition, these funds support a variety of activities that ensure the navigation system is maintained while protecting and enhancing the river's environmental values. For example, O&M funds support innovative environmental engineering techniques in the open river reaches such as bendway weirs, chevrons, and notched dikes that maintain the navigation channel in an environmentally sensitive manner. In addition, water level management options for a number of pools in the impounded portion of the river are being evaluated under the O&M program. Pool level management is a promising new approach for enhancing aquatic plant growth and overwintering conditions for fish without adversely affecting navigation.

While the funds that the Corps has requested for fiscal year 2002 are expected to be adequate to meet basic O&M requirements, the UMRBA supports additional funding of $39 million, which could be effectively utilized in fiscal year 2002 for critical needs such as electrical repairs, bulkhead repairs, repairs to cracks and spalls on lockwalls, concrete repairs, repairs to liftgates, revetment and dike repairs, and replacement of roller gate chains at various lock locations on the upper river. Additional funds are also needed to support work related to fish passage at dams.

Navigation Study

The Corps is currently reviewing the findings and recommendations of the March 2001 report of the National Research Council (NRC) to determine what changes need to be made to the Upper Mississippi—Illinois Waterway System Navigation feasibility study. In particular, the NRC panel that reviewed the study found problems with the Corps' economic model, its assumptions, and input data. Due to these problems, the panel recommended that the Corps' forecasts of barge traffic and waterway congestion not be used. They also recommended that the Corps obtain more data and more fully explore inexpensive nonstructural alternatives. In addition, the NRC recommended a more comprehensive assessment of environmental impacts and better integration of the results of the environmental studies in the decision process.

In response to these findings the Corps is revising its Project Study Plan (PSP), which is expected to be done by June 2001. In addition, a National Federal Senior Principals Task Force and a Regional Interagency Work Group have recently been formed to provide guidance on the economic and environmental issues and assist in

bringing this study to completion. The UMRBA supports the fiscal year 2002 funding necessary to modify the study as needed so that it can be brought to a timely conclusion with credible analysis upon which to base future investment decisions.

Upper Mississippi River System Flow Frequency Study

Flow frequencies for the Upper Mississippi River System badly need revision. The flood profiles currently in use were developed in 1979 by an interagency task force and replaced profiles previously adopted in 1966. However, the accuracy of the 1979 profiles has come into question now that there are over 20 years of new data, including flow records from several high water events like the Great Flood of 1993.

Flood elevation profiles have a variety of important uses including flood insurance; floodplain management; and the study, design, and construction of flood control projects. Thus, the five states of the Upper Mississippi River Basin have been strong supporters of the Corps' efforts to reassess the methodology, update the data, and develop more sophisticated and accurate models. The UMRBA supports the fiscal year 2002 budget request of $1.2 million for the Upper Mississippi River Flow Frequency Study. These funds will be used to develop the new flood profiles and complete risk and uncertainty and sensitivity analyses.

Upper Mississippi River Comprehensive Plan

Section 459 of the Water Resources Development Act of 1999 authorized the Corps to develop what is termed an "Upper Mississippi River Comprehensive Plan." The primary focus of the plan is systemic flood damage reduction. The current devastating floods on the Upper Mississippi River once again demonstrate the need to take a comprehensive look at flood control and floodplain management needs on the upper river. The UMRBA supports funding of $2 million in fiscal year 2002 to initiate coordination with other Federal and state agencies to appropriately scope the study and identify data and information needs, including how the plan will build upon the results of the Flow Frequency Study.

Upper Mississippi and Illinois Rivers Levees and Streambank Protection Study

Section 458 of the Water Resources Development Act of 1999 authorized the Upper Mississippi and Illinois Rivers levees and streambanks protection study in response to erosion damages to levees and other flood control structures on these rivers. The UMRBA supports funding of $250,000 to initiate this study in fiscal year 2002.

Research and Development

The $24 million requested in the President's budget for Research and Development does not include funding for a proposed System-Wide Modeling Assessment & Restoration Technologies' (SMART) program. The SMART program would provide significant new tools needed to address environmental restoration at watershed and basin scales. Hydrologic, hydrodynamic, and sediment transport models would be linked with biological models and socio-economic modules to provide an integrated technology for evaluating improvements in land and water management at the basin scale. It is proposed that this work focus initially on the Upper Mississippi River Basin. SMART would improve prediction capabilities regarding sediment and nutrient transport under different conditions of land use. This foundational research could then be applied to the sediment and nutrient modeling authorized for the Upper Mississippi River Basin under Section 403 of WRDA 2000.

The estimated five-year cost of the SMART program is $25 million, with $5 million requested in fiscal year 2002. The UMRBA supports funding for the SMART program as the research investment required prior to implementation of the Section 403 study.

Stream Gaging

The Corps of Engineers in cooperation with the USGS operates approximately 150 stream gages in the Upper Mississippi River Basin. In fiscal year 2001, the estimated Corps share of the cost of these gages is $1.1 million. Most stream gages are funded as part of the cost of the project to which they are related. However, there are a number of gages that are not associated with a particular project. Thus, UMRBA supports the $700,000 requested in the General Investigations to support the Corps' share of non-project USGS stream gages, many of which are located in the five states of the Upper Mississippi River Basin.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

The Energy Committee of the Council on Engineering (COE), American Society of Mechanical Engineers (ASME International) is pleased to provide testimony on the President's fiscal year 2002 budget request for the Department of Energy (DOE). Our testimony is directed to the Administration's proposed budget for the Department of Energy's R&D programs in the areas of nuclear energy research, renewable energy research, and basic energy sciences.

INTRODUCTION TO THE COE ENERGY COMMITTEE OF ASME

The 125,000-member ASME International is a worldwide society dedicated to the advancement of the art and science of Mechanical Engineering. We focus our efforts on technical, education, and research in Mechanical Engineering and conduct one of the world's largest technical publishing operations. The COE Energy Committee consists primarily of members representing eight technical divisions and three ASME Boards (approximately 40,000 members) that address energy technologies, resources, and utilization.

BACKGROUND

This past year has been a pivotal one for energy supply and utilization in the United States. The first results of restructuring of the electric power industry in California manifested themselves dramatically, with spiking electrical power prices, rolling blackouts, and bankruptcy filings by major utilities. The California experience has caused many states that had been contemplating restructuring to delay their plans pending resolution of the situation. Nationwide, we have experienced some of the highest gasoline prices in a decade with predictions that prices could exceed $3/gallon in some parts of the country this summer. Some have referred to our situation as an emerging "energy crisis," while we recognize that these events are symptoms of the fact that we have no consistent, well-integrated national energy policy to carry us into the 21st Century.

The COE Energy Committee fully supports the Administration's actions to establish a National Energy Strategy to meet our current and future energy needs. We firmly believe that success in implementing a National Energy Strategy will, in part, depend on developing new and continuing current Federal energy R&D programs, while motivating industrial and consumer adoption of current state-of-the-art energy technologies. Energy R&D funding levels are at all time lows at a time when energy issues are on the front pages of American life. This trend must be reversed to stoke the (emission-free) fires of America's innovative spirit.

The current situation is placing higher demands on the performance of our energy systems and, in some cases, is pushing the limits of scientific understanding and technology. As mechanical engineers, we feel strongly that investments in scientific research and technology development are essential to enable our country to meet its near- and long-term energy needs in an environmentally appropriate manner. Fossil fuels, which presently are the predominant energy source worldwide, will remain the primary fuel for years to come. In the United States, coal currently produces more than half our electrical power and, because its supply is plentiful, will be the fuel of choice for this purpose in the future. In the long term, we need to establish a diversity of energy resources to meet our energy needs that include expanding our nuclear, hydropower, solar, and other renewable energy resources. It is crucial, as we expand and diversify our energy resources, that we also use them wisely and effectively, setting standards for utilization and improving conservation and efficiency. In our view, one example of an ineffective use of an energy resource is the proliferation of gas-turbine power plants that use natural gas as a fuel when natural gas has more value as a chemical feedstock and home-heating fuel.

Even with increased energy shortages, the U. S. public continues to demonstrate concern for the preservation of the environment and for continued improvement of air and water quality. The ability to meet our future energy needs in a manner consistent with our environmental well being requires that we continue into the 21st Century the innovation and entrepreneurial development in that made us the world leader in technology in the 20th Century. To do this, we need strong leadership from the Federal government to develop a national energy policy that:

—ensures a diversity of U. S. energy sources and a transmission and distribution infrastructure to enable adequate future supplies and competition in the market place;

—utilizes energy resources in those applications where they are unique, efficient, and provide the most value;

—balances supply-side (resource availability and distribution) and demand-side (conservation, utilization, and efficiency) considerations; and
—maintains consideration for the environmental impacts of energy-related decisions.

The COE Energy Committee strongly supports increased funding for energy research and development that is directed at increasing energy conservation, developing advanced forms of energy and improving utilization of our resources.

Our testimony is based on an analysis of the Administration's proposed budget for fiscal year 2002 for the Department of Energy's R&D programs in nuclear energy research, renewable energy research, and basic energy sciences. While the administration clearly recognizes the importance of developing a national energy policy as indicated by the appointment of the Vice President to lead its development, our analysis shows a reduction of funding in the three topic areas of nearly $140 million dollars over fiscal year 2001 levels. These reductions are proposed at a time when we should be expanding, not reducing, R&D, and they critically threaten very important energy R&D programs.

OFFICE OF NUCLEAR ENERGY

The U.S. pioneered the safe utilization of atomic energy for commercial power production and today 23 percent of the U. S. electrical energy is supplied by nuclear power. Technology developed in the U.S. is now employed worldwide for nuclear power generation. For over two decades, no new nuclear power plants have been approved for construction in the U.S. while abroad many countries are taking advantage of this clean, safe, and relatively inexpensive power source. The U.S. has the opportunity to renew its option on the effective use of nuclear power, which many believe will be a vital part of a future where carbon emissions may be severely curtailed. However, this will not be possible without a significant, sustained, national investment, coupled with the re-licensing of existing U.S. nuclear plants.

To meet the challenges associated with ensuring a continued supply of nuclear power in our country, we have identified the following research needs and policy priorities: completion of the high-level waste repository and demonstration of long-term technologies for monitoring and managing repository safety; R&D to improve on-site and off-site interim storage; and incentives for students to enter careers for nuclear design, construction, and operation.

Nuclear Energy Plant Optimization (NEPO)

The COE Energy Committee strongly supports the NEPO to address extending the life and improving the efficiency of conventional nuclear power plants. The NEPO program marks the beginning of efforts to enable maximum use of our existing nuclear generation capacity. Major advances in science and technology offer the potential to substantially increase the productive life of nuclear plants with improved safety and economic performance. Given the current industry trend toward nuclear plant life extension and the potential benefits offered by the NEPO program, the COE Energy Committee encourages the Subcommittee to increase the amount requested by the administration to $10 million, with appropriate and justified increases in future years.

Nuclear Energy Research Initiative (NERI)

The COE Energy Committee continues to support the NERI efforts to develop fundamental technologies for future nuclear power. Increased understanding of nuclear power technology, advances in materials science, and improvements in many related sciences and technology offer the potential to reduce plant construction and operation costs and waste management requirements, and improve plant operability, reliability, life span, and safety. A substantial fraction of this initiative will go toward nurturing university research and education in nuclear science and engineering, through direct funding and reinforcing linkages between the nuclear technical community in industry and our national laboratories. It will help ensure the availability of an improved nuclear power option for the future and increase the dwindling base of nuclear professionals. This will benefit the U.S. by enhancing power production in this country and enabling U.S. industry to compete effectively in the global energy markets. We recommend funding NERI at least equal to last year's level of $35 million, with serious consideration given to steadily increasing funding to the level of $100 million recommended by the 1997 report by the Presidents Advisors on Science and Technology (PCAST).

Nuclear Engineering Technologies

The Energy Committee supports the development of next-generation nuclear technologies for advanced light water reactors and robust, modular designs. We believe

that it is critical to identify and develop modular reactor designs with high utilization, lower toxicity, and less proliferation potential for process heat, desalination, and hydrogen production. We also support the development of designs for advanced gas-cooled plant designs. The Committee supports increasing funding for Nuclear Technologies to $12 million.

Other Nuclear Programs

The COE Energy Committee supports continued investment in the University Reactor Fuel Assistance and Support (URFAS). It is reasonable to believe that increased investment in NERI and NEPO will require greater utilization of our university reactors; therefore, the COE Energy Committee recommends an increase to $15 million for fiscal year 2002.

RENEWABLE ENERGY RESOURCES

The COE Energy Committee supports increasing the proposed budget for solar and renewable energy development as an investment in diversity of our energy future. Various studies by the National Science Foundation and others have shown that it takes from 20 to 25 years from the time of inception for a new technology to start to penetrate commercial markets. Some solar and renewable energy resources, e.g., wind, hydropower, geothermal, and some biomass technologies, are nearing the completion of this development cycle. Other renewable technologies (photovoltaics, concentrating solar, and hydrogen) are at the mid-point of the cycle and are, realistically, years from reaching technological maturity. Because some technologies are more developed now does not necessarily mean that they are either the "best" or the "only" technologies that will be needed in the future. It is clear there will not likely be one winner, but rather a suite of technologies that will be deployed to meet the broad range of needs within the U.S. and for export. Now is the time to explore and expand all of our options to the fullest extent practicable as we prepare to meet power generation needs of the 21st Century.

Hydrogen Research

The COE Energy Committee supports increased funding for Hydrogen research to $30 million to accelerate the development of reformer technology, membranes, and high-density storage for application to fuel cells.

Hydro Power

THE COE Energy Committee supports increasing funding for hydropower to the fiscal year 2001 level of $5 million for continuing development of advanced turbines and for studies to evaluate re-powering of existing hydroelectric dams, which will increase efficiency and capacity and mitigate environmental impacts.

Solar Energy

The COE Energy Committee supports increases in funding for solar energy research by $60 million to support systems integration for photovoltaic (increase to $80.1 million) and concentrating solar power (CSP) systems (increase to $18.7 million), and for the solar buildings program to bring it back to the $3.9 million dollar level of fiscal year 2001. The Committee believes that the proposed close out of the CSP Program on the grounds that solar trough technology is commercial, is ill conceived and does not take into consideration the additional development needs of power tower and dish/engine systems.

Renewable Support and Implementation

The COE Energy Committee strongly favors increased funding for renewable energy support and implementation programs by $21.5 million as a continuation of support for the coordination of Federal, Native American, and state energy programs and to encourage and enhance the application of renewable energy projects.

OTHER PROGRAMS

The COE Energy Committee supports the proposed funding for Biomass Power/Biofuels at $80.5 million with primary focuses on alternative fuels development and power production. We also recommend: increasing the geothermal budget to $27 million to support cross-cutting drilling research; increasing the wind energy budget to $45 million in support of advance light weight turbine designs and active controls; and an increase in energy storage and distributed energy systems to $60 million for cross-cutting systems and storage development.

The COE Energy Committee supports enhancing the formation of coalitions among industry, universities, and the national laboratories to fully explore research and development potential of solar/renewable energy resources. We believe that it

is government's role to perform the basic, fundamental R&D and that, once the concepts have been fully developed, it is industry's responsibility to penetrate the global marketplace. The development of competitive renewable options provides insurance for U. S. energy security and environmental impacts on our energy future. They will enable the U.S. to achieve a more sustainable energy economy.

BASIC ENERGY SCIENCES

The COE Energy Committee recognizes the importance of fundamental scientific research for the long-term well being of the nation and we support the proposed, nearly level funding for Office of Science Programs. We cannot help but be concerned about reductions in funding for biological research and we recommend a modest increase in the advanced scientific computing initiatives to $170 million. We also want to support the increases in funding for Basic Energy Sciences and high energy physics, and level funding for fusion research and nuclear physics.

The COE Energy Committee joins our President and Vice President in facing the challenges of ensuring that energy resources are available to meet the needs of all our citizens; and assuring that adequate supplies of energy for the safety and security of our families, our communities, and our Nation. We believe that dependable, affordable, and environmentally sound production and distribution of energy is critical for the future of the United States.

Thank you for the opportunity to offer testimony regarding the renewable, nuclear, and science budgets proposed for the Department of Energy. ASME's COE Energy Committee will be pleased to respond to requests for additional information or perspectives on other aspects of our nation's energy programs.

PREPARED STATEMENT OF THE BOARD OF SUPERVISORS, CONTRA COSTA COUNTY, CALIFORNIA

LOWER WALNUT CREEK CHANNEL PROJECT

REQUEST

Contra Costa County requests a $250,000 add-on of Construction General (CG) Funding to the Federal Fiscal Year 2002 Budget to allow the U.S. Army Corp of Engineers to prepare a General Reevaluation Report (GRR) to evaluate new alternatives allowing flood control improvements and environmental restoration of this major tributary. Army Corps of Engineers review of pertinent information and preparation of additional studies are necessary in order to recommend appropriate action and funding requirements to provide critical drainage improvements and habitat restoration in the Lower Walnut Creek Channel.

BACKGROUND

The Contra Costa County Flood Control and Water Conservation District (District) has been unable to operate and maintain portions of the Walnut Creek Channel in a traditional manner due to new listings of endangered species and regulatory agency policies. As a result the channel has silted in over the last several years reducing its flood protection capacity. The importance of this project has resulted in broad-based support from many agencies and organizations throughout a large portion of this major metropolitan area. Through work with our Contra Costa Watershed Forum and establishing broad based support, the District is proposing new alternatives that will move the channel levees back to establish a floodplain and additional habitat. This project will also evaluate feasibility to build step pools for fish to migrate past a concrete drop structure. The project will enhance the flood control aspects of the channel, develop trails for access by the public and provide restoration and re-vegetation of portions of Lower Walnut Creek Channel. The Army Corps of Engineers needs a budget allocation in the Federal fiscal year 2002 Budget to enable them to evaluate potential changes to the functioning characteristics of Lower Walnut Creek Channel, to allow all parties to move ahead with this project.

LETTER FROM ROBERT DOYLE

EAST BAY REGIONAL PARK DISTRICT,
Oakland, California, March 15, 2001.

Congressman GEORGE MILLER,
7th Congressional District, 1333 Willow Pass Road, Suite 203, Concord, CA 94520.

DEAR CONGRESSMAN MILLER: On behalf of the East Bay Regional Park District, I am writing to express our support of the Contra Costa County Flood Control District's efforts to obtain Federal funding for environmental restoration and flood control efforts on the lower Walnut Creek Channel. We understand the County is requesting $250,000 in fiscal year 2002 Federal Civil Works funding as a congressional add-on for a General Reevaluation Study by the Army Corps of Engineers. This Study would update existing studies and include new information and technology, and to complete environmental review as well as engineering and design for the project.

Restoration efforts and flood control improvements on the Walnut Creek Channel will incorporate the Iron Horse Regional Trail's Walnut Creek Channel extension which will link Martinez and Concord and continue southward on existing trail which runs through the communities of Pleasant Hill, Walnut Creek, Alamo, Danville, San Ramon, and most recently Dublin. The trail links parks, schools, employment centers, residential areas, and three BART Stations along its 23 miles of length. Development of the trail in conjunction with a future flood control project will provide opportunities for the public to view restoration and flood control improvements, creating a unique interpretive opportunity of this important watershed.

We look forward to working cooperatively with the local organizations and agencies identified as a part of this project.

Sincerely,

ROBERT DOYLE,
Assist General Manager, Land Division.

LETTER FROM LAURA M. HOFFMEISTER

CITY OF CONCORD,
Concord, California, March 16, 2001

Honorable ELLEN TAUSCHER,
Congresswoman, 10th District, 1801 North California Boulevard, Suite 103, Walnut Creek, CA 94595.

DEAR CONGRESSWOMAN TAUSCHER: We are writing to express our support of the Contra Costa County Flood Control District's efforts to obtain Federal funding for environmental restoration and flood control efforts on the lower Walnut Creek Channel. We understand the County is requesting $250,000 in fiscal year 2002 Federal Civil Works funding as a congressional add for a General Re-evaluation Study by the Army Corps of Engineers. This Reevaluation Study would update existing studies and include new information and technology, and to complete environmental review as well as engineering and design for the project.

We feel that restoration of the Walnut Creek Channel is vitally important to our community because restoration of the creek takes many forms; we have an opportunity now to improve our creek for flood control purposes while adding a vital component which hasn't been addressed as part of flood control efforts in the past ecosystem restoration. We will now be able to significantly improve riparian habitat along the creek for the number of Endangered Species which inhabit it, and improve a very decimated yet persistent fishery component. In addition, creek improvements will include vital regional trail linkages, significantly enhancing recreational opportunities.

We are working with a large contingent of agencies and organizations which are all quite excited to be part of this project. We feel very fortunate to have been part of an effort in the past few years whereby flood control and ecosystem improvements are being implemented hand-in-hand. We stand ready to improve the quality of life for human as well as a great number of other species; all we need is funding to enable planning work to proceed on this very important project. Thanks for your attention and support of our request. If you have questions about this project, please do not hesitate to contact either Kevin Emigh at (925) 313–2233 or Mitch Avalon (925) 313–2203 at the County Floor Control District.

Sincerely,

LAURA M. HOFFMEISTER,
Mayor, City of Concord.

LETTER FROM KATHY HICKS

CITY OF WALNUT CREEK,
Walnut Creek, California, March 16, 2001.

ELLEN TAUSCHER,
1239 Longworth House Office Bldg, Washington, DC 20515.

DEAR CONGRESSWOMAN ELLEN TAUSCHER: I would first like to thank you for your help on the City's South Broadway Grate Repair project with the Corps. It appears construction on that project will be completed before this summer. We now need your help on another issue.

I am are writing to express our support of Contra Costa County Flood Control and Water Conservation District (District) and the City of Walnut Creek's efforts to obtain funding for environmental restoration, flood control, and recreational improvements on Grayson and Murderer's Creeks. We understand that the District is requesting $200,000 in fiscal year 2002 Federal Civil Works funding as a congressional add-on for a reconnaissance and study of the two creeks.

The Federal Emergency Management Agency has published preliminary maps showing approximately 1,800 homes and many businesses to be within the 100-year flood plain. The District and City believe that the construction of a multi-use basin along Grayson Creek can be utilized to protect lives (human and wildlife) and property by temporarily storing rainwater during severe storm events. The basin and drainage improvements would be constructed to allow the normal flow of water through the creeks. In addition to the construction of the basin, clean water, fish and wildlife, riparian, recreational, and educational enhancements would be incorporated into the project.

We are one of the many Citizens, business, environmental, wildlife and recreational groups participating in the development of this vital project. Thank you for your support to acquire a Federal contribution for this endeavor. If you have questions regarding this project, please call Mitch Avalon, County Flood Control District at (925) 313–2203 or Tim Tucker, City of Walnut Creek at (925) 943–5841.

Sincerely,

KATHY HICKS,
Mayor.

MURDERER'S CREEK AND GRAYSON CREEK PROJECT (CITIES OF PLEASANT HILL AND WALNUT CREEK)

REQUEST

Contra Costa County requests a $100,000 add-on from General Investigation (GI) Funding for a Reconnaissance Study and a $100,000 add-on from General Investigation (GI) Funding for a Feasibility Study, to the Federal fiscal year 2002 Budget, for the Murderer's/Grayson Creek Project. This would allow the Army Corps of Engineers to review pertinent information and to do additional studies as necessary in order to recommend appropriate action and funding requirements to (potentially) conduct future drainage improvements in the Murderer's and Grayson Creek watershed.

BACKGROUND

This last summer, the Federal Emergency Management Agency (FEMA) released preliminary updated floodplain maps for areas throughout Contra Costa County. There are significant changes to the flood zones in the City of Pleasant Hill with approximately 1800 properties added to the 100-year floodplain. The flood zone changes are in the Murderer's Creek and Grayson Creek areas of Pleasant Hill. Both of these creeks are in the larger Walnut Creek drainage basin.

The City of Pleasant Hill has made it a priority to address this drainage issue and requested assistance from the Flood Control District on their behalf. The Flood Control District has asked the Army Corps of Engineers to update the last report they prepared for this watershed. Because this issue has arisen late in the Federal budgeting process, a request for funding to be added to the Federal fiscal year 2002 Budget is necessary. The Army Corps of Engineers needs a budget allocation to enable them to update the 1992 Feasibility Report for Grayson Creek and Murderers Creek (within the Walnut Creek Basin), in the Federal fiscal year 2002 Budget.

LETTER FROM ROBERT B. BERGGREN

PLEASANT HILL RECREATION & PARK DISTRICT,
Pleasant Hill California, March 13, 2001.

DEAR CONGRESSWOMAN ELLEN TAUSCHER: The Pleasant Hill Recreation & Park District is in support of the Contra Costa County Flood Control and Water Conservation District with the City of Pleasant Hill's efforts to obtain funding for a flood control basin. It is our understanding that the Water Conservation District is requesting $200,000 in the fiscal year 2002 Federal Civil Works funding.

The Recreation & Park District is in agreement with the Water Conservation District and City, that the construction of a mufti-use basin along Grayson Creek can be utilized to protect lives (human and wildlife) and property by temporarily storing rain water during severe storm events. The Recreation & Park District is, of course, very much interested in the construction of the basin for not only clean water, fish and wildlife, but also recreational enhancements that can be incorporated into this project.

Pleasant Hill Recreation & Park District and other groups that are sponsored by the District, include the Soccer Association and the Baseball Association, support the development of this vital project. Thank you for your support to acquire a Federal contribution for this endeavor. We are hoping that this project will take place so we can have the much-needed soccer and baseball fields for the youth of this community.

Sincerely,

ROBERT B. BERGGREN,
General Manager.

LETTER FROM DAVID SMITH

PLEASANT HILL BASEBALL ASSOCIATION,
Pleasant Hill, California, March 14, 2001,

DEAR CONGRESSWOMAN ELLEN TAUSCHER: I am writing to express my support of Contra Costa County Flood Control and Water Conservation District (District) and the City of Pleasant Hill's efforts to obtain funding for environmental restoration, flood control, and recreational improvements on Grayson and Murderer's Creeks. I understand that the District is requesting $200,000 in fiscal year 2002 Federal Civil Works funding as a congressional add-on for a reconnaissance and study of the two creeks.

The Federal Emergency Management Agency has published preliminary maps showing approximately 1,800 homes and many businesses to be within the 100 year flood plain. The District and City believe that the construction of multi-use basin along Grason Creek can be utilized to protect lives (human and wildlife) and property by temporarily storing rain water during severe storm events. The basin and drainage improvements would be constructed to allow the normal flow of water through the creeks. As a child in the early 1960's I had to be picked up in a boat from my home on Elinora Drive, many homes were damaged in this event, so I have seen first hand the damage and trauma such a flood can cause. In additional to construction of the basin, clean water, fish and wildlife, riparian, recreational, and, educational enhancements would be incorporated into the project.

I represent Pleasant Hill Baseball Association—just one of the many business, environmental, wildlife, and citizens groups participating in the development of this vital project.

Pleasant Hill Baseball Association has nearly 1,500 children participating in its youth sports program. We need fields for this program, as does the Soccer Association, Football and various other groups dedicated to providing sports to the youth of the community. Studies show children who enjoy participation in organized sports lore much more likely to become productive citizens and much less likely to run afoul of the law.

Thank you for your support to acquire a Federal contribution for this endeavor. If you have questions regarding this project, please call Mitch Avalon, County Flood Control District at (925) 313–2203 or Leary Wong, City of Pleasant Hill at (925) 671–5264.

Sincerely,

DAVID SMITH,
President, Pleasant Hill Baseball Association.

LETTER FROM PAUL FERNBACH

PLEASANT HILL-MARTINEZ SOCCER ASSOCIATION,
Pleasant Hill, California.

DEAR CONGRESSWOMAN ELLEN TAUSCHER: We are writing to express our support of Contra Costa County Flood Control and Water Conservation District (District) and the City of Pleasant Hill's efforts to obtain funding for environmental restoration, flood control, and recreational improvements on Grayson and Murderer's Creeks. We understand that the District is requesting $200,000 in fiscal year 2002 Federal Civil Works funding as a congressional add-on for a reconnaissance and study of the two creeks.

The Federal Emergency Management Agency has published preliminary maps showing approximately 1,800 homes and many businesses to be within the 100 year flood plain. The District and City believe that the construction of a multi-use basin along Grayson Creek can be utilized to protect lives (human and wildlife) and property by temporarily storing rain water during severe storm events. The basin and drainage improvements would be constructed to allow the normal flow of water through the creeks. In addition to the construction of the basin, clean water, fish and wildlife, riparian, recreational, and educational enhancements would be incorporated into the project.

We are one of the many citizen, business, environmental, wildlife and recreational groups participating in the development of this vital project. Thank you for your support to acquire a Federal contribution for this endeavor. If you have questions regarding this project, please call Mitch Avalon, County Flood Control District at (925) 313–2203 or Leary Wong, City of Pleasant Hill at (925) 671–5264.

Sincerely,

PAUL FERNBACH,
Regional Commissioner Pleasant Hill—Martinez Soccer Association.

SAN PABLO AND WILDCAT CREEK PHASE II PROJECT (CITY OF SAN PABLO)

REQUEST

Contra Costa County requests a $100,000 add-on of Construction General (CG) funding to the Federal fiscal year 2002 Budget to allow the U.S. Army Corps of Engineers to prepare a General Reevaluation Report (GRR) of the 1985 Feasibility Report for the San Pablo and Wildcat Creek, Phase II Project. This would allow the Army Corps of Engineers to review pertinent information and to do additional studies as necessary to recommend appropriate action and funding requirements to (potentially) construct future drainage improvements in the San Pablo and Wildcat Creek watersheds. ALTERNATIVELY, add legislative language to extend the existing authorization for five years, which would postpone the pending deauthorization of the project. This would allow the City of San Pablo and the Flood Control District to work with the Army Corps of Engineers and request funding through the normal budget process.

BACKGROUND

In the early 1980's flood protection improvements were constructed to San Pablo and Wildcat Creeks from San Pablo Bay to the San Pablo City limits. This was Phase I of a two-phase project. The second phase would extend through the City of San Pablo. Last year, the Army Corps of Engineers informed the Flood Control District that the Phase II project would be de-authorized on April 16, 2002 unless some action was taken.

In September, the City of San Pablo contacted the Flood Control District regarding the proposed de-authorization of the Wildcat and San Pablo Creeks Phase II Project. The City confirmed its interest in keeping the project active and asked for assistance in proceeding to the next step with the Army Corps of Engineers. The City would like the Corps to reevaluate the original design to provide a more environmental solution.

FEMA is also updating the floodplain maps in the City of San Pablo and the City may potentially have 1,500–1,800 properties placed in the 100-year floodplain. A budget allocation for the Federal fiscal year 2002 Budget would allow the Army Corps of Engineers to reevaluate Phase II of the original plan.

LETTER FROM RONALD L. KIEDROWSKI

CITY OF SAN PABLO,
San Pablo, California, March 15, 2001.

Mr. MITCH AVALON,
Deputy Director, Public Works Department, 255 Glacier Drive, Martinez, CA 94553.

DEAR MR. AVALON: We are writing to express our support of Contra Costa County's efforts to obtain funding for environmental restoration, flood control and recreation efforts on our creeks. Historically, work on creeks within Contra Costa County was limited to flood control protection and vegetation was removed to maximize flows, particularly in flood-prone areas. As a result, many of our creeks are largely devoid of riparian vegetation which is critical to a number of endangered and other species which inhabit these areas. Today, additional flood control work must be done, allowing the opportunity for ecosystem restoration and recreational opportunities to go forward hand-in-hand with flood control planning efforts. We need your help to fund our creek restoration efforts.

Restoration of the Walnut Creek Channel, and the other creeks in our vicinity is vitally important to our community, because restoration takes many forms. We will now be able to significantly improve riparian habitat along creeks and improve a very decimated yet persistent fishery, in addition to the flood control component. In addition, creek improvements will include vital regional trail linkages, significantly enhancing recreational opportunities for the immediate area as well as the larger, region.

We are working with a large and very broad-based contingent of agencies and organizations within our community which are all quite excited to be part of this significant effort. Because of recent changes in how flood control work is contemplated, a more collaborative effort to improve creeks is now possible. We stand ready to improve the quality of life for all; funding to enable planning work to proceed is critical. Thanks for your attention and support of our request.

Sincerely,

RONALD L. KIEDROWSKI,
Interim City Manager.

LETTER FROM RONALD L. KIEDROWSKI

CITY OF SAN PABLO,
San Pablo, California, March 15, 2001.

MICHAEL J. WALSH,
Colonel Corps of Engineers, Department of the Army, 1325 "j", Street Sacramento, CA 95814–2922.

DEAR COL. WALSH: The City of San Pablo requests that the Wildcat/San Pablo Creeks project be reauthorized, and that an add-on to the fiscal year 2002 budget be sought for the project. Reach 1 of the project has been completed just downstream of our City. Reach 2, which traverses the City of San Pablo, has not yet been done and it is this reach that we request be studied. The City of San Pablo experiences a significant amount of flooding during heavy rain events, and the impacts to our residents are great. Furthermore, the recent proposed revision by FEMA to the Flood Insurance Rate Map puts approximately 1,500 properties in the 100 year flood zone. The requirement to carry flood insurance will be a heavy burden on our primarily low-income community.

Thank you for your consideration. Please contact our Public Works Division Manager, Ms. Adêle Ho, at 510–215–3068, if you have any questions or require additional information.

Sincerely,

RONALD L. KIEDROWSKI,
Interim City Manager.

PREPARED STATEMENT OF THE KAWEAH DELTA WATER CONSERVATION DISTRICT

Mr. Chairman and Members of the Subcommittee: My name is Bruce George, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to present testimony regarding the fiscal year 2002 budget for the U.S. Army Corps of Engineers.

The District respectfully requests that the Subcommittee support an appropriation of $9 million to continue construction of a project to increase the water storage

capacity of Terminus Dam at Lake Kaweah in California's San Joaquin Valley. The project would add approximately 43,000 acre-feet of flood control and conservation storage space to Lake Kaweah by raising the Terminus Dam spillway by 21 feet. The estimated total first cost of the project is $35 million.

The Corps of Engineers studied and planned this modest project for more than 10 years. Last year, Congress appropriated $3 million to continue construction in fiscal year 2001. The State of California is the lead non-Federal sponsor of the project and has appropriated the necessary funds for construction. In addition to the Kaweah Delta Water Conservation District, the other local sponsors are the counties of Kings and Tulare, the City of Visalia and the Tulare Lake Basin Water Storage District.

BACKGROUND

The Kaweah Delta Water Conservation District was formed in 1927 to conserve and protect the surface and groundwater of the Kaweah delta. The District serves 337,000 acres, which include the cities of Visalia and Tulare and several other incorporated and unincorporated areas in Kings and Tulare counties. Those two counties consistently rank among the most productive agricultural counties in the nation.

Terminus Dam and Lake Kaweah, located on the Kaweah River three and one-half miles east of the District, was completed in 1962 by the U.S. Army Corps of Engineers. The purpose of the project is to provide storage space for flood protection and irrigation on the Kaweah River. The Conservation District manages the irrigation and flood control releases for Lake Kaweah, as well as assisting in the conjunctive use of the surface and groundwater of the Kaweah delta.

Flooding downstream from the dam occurs when flows from individual creeks blend together and form a sheet flow through urban and agricultural areas. Included in the flooded areas are the communities of Visalia, Farmerville, Tulare, Ivanhoe and Goshen. Since construction of Terminus Dam, 10 damaging floods have occurred, the most recent in 1997 and 1998.

Inadequate flood protection and a long-term groundwater overdraft in the region have created a need for greater reservoir storage space for flood control and irrigation storage. With a maximum capacity of 143,000 acre-feet, Lake Kaweah currently provides a less than 50-year level of flood protection for communities downstream. Raising the spillway at Terminus Dam (by the installation of fuse gates) would increase the reservoir storage capacity by 30 percent, thus providing a much higher level of flood protection for the region. The bulk of the construction work on the project is scheduled for fiscal year 2002.

California's growing population will place ever-increasing demands on its water supply and flood control infrastructure. Improving existing facilities such as Terminus Dam is one of the most economical and environmentally sensitive ways to meet those new demands. It is important for Congress to encourage such projects.

We are grateful for the Subcommittee's continued support of the Terminus project.

PREPARED STATEMENT OF THE CITY OF ROSEVILLE, CALIFORNIA

Mr. Chairman and members of the Energy and Water Development Appropriations Subcommittee, I would like to thank you for this opportunity to testify before you. My name is Claudia Gamar and I am the mayor of the City of Roseville, California. On behalf of the citizens of Roseville, I request your support for one of the City's highest priorities for the fiscal year 2002.

The City of Roseville requests your support of a $200,000 earmark for the reconnaissance and feasibility studies associated with the WRDA 1999 water conservation program targeted for Placer County, El Dorado County, and the service area of the San Juan Water District.

The Water Resources Development Act of 1999 authorized $25 million for regional water conservation and recycling projects within Placer County, El Dorado County, and the service area of the San Juan Water District. During the drafting of WRDA 99, specific agencies and cities within those areas identified potential water conservation and recycling projects. Roseville specifically identified a portion of its conservation plan—meter retrofits—as a prime candidate for Federal assistance.

Meter retrofits provide mitigation for water supply impacts above Folsom Dam resulting from flood control operations on the American River. In addition, several of the agencies and cities participated in the Water Forum, a regional effort to manage water supplies and provide a safe and reliable water supply while preserving the fishery, wildlife, and recreational values of the Lower American River. The agencies and cities agreed to additional water conservation measures as part of the Water Forum effort.

Before the $25 million authorized under WRDA 99 can be appropriated, the Army Corps of Engineers must complete a reconnaissance study and a feasibility study. The City requests that Congress direct the Corps of Engineers to conduct a reconnaissance study addressing the water conservation and recycling projects referenced above.

Key elements of the study would include: (1) identification of the problems the water conservation and recycling projects would address; (2) formulation, to a conceptual level, of specific projects; (3) definition of the Federal interest in implementation of those projects; and (4) identification of local support for implementation of those projects.

The City also requests that Congress direct the Corps of Engineers to complete both the reconnaissance and feasibility studies in fiscal year 2002.

Thank you again for this opportunity to testify before this committee.

PREPARED STATEMENT OF THE CITY OF FOLSOM, CALIFORNIA

Mr. Chairman and members of the Energy and Water Development Appropriations Subcommittee, I would like to thank you for this opportunity to testify before the committee. My name is Steve Miklos and I am the mayor of the City of Folsom, California. On behalf of the citizens of Folsom, I request your support of one of the City's highest priorities for the fiscal year 2002.

The City of Folsom requests your support of a $3.5 million under the Bureau of Reclamation Water & Related Resources Account for engineering, construction and inspection to upgrade and replace the remaining portion of the Natoma Pipeline System.

The Natoma Pipeline System is owned and operated by the Bureau of Reclamation (USBR) and is the single water supply source for the rapidly growing City of Folsom, California. The Natoma Pipeline System begins at the Folsom Dam/Reservoir and delivers raw water to the City's water treatment facility.

The pipeline appeared to be in poor condition, and inspections confirmed the aging system suffered from weak pipe joints and walls, increasing the probability of a pipe failure. Given the critical nature of this facility, the City decided to pursue replacement of the pipeline using City funds. Because of the significant cost of the project, the City found it necessary to fund the project in two phases. The first phase has been completed and the second phase is expected to be completed by June 2001.

Recognizing the need to partner with USBR, Folsom undertook engineering, construction and inspection for the entire project at a cost of $8.6 million. The cost was an unplanned expenditure by the City and has significantly reduced funds available for other needed water system improvements. Therefore, $3.5 million in Federal funding is requested as a reimbursement to the City.

The City has requested funding for this project in the past two Federal funding cycles.

Thank you again for this opportunity to testify before this committee.

PREPARED STATEMENT OF THE CITY OF SALEM, OREGON

Mr. Chairman and members of the Energy and Water Development Appropriations Subcommittee, I would like to thank you for this opportunity to testify before the committee. My name is Mike Swaim and I am the mayor of the City of Salem, Oregon. On behalf of the citizens of Salem, I request your support of one of the City's highest priorities for the fiscal year 2002.

The City of Salem, Oregon requests a $300,000 earmark in the fiscal year 2002 Energy & Water Appropriations bill (Corps of Engineers General Investigations Account) for the Salem Area Willamette River Study.

The City of Salem requests Federal assistance in studying the Willamette River. Specifically, the project would cover the reach of the Willamette River extending through Marion and Polk counties. The study would focus on the following points: the river's potential to migrate and interact with the floodplain; water quality; stream flow; and salmon presence and use.

The study would focus on current issues including maintenance and construction of revetments, Willamette River Greenway development, as well as water quality and flow impacts from urban tributary streams, direct discharges, and water withdrawals. The study would facilitate the City's planning and projects which are now subject to compliance with the Endangered Species Act (ESA). In addition to the City of Salem, Marion and Polk Counties and the city of Keizer would significantly benefit from this study.

While the Willamette River has been studied on several occasions over the last decade, those studies reviewed the entire river system and do not provide the detail needed for local, and in some cases regional, management decisions.

The City expects both the Corps of Engineers and the U.S. Geological Survey to coordinate in this effort. The City is willing to undertake cost sharing on the project.

Thank you again for this opportunity to testify before this committee.

PREPARED STATEMENT OF THE COALITION OF EPSCoR STATES

Mr. Chairman: I am Jane Nichols, Chancellor of the University and Community College System of Nevada. I submit this statement on behalf of the nineteen states, plus the Commonwealth of Puerto Rico, that are currently eligible to participate in the Experimental Program to Stimulate Competitive Research (EPSCoR).

The Coalition of EPSCoR States supports the Energy Department's budget request for EPSCoR, but we respectfully urge the Subcommittee to consider appropriating $12,000,000 for this effective and productive program. This represents an increase of $4,315,000 over the Department's request of $7,685,000 for EPSCoR in the Basic Energy Sciences budget.

The Experimental Program to Stimulate Competitive Research (EPSCoR) is a research and development (R&D) program originally established by the National Science Foundation. Through a merit review process, EPSCoR is improving our Nation's science and technology capability by funding research activities by talented professionals at universities and non-profit organizations in states that historically have received little Federal R&D funding. EPSCoR is a partnership between the Federal government and the EPSCoR states and their universities. It helps improve research capabilities and quality in order for the states to compete more effectively for non-EPSCoR research funds. EPSCoR is a catalyst for change and is widely viewed as a model of Federal-state cooperation.

In 1992, Congress authorized the Energy Department to conduct an EPSCoR Program in Section 2203 of the Energy Policy Act (Public Law 102–486). The Department designed its EPSCoR program based upon the National Science Foundation's model developed with the overriding purpose of enhancing the capabilities of the eligible states to conduct nationally competitive energy-related research and to develop science and engineering manpower to meet current and future needs in energy-related areas.

Nevada ranked 40th in the U.S. in overall R&D performance in NSF's most recent accounting. Our goal, as is the goal of every EPSCoR state, is to graduate from the EPSCoR classification. We are making great strides in this endeavor and are actively pursuing national and world-class research competitiveness through investments in research and infrastructure. Currently, Nevada has a world class research facility in its Free Air CO2 Enrichment (FACE) site, an EPSCoR-funded, long-term ecological research experiment on the Nevada Test Site. This is a direct result of the first DOE EPSCoR work.

An example of the State's investment includes the State funded Applied Research Initiative that will provide 1:1 matching with industry to develop a new technology or to enhance an existing technology. This program has proven to be very successful during the last three years. UCCSN has established research relationships with more than 60 industrial partners. The hallmark of these partnerships is collaborative research between the industrial partner, faculty and students directed toward the development of new products and processes. Dr. Ken Hunter, former Research Vice President at the University of Nevada, Reno, has reported that state-matching funds of $1.35 million leveraged more than $4.8 million in industrial R&D support to UCCSN during the past three years. This would not be possible if the University System had not placed a value on applied research, encouraging its faculty and students to engage in this research activity.

In a broader context, the DOE EPSCoR program is a major element of the State of Nevada's overall EPSCoR effort. The NSF EPSCoR grants directly complemented the first DOE EPSCoR award, by expanding research activities significantly beyond what could be accomplished by a single award, and expanding the pool of K–16 and graduate students to form even more viable Science, Math, and Engineering talent sources for the future. The number of participants in these EPSCoR programs, as well as in the Cooperative Agreements between DOE-NV and University and Community College System of Nevada (UCCSN) comprised of the University of Nevada, Reno (UNR), the University of Nevada, Las Vegas (UNLV), and the Desert Research Institute (DRI) provide a framework and synergism for additional collaborative and interdisciplinary undertakings. For example, Nevada researchers received approximately $2 million in 1998 through the highly competitive NSF/DOE/USDA/NASA/

NOAA Terrestrial Ecology and Global Change (TECO) program, the major U.S. grant program for research in global change biology. These researchers also received over $2 million in funding from the DOE Terrestrial Carbon Processes Program.

Nevada, under the auspices of the Lieutenant Governor, is in the process of updating and evaluating the statewide goals and objectives for high technology in the state. A State Technology Plan for Nevada was prepared by the Technology Partnership Practice of the Battelle Memorial Institute in late 2000, and builds on the State becoming more active and adept in commercializing technology, fostering spin-offs, and functioning as an innovation center for Federal technology transfer and commercialization. The Rand Corporation is also working with the UCCSN to redesign the higher education system of Nevada.

The Nevada DOE EPSCoR Program was established in 1994. It is one of the thirteen states awarded grants following a merit-based competition. Other states that have had or currently have Department of Energy EPSCoR awards are Alabama, Kansas, Louisiana, Mississippi, Montana, Nebraska, Kentucky, Puerto Rico, South Carolina, Vermont, West Virginia and Wyoming. Each state matches its grant with state, university or other non-Federal funds. A crucial aspect of these grants is their focus on multi-disciplinary R&D teams targeting selected topics of importance to institutions and the state rather than a focus on single-topic or single-investigator R&D.

The funding for the Nevada DOE EPSCoR Program during fiscal year 2001 is $600,000 of which the DOE share is $300,000. The remainder is from the State of Nevada.

The goals of the Nevada DOE EPSCoR Program are to:

—Achieve human resources critical mass via research team-building within UCCSN,

—Develop research collaborations between UCCSN researchers and DOE National Laboratories, DOE Nevada Operations Office, and other DOE facilities,

—Develop research collaborations with industry that result in new technologies and processes,

—Increase the number of faculty, postdoctoral, and graduate-level students involved in energy-related research in Nevada, through both direct and indirect support from this grant, and

—Increase the Science, Math, and Engineering undergraduate enrollment of under-represented minorities, women and disabled students.

Nevada DOE EPSCoR supports the attainment of these goals through a statewide research and infrastructure-building program. The research focuses on advanced, high quality, multi-pulsed, X-ray radiographic diagnostics which are needed to study the dynamic properties of matter and energy close to those that occur in the detonation of nuclear weapons. Future pulse power and laser power facilities will simulate these conditions in a laboratory setting.

These are the types of activities the Coalition believes the DOE should help to further strengthen and expand. This is why we believe additional funds should be made available for fiscal 2002. Increased funding would enable the DOE to expand the number of states participating in implementation grants during the next fiscal year.

Given the success of the EPSCoR programs in Nevada, it is not surprising that we are enthusiastic about the future of the DOE EPSCoR program. It is Nevada's experience that EPSCoR funding yields a return far greater than the original investment. It stimulates collaboration, strategic thinking and broad-based planning.

On behalf of the Coalition of EPSCoR States, I urge this Subcommittee to continue to support the DOE EPSCoR program. Recognizing the very tight fiscal constraints this Subcommittee faces, we request that the Subcommittee provide $12,000,000 to the Energy Department for its EPSCoR program in fiscal year 2002 as part of the Basic Energy Sciences budget. The Coalition recommends that $8,000,000 of this amount should be used to support meritorious research implementation awards. The remaining $4,000,000 should be used to support laboratory partnership grants.

The Energy Department's Experimental Program to Stimulate Competitive Research is a wise and timely investment of scarce public resources. It will continue to help build the scientific and engineering research infrastructure necessary for the future of eligible states and the Nation.

Thank you for your consideration of this request.

PREPARED STATEMENT OF THE CITY OF STILLWATER, MINNESOTA

Chairman Domenici and Members of the Energy and Water Development Subcommittee, I thank you for the opportunity to submit this testimony requesting the $3.3 million needed to complete Stage 3 of the Stillwater, Minnesota flood control project. As this testimony is being prepared, the City is once again in the midst, of yet another flood event this year. The St. Croix River has crested at 692.3 feet, only 1.8 feet less than the record flood of 1965 (See attachment.)

The St. Croix River is now above flood stage, and the water continues to rise. The levee wall system is under water, as is the Northern extension of the levee system. The river is not expected to crest until late next week. On Tuesday, April 3, 2001, the City Council approved an initial expenditure of $300,000 to begin the construction of dikes and other flood measures. As the Spring rains continue, another $300,000 will be necessary to extend, reinforce, increase the height of the dikes. It has required more than 30,000 tons of fill protect the City and its' residents. The emergency dikes are constructed precisely in the location where the Stage 3 flood wall is planned for construction.

It is the third stage of the project that provides the protection for the community from flood events. The first two stages were essential to halt the erosion that had destroyed a third of the old levee system. Stage 3 is designed to provide up to 100-year flood protection.

THE IMPACT OF LOCK AND DAM #3 ON FLOODS STILLWATER

The Lock and Dam #3 was constructed in 1937–38 on the Mississippi River at Red Wing, Minnesota. The Lock and Dam construction raised the level of the St. Croix at Stillwater by 8 to 10 feet. It has made the City of Stillwater vulnerable during periods of high water and flooding of the St. Croix since that time. Records prove that the lock and dam construction, raising the water levels of both the Mississippi and the St. Croix River, has markedly increased the incidence of flooding at Stillwater. The culpability of the Corps is clearly evident.

The Mississippi and the St. Croix Rivers merge about 14 miles South of Stillwater. When constructing the Lock and Dam at Red Wing in 1938, the Federal officials recognized that detaining the flow of the Mississippi would back up the water in the St. Croix at Stillwater. A 1,000 foot levee wall system was constructed at Stillwater by the WPA under the supervision of the Corps to protect the fragile waterfront.

From 1850 to 1938, the 88 years prior to the construction of Lock and Dam #3, only four floods were reported by historians. None were the result of Spring snow melts. The 1852 flood was the result of a cloudburst, the destruction of a dam built on McKusick Lake above the City, and was not the result of the flooding of the St. Croix River. The floods of June 14, 1885, and May 9, 1894, as well as the 1852 flood, were all the result of cloudbursts in or above Stillwater. These floods resulted in both loss of life and significant property losses in the City.

Since the completion of the Lock and Dam 60 years ago, the St. Croix has flooded on 17 occasions, and only four times in the 90 years preceding the construction of the Lock and Dam. Four floods were recorded in the 1940's, immediately after the completion of the lock and dam at Red Wing. The 1952, 1965, and 1969 floods were record-breaking floods, the result of a heavy snow fall, and early Spring rainfall, coupled with warm weather.

Record flooding was avoided in 1997, by the early planning of City officials, the construction of a huge emergency levee requiring thousands of truck loads of clay and sand, the work of hundreds of volunteers, and luck in the avoidance of a severe rainstorm in or around the flood event.

The planning and preparation of City officials, and adequate lead time have allowed the construction of levees high enough to avoid massive flooding in the historic section of the City during most of the floods, and to prevent further loss of life. However, a 4–5 inch rainfall during high water levels would be devastating to the City. Such rainfalls are not infrequent in the St. Croix Valley, and can not be anticipated.

A wet Fall that saturates the soil, heavy snows during the Winter, extended warm spells in the Spring, coupled with persistent Spring rains, and cloudbursts as experienced in the past, will all come together in the same year at some point in time, and the City's emergency responses to flood control will not be sufficient to cope with the flood waters.

History bears out the City's contention that the raising of the river levels by ten feet in 1938, when Lock and Dam #3 was constructed, greatly increases the flooding potential faced by the City during the past 60 years. On this basis alone, the Fed-

eral Government must share in the responsibility for providing a remedy. The construction of the Stage 3 flood wall at Stillwater will provide this safety.

ENVIRONMENT THREATENED DURING FLOOD EVENTS

The St. Croix River was designated as one of the first Wild and Scenic Rivers by Congress and is protected under both Federal and State laws, as well as by local ordinances. The St. Croix River is carefully monitored by the Federal government, an Interstate Commission, and the DNR's by both the States of Wisconsin and Minnesota.

The concern to the thousands of Minnesota and Wisconsin citizens who use the river each week is the trunk sanitary sewer line and pumping stations for the City of Stillwater. The sewer line runs adjacent to the riverfront and is frequently under water during major flood events. More than 2 million gallons of raw sewage is handled daily by the sewer line and pumping stations that follow the riverfront. Engineers have advised the City that extended flooding of the flood plain could result in the rupturing of the trunk line or the surcharging of the pumping stations.

Either of these event would result in the direct flow of raw sewage into the St. Croix River. It would be impossible to repair the system during the high water of a flood event. During the 1997 floods, one pumping station and a portion of the trunk sewer line remained under water for 95 days, and required careful monitoring by the City workers.

The protection of the river is not only the dominant theme of the State and Federal governments, but also by the counties and municipalities that line the riverbanks of the St. Croix. However, the greatest protectors of the river are the citizens themselves who take advantage of the crystal blue waters of the St. Croix for fishing, boating,swimming, and other recreational and scenic purposes.

The topography of the City of Stillwater requires the location of the trunk sanitary sewer line and pumping stations at the base of the City's hub, adjacent to the riverfront. The City is built on two hills that slope toward the river, abruptly interrupted by sandstone bluffs extending 50–75 feet high above the river level. The sanitary sewer system serving the 16,000 Stillwater residents flows into the trunk sewer line that runs parallel to the riverfront. It can not be moved. The 2 million gallons of raw sewage handled by the system each day, is gathered in the trunk sewer line and pumped Southward to the water treatment plant. (2)

According to engineering studies, the trunk line and the pumping stations are both susceptible to rupture or surcharging during periods of flooding. Little could be done to stop the flow of raw sewage into the St. Croix until the water receded. During recent floods, it is not unusual for high water levels to persist for as much as 2–4 months. Such an event could release 120 million gallons of raw sewage into one of America's most pristine rivers over that period of time. If for no other reason than the protection of the river, the City believes the Stage 3 flood wall must be constructed with no delay.

STILLWATER LEVEE AND FLOOD CONTROL PROJECT PROGRESS AND DESCRIPTION

The project is divided into three stages. Stage 1 included the repair and reconstruction of the existing retaining wall which extends 1,000 feet from Nelson Street on the South to the gazebo on the North end of the levee wall system. Stage 2 consists of the extension of the levee wall about 900 feet from the gazebo North around Mulberry Point.

The completion of Stage 2 was delayed by floods of 1997, costing the City and the Federal government nearly a half million dollars. After the waters subsided, it was discovered that the soil beneath the planned levee extension was very unstable, requiring a revision of plans, and the addition of another stage in the construction process.

The flood waters of the St. Croix River that arrived in April, did not recede until August of 1997. The construction area remained under water preventing construction work to proceed as scheduled. Lowell Park, which extends the full length of the levee wall system, several structures, and the emergency roadway which is used to provide emergency medical assistance for those using the recreational St. Croix River, and as a water source for local fire departments, were all either under water or inaccessible.

Phase I, the repair and reconstruction of the original levee wall, was completed in the Summer of 1998. Work on Stage 1 was completed in late Summer of 1997, and additional soil borings were taken for Stage 2. The soil was found to be very unstable, and unable to support the levee system designed for Stage 2 of the project. The construction of Stage 2 required remedial action, and was been designated as Stage 2S. A contract was awarded for Phase 2S in November, 1998, and was com-

pleted in 1999. Phase 2 was begun in the late Fall of 1999, and the major construction work was completed at the end of the year 2000. Only some landscaping, and finishing work on the levee wall system remains to be done. The Design Memorandum schedule calls for the construction of Stage 3 in fiscal year 2002.

Stage 3 expands the flood protection system by constructing a 3 foot flood wall, and driving sheet piling below the surface to reduce seepage and to provide a base for the wall. The flood wall will be constructed about 125 feet inland from the riverbank. Stages 1 and 2 were critical to the protection of the fragile waterfront, and also, to prevent minor flooding on the North end of the riverfront.

Stage 3 provides the flood protection for the City. The rising elevation of the terrain, the flood wall, and minimal emergency measures are designed to provide the City with up to 100 year flood protection.

The Mayor, City Council Members, and Engineering staff all understand that Stage 3 of the flood control project is essential for the protection of life and property of the citizens, that the Stage 3 flood wall is a critical phase of the project, and that the project must be completed at the earliest possible date. The Corps acknowledged the necessity for all three stages of the project when the Design Memorandum included plans for all three stages.

This fact is born out by the support of the Minnesota Department of Natural Resources, the Governor of Minnesota, and the State Legislature. The Minnesota Department of Natural Resources made funds available based on this premise. The State has appropriated half of the Non-Federal matching funds needed to complete Stage 3 of the project, as well as for Stages 1 and 2. The City has provided the remainder of the required matching funds, consequently, only the Federal share is missing from the partnership.

STILLWATER—A NATIONAL HISTORIC SITE

There are 66 historic sites in the City of Stillwater that are listed on the National Register of the U.S. Department of Interior, and many other historic structures as well. Many of these sites are located in the flood plain of the St. Croix River. Designated the "Birthplace of Minnesota," the City of Stillwater was founded in 1843.

When Wisconsin became a state in 1848, a portion of land West of the St. Croix and Mississippi Rivers, including much of what is now the Twin Cities of Minneapolis and St. Paul, was excluded. The prominent citizens of the excluded area convened in Stillwater on August 26, 1848, passed a resolution to be presented to Congress asking that a "new territory be formed," and that the territory be named "Minnesota." Henry Sibley carried the petition to Washington, D.C., and in March, 1849, Minnesota Territory was established. Stillwater then became the only city in the nation to become the county seat of two different territories, St. Croix County in Wisconsin, and Washington County, Minnesota. The Stillwater Convention firmly established Stillwater as the "Birthplace of Minnesota."

Stillwater grew and prospered as the Lumber Capitol of the Midwest. Billions of feet of timber was cut, and floated down the St. Croix to the nine sawmills that were located on the riverbank of the St. Croix at Stillwater between 1848 and 1914. More logs were carried through the boom site North of Stillwater than any other place in the United States. Three billion feet of lumber was produced by the nine lumber mills in the 1880's alone. All nine lumber mills were located on the riverfront The lumber from the Stillwater mills were the primary source of wood-constructed buildings throughout the Midwest.

Much of the lumber was carried down the St. Croix to the Mississippi River, and on to St. Louis, the "jumping off" point for the Westward movement. Sawdust and wood debris from these mills helped created the fragile riverbank that the levee wall system protects today. Later in the 19th Century, five railroads carried lumber from Stillwater Westward to Nebraska, North and South Dakota, and points West, as the Nation expanded beyond the Mississippi River into the plains states. Many of the Midwest's oldest buildings still carry the mark of the Stillwater mills.

As a result of Stillwater's place in the history of the Midwest, the lumber industry, the unique homes built by Minnesota's first millionaires, and the birthplace of both Minnesota Territory and the State of Minnesota, sixty-six sites are included on the National Register of Historic Places. All of the downtown area, which is located in the 100-year flood plain, is included in this recognition.

The Stillwater area is not only of historical importance to The cliffs that rise from the floodplain to shelter Battle Hollow is the location of the last major Native American battle between the Sioux and the Ojibwa Indians. It took place on July 4, 1839. The Sioux warriors ambushed the Ojibwa killing 20 of the Ojibwa, and wounding 30 others in retaliation for an incident that occurred several days in the lake area which is now Minneapolis.

The site is revered by the Ojibwa, many of whom remain in Minnesota and Wisconsin. The Minnesota Historical Society has honored the importance site with historic markers, and the location is a popular site of tourists.

LEGISLATIVE HISTORY AND BACKGROUND

The Stillwater Flood Control and Retaining Wall project first was authorized in section 363 of the Water Resources Development Act (WRDA) of 1992. An allocation of $2.4 million was made in the Energy and Water Development Appropriations Act of 1994.

The Committee Report described the project in three parts,—to repair, extend, and expand the levee wall system on the St. Croix River at Stillwater, Minnesota.

—"To repair" (Stage 1) the original existing levee wall system constructed in 1936.

—"To extend" (Stage 2) the original wall by approximately 900 feet to prevent the annual flooding that occurs at that location, and

—"To expand" (Stage 3) the system by constructing the flood wall about 125 feet inland from the levee wall system to protect the downtown and residential section in the flood plain.

In 1995, the Design Memorandum confirmed the cost estimate for the project was much too low, and the project was reauthorized for $11.6 million by Congress in the 1996 WRDA legislation.

Since the reauthorization of the project five years ago, and the completion of the feasibility study, both Stage 1 and 2 have essentially been completed. Only Stage 3 will provide the City with the flood protection that is critically needed. The reconstruction of the existing levee wall system, the extension of the levee wall, and the construction of the flood wall are all critical to the safety of the citizens, the protection of property, and the preservation of historic sites that contributed to the growth and expansion of the Midwest in the last half of the 19th Century.

SUMMARY

—The Mayor and Council for the City of Stillwater, Washington County Officials, the Governor and Minnesota State Legislature, and bipartisan support of Minnesota Representatives and Senators in Congress, all recognize the significant importance of completing this project by constructing the Stage 3 flood wall on the St. Croix River at Stillwater. They are committed to the completion of the Flood Wall Project at Stillwater. It is critical to the protection of property, the preservation of our history, the respect of historic Indian sites, and the safety of our citizens and their homes and business.

We respectfully urge the Energy and Water Development Subcommittee for Appropriations to allocate $3.3 million needed to construct the Stage 3 flood wall in the fiscal year 2002 Appropriations Bill. If you have questions or would like additional information regarding this project, please call on us.

PREPARED STATEMENT OF THE CITY OF CROOKSTON, MINNESOTA

Chairman Domenici and Members of the Appropriations Subcommittee, I appreciate the opportunity to submit this testimony on behalf of the City Council and the citizens of Crookston, Minnesota. We are requesting $5.31 million in Federal funds for the construction of Stage 2 of the flood control project authorized in the Water Resources Development Act of 1999. This is the funding level that the U.S. Army Corps of Engineers has determined is necessary to complete the work on Stage 2 of the Crookston Flood Control Project. As a result of the history of flooding experienced by the citizens of Crookston, and the continuing threat of flood events we face, we are confident the Assistant Secretary of the Army for Civil Works will ask Congress to provide the $5.31 million needed for the Crookston project in his Budget Request for the U.S. Army Corps of Engineers for fiscal year 2002.

First, we would like to thank you and the Members of this Committee for the $1 million appropriation awarded for the Crookston Flood Control Project in the fiscal year 2001 Appropriation Conference Report. These funds have made it possible to begin the construction phase of Stage 1 of the project. These funds, and an additional $200,000 allocated by the U.S. Army Corps of Engineers, will be expended by the end of fiscal year 2001. Plans and specifications for Stage 2 are now underway and they will be completed by the Fall of 2001. Bids for construction of Stage 2 are scheduled to be advertised in January or February, 2002. This will allow construction to begin immediately after the Winter thaw in the Spring of next year.

The City of Crookston is located in the Red River Valley of Western Minnesota, in Polk County, 25 miles East of Grand Forks, North Dakota. The Red Lake River

winds its way through the City from its source at the Upper and Lower Red Lakes, and flows into the Red River at Grand Forks. The population of the City has remained constant over the past decade at about 8,200 citizens.

The community was settled in 1872, when the first railroad route was announced crossing the Red Lake River where Crookston now stands, and later, extending to Canada. The economy of Crookston is based primarily on agriculture. It is the home of the University of Minnesota Crookston, a technology oriented school with a full academic program enrolling approximately 2,500 students.

FLOODING EVENTS AND THEIR CAUSES

Floods occurring over the past forty years have created significant damage to homes and businesses, and have resulted in the loss of lives as well. They include the flood events of 1965, 1966, 1967, 1969, 1978, 1979,1996, and 1997. Floods have been documented at Crookston as early as 1887. The 1950 flood, though not the maximum flood of record, created the most damage to the City and resulted in the deaths of two citizens from the community.

Between 1950 and 1965, clay levees were constructed through local efforts in an attempt to ameliorate the damages from the flooding of the Red Lake River. The floods of 1965, however, demonstrated these efforts were not adequate to hold back the torrents of water during significant flood events. While certain areas of the City received some flood protection, severe damages occurred in the South Main Street area. This section of the City has since been totally cleared.

The 1969 flood established new high water marks, and again, it was necessary to carry out extreme emergency measures. These efforts were successful in protecting the community from severe damages. Recognizing the need for more protection, another locally financed project was initiated, extending, enlarging, and raising the height of the levee wall system.

The flood of 1997, was the "grandaddy" of all floods. It established the highest water mark in recorded history when the Red Lake River crested at 28. 6 feet above flood stage, the equivalent of a three story building. It is described as a 500-year flood event.

Only the careful planning and preparation by City officials in cooperation with the Corps of Engineers, the State of Minnesota, FEMA, the National Guard, and many private citizens, were damages reduced, and fortunately, no lives were lost. Prior to the crest of the flood, the City of Crookston completed the work of adding two feet of clay and sandbags to the entire levee system throughout the town. The Corps of Engineers constructed clay dikes as a second line of defense, sacrificing a few homes for the good of many others. As a precautionary measure, 400 residents evacuated from their homes during the height of the flood.

These efforts spared Crookston from the devastation experienced by neighboring towns, allowing the City to provide for 8,000 persons evacuated from their homes in nearby communities, But this disaster and the potential devastation that such floods can bring, emphasized the critical importance of replacing the temporary earthen and clay dikes with a well-planned, permanent flood control system.

There are several causative factors that have created flood conditions for the Red River Valley and the City of Crookston. The Red River of the North did not carve out the valley, it merely meanders back and forth through the lowest parts of the floor of the ancient Glacial Lake Agassiz.

With no definitive flood plain to channel flood torrents, the slow-moving flood waters quickly overrun the shallow river banks and spread out over the flat floor of the former glacial lake bed. The small river's gradient is on ½ foot per mile, as opposed to areas in Southwestern Minnesota where in one instance, the gradient establishes a 19 foot drop in one mile. Both extremes have created problems.

The Red Lake River flows into Crookston from the Northeast, winds it way through the City, and flows out of the City, turning in a Northwesterly direction toward its confluence with the Red River at Grand Forks, North Dakota. The merged rivers then flow due North into Winnipeg, Manitoba, Canada. As the snow melts in the Southern portion of the valley, ice often remains in the channel to the North. Ice and other debris flowing North pile up against the river ice creating ice dams. These barriers back up the water and increase the flood crest upstream.

The extremely level terrain also creates a phenomenon during the Spring thaw which is called "overland flooding." As the snow melts, the huge volume of water can overwhelm the network of shallow ditches and creeks. Unable to enter the choked stream channels, the water travels overland until it meets small terrain barriers such as railroad beds and road grades, creating huge bodies of water.

In addition to the topography of the area, a combination of factors such as agricultural drainage, the loss of wetlands, the Federal governments work in the Red River

Basin, and the construction of the county ditch systems, all these factors have contributed to the vulnerability of the area.

City officials and the Corps of Engineers are evaluating the potential for flooding even this year, While the weather is permitting a more gradual snow melt with less water content, a substantial rainfall of several inches on the soil that is already saturated from the snow melt can greatly increase the predicted flood levels.

PROJECT DESCRIPTION AND STATUS

A Feasibility Cost Share Agreement between the Corps of Engineers and the City was signed on October 19, 1992, and a feasibility study and environmental assessment was completed in 1997. Both partners shared costs equally in the $1.2 million study. The Red Lake Watershed District and the State of Minnesota provided part of the non-Federal funding required, and both join the City with their strong support.

The Feasibility Report by the U.S. Army Corps of Engineers recommended that a local flood control project be constructed consisting of two down-stream cut off channels and levees built to the 100-year level of protection for Thorndale, Woods, and the downtown/Riverside neighborhoods. While the two down-stream cut channels are planned to reduce the flooding somewhat for the entire City, and the levees protect the fore mentioned neighborhoods, other areas of the City remain at risk. The Corps of Engineers has completed a Section 22 study of the City in which further recommendations will be made.

The National Economic Development (NED) optimization analysis indicated that the 100-year and the 50-year levels of protection would have the approximately the same net benefits. The policy is that if two alternatives have the same benefits the lower cost plan is accepted. The District, after consultation, requested a waiver to recommend the 100-year protection. Their rationale included the high potential for property damages, the increased risk of loss of life, and the benefits of providing a consistent level of protection throughout the City. Secretary of the Army (Civil Works) H. Martin Lancaster approved the waiver on January 15, 1997

—1992—Feasibility Cost Share Agreement signed.
—1997—Feasibility Report and Environmental Assessment completed.
—1997—National Economic Development optimizational analysis waived to provide the entire project with 100-year flood protection.
—1998—Preconstruction engineering and design efforts begun.
—1999—Project authorized for construction in the Water Resource Development Act of 1999.
—2000—Plans, specifications, and design work for Stage 1 completed.
—2000—Congress appropriates $1 million for Stage 1 construction.
—2000—Plans and Specifications for Stage 2 commenced.
—2001—Corps of Engineers total cost estimates for the project to be $10.8 million
—2001—City requests $5.31 million from Congress for the construction of Stage 2 of the Crookston Flood Control Project.

FISCAL DATA

The recommended plan has a fully funded baseline cost estimate of $9.5 million and a benefit to cost ratio of 1.6. The total cost of the project, as projected by the Army Corps of Engineers, is $10.8 million. The increase is due to newly refined design requirements.

The following "Cost-Sharing Schedule" was information developed by the Corps of Engineers, and was made available to us on January 30, 2001. Our request for $5.31 million for Stage 2 of the project is based on this information. Nearly all of Stage 2 expenditures will occur in 2002 and 2003. The schedule provided by the Corps is as follows:

CROOKSTON, MINNESOTA FLOOD CONTROL PROJECT—COST-SHARING SCHEDULE

[Dollars in thousands]

Fiscal year	Total project costs	LEERDs	Non-fed ped	Fed const.	Percent	Total fed costs	Total non-fed costs
2000 and Prior	$1,168	$0	$298	$870	$29.7	$870	$298
2001	2,490	1,650	0	840	0.0	840	1,650
2002	4,086	1,000	0	3,086	32.4	2,760	1,326
2003	2,814	125	0	2,689	34.8	2,339	475

CROOKSTON, MINNESOTA FLOOD CONTROL PROJECT—COST-SHARING SCHEDULE—Continued

[Dollars in thousands]

Fiscal year	Total project costs	LEERDs	Non-fed ped	Fed const.	Percent	Total fed costs	Total non-fed costs
2004	242	0	0	242	3.1	211	31
Total Costs	10,800	2,775	298	7,727	100	7,020	3,780

Sponsor 35 percent Share = $3,780
LERRDs = $2,775
Cash Requirement = $1,005
Five Percent Cash = $540

NON-FEDERAL CONTRIBUTIONS TO THE PROJECT

The citizens of Crookston have demonstrated their commitment to the project each year since 1997. Every year for since 1997, they have voted to assess themselves a flood control project fee, over and above their property taxes. This action by the community has resulted in raising about $1.4 million up to the present time. One third of these local funds were used to meet part of the 50 percent match for the $1.2 million feasibility study, and and the remainder will be used as a part of the non-Federal match for the construction Stages of the flood control project.

The State of Minnesota has also made a significant contribution to the project. They have appropriated $3.3 million for the dual purpose of providing funds to match the Federal contribution, and to buy out homes that have been lost in the construction of the flood control measures. Nineteen families were required to lose their homes to the project, including one farm. The State funds were used both for the purchase of the homesteads, and the relocation of the affected families.

For these reasons, we respectfully request this Subcommittee to appropriate $5.31 million of Federal funds in the fiscal year 2002 Appropriations Act to complete the Stage 2 work on the Crookston Flood Control Project. The Committee's favorable response to this request will prevent any delays affecting the completion of the project, and avoid cost overruns that inevitably occur when construction is delayed.

In closing, I would like to say there is nothing more important to me as Mayor, and to each Member of the Crookston City Council, than the safety of our citizens, and the protection of their homes and property. We can not give them this assurance until we have completed this flood control project.

May I also say that our association with the St. Paul District of the Army Corps of Engineers throughout this process has been outstanding. They are an extraordinary organization, working on the scene during flood conditions, and assisting us as we attempt to resolve this problem that threatens our citizens. We could not ask for a better partner in this project.

Thank you for the opportunity to bring this important matter to your attention through this statement. I will be delighted to respond to any questions you may have about the project.

PREPARED STATEMENT OF THE NATIONAL MINING ASSOCIATION

SUMMARY REQUEST FOR APPROVAL OF FISCAL YEAR 2002 APPROPRIATIONS

National Mining Association (NMA) membership includes companies engaged in producing coal, metallic ores, and nonmetallic minerals, and in manufacturing mining machinery and equipment. Mine commodities frequently are distributed as bulk freight transported on inland waterways, Great Lakes, and coastal shipping lanes, and often require the use of harbors and shipping channels at shallow draft inland ports and deep draft Great Lakes and coastal ports. Deep draft ports also are involved in shipping mining machinery and equipment produced in the United States for export in world trade. NMA firmly supports appropriations needed to keep the U.S. marine transportation system safe, efficient, secure, and competitive through timely operation and maintenance activities and investments in marine infrastructure improvements justified to meet current and projected demand for marine transportation services. The table below presents a summary of NMA's request for approval of fiscal year 2002 appropriations for the U.S. Army Corps of Engineers (Civil Works) in that regard.

APPROPRIATIONS REQUEST

Operations and Maintenance

Full funding of fiscal year 2002 operation and maintenance requirements for the inland and intracoastal waterways system, the Great Lakes, and coastal marine transportation including dredging of harbors and shipping channels, operation and maintenance of lockage and other navigation controls, and maintenance of dams, levees, revetments, mooring cells, and navigation aids within the total marine transportation system.

Construction and Rehabilitation

Fiscal year 2002 appropriations for annualized costs of planning, engineering, design, construction and rehabilitation projects at selected locations on the inland and intracoastal waterways system identified below:

Project	Purpose
Ohio River:	
Olmsted L&D	Construction—New Location
McAlpine L&D	Engineering & Design
J.T. Myers L&D	Engineering & Design
Greenup L&D	Engineering & Design
Newburgh L&D	Feasibility Study
Cannelton L&D	Feasibility Study
Mainstem Study	Systems Analysis/Improvement Plan
Monongahela River:	
Lock & Dam 2	Construction—Replacement
Lock & Dam 3	Removal—Coordinate with L&D 2 & 4
Lock & Dam 4	Construction—Replacement
Kanawha River:	
Marmet L&D	Construction—Replacement
London L&D	Major Rehabilitation
Tennessee River: Kentucky L&D	Construction—Add New Chamber

INLAND WATERWAYS APPROPRIATIONS REQUEST—PROJECT COST ESTIMATES

Guided by NMA's review of reports to the Inland Waterways Users Board by the U.S. Army Corps of Engineers (Civil Works) and the Users Board's 14th Annual Report to the Secretary of the Army and the United States Congress, August 2000, NMA's project cost estimates for our fiscal year 2002 appropriations request are presented below.

[Millions of dollars]

Project	Description	Fiscal year 2002 appropriations
Ohio River:		
Olmsted L&D	New twin 1,200′ × 110′ lock chambers and dam replacing L&D 52 & 53	72
McAlpine L&D	Replace L&D and add a second 1,200′ × 110′ lock chamber	20
J.T. Myers L&D	Add a second 1,200′ × 110′ lock chamber	3
Greenup L&D	(same)	3
Newburgh L&D	(same)	3
Cannelton L&D	(same)	3
Mainstem Study	Systems analysis of needs on Ohio River Mainstem	2
Monongahela River:		
Lock and Dams 2, 3, 4	Replace L&Ds 2 and 4, and remove L&D 3 in concert with the dam replacements	75
Kanawha River:		
Marmet L&D	Replace L&D and add a new 800′ × 110′ lock chamber	14

[Millions of dollars]

Project	Description	Fiscal year 2002 appropriations
London L&D	Major rehabilitation of L&D	5
Tennessee River: Kentucky L&D	Add new 1,200′ 110′ lock chamber	40

OHIO RIVER BASIN PROVIDES STRATEGIC ROUTES FOR COAL TO FUEL ELECTRICITY GENERATION

Data provided by the U.S. Army Corps of Engineers in Waterborne Commerce of the United States, Calendar Year 1999 underscore the importance of the marine transportation system in distribution of U.S. coal. In 1999, 219 million tons of coal were transported on the waterways in domestic commerce and 58.5 million tons were exported to other countries. Included in the domestic coal shipments were 166.8 million tons carried on inland and intracoastal waterways and 20.5 million tons on the Great Lakes, with the remainder moved in coastwise and intraport shipments. The Ohio River System was dominant in regard to coal shipments, carrying 150.8 million tons of coal in 1999, illustrating its key role in waterways coal distribution.

Since passage of the pivotal Water Resources Development Act of 1986, which established the inland waterways user cost sharing now in effect for construction and rehabilitation at lock and dam projects, the mining industry regularly has supported adequate funding of waterways operation and maintenance requirements and selected improvements needed to replace and upgrade obsolete lock and dam structures justified because of deterioration and lack of sufficient lockage capacity to accommodate barge traffic. Coal traffic on the Ohio River between its confluence with the Mississippi River at Cairo, Illinois and its headwaters at Pittsburgh, linking with movements on rivers connecting with the Ohio River, e.g. the Monongahela, Kanawha, and Tennessee Rivers, is heavy, especially in regard to shipments to coal-fueled power plants located on, or in the vicinity of, the Ohio River and connecting rivers in the Ohio River Basin.

Several lock and dam projects in the Ohio River Basin have been improved, enhancing safety and reducing barge congestion where lock chambers were added and/or undersized chambers were replaced. The process of conducting planning and feasibility studies for individual lock and dam projects, followed by preconstruction engineering and design, and several years for construction of improvements is both lengthy and costly. Costs, of course, grow markedly when the timetable from project inception to completion of construction is stretched out resulting in inefficiencies and losses due to inflationary trends. However, today two reasons stand out in support of moving forward expeditiously with construction and rehabilitation appropriations for selected lock and dam projects, in particular on the Lower and Middle Ohio River, the connecting Tennessee River, and the Upper Ohio River Basin Tributaries, the Kanawha and Monongahela Rivers. These are:

—The demand for electricity is increasing rapidly, placing even higher emphasis on the capability of coal-fueled power plants in the Ohio River Basin for generating electricity from locations served by barges on the Ohio, Monongahela, Kanawha, and Tennessee Rivers, and other Ohio River tributaries.

—Planning and feasibility studies and engineering and design of construction and rehabilitation for several key lock and dam projects on the Ohio, Kanawha, and Tennessee Rivers are underway, in addition to construction in progress or completed earlier at other lock and dam projects on the Ohio, Monongahela, and Kanawha Rivers.

Reports by the Edison Electric Institute show that electricity demand over 52 weeks through February 17, 2001, has increased 4.5 percent. The trend is continuing as shown by a 3.6 percent increase in domestic electricity output on a year-to-date basis ending March 19, 2001, ahead of a comparable period last year, looking at the EEI data. Coal is the fuel of choice for generating more than 50 percent of the electricity consumed in the U.S.; and according to the Energy Information Administration, coal consumption in the United States is forecast to grow from 1.045 billion tons in 1999 to 1.297 billion tons in 2020, an increase of more than 24 percent in consumption forecasted in 2020 versus the 1999 level. Those factors, i.e., growth in electric output and expected increases in coal consumption to fuel electricity generation, joined with effective access to power plants for coal traffic furnished by the rivers located in the Ohio River Basin, provide extraordinary impetus

on granting priority for fiscal year 2002 appropriations needed for lock and dam projects in the Basin.

THE OHIO RIVER SYSTEM CAN SERVE EASTERN AND WESTERN COAL SHIPMENTS

Because the Ohio River System is located east of the Mississippi River, some may mistakenly consider that it is used only to ship coal produced in the Appalachian Region of the East or in the Midwest. While the System readily accommodates coal produced in Northeast, Northwest, and Central Appalachia by virtue of their proximity to the Ohio River and its tributaries, the Ohio River Mainstem also carries coal produced in the West and carried by coal trains to transfer and storage terminals located on the Lower Ohio River and on the Mississippi River above the confluence of the Ohio and Mississippi Rivers.

In fact, each of the four principal coal-carrying railroads has access to barge connections on the Ohio River System, CSXT and NS in the East and BNSF and UP in the west. Another railroad, CN–IC, which accommodates midwest mine-originated coal and additional coal that it terminates after connections with other railroads, also has access to river terminals. Coal shippers often can be well served by intermodal rail/barge movements for three reasons:

—Rail coal is moved in trains carrying 10 thousand to 15 thousand tons per train. Modern barge tows operating on the Ohio River carry up to 25 thousand tons per single tow. A high degree of automation is used for high speed loading and unloading at rail/barge coal terminals, with an advantage of either storing, or directly transferring, coal while in transit. The large capacities of each mode and the high efficiencies of the terminals offer economies of scale for intermodal rail/barge shipments.

—Intermodal rail/barge coal routes for particular shipments may provide an alternate way to move coal thereby giving stimuli to carriers for raising the quality of service.

—Similarly, while differing from (2) above in regard to connectivity of trains with barge tows, the availability of safe, efficient, and competitive barge transportation in some locations may make intermodal truck/barge movements possible, again providing stimuli for raising the quality of service.

To the extent that ton-miles of coal transportation is obtained using barge tows, a spillover benefit can be attributed to the fact that barge tows operate separated from other surface traffic, thereby reducing traffic congestion in built-up areas, a matter of some importance to populous locations in the Ohio River Basin.

Environmental Restoration Program

NMA has participated in the Acid Drainage Technology Initiative (ADTI) with government agencies and academic institutions since its inception in 1995 with the goal of developing cost-effective and practical technologies to predict and remediate acid mine drainage from active and inactive coal and metal mines. This initiative is not a regulatory or policy development program. House Report No. 105–581 acknowledged that acid mine drainage is a serious environmental problem and that the U.S. Army Corps of Engineers possessed the experience and capability to assist in the ADTI's efforts. The subcommittee directed the Corps to participate in this initiative with available funds and, since that time the Corps has participated in workshops with members of the ADTI to exchange information on mining and related environmental issues. In order for the Corps to continue its participation, we request that the Corps be provided funds to commit $200,000 annually with other Federal agencies involved, such as OSM, BLM, DOE, EPA, and USGS) to further the Corps' goals of ecosystem restoration. NMA also urges continued support of the Corps' Abandoned and Inactive Noncoal Mine Restoration program as authorized by section 560 of Public Law 106–53. We recommend the Corps be provided an additional $1,000,000 to conduct research necessary to support the restoration program.

PREPARED STATEMENT OF AMERICAN RIVERS

MISSOURI RIVER FISH AND WILDLIFE MITIGATION PROJECT; US ARMY CORPS OF ENGINEERS

American Rivers is joined by seventeen conservation groups from the Missouri River basin in calling for $12 million in fiscal year 2002 funding for the Missouri River Fish and Wildlife Mitigation Project. [American Fisheries Society—Kansas Chapter; American Fisheries Society—Missouri Chapter; American Fisheries Society—Nebraska Chapter; Audubon Iowa Audubon Missouri; Audubon Society of Omaha; Burroughs Audubon Society (MO); Jayhawk Audubon Society (KS); Kansas

Wildlife Federation; Sierra Club—Iowa Chapter; Sierra Club—Kansas Chapter; Sierra Club—Nebraska Chapter; Sierra Club—Northwest Iowa Group; Sierra Club—Osage Group (MO); Sierra Club—Thomas Hart Benton Group (MO); Wachiska Audubon Society (NE); Wolf River Environmental Society (KS)]

The Missouri River Fish and Wildlife Mitigation Project is the primary habitat restoration program for the lower Missouri River between Sioux City, Iowa and St. Louis. It was established by Congress in 1986 to help reverse the long-term decline of the Missouri's fish and wildlife habitat due to the Federally sponsored channelization and stabilization projects of the Pick-Sloan era. Congress approved $12 million in fiscal year 2001 for the project, the highest appropriation yet received. It is imperative that at least this level of funding be maintained.

The Missouri River remains a nationally significant resource, attracting tens of millions of visitors annually and supporting over 150 species of fish and wildlife. However, severe loss of habitat such as side channels, wetlands, and sandbars threaten the river's long-term health. As the nation prepares to celebrate the 200th anniversary of Lewis and Clark's Voyage of Discovery, we have an once-in-a-lifetime opportunity to restore the Missouri River and revitalize riverside communities.

Today, nearly 200 years after their journey, Lewis and Clark would hardly recognize the Missouri River. However, while we cannot restore the river they knew, we can repair much of it. If we begin now, we can restore critical habitat, supporting river wildlife, boosting recreation, and improving quality of life in riverside communities in the lower Missouri River basin states of Nebraska, Iowa, Kansas, and Missouri.

Channelization and stabilization dramatically altered the lower Missouri River, eliminating natural features that once supported one of the world's most diverse fisheries. Engineering reduced the Missouri's average width below Sioux City by two-thirds and shortened it by 127 miles, replacing its braided channels with a shorter, "stabilized" barge canal. Nearly all of the Missouri's islands, sandbars, and side channels are gone.

With nurseries for fish and wildlife destroyed, one-fifth of the species native to the Missouri is now on Federal and state watch lists. Many species have fallen to less than ten percent of their historic population levels.

Supporting the Missouri River Fish and Wildlife Mitigation Project will help reverse the decline of river wildlife by restoring historic chutes, side channels, wetlands, backwaters, and other habitat fish and wildlife need to feed, conserve energy, and reproduce. For example, the restoration of Hamburg Bend, a side channel near Nebraska City, Nebraska, now provides temporary refuge from the river's swift currents for species like the channel catfish.

While restored habitat areas are important for the Missouri's fish and wildlife, they are also important for people. Waterfowl hunting, fishing, birdwatching, and other recreational opportunities at Hamburg Bend augment the economy of neighboring communities like Nebraska City. In each case, improved recreation and tourism opportunities at restored habitat sites translate into real dollars for Missouri River communities, as recreation and tourism-dependent businesses support visitors to these areas.

By supporting the Missouri River Fish and Wildlife Mitigation Project, Congress can also help us properly commemorate the upcoming bicentennial of Lewis and Clark's Voyage of Discovery. With your help, we can restore a string of natural places along the Missouri—places that Lewis and Clark might recognize and that attract recreation and tourism, support river wildlife, and improve the quality of life in riverside communities.

Millions of people already visit the Missouri River each year to go sightseeing, hunting, fishing, boating, and camping—often in areas closely resembling the Missouri chronicled by Lewis and Clark—annually pumping more than $90 million into riverside communities. Through the mitigation project, these recreation dollars will increase and we will be able to more fully enjoy the Lewis and Clark bicentennial commemoration.

We urge you to bolster critically important efforts to reverse the decline of the nation's longest river by supporting an appropriation of $12 million for the Missouri River Fish and Wildlife Mitigation Project in fiscal year 2002.

LOWER COLUMBIA RIVER AND TILLAMOOK BAY ECOSYSTEM RESTORATION, OREGON AND WASHINGTON; US ARMY CORPS OF ENGINEERS

American Rivers and more than 530 local, regional, and national conservation and community groups[1] from throughout the country urge you to appropriate full funding for the U.S. Army Corps of Engineers' Lower Columbia River and Tillamook Bay Ecosystem Restoration program in the Water Resources Development Act 2000 (WRDA) in fiscal year 2002. Specifically, we urge you to appropriate the full $30 million for the program.

Coastal estuaries in the Pacific Northwest play a vital role in supporting healthy stocks of wild salmon, steelhead and other species improving the quality of life of countless communities. The Lower Columbia River estuary and Oregon's Tillamook Bay are of particular importance to the region, benefiting people and wildlife in a myriad of ways. They provide critical habitat, offer abundant recreational opportunities, and improve water quality by filtering out toxic contaminants, sediments and other pollutants.

The Columbia and Tillamook estuaries are of great importance to the region and the nation, offering critical habitat to endangered salmon and steelhead and more than 200,000 wintering waterfowl and shorebirds. But they also face significant threats. Since 1850, the two estuaries have lost more than 70 percent of their historical wetland and riparian habitat, primarily because of construction of agricultural levees and floodplain development. The Columbia River and its estuary have also been damaged by channelization and dredging for navigation.

In addition, the health of these estuaries has been severely compromised over the past half century by conversion of river habitat, dams, mining, and logging, which have transformed the ecology and economy of the region. The huge price paid by the river's ecosystems is illustrated most clearly by severe declines in native salmon species. Wild fish have been reduced the only one percent of their pre-development abundance, and 12 salmon and steelhead species in the Columbia River Basin are listed under the Endangered Species Act.

The Federal Caucus' Biological Opinion on the Reinitiation of Consultation on Operation of the Federal Columbia River Power System issued December 21, 2000 specifically calls for the Corps to initiate the restoration called for in Section 536 of WRDA 2000. Action 160 in the biological opinion calls for the Corps "to develop and implement an estuary restoration program with a goal of protecting and enhancing 10,000 acres of tidal wetlands and other key habitats over 10 years, beginning in 2001, to rebuild productivity for listed populations in the lower 46 river miles of the Columbia River."[2] Appropriations dedicated to implementing Section 536 of WRDA 2000 would help fulfill the Federal government's commitment to the restoration and protection of the estuary referred to in this biological opinion.

The Lower Columbia River and Tillamook Bay Ecosystem Restoration program, run by the Army Corps of Engineers, cuts across political boundaries and is supported by a diverse group of stakeholders including labor, environmental and citizen groups, as well as Federal, state, municipal and tribal governments. These stakeholders are dedicated to enhancing the fish and wildlife habitat in these estuaries. This program offers a cooperative solution to managing natural resources that will benefit all of the salmonids in the Columbia River system. Adequately funded, the program will restore more than 16,000 acres of critical fish and wildlife habitat, augment existing monitoring efforts, and help citizens protect and manage resources.

Again, we strongly urge you to appropriate full funding of $30 million for the U.S. Army Corps of Engineers to implement Section 536 of the Water Resources Development Act 2000, the Lower Columbia River and Tillamook Bay Ecosystem Restoration.

ATCHAFALAYA BASIN FLOODWAY SYSTEM; US ARMY CORPS OF ENGINEERS

American Rivers, Sierra Club Delta Chapter, EarthJustice Legal Defense Fund, and Louisiana Audubon Council urges that the real estate acquisition component of

[1] Each of these organizations has signed on to the River Budget: National Priorities for Local River Conservation in fiscal year 2002. The River Budget is a consensus report that summarizes where the people who work to save the nation's rivers believe we can make the best investments of tax dollars to benefit our communities, wildlife, and water quality. A complete list of these organizations is included at the end of this testimony.

[2] National Marine Fisheries Service, Northwest Region. Biological Opinion, Reinitiation of Consultation on Operation of the Federal Columbia River Power System, Including the Juvenile Fish Transportation Program, and 19 Bureau of Reclamation Projects in the Columbia Basin. Federal Caucus, Issued: December 21, 2000.

the Atchafalaya Basin Floodway System project be fully funded at $5 million, and that such funds be earmarked.

The U.S. Army Corps of Engineers has a central role to play in the protection of the Atchafalaya Basin. The Corps' Atchafalaya Basin Floodway System project was authorized by the Supplemental Appropriations Act of 1985, Public Law 99–88. The Water Resources Development Act of 1986, Public Law 99–662, reauthorized the project. Funding for acquisition of the real estate features of the project was made available by the Energy and Water Resources Development Appropriations Act of 1988, Public Law 100–202.

A key feature of this Corps project is real estate acquisitions (fee lands from willing sellers and environmental protection easements) to preserve the natural environment of the Atchafalaya Basin and allow public access to the Basin. Although at the Corps' earlier pace, it was estimated that the planned acquisitions would not be completed until the year 2017, during the past few years, the Corps has been making a concerted effort to honor its commitment to acquire the real estate interests in the Atchafalaya Basin. At the current pace, the Corps has indicated that it can complete the real estate acquisitions by 2004.

A steady flow of adequate funding is necessary to keep these real estate acquisitions on track. When part of the real estate work necessary for the Basin acquisitions is done but the funds to complete the process are not made available, some of the initial work (such as appraisals and timber cruises) must be repeated—resulting not only in a significant waste of staff time and taxpayer dollars, but also leaving the Basin at risk for environmental degradation even longer.

It is important to provide sufficient, ongoing funding for the real estate acquisitions. Approximately $5 million will be needed for the real estate acquisitions portion of the Atchafalaya Basin project in the 2002 budget. We urge that the real estate acquisition component of the Atchafalaya Basin Floodway System project be fully funded, and that such funds be earmarked.

LOW IMPACT HYDROPOWER CERTIFICATION; DEPARTMENT OF ENERGY

American Rivers urge the subcommittee to provide the Department of Energy with $100,000 to fund the Low Impact Hydropower Certification program to help promote environmentally sound, sustainable domestic energy supplies.

American Rivers supports the work of the Low Impact Hydropower Institute, which manages a voluntary certification program for identifying those hydropower facilities that have low environmental impacts relative to other hydropower facilities. The Low Impact Hydropower Certification Program evaluates hydropower dams based on objective environmental criteria addressing key resources. If a facility is certified, the hydropower dam owner can sell the power into the "green" energy markets; this in turn, will create market incentives for other dam owners to follow suit. The program provides an important, market-based tool for addressing the environmental impacts of hydropower, while providing a boost to renewables and "green" energy markets, expanding consumer options, and supporting economic incentives for hydropower generators to produce low impact power.

We urge the subcommittee to provide the Department of Energy with $100,000 to fund the Low Impact Hydropower Certification program to help promote environmentally sound, sustainable domestic energy supplies.

Thank you for your consideration.

PREPARED STATEMENT OF CHARLES H. BUCKNAM

Thank you for agreeing to consider this request for funding of the Acid Drainage Technology Initiative (ADTI) through the Federal multi-agency mechanism. The Army Corps of Engineers (USACE) is being requested to provide annual funding of up to $200K, to match the standard set by the Office of Surface Mining (OSM). OSM funding is going primarily to the Coal Mining Sector of ADTI and a predictable base of funding is also needed for the Metal Mining Sector activities, in order to identify the best science for controlling acid and metal drainage from metal mines and related materials.

The ADTI is a nationwide technology development program with a guiding principle of building a consensus among Federal and State regulatory agencies, universities and consulting firms to predict and find remedies for acid drainage from active and inactive metal and coal mines. It is not a regulatory or policy development program. The Acid Drainage Technology Initiative Metal Mining Sector (ADTI–MMS) is an organization of volunteers committed to the development of the best science and technology-based solutions to mine water quality issues at metal mines. The Review Committee is responsible for developing and implementing the con-

sensus review process for documents, editorial services, international networking and membership coordination. The consensus review process is developed by this Committee is available on the world wide web at: http://www.bucknam.com/rchb/consensu.txt and several draft documents are also being reviewed on the ADTI–MMS web site at: http://www.mackay.unr.edu/adti.

As you may be aware, it has been estimated that correcting the mine drainage and abandoned mined land problems will cost up to $70 billion. As this figure suggests, it will be necessary to lead off on this effort with an adequate foundation of current technology-based solutions. The ADTI–MMS organization is in the process of preparing and maintaining handbooks to provide that foundation and is prepared to launch the necessary research programs to develop the best science and technologies.

ADTI–MMS is backed through participation from members of numerous mining companies, environmental consulting firms, Federal and state research, land management and regulatory agencies, academic researchers committed to the ADTI mission, and the Western Governors Association. The Western University Consortium, consisting of University of Nevada—Reno, New Mexico Institute of Mining and Technology, University of Idaho, University of Utah and University of Alaska, Fairbanks and other members of the ADTI–MMS University Network (Colorado School of Mines, Montana Tech at the University of Montana, South Dakota School of Mines and Technology, University of Colorado, Berkeley, Northern Arizona University, Montana State University-Bozeman, and the University of New Mexico) provide part of our research foundation under direction of the Mining Life Cycle Center at the University of Nevada, Reno. In addition, the US Army Corps of Engineers Restoration of Abandoned Mined Sites (RAMS) program and the headquarter-based Research Programs are actively pursuing research coupled with on ground cleanups. Coordination with sister organizations in other countries, including Mine Environment Neutral Drainage (MEND)-Canada, Mitigation of Environmental Impact From Mining Waste (MiMi)-Sweden, (other), signifies our position in the international realm.

The ADTI–MMS Review Committee needs funding for technical-professional review and illustrations for ADTI–MMS Workbooks on prediction, sampling and monitoring, modeling, mitigation and pit lakes. We feel that minimal funding (10 percent of ADTI–MMS annual budget) can provide needed training documentation for what proves to be an expensive multi-decade effort.

The National Mining Association (NMA), the Interstate Mining Compact Commission (IMCC) and several Federal agencies [OSM, BLM, Department of Energy (DOE), and Geological Survey (USGS)] have actively participated in the Acid Drainage Technology Initiative (ADTI) since 1995. This collaborative effort receives funding and other support from industry and several Federal agencies for specific projects. For example, the OSM has provided the ADTI $200,000 for the last three fiscal years which has been a consistent source of funding for activities related to acid mine drainage from coal mining and has been instrumental in accomplishing the ADTI's short-term goals. In addition, the EPA has provided $10,000 for travel and administration, and is currently providing funding for prediction workbook preparation. If each of the Federal agencies, OSM, Environmental Protection Agency (EPA), DOE, Army Corps of Engineers (USACE), BLM, USGS, and other agencies as appropriate [i.e. Bureau of Reclamation (USBR), National Park Service (NPS) and Forest Service (USFS)], were provided funds to commit $200,000 toward ADTI, more than $1 million would be available to support the work of this vital initiative.

In fiscal year 1999, House Report No. 105–581 acknowledged that acid mine drainage is a serious environmental problem and that the U.S. Army Corps of Engineers possessed the experience and capability to assist in the ADTI's efforts. Further, the subcommittee directed the Corps to participate in this initiative with available funds. Since that time, the Corps participated in several workshops with members of the ADTI to exchange information on mining and related environmental issues and to explore the nature and extent of the Corps' involvement. In order to participate effectively, we respectfully request that the USACE be provided funds to commit $200,000 annually (with other Federal agencies involved, such as OSM, EPA, DOE, BLM, USGS, USBR, NPS and USFS) to further the Corp's goals of ecosystem restoration.

Thank you for your time and interest in this vital area. Your continued funding of this Committee's activities will significantly improve our ability to develop the best science for addressing drainage issues with an organized and predictable schedule.

PREPARED STATEMENT OF THE COLORADO SCHOOL OF MINES

Thank you for agreeing to consider this request for funding of the Acid Drainage Technology Initiative (ADTI) through the Federal multi-agency mechanism. The Army Corps of Engineers (USACE) is being requested to provide annual funding of up to $200K, to match the standard set by the Office of Surface Mining (OSM). OSM funding is going primarily to the Coal Mining Sector of ADTI and a predictable base of funding is also needed for the Metal Mining Sector activities, in order to identify the best science for controlling acid and metal drainage from metal mines and related materials.

The ADTI is a nationwide technology development program with a guiding principle of building a consensus among Federal and State regulatory agencies, universities and consulting firms to predict and find remedies for acid drainage from active and inactive metal and coal mines. It is not a regulatory or policy development program. The Acid Drainage Technology Initiative Metal Mining Sector (ADTI–MMS) is an organization of volunteers committed to the development of the best science and technology-based solutions to mine water quality issues at metal mines. The Review Committee is responsible for developing and implementing the consensus review process for documents, editorial services, international networking and membership coordination. The consensus review process is developed by this Committee is available on the world wide web at: http://www.bucknam.com/rchb/consensu.txt and several draft documents are also being reviewed on the ADTI–MMS web site at: http://www.mackay.unr.edu/adti.

As you may be aware, it has been estimated that correcting the mine drainage and abandoned mined land problems will cost up to $70 billion. As this figure suggests, it will be necessary to lead off on this effort with an adequate foundation of current technology-based solutions. The ADTI–MMS organization is in the process of preparing and maintaining handbooks to provide that foundation and is prepared to launch the necessary research programs to develop the best science and technologies.

ADTI–MMS is backed through participation from members of numerous mining companies, environmental consulting firms, Federal and state research, land management and regulatory agencies, academic researchers committed to the ADTI mission, and the Western Governors Association. The Western University Consortium, consisting of University of Nevada—Reno, New Mexico Institute of Mining and Technology, University of Idaho, University of Utah and University of Alaska, Fairbanks and other members of the ADTI–MMS University Network (Colorado School of Mines, Montana Tech at the University of Montana, South Dakota School of Mines and Technology, University of Colorado, Berkeley, Northern Arizona University, Montana State University-Bozeman, and the University of New Mexico) provide part of our research foundation under direction of the Mining Life Cycle Center at the University of Nevada, Reno. In addition, the US Army Corps of Engineers Restoration of Abandoned Mined Sites (RAMS) program and the headquarter-based Research Programs are actively pursuing research coupled with on ground cleanups. Coordination with sister organizations in other countries, including Mine Environment Neutral Drainage (MEND)-Canada, Mitigation of Environmental Impact From Mining Waste (MiMi)-Sweden, (other), signifies our position in the international realm.

The ADTI–MS Review Committee needs funding for technical-professional review and illustrations for ADTI–MMS Workbooks on prediction, sampling and monitoring, modeling, mitigation and pit lakes. We feel that minimal funding (10 percent of ADTI–MMS annual budget) can provide needed training documentation for what proves to be an expensive multi-decade effort.

The National Mining Association (NMA), the Interstate Mining Compact Commission (IMCC) and several Federal agencies [OSM, BLM, Department of Energy (DOE), and Geological Survey (USGS)] have actively participated in the Acid Drainage Technology Initiative (ADTI) since 1995. This collaborative effort receives funding and other support from industry and several Federal agencies for specific projects. For example, the OSM has provided the ADTI $200,000 for the last three fiscal years which has been a consistent source of funding for activities related to acid mine drainage from coal mining and has been instrumental in accomplishing the ADTI's short-term goals. In addition, the EPA has provided $10,000 for travel and administration, and is currently providing funding for prediction workbook preparation. If each of the Federal agencies, OSM, Environmental Protection Agency (EPA), DOE, Army Corps of Engineers (USACE), BLM, USGS, and other agencies as appropriate [i.e. Bureau of Reclamation (BOR), National Park Service (NPS) and Forest Service (USFS)], were provided funds to commit $200,000 toward ADTI, more than $1 million would be available to support the work of this vital initiative.

In fiscal year 1999, House Report No. 105–581 acknowledged that acid mine drainage is a serious environmental problem and that the U.S. Army Corps of Engineers possessed the experience and capability to assist in the ADTI's efforts. Further, the subcommittee directed the Corps to participate in this initiative with available funds. Since that time, the Corps participated in several workshops with members of the ADTI to exchange information on mining and related environmental issues and to explore the nature and extent of the Corps' involvement. In order to participate along with the Corps, we respectfully request that the USACE be provided funds to commit $200,000 annually (with other Federal agencies involved, such as OSM, EPA, DOE, BLM, USGS, BOR, NPS and USFS) to further the Corp's goals of ecosystem restoration.

Thank you for your time and interest in this vital area. Your continued funding of this Committee's activities will significantly improve our ability to develop the best science for addressing drainage issues with an organized and predictable schedule.

PREPARED STATEMENT OF THE WEST TENNESSEE TRIBUTARIES ASSOCIATION

My name is M.V. Williams and my home is in Friendship, Tennessee between the Middle and South Forks of the Forked Deer River. I am the President of the West Tennessee Tributaries Association. It is also my pleasure to serve as Chairman of the Executive Committee of the Mississippi Valley Flood Control Association with headquarters in Memphis, Tennessee. This statement on behalf of the Association presents their views on fiscal year 2002 Budget for the Mississippi River and Tributaries Project.

To better inform the Sub-committee, I will briefly discuss the Mississippi Valley Flood Control Association which is an Agency composed almost entirely of public bodies having local responsibility for flood control, drainage, bank stabilization and navigation improvements in parts of Iowa, Illinois, Kentucky, Mississippi, Tennessee, Arkansas, Missouri and Louisiana. Our members are public officials who for the most part are elected by the people. The Association represents practically all of the levee and drainage districts, municipalities, port and harbor commissions and other state agencies in the Mississippi Valley, extending from Burlington, Iowa to the Gulf of Mexico. These organizations and agencies are political subdivisions of the various states in which they are organized and function. We provide an agency through which the people of the Mississippi Valley may speak and act jointly on all flood control, navigation, bank stabilization and major drainage problems. We have appeared before the Sub-Committee and served the people in the Mississippi Valley for well over sixty years.

Our Association is comprised of a very large group of individuals who are businessmen, property owners, conservationists, farmers, attorneys, doctors, wildlife enthusiasts, engineers, accountants, environmentalists, civil servants and elected officials from all political parties.

The value of flood control and economic reality of the need for navigation is well known by the Congress. Therefore I shall not go into details but for the sake of confirming what is already known. Let me tell you that for every Federal dollar invested in the Mississippi River and Tributaries Project twenty-four dollars have been returned in damages prevented. In addition river navigation has produced annual benefits of almost nine hundred million dollars. What a wonderful investment of taxpayer's dollars.

Today we find ourself again faced with an inadequate budget from the Executive Department but fortunately for us and the other citizens of this great Nation, the Congress in its wisdom has always recognized the value of such an investment and has consequently, with only rare exceptions, appropriated more dollars for the Mississippi River and Tributaries Project that has been requested by the Executive Department We hope this happens again this year.

We also find the U.S. Army Corps of Engineers under fire from within the Executive Branch, some members of Congress and of course the so-called environmentalists. This is the same Corps of Engineers that has in peace time for over 225 years built the infrastructure that is the envy of the rest of the civilized world and that has also defended our Nation in times of conflict, from the war for independence to the Gulf War, from Bunker Hill to Baghdad.

The Corps has faced similar allegations in the past but this time government agencies such as the Council on Environmental Quality, the Environmental Protection Agency, the U.S. Fish and Wildlife Service and others are attempting to change the Nation's public policy relating to water resources development and management

from one of economic development balanced with environmental mitigation and restoration to one focused principally on environmental restoration.

Even though the vast majority of the water resources infrastructure has passed its design age and badly needs to be replaced, these government agencies have, with help from others, made things so difficult and expensive that it becomes very arduous to find the economic justification for replacing the vitally needed structures. The Budget for fiscal year 2002 does not come close to meeting the needs for the maintenance of the work in place, work that was put in place by the direction of Congress which also decreed that the work was to be maintained by the Corps of Engineers.

This statement is in support of the Mississippi River and Tributaries Appropriations and our request is being made only after careful and thoughtful considerations of the barest amount necessary to prevent the cancellation of on going contracts and to do the minimum amount of required maintenance work. The Mississippi River and Tributaries Project is unique in the fact that the appropriations allocated are used not only for construction but also for maintenance and not only for flood control but also for navigation and includes all environmental considerations including mitigation and restoration as well as irrigation and water supply.

It is our conviction that to meet the barest minimums as outlined above, the appropriations for the Mississippi River and Tributaries Project for fiscal year 2002 must be $395,000,000. In order to merely preserve the integrity of our flood control and navigation systems that represents a large investment of National assets and to preserve and enhance the natural environment of the Mississippi River Valley and to continue the authorized work that is under way, the appropriation request is justified and should be considered as a wise investment in the future well-being of this great Nation.

With the help of the Congress over the years, we have made progress in the Mississippi River Valley and for that we are extremely grateful but there is much to be done before the job is completed and the people in the valley may live without fear and the entire Nation may reap the benefits of what has been done.

We have attached a sheet to this statement that reflects the Mississippi Valley Flood Control Association's request for appropriations for the Mississippi River and Tributaries Project for fiscal year 2002.

Mississippi Valley Flood Control Association,Fiscal Year 2002 Civil Works Requested Budget, Mississippi River and Tributaries Appropriations

Project and State	*Requested Budget*
Surveys, Continuation of Planning and Engineering & Advance Engineering & Design:	
Memphis Metro Area, TN & MS	$535,000
Memphis Harbor, TN	700,000
Wolf River, Memphis, TN	205,000
Bayou Meto Basin, AR	2,500,000
Southeast Arkansas	1,452,000
Boydsville, AR	100,000
Olive Branch, MS	500,000
Coldwater Basin Below Arkabutla Lake, MS	350,000
Alexandria, LA to the Gulf of Mexico	700,000
Morganza, LA to the Gulf of Mexico	6,500,000
Donaldsonville, LA To Gulf of Mexico	1,000,000
Spring Bayou, LA	500,000
Collection & Study of Basic Data	615,000
Subtotal—Surveys, Continuation of Planning & Engineering & Advance Engineering & Design	15,657,000
Construction:	
St. John's Bayou-New Madrid Floodway, MO	8,000,000
Eight Mile Creek, AR	915,000
Helena & Vicinity, AR	1,675,000
Grand Prairie Region, AR	35,414,000
West Tennessee Tributaries, TN	100,000
Nonconnah Creek, TN	1,500,000
Reelfoot Lake, TN	2,620,000
St. Francis Basin, MO & AR	4,502,000
Yazoo Basin, MS	33,287,000
Atchafalaya Basin, LA	30,000,000

Mississippi Valley Flood Control Association,Fiscal Year 2002 Civil Works Requested Budget, Mississippi River and Tributaries Appropriations—Continued

Project and State	*Requested Budget*
Atchafalaya Basin Floodway System	7,858,000
MS Delta Region, LA	4,600,000
MS & LA Estaurine, Area, MS & LA	100,000
Louisiana State, Penitentiary, LA	3,022,000
Tensas Basin, Red River Backwater, LA	1,112,000
Channel Improvements, IL, KY, MO, AR, TN, MS & LA	40,100,000
Mississippi River Levees, IL, KY, MO, AR, TN, MS & LA	51,968,000
Subtotal—Construction	226,773,000
Subtotal—Maintenance	152,570,000
Total—Mississippi River & Tributaries	395,000,000

PREPARED STATEMENTS OF THE PONTCHARTRAIN LEVEE DISTRICT

LAKE PONTCHARTRAIN AND VICINITY HURRICANE PROTECTION, LOUISIANA; ST. CHARLES AND WEST SHORE—LAKE PONTCHARTRAIN, ST. JOHN THE BAPTIST

SUMMARY FISCAL YEAR 2002 RECOMMENDED APPROPRIATIONS

Project	Budget	Recommended
St. Charles Parish Hurricane Protection	$3,000,000	$5,400,000
West Shore, St. John the Baptist Parish Hurricane Protection	[1] 142,000,000	.....
Lake Pontchartrain & Vicinity Hurricane Protection	19,700,000	22,100,000

[1]Estimated cost.

PROJECT OVERVIEW

Around Lake Pontchartrain, in the vicinity of New Orleans, there are several project segments under this major title. All segments are nearing completion except St. Charles Parish Hurricane Protection and West Shore, St. John the Baptist Parish Hurricane Protection. Both projects are located totally in the Pontchartrain Levee District (PLD) and the PLD is serving as local sponsor for both.

The importance and critical necessity for these two parts of the overall project is defined by the fact the shoreline of Lake Pontchartrain is actually a part of and continuation of the Gulf of Mexico shoreline. Sound frightening? Think of the communities, people, businesses and improvements remaining unprotected. That expresses the urgent, indispensable need for protection from hurricane induced and other high tides. Both of these items—St. Charles Parish and West Shore—protect major designated evacuation routes for the New Orleans Metropolitan area (I–10 & US 190). The problem here is that as soon as the hurricane tide has hit New Orleans it has also attacked all the shoreline around Lake Pontchartrain. It's a package deal.

The St. Charles Parish Project has 10 miles of levee, 5 major floodgate structures and a construction cost of $100 million. If Congress provides maximum funding capability for 2002 and 2003, then the first lift levee and structures can be completed in 1½ years from now. A closed system in time for most of the 2003 hurricane season! Very exciting! A time to rejoice! Let's do it!

The West Shore Project includes 18 miles of levee and 3 pumping stations. The estimated construction cost is in the vicinity of $142 million, as determined by the Feasibility Study now complete, and is just before submitting to higher authority from the New Orleans District, Corps of Engineers. No construction is scheduled for fiscal year 2002, but will have a broad start in 2003. Let's get ready to fund this project to the hilt. We must remember that portions of Interstates 55 and 10 have already been flooded by hurricanes and shut down. And it will repeat without protection.

The total appropriation required for all parts of Lake Pontchartrain & Vicinity Hurricane Protection is $19,700,000, with a budget inclusion of only $10,000,000. That part in St. Charles Parish must receive $5,400,000 in 2002 and only $3,000,000 has been requested by the Corps of Engineers.

We believe the West Shore item does not require funding in 2002, but the funding must being in fiscal year 2003.

COMMENTS

The Pontchartrain Levee District has full realization of the necessity of keeping these Subcommittees advised of current and future needs for Federal monetary support on vital items of the MR&T Flood Control Project. Beginning in 1995 the Subcommittees refused to give audience to our pleadings. This year no oral testimony will be heard. Again, this is a great travesty of justice. Such actions seriously erode the partnership that has been built between Congress, the Corps of Engineers and local sponsors.

We trust that this pattern will revert back to the practice of hearing our delegation. Six representatives from the Pontchartrain Levee District are present today desiring to present views to the Subcommittees—they are:

Commissioners: Joseph Gautreau, President, Herbert T. Thurber, Vice President, Jesse J. Bartley, LeVerne Brown, Steven Wilson.

Staff: Mike Babin, Program Administrator.

CONCLUSION

The Board of Commissioners, Pontchartrain Levee District, compliments the Subcommittees on Energy and Water Development for its keen understanding of real needs for the MR&T Flood Control Project along with Hurricane Protection and efficient, alert actions taken to appropriate funds for the many complex requirements. We endorse recommendations presented by the Association of Levee Boards of Louisiana, Department of Transportation and Development, Mississippi Valley Flood Control Association and Red River Valley Association.

MISSISSIPPI RIVER AND TRIBUTARIES FLOOD CONTROL PROJECT

SUMMARY FISCAL YEAR 2002 RECOMMENDED APPROPRIATIONS

Project	Budget	Recommended
Mississippi River & Tributaries Flood Control Project	$370,000,000	$460,000,000

The Pontchartrain Levee District (PLD) includes the east bank main line levee extending from Baton Rouge to Kenner, a length of 115 miles. Various segments of this levee require enlargement and construction of riverside slope pavement. One such item is currently under construction from Carville to Marchand. Additional funds are needed over the budgeted amount to allow substantial progress. In the northeast part of Louisiana the levee is several feet below grade where if overtopped will flood about one-third of the state. Very severe and critical conditions! It is recommended that a minimum of $51,067,000 be appropriated for Mississippi River Levees, where the budget contains only $40,621,000.

The second item of indispensable importance to PLD and the State of Louisiana is Channel Improvements. Main line levees must be protected from caving banks throughout this lower river reach where extremely narrow battures are the last line of defense against levee crevasses and failures. If caving banks are not controlled the only answer is "setback". Simply stated there is no room remaining for levee setbacks in the Pontchartrain Levee District. Revetment construction must be annually funded to prevent levee failures, land losses and relocations. This item also benefits the 55-foot depth navigation channel. The Pontchartrain Levee District recommends at least $47,900,000 be appropriated for fiscal year 2002. Budget amount is $40,100,000.

COMMENTS

The Pontchartrain Levee District has full realization of the necessity of keeping these Subcommittees advised of current and future needs for Federaly monetary support on vital items of the MR&T Flood Control Project. Beginning in 1995 the Subcommittees refused to give audience to the Mississippi Valley Flood Control Association. This year no oral testimony will be heard. Again, this is a great travesty of justice. Such actions seriously erode the partnership that has been built between Congress, the Corps of Engineers and local sponsors.

We trust that this pattern will revert back to the sixty-three year practice of hearing our delegation. Six representatives from the Pontchartrain Levee District are present today desiring to present views to the Subcommittees—they are:

Commissioners: Joseph Gautreau, President, Herbert T. Thurber, Vice President, Jesse J. Bartley, LeVerne Brown, Steven Wilson.

Staff: Mike Babin, Program Administrator.

CONCLUSION

The Board of Commissioners, Pontchartrain Levee District, compliments the Subcommittees on Energy and Water Development for its keen understanding of real needs for the MR&T Flood Control Project along with Hurricane Protection and efficient, alert actions taken to appropriate funds for the many complex requirements. We endorse recommendations presented by the Association of Levee Boards of Louisiana, Department of Transportation and Development, Mississippi Valley Flood Control Association and Red River Valley Association.

PREPARED STATEMENT OF THE MOSS LANDING HARBOR DISTRICT

Mr. Chairman and members of the subcommittee: On behalf of the chairman and members of the Board of Harbor Commissioners, thank you for the opportunity for me, James Stilwell, as general manager of the Moss Landing Harbor District in California to submit prepared remarks to you for the record in support of the fiscal year 2002 energy and water regular appropriations measure.

The commission recognizes and expresses its gratitude to our senior Senator, the Honorable Dianne Feinstein, a valued member of the Appropriations Committee for her continued assistance and support on our behalf.

The commission also expresses its sincere gratitude to our other distinguished Senator from the State of California, the Honorable Barbara Boxer, for her continued assistance and support on our behalf.

We express our profound appreciation to the subcommittee and full committee for its inclusion of $700,000 in operations and maintenance funds in the fiscal year 2001 budget for the conduct of a first ever dredged material management plan for the harbor district in order to plan for orderly maintenance dredging of the Federal channel and local berths over the next twenty or more years.

The coming year marks the first time in a decade that we have returned to a normal three year maintenance cycle of the Federal channel and we support inclusion of $2.0 million in fiscal year 2002 budget for that purpose. Additionally, up to $500,000 may be required to complete the dredged material management plan that was funded for fiscal year 2001. The total request is therefore for $2.5 million in appropriations from the operations and maintenance general account.

As part of that effort we have cooperatively undertaken a ground breaking ecological risk assessment under Corps of Engineers and EPA guidance including representatives of the Federal, State and local agencies with an interest in dredging activities. We hope this effort will:

—Produce both a useful and practical multidisciplinary decision document for those agencies exercising regulatory or oversight jurisdiction over dredging; and
—Serve as a model for collaborative efforts in dredged material disposal consensus decision making in unique situations such as for other corps districts and local sponsors seeking to balance required maintenance dredging to support navigation with the corresponding need to protect environmentally sensitive areas, in this instance the unique Monterey Submarine Canyon located at the heart of the Monterey Bay Marine Sanctuary.

We plan to document this process and our experience for incorporation in corps planning guidance for national use and congressional oversight as a valuable tool for environmental regulatory process streamlining.

The working group in support of this effort is comprised of every State, Federal and local agency with responsibility for the conduct and statutory oversight of dredging activities at the site located within the boundaries of the Monterey Bay National Marine Sanctuary (MBNMS), including the sanctuary, U.S. Army Corps of Engineers, San Francisco District (USACESFD), USEPA region IX, U.S. Fish and Wildlife Service (USFWS), California Coastal Commission, California Department of Fish and Game, the Central Coast Regional Water Quality Control Board, along with representatives of related local agencies, the commercial fishing industry, public interest groups and the marine research community based in the harbor district.

For those of you who are more familiar with the world renowned Monterey peninsula and bay and our acclaimed aquarium, our harbor is home to the largest commercial fishing fleet on the central coast of California and the largest concentration of Federal, State and private marine research and millions of dollars in capital investment in vessels and facilities on the west coast. Without ongoing maintenance dredging both nationally significant research and commercial fishing activities would be threatened.

As part of voluntary local cost sharing contribution to our dredged material management plan, as the local sponsor we have expended over $120,000 to date for sedimentary transport studies of both mud and sand and associated contaminants from

various sources in the SF–12 area including the unique Monterey Bay Marine Canyon, over $16,000 for the collection of sediment samples (some of which need critical testing and evaluation before their expiration), over $12,000 for an extensive literature search, and over $25,000 in coordinating with, and sponsoring meetings of, the working group. USEPA Region IX has also contributed financially to this important endeavor by providing funds for the peer review process.

The Ecological Risk Assessment ("ERA") underway consists of three main phases: (1) problem formulation; (2) analysis; and (3) risk characterization.

The first phase consists of a screening era to identify those chemicals, ecological receptors, and exposure pathways requiring further evaluation in subsequent phases and to identify additional data needs. This phase will address elements of problem formulation, and utilizes mostly existing data.

The problem formulation phase includes the following components:

—Data evaluation and chemical of potential concern selection—an evaluation of dredged material characteristics to select chemicals of potential concern for further evaluation;

—Ecosystem characterization—identification of the habitats and aquatic, wildlife, and human receptors of potential concern;

—Conceptual ecological model development—an evaluation of complete and potentially complete exposure pathways (disposal characteristics), selection of indicator species (sensitive species representative of different levels of the food chain), and identification of assessment and measurement endpoints; and

—Data gap analysis—identification of data needs and studies required to complete the assessment.

Because of the nature of the Moss Landing dredged material disposal (hydraulic dredging to a highly dispersive site) and the similarities of the disposal process to the ongoing sediment deposition to Monterey Bay from the local watershed, the initial evaluation will focus on these ongoing processes. The ongoing sediment deposition and its effects on the Monterey Bay ecosystem can provide a real-time indication of the stressor-response relationship. Existing data will be reviewed and additional data collected as deemed necessary in the data gap analysis described above.

The second phase analysis will includes the following elements:

—Watershed characterization—an evaluation of the sediment and chemical loading to Monterey Bay from the surrounding watershed

—Hydrodynamic evaluation—an evaluation of the dispersional/depositional patterns/zones

—Sediment characterization—an evaluation of sediment chemical concentrations in depositional zone(s)

—Biota characterization—an evaluation of resulting biota concentrations (benthos and fish); some benthic community analysis may be conducted as well

—Toxicity identification evaluation (tie)—an evaluation of toxic effects and identification of toxicants

—Exposure and effects assessments—an evaluation of food chain effects and an evaluation of human health effects

—Risk characterization—integration of the above elements to estimate risks.

—Uncertainty analysis.

The first phase of this evaluation will include a screening level assessment using conservative assumptions. as necessary, additional data will be collected to refine these assumptions and provide more realistic estimates of exposure and effects.

The third phase of risk evaluation will determine if no significant risks are predicted in the above evaluation. subsequent phases of the era will estimate the level of additional deposition (i.e., dredged material disposal) that could occur before resulting in unacceptable risks. If significant risks are predicted in the ambient level assessment, the subsequent phases will include predicting the incremental risk from disposal of dredged material.

Project deliverables will include:

—A work plan, sampling and analysis plan, and quality assurance program plan;

—Draft, draft final, and final reports; and

—A monitoring plan.

The draft report is anticipated to be released during Federal fiscal year 2002.

This effort is intended to save current and future expenditures by providing a proven analytical and scientific framework with which to balance the costs and risks of upland and unconfined aquatic disposal of dredged material, a problem affecting ports and harbors across the nation and threatening to have an adverse impact on future corps maintenance budgets.

As part of the effort we are compelled to benchmark suitable upland disposal sites for both ecological risk assessment and maintenance dredging purposes. We are bounded by the Elkhorn Slough National Estuarine Sanctuary and the Monterey

Bay Marine Sanctuary, severely limiting available disposal options. The harbor district lies within the watershed of two rivers draining some of the richest agricultural land in the nation but which also serves as the upstream source of agricultural pesticides posing a permanent dilemma as to alternative disposal options. Compounding this is the high cost of acquisition of available upland disposal sites, approximately $35 million for the one remaining suitable long term disposal site.

This brings us to our long term need for a fundamental change in Federal law that brings modern navigation project planning and cost-sharing in line with current practice that has evolved since the enactment of the Water Resources Development Act of 1986, as amended. Under current law the definition of the general navigation features of the project includes inter alia the actual project dredging cost and any improvements to locally provided disposal sites for construction purposes. For maintenance purposes the cost of maintaining a dredged disposal site is apportioned between the Federal government and the local sponsor if the site is used for the deposit of both project and berth material. Oftentimes the local sponsor outlay for a suitable disposal site may represent the single biggest cost element for an overall navigation project. This is particularly onerous in the case of a small or medium size port.

A private sector sponsor may develop a single or usually multi-user disposal site and charge both the government and the local sponsor for its use over time. In practice, environmental permit delays have all but consigned this option to the rare instance. Legislative relief in the next water resources bill is long overdue.

We bring these matters to your attention early in the 107th Congress so that they may be considered in the public debate over future water resources policy and fiscal planning, just as we plan to share our experience in dredged material management planning to the same end.

I am prepared to supplement my prepared remarks for the record in response to any questions that the chair, subcommittee members, or staff may wish to have me answer.

Thank you Mr. Chairman and members of the subcommittee. This concludes my prepared remarks.

PREPARED STATEMENT OF THE VENTURA PORT DISTRICT

The Ventura Port District respectfully requests that the Congress:

Include $3,000,000 in the fiscal year 2002 Energy and Water Development Appropriations Bill for the U.S. Army Corps of Engineers maintenance dredging of the Ventura Harbor Federal channel and sand traps.

Include $1,500,000 to the fiscal year 2002 Energy and Water Development Appropriations Bill for the U.S. Army Corps of Engineers to repair the serious structural damage to the south Beach Groin at Ventura Harbor.

Include $400,000 in the fiscal year 2002 Energy and Water Development Appropriations Bill to continue a cost shared Feasibility Study to determine the advisability of modifying the existing Federal navigation project at Ventura Harbor to include a sand bypass system.

BACKGROUND

Ventura Harbor, homeport to 1500 vessels, is located along the Southern California coastline in the City of San Buenaventura, approximately 60 miles northwest of the City of Los Angeles. The harbor opened in 1963. Annual dredging of the harbor entrance area is usually necessary in order to assure a navigationally adequate channel. In 1968, the 90th Congress made the harbor a Federal project and committed the U.S. Army Corps of Engineers to provide for the maintenance of the entrance structures and the dredging of the entrance channel and sand traps.

The harbor presently generates more than $40 million in gross receipts annually. That, of course, translates into thousands of both direct and indirect jobs. A significant portion of those jobs are associated with the commercial fishing industry (over 25 million pounds of fish products were landed in 1999), and with vessels serving the offshore oil industry. Additionally, the headquarters for the Channel Islands National Park is located within the harbor, and the commercial vessels transporting the nearly 100,000 visitors per year to and from the Park islands offshore, operate out of the harbor. All of the operations of the harbor, particularly those related to commercial fishing, the support boats for the oil industry, and the visitor transport vessels for the Channel Islands National Park are highly dependent upon a navigationally adequate entrance to the harbor.

OPERATIONS & MAINTENANCE NEEDS

Maintenance Dredging

It is estimated that $3,000,000 will be required to perform routine maintenance dredging of the harbor's entrance channel and sand traps during fiscal year 2002. This dredging work is absolutely essential to the continued operation of the harbor.

Breakwater Repairs

It is estimated that $1,500,000 will be required during fiscal year 2002 for the Corps of Engineers to repair extensive storm damage to the South Beach Groin. This structure is a critical component of the harbor's entrance system and its repair must be accomplished expeditiously in order to assure that the integrity of the balance of the structure is not compromised. Delaying the necessary repairs will not only rapidly escalate the repair cost for the groin itself but will also result in increased maintenance dredging costs in subsequent years.

STUDY NEEDS

It is estimated that $400,000 will be required during fiscal year 2002 to continue a cost shared Feasibility Study to determine the advisability of modifying the existing Federal navigation project at Ventura Harbor to include a sand bypass system. Given the continuing need for maintenance dredging, it is appropriate to determine if a sand bypass system or other measures can accomplish the maintenance of the harbor in a manner that is more efficient and cost effective than the current contract dredging approach.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

INTRODUCTION

The Red River Valley Association is a voluntary group of citizens bonded together to advance the economic development and future well-being of the citizens of the four state Red River Basin area in Arkansas, Louisiana, Oklahoma and Texas.

For the past 75 years, the Association has done notable work in the support and advancement of programs to develop the land and water resources of the Valley to the beneficial use of all the people. To this end, the Red River Valley Association offers its full support and assistance to the various Port Authorities, Chambers of Commerce, Economic Development Districts, Municipalities and other local governmental entities in developing the area along the Red River.

The Resolutions contained herein were adopted by the Association during its 76th Annual Meeting in Bossier City, Louisiana on February 22, 2001, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association, specifically:

—Economic and Community Development
—Environmental Restoration
—Flood Control
—Bank Stabilization
—A Clean Water Supply for Residential, Commercial, Industrial and Agriculture Uses
—Hydroelectric Power Generation
—Recreation
—Navigation

The Red River Valley Association is aware of the constraints on the federal budget, and has kept those restraints in mind as these Resolutions were adopted. Therefore, and because of the far-reaching regional and national benefits addressed by the various projects covered in the Resolutions, we urge the members of Congress to review the materials contained herein and give serious consideration to funding the projects at the levels requested.

Mr. Chairman and members of the Committee. I am Wayne Dowd, and pleased to represent the Red River Valley Association as its President. Our organization was founded in 1925 with the express purpose of uniting the Citizens of Arkansas, Louisiana, Oklahoma and Texas to develop the land and water resources of the Red River Basin.

Even though the details of the President's budget have not been published we know that the fiscal year 2002 Civil Works program is to be 14 percent less than what Congress appropriated in fiscal year 2001. This does not come close to the real needs of our nation. Six billion dollars is a more realistic funding level to meet the requirements for continuing the existing needs of the civil works programs. The tra-

ditional programs, inland waterways and flood protection remain at the low, unacceptable level as in past years. These projects are the backbone to our nation's infrastructure for waterways, flood control and water supply. We remind you that civil works projects are a true "jobs program" in that 100 percent of the construction is contracted to the private sector, as is much of the architect and engineer work. Not only do these funds provide jobs, but provide economic development opportunities for our communities to grow and prosper.

The civil works program is a catalyst that is responsible for the great economy we now experience. It would be irresponsible to allow our nations infrastructure to deteriorate, or worse, stop its growth in a time when America must be the leader in the world market. Our inland waterways are the key to our dominance of world trade. This is a pivotal budget year where critical decisions must be made which will determine our future economic strength.

The integrity of the Corps of Engineers and their study process has been questioned over this past year. We do not agree with the accusations made and our experience has always been one of the highest integrity, in Corps personnel and their processes. There appears to be a campaign against the Corps of Engineers in which the media is only relaying one side of the issue. There is no doubt that upon completion of the on going investigations the Corps will be fully vindicated.

The Corps of Engineers has served our nation for over 225 years and has been instrumental in developing the infrastructure that makes us the economic power we are in the world today. In 1996 our ports generated over $146 billion in federal taxes, Corps flood control projects have prevented damages of $21 billion annually and Corps projects and lakes provide more recreation opportunities for Americans, in visitor days, than the National Park Service. We do not support radical reform to the Corps process or additional independent review of Corps projects.

It is difficult to understand why the environmental extremists are so strong in their objection to the inland waterways. The facts are that one barge, 1,500 tons of commodities, is equivalent to 15 jumbo rail hoppers or 58 tractor-trailer trucks. According to EPA, towboats emit 35 to 60 percent fewer pollutants than locomotives or trucks. So why would anyone want to take cargo off our waterways and increase highway congestion and air pollution? We do not believe opponents to civil work programs have the scientific justification to back their claims.

I would now like to comment on our specific requests for the future economic well-being of the citizens residing in the four state Red River Basin region.

Navigation.—The J. Bennett Johnston Waterway is living up to the expectations of the benefits projected. The tonnage moved in 1999 was 3.6 million tons with the projected tonnage, to justify the project, at 3.7 million tons. We are extremely proud of our public ports, municipalities and state agencies that have created this success. New opportunities were announced in 2000 including a ConAgra facility at the Natchitoches Parish Port. Liquid petroleum shipments increased in 2000 as did commercial stone operations. You are reminded that the Waterway is not complete, nine percent remains, $180 million. We appreciate the Congress's appropriation level in fiscal year 2001; however, in order to keep the Waterway safe and reliable we must continue at a funding level closer to $25 million. The RRVA formed a Navigation Committee for industry, the Corps and Coast Guard to partner in making our Waterway a success. This effort has reaped many benefits. We can not sacrifice what has been accomplished by inadequate funding levels each year.

The feasibility study to extend navigation from Shreveport-Bossier City, Louisiana into the State of Arkansas is on going. It is imperative that you continue funding this important study and appropriate the $797,000 required for fiscal year 2002. This region of SW Arkansas and NE Texas continues to suffer major unemployment, and the navigation project, although not the total solution, will help revitalize the economy. The U.S. Fish and Wildlife Service "Planning Aid Report" indicated minimal impact and most probably an enhancement to environmental value.

This will be a multipurpose project addressing navigation, hydropower, bank stabilization and environmental restoration. As we experience serious shortages of electric power in parts of our nation this project will offer the potential for hydropower generation at each of the proposed lock and dams. This is the most efficient, safest and environmental friendly source of power generation.

I want to stress that the local the sponsor, the Arkansas Red River Commission, has available their 50 percent cost share to complete this feasibility study. Few local sponsors have 'funds in the bank' and are also willing to conduct additional studies to insure a complete and accurate analysis is made. Additionally, the interest rate currently being used in the study analysis is 6⅜ percent, higher than the current prime rate and significantly higher than the rate used for the Louisiana waterway, 3¼ percent. We believe the extension of navigation into Arkansas should be ana-

lyzed at the same rate as used in Louisiana and request language in the Appropriations bill to direct this change.

Bank Stabilization.—One of the most important, continuing programs, on the Red River is bank stabilization in Arkansas and North Louisiana. We must stop the loss of valuable farmland that erodes down the river and interferes with the navigation channel. In addition to the loss of farmland is the threat to public utilities such as roads, electric power lines and bridges; as well as increased dredging cost in the navigable waterway. These bank stabilization projects are compatible with subsequent navigation and we urge that they be continued in those locations designated by the Corps of Engineers to be the areas of the worst erosion. We appreciated Congressional funding in fiscal year 2001 and request you fund this project at a level of $10 million.

It is essential to protect the banks from caving and erosion along the Red River from Denison Dam, Texas to Index, Arkansas along the Texas/Oklahoma border. The Federal Government constantly encourages its farmers to protect their lands against all forms of erosion, so it only makes sense to be consistent. We ask that you support a Reconnaissance Study to investigate the restoration of wetlands, bottomland hardwoods and riparian habitat. Various types of bank stabilization would be incorporated to protect these environmental zones and corridors.

There is a new technique for bank stabilization which should be tested as a demonstration project, under the existing authority 'Red River Waterway'. This new technique, underwater bendway weirs, has proven to be less expensive than conventional methods and more efficient in controlling the energy of the river as well as providing environmental benefits. Over 1,000 acres of prime farmland in Oklahoma and Texas is lost each year to river erosion and we must investigate all avenues to correct this problem. You funded the initiation of this project in fiscal year 1999 and we request you continue that initiative, in this appropriation, at a level of $5.5 million.

Flood Control.—You will recall that in 1990 major areas of northeast Texas, Southwest Arkansas and the entire length of the Red River in Louisiana were ravaged by the worst flooding to hit the region since 1945 and 1957. More than 700,000 acres were flooded with total damages estimated at $20.4 million. However, it could have been much worse. The Corps of Engineers estimates that without the flood control measure authorized by Congress over the past several decades an additional 1.3 million acres would have been flooded with an estimated $330 million in additional flood damage to agriculture and urban developments.

We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas and Texas. Four of eleven levee sections have been completed and brought to federal standards. Appropriations of $4.5 million will construct two more levee sections; completing Miller County, AR and starting levees in Lafayette County, AR.

In addition, Bowie County levee, in Texas, is crucial to the integrity of the Arkansas levee system. Should the Bowie levee fail flood waters will inundate behind the just competed Miller County levees in Arkansas. It is important to continue funding this project for the 'locally preferred' option, according to cost sharing under the Flood Control Act of 1946, not withstanding economic justification.

The levees in Louisiana have been incorporated into the Federal system; however, do not meet current construction standards due to their age. These levees do not have a gravel surface, on top, threatening their integrity during times of flooding. It is essential for personnel to traverse the levees during a flood to inspect them for problems. Without the gravel surface the vehicles used cause rutting and themselves can create conditions for the levees to fail. Gravel surfaces will insure inspection personnel can check the levees during the saturated conditions of a flood. We propose a three phase, three-year project to correct this Valley wide problem in Louisiana. The first year requires a funding level of $2,200,000 with the total project costing $6,433,000.

Clean Water.—Nearly 3,500 tons of natural salts, primarily sodium chloride, enter the upper reaches of the Red River each day, rendering downstream waters unusable for most purposes. The Truscott Brine Lake project, which is located on the South Fork of the Wichita River in King and Knox Counties, Texas became operational in 1987. An independent panel of experts found that the project not only continues to perform beyond design expectations in providing cleaner water, but has an exceptionally favorable cost benefit ratio. In fiscal year 1995 $16 million dollars was appropriated by the Administration, to accelerate engineering design, real estate acquisition and initiate construction of the Crowell Brine Dam, Area VII and Area IX. Due to a conflict over environmental issues, raised by the U.S. Fish and Wildlife Service, completion of the SFEIS was delayed pending further study to determine the extent of possible impacts to fish and wildlife, their habitats and bio-

logical communities along the Red River and Lake Texoma. In an effort to resolve these issues and insure that no harmful impact to the environment or ecosystems would result, a comprehensive environmental and ecological monitoring program was implemented. It evaluates the actual impacts of reducing chloride concentrations within the Red River watershed. This base line data is crucial to understanding the ecosystem of the Red River basin west of Lake Texoma and funding for this must continue.

The Assistant Secretary of the Army (Civil Works), in October 1998 agreed to support a re-evaluation of the Wichita River Basin tributary of the project. Completion of this project will reclaim Lake Kemp as a usable water source for the City of Wichita Falls and the region. We request appropriations of $2,100,000 to continue this important project. The drought experienced in the Red River Valley, these past two years, has highlighted the critical need for this usable water source, to include irrigation in Arkansas and Louisiana.

Operation & Maintenance.—We appreciate the support of your subcommittee to support navigation to Shreveport/Bossier City which is now providing a catalyst to our industrial base, creating jobs and providing economic growth. We request that O&M funding levels remain at the expressed Corps capability to maintain a safe, reliable and efficient transportation system. As experienced three years ago failure to maintain a revetment for $500,000, when the problem was first identified, resulted in a catastrophic failure of the revetment and adjacent levee. This led to an emergency repair of $5 million which could have been prevented. In order to operate and maintain the existing infrastructure $14,750,000 is required just to address the most critical backlog maintenance concerns.

Full O&M funding levels are not only important for our Waterway project but for all our Corps projects and flood control lakes. The backlog of critical maintenance only becomes worse and more expensive with time. We urge you to appropriate funding to address this serious issue at the expressed full Corps capability. Presently there is a $400 million backlog of critical maintenance at Corps projects throughout the nation.

The Continuing Authorities Program (CAP) has never been fully funded to its authorized amount. This has been an outstanding program providing small, cost shared projects within our communities. We believe this program should be funded at its full authorized amount.

We are sincerely grateful to you for the past support you have given our various projects. We hope that we can count on you again to fund our needs and complete the projects started that will help us diversify our economy and create the jobs so badly needed by our citizens. We have included a summary of our requests for easy reference.

Thank you for the opportunity to present this testimony and project details of the Red River Valley Association on behalf of the industries, organizations, municipalities and citizens we represent throughout the four state Red River Valley region. We believe that any federal monies spent on civil work projects are truly investments in our future and will return several times the original investment in benefits that will accrue back to the federal government.

I am always available to provide you and your staff additional information or clarification on any issue presented.

III. GRANT DISCLOSURE

The Red River Valley Association has not received any federal grant, sub grant or contract during the current fiscal year or either of the two previous fiscal years.

SUMMARY OF FISCAL YEAR 2002 REQUESTS

NOTE.—Projects are NOT in any order of priority.

I. Studies:

Red River Navigation, SW Arkansas.—This is a feasibility study initiated on March 24, 1999 to investigate the potential to extend navigation from Shreveport/Bossier, LA to Index, AR. To date $1,932,000 has been 'reprogrammed' for this study from another Red River study. An additional $1,023,000 is required to complete the study by fiscal year 2003. The study is cost shared 50 percent with the Arkansas Red River Commission, the local sponsor, who has their share on hand.

Total fiscal year 2002 Request—$797,000

Red River Waterway, Index Arkansas to Denison Dam, TX.—Investigate the restoration of natural resources, such as wetlands, bottomland hardwoods and riparian habitat along approximately 245 river miles. Various types of bank stabilization would be considered to protect environmental zones and corridors.

Total fiscal year 2002 Request $100,000

Washita River Basin, OK.—Under Public Law 534 NRCS constructed approximately 1,100 small Flood control structures in the Washita River basin above Lake Texoma. These structures have significantly reduced the sediment flow into Lake Texoma; however, they are reaching their 50 year life expectancy. This study will assist NRCS in determing how to extend the life of the structures which have had a great positive impact to the water quality, flood storage capacity and ecosystem of Lake Texoma.

Total fiscal year 2002 Request—$100,000

Southwest Arkansas Study.—Conduct a reconnaissance report in the four county area of the Red River/Little River basins. Included would be the four Corps lakes; DeQueen, Dierks, Gillham and Millwood. The watershed study would evaluate; flooding, irrigation, fish and wildlife habitat, water quality, recreation and water releases for navigation. The State of Arkansas has expressed an interest in cost sharing the feasibility study.

Total fiscal year 2002 Request—$100,000

Bois D'Arc Creek, Bonham, TX.—This is a reconnaissance study to address the flooding on 16,100 acres on the lower two-thirds of the basin. The towns of Whitewright and Bonham are within the basin. A dam was determined feasible in the 1960's; however, there was no local sponsor. Currently there are local sponsors interested in this project. In fiscal year 2001 $200,000 was received to initiate this study. The total study cost will be $1,100,000.

Total fiscal year 2002 Request—$200,000

Southeast Oklahoma Water Resource Study.—Conduct a reconnaissance study to evaluate the water resources in the study area. The study area includes the Kiamichi River basin and other tributaries of the Red River. A comprehensive plan will be developed to determine how best to conserve and utilize this water. In fiscal year 2001 $525,000 was received for this study.

Total fiscal year 2002 Request—$200,000

CONSTRUCTION

Red River Waterway Project

J. Bennett Johnston Waterway.—Eight projects will be awarded in fiscal year 2001 and need to be completed as well as the initiation of six new projects. Upon implementation of the Project Cooperation Agreement funds will be used for recreation features, as well as continued efforts with mitigation.

Total fiscal year 2002 Request—$28,770,000

Index, AR to Denison Dam, TX; Bendway Weir Demo Project.—This stretch of the Red River experiences tremendous bank caving. A demonstration project using this bendway weir technique is needed to determine if this method will work in the Red River. The U.S. Highway 271 Bridge was selected due to the threat to this infrastructure and accessibility for evaluation. The project will include bendways 6 miles upstream and 5.5 miles downstream of the bridge. There is great environmental enhancement potential with this project.

Total fiscal year 2002 Request—$5,500,000

Red River Basin Chloride Control Project.—A reevaluation for the Wichita River Basin features has been ongoing using reprogrammed funds. The office of the ASA(CW) has supported this and reprogrammed funds in fiscal year 2001. In addition to the reevaluation and NEPA process, environmental monitoring activities will continue.

Total fiscal year 2002 Request—$2,100,000

Red River Below Denison Dam Levees & Bank Stabilization

Levee Rehabilitation, AR.—Funds are required to complete construction of Levee Item #5 initiated in fiscal year 2000; initiate construction of the next Levee Item and initiate design for the follow on Levee Item. Design and initiate construction of Dillard Revetment downstream extension. An Incorporation Report must be accomplished for Twelve Mile Bayou Levee, Caddo Parish, LA as directed by WRDA 99.

Total fiscal year 2002 Request—$4,500,000

Bowie County Levee, TX.—The local sponsor wants the 'locally preferred option' authorized for construction. In fiscal year 2001 $900,000 was appropriated to ini-

tiate this project. The local sponsor is willing to execute a PCA and initiate real estate activities in fiscal year 2002.

Total fiscal year 2002 Request—$100,000

Upgrade Levees, LA.—Approximately 220 miles of levees in Louisiana do not have gravel surfaces on top of the levee, so do not meet federal standard. These levees are in the federal system and must be upgraded. This surface is required for safe inspections of the levees during flood fights and to maintain the integrity of the levee. The total project can be completed in three phases over three years.

Total fiscal year 2002 Request—$2,200,000

Red River Emergency Bank Protection, Arkansas.—Funds are required to complete construction of Hunter's Island Revetment initiated in fiscal year 2000; award contracts for Pleasant Valley and Bois D'Arc Revetments and complete the design for Dickson Revetment.

Total fiscal year 2002 Request—$10,000,000

Little River County (Ogden Levee), AR.—A Reconnaissance report in 1991 determined that flood control levees were justified along Little River. The project sponsor, Arkansas Soil and Water Conservation Commission requests that the project proceed directly to PED, without a cost shared feasibility study. We request language and funding to accomplish this.

Total fiscal year 2002 Request—$200,000

McKinney Bayou.—The Reconnaissance Report showed a favorable project to clear and reshape this drainage canal. Presently, the local sponsor is unable to cost share continuation of this project due to the extremely high cost of mitigation.

Total fiscal year 2002 Request—0

Valley Watershed (Section 1135).—The main focus of this study is within the City of Jefferson, Texas. Informal coordination with Jefferson has showed their continued support and intent to participate. Their total share is estimated to be $601,600 with annual O&M costs of approximately $21,000. In fiscal year 2001 $120,000 was appropriated to initiate this project.

Total fiscal year 2002 Request—$110,000

Millwood Lake, Grassy Lake, AR (Section 1135).—An environmental restoration project of 15,000 acres of wetlands located downstream from Millwood Dam. The Dam interrupted the flow to these wetlands and this project would be a water delivery system to include restoring flow to a 400-acre pristine wetland area. It is private land; however, there is a national interest for migratory birds. A potential sponsor is the Arkansas Soil & Water Conservation Commission.

Total fiscal year 2002 Request—$300,000

East/West Burns Run Public Use Area, Park Modernization, Lake Texoma, OK.—Modernization of these facilities will bring them up to standards to serve the volume of users experienced each year. The Lake Texoma region economy depends mostly on recreation. This facility will ensure continued success, but also increase the economic potential for the area.

Total fiscal year 2002 Request—$4,600,000

III. OPERATION & MAINTENANCE

Red River Waterway.—The President's budget is usually only sufficient to operate and perform preventive maintenance. There are major, unfunded backlog maintenance items that must be done. These items include inspection and certification of lock & dam stop logs, repairs to tainter gate diagonal bracing and revetment repairs.

Total fiscal year 2002 Request—$14,750,000

Lake Texoma (Denison Dam), TX and OK Reallocation Study and NEPA Documentation.—The severe drought experienced these past 2 years has increased the need for additional water supply. Public Law 99–662, Section 838, granted authority to reallocate up to an additional 300,000 acre feet of hydropower storage to water supply, 150,000 acre-feet for Texas and 150,000 acre feet for Oklahoma. This reallocation is needed and we request the impact study be funded. The total study cost is $750,000.

Total fiscal year 2002 Request—$750,000

We support that O&M at all projects be funded at the full Corps capability

PREPARED STATEMENT OF THE RED RIVER WATERWAY COMMISSION

On behalf of the citizens of the Red River Waterway District of Louisiana, the Red River Waterway Commission urges the Congress of the United States to allocate the funds necessary for fiscal year 2002 for Red River Waterway Project. Adequate funding will allow continued construction progress toward actual project completion,stimulate continued growth in tonnage movement, encourage the continuation of private and public development as well as facilitate total reliability in project function for industrial and recreational development. While this project is still in its infancy stage, the infrastructure investment has been justified by commercial and recreational development along the Red River and intermodal transportation cost savings because of water induced rates resulting from the project.

Tonnage volumes continue to steadily increase and cargo classifications diversify providing numerous business opportunities for this region. Further development will continue to take place with the knowledge that users can rely on an efficient, functional and user friendly river system.

Construction on Red River is over 90 percent complete, however, it is vitally important that we understand the importance of steady progress toward project completion with full knowledge of the financial constraints this country, the President and the Congress are wrestling with during the budget process.

AREAS OF NEED FOR THE RED RIVER WATERWAY PROJECT

—*Navigation Structures (Revetments and Dikes).*—The completion of these structures is necessary to maintain the channel alignment so as to provide reliable navigation to the commercial users. In addition, the structures help insure that barges can be loaded to the maximum depths allowable for profitable operation and continued industrial growth.

Recreation Development.—Design and Construction in Pools 3, 4 and 5 has begun with important developments such as the Shreveport Riverview project, Teague Parkway Trails in Bossier City, Colfax Recreation Area and Natchitoches Recreation Area establishing an excellent recreation foundation with more projects in the preliminary design stages.

Operations & Maintenance Program.—Channel Maintenance (Dredging) is critical to the viability of the waterway system. The Corps of Engineers needs sufficient resources to adequately maintain the navigation channel to provide dependable and reliable depths so that barges moving on the system can be loaded to the maximum nine foot draft. Maintenance of existing navigation structures at strategic locations is vital for continued development. The backlog of maintenance items at the lock & dam structures could be devastating to the nation's investment in the navigation system.

Construction/Maintenance Program.—The Corps of Engineers needs resources available to react quickly to landowner bank caving complaints that are a result of the project and are fully justified.

Aids to Navigation.—As commercial use continues to increase, the Coast Guard presence and resources must reflect a similar growth to adequately maintain the buoy system on the Red River and stimulate confidence in the river system.

Mitigation and Bendway Dredging.—Continue with land acquisition and developmental cost analysis associated with the mitigation portion of the project to enhance the bottomland hardwood acreage within the Red River Valley area of Louisiana. Continue the bendway dredging operations to maintain the backwater connection to the channel of Red River for ingress and egress of nutrient rich river water and numerous species of freshwater fish.

PREPARED STATEMENT OF THE CADDO/BOSSIER PORT COMMISSION

On behalf of the citizens of Northwest Louisiana, the Caddo-Bossier Parishes Port Commission respectfully urges the Congress of the United States to allocate in the fiscal year 2002 Budget the necessary funding to keep America's water resources infrastructure functioning as a major contributor to the nation's wealth and prosperity, including monies to ensure safe and reliable Red River navigation.

Unfortunately, the proposed budget decreases funding for the Corps of Engineers' civil works program some 14 percent, a cutback more severe than for any other Federal agency. Compounded by the fact that the Corps of Engineers' budget over the last five years has not even kept pace with inflation, the nation's water resource needs are being postponed. Projects will cost more, realization of project benefits will be delayed, for a final result of costing the nation hundreds of million of dollars.

Our commerce, international trade, environmental and national defense needs must not be shortchanged. Our water highways are national assets. Their ports' ac-

tivities link every community in our nation to the world. The Port of Shreveport-Bossier, owned and operated by the Caddo-Bossier Parishes Port Commission, as part of this waterways network links the Ark-La-Tex by way of the Red River with the vast midcontinent and coastal and Great Lakes ports.

The Port of Shreveport-Bossier is one of the newest ports in this network, having been in regular operation only since 1997. We are proud of its evolution, the impact it is having on the communities it serves, and the speed with which the Commission's goals of providing water transportation and economic development are progressing. Last spring, in only three years, the One Millionth Ton of Cargo milestone was achieved, a timetable far ahead of many acknowledged successful inland ports. And just as importantly, the Port is prompting jobs and dollar investment. Omni Specialty Packaging and Omni Terminal Systems, the Port's newest tenants, began operation in 2000 and by year's end exceeded employment and production projections. These companies joined Oakley Louisiana, Red River Terminals, Arch Chemicals and U.S. Liquids at the 2,000 acre Port complex.

Adequate Federal investment in civil works programs is crucial to America's economic and environmental well being. Such investment for the Red River must ensure an efficient transportation system, thereby assuring local citizens and private business that their investments in the Port are not only worthwhile today but will be a sound and ongoing investment in the future economic growth of the Ark-La-Tex.

PREPARED STATEMENT OF THE PORT OF SAN DIEGO

The following testimony is provided by the San Diego Unified Port District, which represents the California cities of Chula Vista, Coronado, Imperial Beach, National City and San Diego, to obtain support from the Senate Energy and Water Development Subcommittee to include $4,000,000 of funds under Section 107 of the 1960 River and Harbor Act, as amended (continuing authority program) to complete plans and specifications and to construct the deepening project for San Diego Harbor.

The Port District has previously entered into a 50/50 Cost Sharing Agreement with the Corps for a Feasibility Study to deepen San Diego Harbor and is willing and able to enter into a similar Cost Sharing Agreement for completion of plans and specifications and construction of the project.

The San Diego Unified Port District operates and maintains two marine terminals and engages in other maritime related business and economic activities. These economic activities result in regionally significant fiscal impacts including: economic output, high value employment and associated payroll taxes, and federal revenue in the form of income taxes, as well as various duties and trust fund contributions.

An independent economic and fiscal impact study of the Port of San Diego was conducted in 1999 by SourcePoint. The study revealed the following regional economic impacts:

Maritime Commerce Regional Economic Impacts

	1998 Impact
Employment:	
Direct Jobs [1]	917
Total Jobs	1,818
Employee Payroll:	
Direct Payroll	$28,955,000
Total Payroll	53,016,000
Output (Business Sales):	
Direct Output	102,659,000
Total Output	182,019,000

[1] Includes 471 maritime jobs on the tidelands and 446 construction related jobs.

Source: SourcePoint, using IMPLAN, an input-output model for the San Diego region.

A timely and unique opportunity has presented itself to the Port District. The U.S. Navy has completed a major channel deepening project to accommodate its nuclear aircraft carriers. The Navy's dredging project deepens the existing channel to about −50 feet, all the way from the ocean to the carrier turning basin, approximately seven miles. It is only an additional two miles to the Port District's 10th Avenue Marine Terminal. The Port District perceives this as a "partnering" opportunity between the Navy, Corps of Engineers, Port District and private sector interests to lower maritime shipping costs at the Port of San Diego.

The Port District is committed to working with the Corps of Engineers and the maritime industry to maintain and enhance our ability to contribute to the region's

economic stability by providing the physical infrastructure needed to provide competitively priced maritime shipping opportunities. To that end, the Port District has commenced several strategic initiatives, including:

—$16,000,000 to repair berths at the 10th Avenue Marine Terminal (completed in 1997)

—$30,000,000 landside and railroad improvements at the National City Marine Terminal, in partnership with the BNSF Railroad (completed in 1997)

—$27,000,000 to extend and expand the wharf at the National City Marine Terminal (preliminary design completed in 1998), and

—the commitment to cost share with the Corps of Engineers the cost of deepening the federal navigation channel to the 10th Avenue and National City Marine Terminals.

The draft Feasibility Study, currently under review by the Corps of Engineers and Port District, indicates a positive federal interest in the deepening of San Diego Harbor. The Port is uniquely positioned to competitively serve new and existing maritime shipping needs between the Pacific Rim and the southwestern United States. However, the current channel depth prevents full realization of federal and regional benefits.

In conclusion, the San Diego Unified Port District requests your support to include $4,000,000 in the Corps of Engineers continuing authority programs for the deepening of San Diego Harbor. The Port District and its maritime partners have made, and will continue to make, significant financial investments in the landside infrastructure. We request only that the Corps of Engineers be provided the financial resources to modify the federal navigation channel so that potential shipping cost reductions can be realized. With seven miles of the federal channel already deepened by the Navy, it only makes economic sense to extend the deepening to the marine terminal so that nonmilitary benefits can also be realized.

PREPARED STATEMENT OF THE MISSOURI RIVER BANK STABILIZATION ASSOCIATION

The Missouri River Bank Stabilization Association and its members thank you for the opportunity to present this statement, including a budget request, relative to the budget for fiscal year 2002.

This statement concerns and is focused on the Missouri National Recreational River project which received Congressional authorization in 1978 per Section 707 of Public Law 95–625. The Association's budget request for fiscal year 2002 is $325,000.00, an amount to be used for these purposes:

—The operation, maintenance and repair of streambank protection structures constructed prior to 1978 under the authority of Section 32 of the Streambank Erosion Control and Demonstration Act;

—Repair or replace structures which fell victim to the record flows (about double normal) of 1997;

—Improve user access to the river in the lower reaches of the project, particularly on the South Dakota side of the river;

—The acquisition from landowners of shore line easements to protect existing (but disappearing) wildlife habitat and to increase or restore such habitat in areas where it has disappeared or needs augmentation;

—Providing streambank protection, where needed, as needed, for the river's "high banks", i.e. at the meander line;

—For the acquisition or protection of the river's scenic attributes as envisioned by this legislation;

—Such other needs as may be required to achieve the congressional purposes relative to this reach of the Missouri.

This project pertains to the some fifty-nine mile reach of the Missouri River extending downward from near the Gavins Point Dam, circa River Mile 811, near Yankton, South Dakota, to the Ponca State Park, circa River Mile 752, near Ponca, Nebraska. This reach of the Missouri is the only relatively natural reach of the river lying downstream of the "main stem" dams. Channelization was never extended upstream of Ponca. While some limited, isolated bank protection structures do exist along this reach, the river for the most part retains its natural characteristics. These include caving banks, shifting sandbars, some islands, a profusion of snags, frequent shifting of the channel, sudden changes in depth, timbered bluffs and limited access. Wildlife found here includes beavers, raccoons, coyotes, muskrats, deer and mink. A profusion of birds is found here; spring and fall bring a spectacular array of ducks, geese and other migratory birds. As we have noted before, the business of the Missouri River is to move the Rocky Mountains to the Gulf of Mexico. Erosion is a major tool the river employs in this process. Consequently, its shore-

lines are under endless, relentless assault. The mostly sandy soils which characterizes its bank in this reach are easily eroded, and erode they do.

Intensive and extensive erosion, of course, has always been one of the Missouri's defining characteristics; it is a natural process. Unfortunately, this natural process has been significantly altered by the construction of the river's "main stem" dams. The principal purpose of these dams was flood-control. In this reach that aim has been achieved; the natural flooding, often over-the-banks flooding, has been eliminated. Termination of such flooding, however, has also terminated the natural process of land restoration. Thus, erosion continues but no longer is it offset by accretion. Exacerbating this problem is the fact that erosion has actually been increased because the now relatively clear water discharged through the dams has a greater sediment-carrying capacity. Thus, the river has an even more rapacious appetite for its shorelines. Where once riparian landowners had a fifty-fifty chance of regaining land lost to the river, they, instead, now have a one hundred percent chance of losing it. Protection from such losses is needed now.

Congress authorized some $21,000,000.00 for this project; about $2,000,000.00 has been spent. The recently adopted management plan contains a variety of proposals aimed at facilitating public enjoyment of this treasured reach of the Missouri. Central among these proposals is preservation and protection of those attributes of this reach which prompted congressional designation as a recreational river. Indeed, the enabling legislation specifically provides for streambank protection. It is an inalterable fact that without such protection many of the very features of this river, which Congress sought to protect, will simply disappear. For example, the erosion of the timbered shoreline, circa River Mile 777.8R, is proceeding unchecked. Magnificent old cottonwoods litter the river there, and their denuded skeletons scattered downstream are grim evidence of the river's voracious appetite. Irreparable damage has occurred. . . and continues to occur. The current management plan is ominously vague with respect to protecting the core of characteristics the plan ostensibly was designed to protect.

A further assault on the aim of this project and the riparian landowners is the proposal by the U. S. Fish and Wildlife Service to change drastically the flow regimen currently in effect. The proposed "spring flood" will inevitably further exacerbate the erosion problem. Indeed, the Fish and Wildlife proposal is intended to increase erosion! Those responsible for this ludicrous proposal exhibit not the least concern for those to be affected by their proposal. In short, that proposal is clearly an intentional destruction of property . . . a crime in both South Dakota and Nebraska.

As the bicentennial of the Lewis and Clark Expedition nears, public interest in the expedition continues to build. The reach of river we are here concerned with is already attracting considerable attention by a variety of Lewis and Clark fans and others interested in, or curious about the expedition. To accommodate those interested, public access should be increased, signage added, and some additional viewing sites ("overlooks") provided. Obviously, such measures will be of little value unless the "wild Missouri" the visitors seek, is preserved and protected.

The Congress from the start has favored this project. The Association surely appreciates that interest and support, and we thank the Congress for such. Likewise, appreciative are the hunters, fishermen, boatsmen, and a wide range of others who love this remnant of the "wild Missouri" of old.

PREPARED STATEMENT OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Project	*Request*
Murrieta Creek Flood Control Project/Preconstruction Engineering & Design	$1,000,000
Murrieta Creek Flood Control Project/Construction General	1,500,000
Lake Elsinore-Gunnerson Pond/Section 1135, Environmental Restoration	1,745,000
San Jacinto River/Feasibility Study—Flood Control	300,000
Santa Ana River—Mainstem/Construction General	40,000,000
Prado Dam/Construction General	16,000,000
San Jacinto & Santa Margarita River Watersheds Special Area Management Plan (SAMP)/General Investigations	2,000,000

MURRIETA CREEK CHANNEL FLOOD CONTROL PROJECT

Murrieta Creek poses a severe flood threat to the cities of Murrieta and Temecula. Over $10 million in damages was experienced in the two cities as a result of

Murrieta Creek flooding in 1993. The 1997 Energy and Water Appropriations Act dedicated $100,000 to conducting a Reconnaissance Study of watershed management in the Santa Margarita Watershed "including flood control, environmental restoration, stormwater retention, water conservation and supply, and related purposes". The study effort was initiated in April 1997 and completed the following December. The Reconnaissance Study identified a Federal interest in flood control on the Murrieta sub-basin, and recommended moving forward with a detailed feasibility study for a flood control project on Murrieta Creek.

Efforts on the Feasibility Study began in April 1998, and were completed in September 2000. The Feasibility Study Report recommends the implementation of Alternative 6, the Locally Preferred Plan (LPP) for flood control, environmental restoration, and recreation. The LPP is endorsed by the Cities of Temecula and Murrieta, and by the community as a whole.

H.R. 5483, the Energy and Water Appropriations Act of 2000 includes specific language authorizing the Corps to construct "the locally preferred plan for flood control, environmental restoration and recreation described as Alternative 6, based on the Murrieta Creek Feasibility Report and Environmental Impact Statement dated September 2000." The project is now set to move into the design phase.

After finalizing the necessary cost sharing agreement in February 2001, the Corps is now initiating the detailed engineering design necessary to develop construction plans and specifications for a Murrieta Creek Flood Control Project utilizing a fiscal year 2001 appropriation of $750,000. The District, therefore, respectfully requests that the Committee support a fiscal year 2002 appropriation of $1,000,000 so that the Corps may continue with the Preconstruction Engineering and Design phase for the Murrieta Creek Flood Control Project.

The Murrieta Creek Flood Control Project was authorized by Congress on October 27, 2000. Current schedules show the detailed engineering design phase of the project being completed in 18–24 months. The Corps anticipates that in fiscal year 2002, a significant portion of its design effort will be completed for the downstream reach of the project through Old Town Temecula, and that an element or feature of the project will be ready for construction. The District, therefore, respectfully requests the Committee's support of a $1,500,000 appropriation in fiscal year 2002 so that the Corps may pursue construction start for the much awaited Murrieta Creek Flood Control, Environmental Restoration, and Recreation Project.

GUNNERSON POND ENVIRONMENTAL RESTORATION PROJECT

Gunnerson Pond is a Section 1135 environmental restoration project that will restore approximately 60 acres of degraded riparian and woodland area adjacent to the Lake Elsinore Outlet Channel, a Section 205 project in the city of Lake Elsinore, completed in 1994. The project would enable both floodwater from Lake Elsinore and discharge from a nearby wastewater treatment plant to flow into Gunnerson Pond, thereby creating a permanent wetland. Such a wetland would serve to enhance and develop waterfowl habitat, endangered species habitat, emergent wetlands vegetation, and riparian vegetation.

The Reconnaissance phase of the project was completed with the approval, in July of 1996, of the Project Restoration Plan at the Washington level of the Corps. In fiscal year 1998 the project received a Federal appropriation to fully fund the Feasibility Study, and to initiate engineering design for the project. The Feasibility phase (Project Modification Report) of the project was completed in April of 1998. In fiscal year 1999 the District sought a Federal appropriation for Gunnerson Pond from available Section 1135 funds to provide the funding necessary to complete final plans and specifications and to partially fund construction. In fiscal year 2001 the project received a Federal appropriation for $1,400,000, the balance estimated to fully fund the construction of the project. The Corps completed its design in June, advertised for construction bids in August, awarded a contract for construction in September, and initiated construction in October of 2000. The Corps anticipates that construction of Gunnerson Pond, the Corps Los Angeles District's first Section 1135 project, will be completed in April 2001.

The Gunnerson Pond project encountered higher than anticipated real estate and utility relocation costs, as well as costs resulting from project modifications made to accommodate various resource agencies. These cost increases drove the Corps share of the overall cost of the project up to the Section 1135 Program "cap" of $5 million. The District, therefore, respectfully requests the Committee's support of a fiscal year 2002 appropriation of $1,745,000 in order to fully fund the Federal government's share ($5 million) of the overall project.

SAN JACINTO RIVER

The 730 square mile San Jacinto River watershed drains into Lake Elsinore in western Riverside County. The San Jacinto River originates in the San Jacinto Mountains and passes through the cities of San Jacinto, Perris, Canyon Lake and Lake Elsinore. The only major flood control structures on the river are levees in the city of San Jacinto built by the Corps in the early 1960's. In the 30-mile reach of the river between Lake Elsinore and the city of San Jacinto, only minor channelization exists as the river is characterized by expansive overflow areas including the Mystic Lake area.

Flooding from the river has caused major damage to agricultural areas and rendered Interstate 215 and several local arterial transportation routes impassable. The river is, however, an important resource that provides water supply, wildlife habitat, drainage and recreational values to the region. The fiscal year 2000 Energy and Water Appropriations Act dedicated $100,000 to conducting a Reconnaissance Study of watershed management in the San Jacinto River Watershed "including flood control, environmental restoration, stormwater retention, water conservation and supply, and related purposes". The study effort was initiated in March 2000 and completed in September. The Expedited Reconnaissance Study 905(b) Report identified a Federal interest in flood control on the San Jacinto River, and has tentatively recommended moving forward with a detailed Feasibility Study for a flood control project, but with some concern about the economic justification for the project.

The Administration's fiscal year 2001 budget included an appropriation of $225,000 to move into a Feasibility Study for a flood control project along the San Jacinto River. The District respectfully requests the Committee's support of a $300,000 appropriation in fiscal year 2002 so that the Corps may continue its work effort on the San Jacinto River Feasibility Study.

SANTA ANA RIVER—MAINSTEM

The Water Resources Development Act of 1986 (Public Law 99–662) authorized the Santa Ana River-All River project that includes improvements and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Boards of Supervisors of Orange, Riverside, and San Bernardino Counties continue to support this critical project as stated in past resolutions to Congress.

The three local sponsors and the Corps signed the Local Cooperation Agreement (LCA) in December 1989. The first of five construction contracts started on the Seven Oaks Dam feature in the spring of 1990 and the dam was officially completed on November 15, 1999. A dedication ceremony was held on January 7, 2000. Significant construction has been completed on the lower Santa Ana River Channel and on the San Timoteo Creek Channel. Construction activities on Oak Street Drain and the Mill Creek Levee have been completed.

For fiscal year 2002, an appropriation of $10 million is necessary to complete all engineering design and to construct several features within "Reach 9" of the Santa Ana River immediately downstream of Prado Dam. This section of streambed would receive localized levee and slope revetment treatment to protect existing development along its southerly bank. The landscaping of Reaches 4 and 8 of the Santa Ana River Channel would require an $8 million appropriation. The removal of accumulated sediment within an already completed section of the Santa Ana River Channel near its outlet to the Pacific Ocean will necessitate a fiscal year 2002 appropriation of $5 million. This dredging work is necessary before project turnover to the Local Sponsors for operation and maintenance. Phase 3 of San Timoteo Creek Channel, a Mainstem feature located within San Bernardino County, would see its final engineering effort, as well as a construction start with an additional $17 million appropriation.

The Prado Dam feature of the Santa Ana River Mainstem project continues to edge closer to a construction start. Engineering design for the dam embankment and outlet works is complete. Design contracts are underway for the balance of engineering work necessary before construction. A fiscal year 2002 appropriation of $16 million would allow the Corps to complete all of its design efforts on the Prado Dam project, and to initiate construction on Prado Dam's outlet works and embankment. We, therefore, respectfully request that the Committee support an overall $56 million appropriation of Federal funding for fiscal year 2002 for the Santa Ana River Mainstem project including Prado Dam.

SAN JACINTO & SANTA MARGARITA RIVER WATERSHEDS SPECIAL AREA MANAGEMENT PLANS

The County of Riverside recognizes the interdependence between the region's future transportation, habitat, open space, and land-use/housing needs. In 1999, work was initiated on Riverside County's Integrated Planning program (RCIP) to determine how best to balance these factors. The plan will create regional conservation and development plans that protect entire communities of native plants and animals while streamlining the process for compatible economic development in other areas. The major elements of the plan include water resource identification, multi-species planning, land use, and transportation.

Water resources are the critical element of any regional planning effort. The County of Riverside has, therefore, requested that the Corps initiate work on what are termed Special Area Management Plans (SAMP) for both the San Jacinto and Santa Margarita Watersheds to qualitatively identify existing and future water resources requirements in each area. The Corps' effort will include facilitating meetings between all potential watershed partners, and the integration of the joint study effort with the planning efforts of the balance of the RCIP project. The $500,000 Federal appropriation received for fiscal year 2001 allowed the Corps to initiate work on this three year, $6.5 million project. We, therefore, respectfully request that the Committee support a combined $2,000,000 appropriation of Federal funding for fiscal year 2002 for the Corps to continue the work on the Special Area Management Plans for the San Jacinto and Santa Margarita River Watersheds.

PREPARED STATEMENT OF THE EASTERN MUNICIPAL WATER DISTRICT

The Eastern Municipal Water District respectfully requests your support for inclusion of $5 million in the fiscal year 2002 Energy and Water Appropriations bill for the District's "Water Supply Desalination Infrastructure South Perris Project" as well as for inclusion in the same bill, $1 million for the District's "Regional Water Related Infrastructure Project".

The South Perris project was authorized for design and construction as part of the U.S. Army Corps of Engineers' Water Resources management Act projects, that were included in H.R. 4577, Section 108, Subsection (d), item number 52 for the amount of $25,000,000. The Regional Water Related Infrastructure project was authorized for preliminary engineering, feasibility studies and environmental documentation as part of H.R. 4577, Section 108, Subsection (a), item number 24.

These two projects are important components to the overall plan of the District to address increasing needs as a result of concerns over the future availability of imported water supplies from Northern California and the Colorado River. I have attached fact sheets and maps for each of these projects.

In addition, we would strongly request that you support efforts to increase the overall budget of the Bureau of Reclamation. The Bureau's Budget has been cut 36 percent from fiscal year 1991 to fiscal year 2000. This is the primary Federal agency that we have relied upon in the past for funding our infrastructure needs and would like to use to fund future authorizations. We know the Bureau of Reclamation has a $5 billion backlog of work. That work, as well as any new authorizations in this congress will not be addressed in a timely manner if the Bureau continues to be cut and underfunded. We support the western water industry's campaign to increase the Bureau's Water and Related Resources Budget over a five year period from its present $648 million to $1 billion.

On behalf of the Board of Directors of Eastern Municipal Water District and the General Manager, I want to thank you for your consideration of our request for assistance.

WATER RESOURCES DEVELOPMENT ACT PROJECT

Name of Project

"Regional Water Related Infrastructure Project," Eastern Municipal Water District, Perris California

Authorization

HR 4577, Section 108, Subsection (a), Item no. 24—Eastern Municipal Water District, California

Location, Description, and Representation

This project is located in Riverside County, California, north of the San Diego County line, east of the City of Riverside and west of the San Jacinto Mountains.

The project will consist of preliminary engineering investigations, design, and environmental documentation for over 30 miles of nonreclaimable waste pipelines, and pumping plants required to manage high salinity wastes and brines resulting from industrial processes and water supply desalination. Representation for the State of California includes: CA–43—Rep. Ken Calvert (R); CA–44-Rep. Mary Bono (R); CA–48 Rep. Darrell Isa (R); and Senators Dianne Feinstein (D); Barbara Boxer (D).

Project Purpose

In response to increasing concerns over the future availability of imported water supplies from Northern California and the Colorado River, the Eastern Municipal Water District is aggressively implementing programs to recycle treated wastewater and desalinate local brackish groundwater supplies. These programs will require major investment in the pipelines and pump stations that will be necessary to manage the high-salinity wastes and brines resulting in desalination and industrial processes. The availability of non-reclaimable waste disposal facilities (brine lines) will ensure the quality of future recycled water supplies, advance the District's desalination program, and increase the District's ability to manage salinity in local groundwater basins. Additionally, these facilities will allow the communities served by the District to compete for industrial development which previously could not be accommodated because of the lack of cost-effective options for the disposal of high-salinity wastes.

This project will reduce the District's demand on imported water, directly supporting the goals of the CalFed program while providing direct economic benefits to the communities served by the District.

"Regional Water Related Infrastructure Project," Eastern Municipal Water District, Perris California

Total project cost	$5,000,000
Federal share	4,000,000
Local share	1,000,000
Fiscal year 2002: Request	1,000,000

Name of Project

"Water Supply Desallnation Infrastructure South Perris Project," Eastern Municipal Water District, Penis, California

Authorization

HR 4577, Section 108, Subsection (d), Item no. 52—South Penis, California

Location, Description, and Representation

This project is located in Riverside County, California, north of the San Diego County line, east of the City of Riverside and west of the San Jacinto Mountains. The project will design and construct a reverse osmosis desalination plant, wells, pipelines and brine management pipelines required for the phased implementation of the Perris Basins Desalination Program, providing a reliable potable water supply and preserving existing groundwater resources. Representation for the State of California includes: CA–43—Rep. Ken Calvert (R); CA–44-Rep. Mary Bono (R); CA–48—Rep. Darrell Isa (R); and Senators Dianne Feinstein (D); Barbara Boxer (D).

Project Purpose

Substantial portions of the Eastern Municipal Water District overlie groundwater basins (Penis Basins) where the salt content (TDS) of the groundwater is over 1,500 mg/L, making the water unusable for potable or agricultural uses. In these areas, groundwater levels are rising and saline water is spreading into adjacent high-quality basins, resulting in the loss of local water supplies.

Over the last 7 years, the District has extensively studied local groundwater conditions and developed a conceptual desalination plan for the Penis basins. The first phase of this plan, construction of the Menifee Desalter, is currently underway. The District plan calls for the phased construction of 2 additional desalters plus associated extraction wells, feedwater pipelines and brine lines. When completed, the Perris Basin Desalination program will produce over 12,000 AF/YR of potable water from an otherwise unusable resource. Strategically located wells will pump salty groundwater to the desalter thereby controlling water levels and preventing the degradation of neighboring basins. The resulting brine waste will be disposed through a regional non-reclaimable waste disposal system (brine line network). Additionally, the desalter will provide the District with the ability to provide regulatory salinity offsets which will be required to maximize the use of recycled water within our service area.

"Water Supply Desalination Infrastructure South Perris Project," Eastern Municipal Water District, Penis, California

Total Estimate Project Cost	$46,250,000
Federal share	25,000,000
Local share	21,250,000
Fiscal year 2002: Request	5,000,000

PERRIS SOUTH DESALINATION PROGRAM

BACKGROUND

Brackish groundwater (TDS 1,000—3,000 mg/L) levels are rising in the Perris South and Menifee subbasins—Cause: changed land uses and decreased agricultural pumping.

Brackish groundwater is flowing into the Lakeview subbasin (TDS 500 mg/L) threatening agricultural and municipal supplies—Cause: over-pumping in Lakeview and rising groundwater in Perris South.

Southern California agencies are being asked to develop local supplies as a means of decreasing demand on the Sacramento Bay Delta.

EMWD extensive water recycling program requires long-term salinity management and control of salt discharged to sanitary sewers (no industrial wastewater).

THE PROGRAM

The Perris South Desalination Program will consist of the phased construction of 3 desalters (4,000 AF production each) and the wells and pipelines required for feedwater and brine management.

—*Menifee.*—Currently under construction, the Menifee desalter and non-reclaimable waste pipeline provide the core facilities required for future expansion of the program.

—*Perris South Desalter—Phase I.*—Provides an additional 4,000 AF/YR of product and will extend core brine management facilities towards Moreno Valley.

—*Perris South Desalter Phase II.*—Will construct the final desalter and well fields.

—*Moreno Valley and Temecula Valley Brine Lines.*—Will extend the core brine management facilities providing a network of brine lines allowing for full management of industrial and other non-reclaimable waste.

BENEFITS

Provides 12,000 AF/YR of local water supply reducing demands on the Bay-Delta (CaIFed goal).

Preserves the agricultural and municipal water of the Lakeview subbasin by controlling rising groundwater and reversing the hydraulic gradient into Lakeview.

Protects the District's water recycling program from the impacts of high salinity wastes.

Improves the ability of local communities to compete for high tech industries by providing cost-effective disposal of non-reclaimable waste.

Creates a salinity offset which will allow recycled water to be used in subbasins where regulatory objectives limit water recycling.

PREPARED STATEMENT OF THE INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

U.S. ARMY CORPS OF ENGINEERS

The fiscal year 2002 budget proposal for Civil Works Appropriations of the U.S. Army Corps of Engineers is $3.9 billion. In addition the program will include $315 million in non-federal contributions and trust fund receipts. The budget proposal reflects continued commitment to proper management of our natural resources, through dedication of $988 million to environmental programs (a $93 million increase over fiscal year 2001). The environmental portion of the Corps budget represents approximately 25 percent of the overall request. The Association applauds the fact that many of our recommendations from previous fiscal years have been maintained by the Corps in their succeeding year's budget request.

A total of $479 million has been established to fund ongoing environmental restoration programs including Sections 204, 206, and 1135 of Water Resources Development Acts. We urge the Corps to continue to take steps to expedite the approval process for those projects in order to rapidly realize benefits. The Association encourages the Corps to expedite design and grant administration associated with Section 1135 projects. The 1135 projects provide an excellent opportunity to bring the

Corps and State fish and wildlife agencies together on environmental projects but the current administrative burden may limit state participation.

The Association encourages the Corps to cooperate, coordinate, and develop civil works and restoration activities with State fish and wildlife agencies. The State fish and wildlife agencies are generally aware of where Corps projects could most effectively enhance the status of fish and wildlife resources through improvements to habitat. We are pleased there continues to be funding which will result in development of partnerships to restore riverine ecosystems that address flood prevention through nonstructural alternatives.

Our Association particularly appreciates the leadership of Congress in providing funding for mitigation projects. We are especially pleased that the Corps is requesting, and the Association supports, continuation of funding for the Columbia River Fish Mitigation in Washington. The Association also strongly encourages Congress to appropriate necessary funding within the Corps budget to facilitate the mitigation feature of the West Tennessee Tributaries Project, which is needed to satisfy legal constraints to enable initiation of river restoration work within this significant watershed.

We recommend that the Congress explore the need for generic legislative direction to the Corps to ensure that the older projects include the authority for mitigation and enhancement of fish, wildlife, water quality, and sustained minimum flow and if legislation is necessary, to act on that need. Further, the Association recommends that mitigation funding for ongoing projects be listed as a separate line item within the Civil Works Appropriations. Also, the Association suggests that the Corps continue to look at actually transferring some project mitigation lands to the State fish and wildlife agencies. The Corps is currently in the process of transferring mitigation lands associated with the Richard B. Russell Project to the State of South Carolina, along with a trust account to manage these lands. The Association encourages Congress to support the transfer of mitigation lands to those States interested in receiving title to such lands.

The Association is also generally supportive of the funding requested for some of the large river restoration projects. The Association supports the fiscal year 2002 request of $26 million for restoration of meanders and wildlife habitat on the Kissimmee River and continued funding of $139 million to restore water flows through the Everglades and other areas in Florida. It is in the best interest of the country to restore the habitat and hydrologic components of these rivers that have been significantly altered under previous Corps projects.

With regard to the Corps' regulatory authority under the Clean Water Act of 1972, we strongly support the request of $128 million for conducting a streamlined program to process, review, issue permits and provide an appeals procedure for the permitting of activities in waters of the United States. Furthermore, the Association believes a strong partnership program with State agencies affords the best opportunity for balanced conservation of aquatic resources.

The Association recommends that the Corps continue to initiate applicable restoration, mitigation and conservation projects in partnership with State fish and wildlife agencies. For example, we request the Corps continue to participate with State agencies and non-Federal interests in the North American Waterfowl Management Plan through wetlands conservation and wetlands identification.

The Association is excited by the potential for significant environmental accomplishments in restoration, conservation, and sustainable management of water, fish, and wildlife resources. The Association is especially pleased with Federal plans to partner with local, State and Tribal agencies and with the watershed management emphasis. The States are interested in forging a true partnership through sharing ideas, plans, design, implementation structure and enforcement in establishing a unified, cooperative approach to improving water quality.

PREPARED STATEMENT OF THE LOS ANGELES COUNTY BOARD OF SUPERVISORS

As you deliberate on the fiscal year 2002 Energy and Water Appropriations Act, it is respectfully requested that you support four studies that are not only important to Los Angeles County, but the nation as a whole. Two of these studies, both related to shoreline protection and coastline management, received no funding in the President's recommended budget. The two studies related to dredging were significantly underfunded by the President.

Following is a brief discussion of each of these studies:

Coast of California Storm and Tidal Wave Study—Los Angeles County Shoreline Protection Studies In Progress—$500,000

Los Angeles County is host to over 50 million visitors annually at the 30 miles of public beaches that we own or manage. These beaches are not only among the nation's top recreational attractions; they generate jobs, income and revenue to all levels of government. The beaches are also an important element of the infrastructure, as they protect major highways, utilities, public facilities, businesses and homes from ocean storms.

What is not well known is that these beaches are not all naturally sandy. Over 35 million cubic yards of sand have been placed on them since the 1930's, and they require ongoing maintenance. In 1998, Los Angeles formed a multi-agency Beach Replenishment Task Force. One of its goals is to develop a long-term management plan for the beaches. The Corps' Coast of California Study is critical to the achievement of this goal. The study will gather data and employ numeric models to assess long-term shoreline changes and coastal processes, which are needed to plan and design future shore protection and beach replenishment projects.

Congress added $500,000 to the fiscal year 2001 budget for the first year of this study. The President did not continue funding projects that were added by Congress in fiscal year 2001. The County is obtaining a $500,000 grant from the State of California to help fund the local share of this study. It is, therefore, very important that your Subcommittee support an appropriation of $500,000 to continue this study.

California Coastal Master Plan Regional Coastal Watersheds Management Plans—$1,000,000

California's coast is an invaluable resource. It produces millions of jobs and billions of dollars in revenue to the Federal Government. Yet, California ranked eighth out of eleven states receiving Federal appropriations for shoreline protection between 1995 and 1999. California received just $10 million, while New York got $111 million, New Jersey got $104 million, Florida got $90 million, and Illinois got $30 million. By comparison, California received $12,000 per mile of coastline against $800,000 per mile for New York and New Jersey.

Protecting California's coastal resources, including ancient redwoods, flourishing and protected species, and very popular public beaches, can best be accomplished through informed decisions and planning. The Corps' proposed Coastal Master Plan will provide the technical, environmental, regulatory, economic, legal, and policy data needed to maintain and enhance the health of California's coastline.

The Master Plan has the support of other coastal counties, as well as the State agencies responsible for coastal resources. It will make it possible to develop policies and to execute management sub-plans that will ensure the future vitality of California's beaches, shoreline, and coastal watersheds.

There was no funding included in the President's recommended budget for this study. Therefore, your support for an appropriation of $1 million to initiate this critical work is respectfully requested.

Marina del Rey and Ballona Creek Feasibility Study Navigation Studies in Progress—$400,000

This study was authorized by Congress to develop a dredged material management plan (DMMP) for contaminated sediments in Marina del Rey, and a sediment control plan for the Ballona Creek watershed. The DMMP has been incorporated into the development of a regional plan. Completion of the watershed portion requires an extension of the study to develop a trash and debris management plan (TDMP). Trash and debris from Ballona Creek create many environmental and economic problems in Marina del Rey and along the nearby beaches.

Resolving the Marina's dredging problem depends on completion of this study. Without its completion, and the resultant TDMP, other mitigation measures and improvements will be ineffective. Implementation of plans resulting from the study will improve water quality in the Santa Monica Bay, boating safety in Marina del Rey, and the public's enjoyment of nearby beaches.

This study has been fully funded for several years, including the County's cost share. A total of $400,000 in Federal funding is needed in fiscal year 2002. The President's budget only includes $169,000 for this study, leaving a need for $231,000 in additional funding. It is, therefore, respectfully requested that you support an increase in appropriation, to $400,000, for this study.

Los Angeles County—Regional Dredged Material Management Plan Navigation Studies in Progress—$350,000

Ensuring navigational safety in the Los Angeles region, as well as providing for much needed port expansion, depends on the ability to dredge and dispose of some

contaminated sediments. Approved disposal sites are not available or economically feasible. The accumulation of contaminated sediments has raised concerns about their impact on the environment and human health.

A multi-agency task force was formed in 1997 to develop a long-term management strategy for the dredging and disposal of contaminated sediments. The work of the task force has been funded by the California Coastal Commission, the State Regional Water Quality Control board, the County of Los Angeles, and the Ports of Los Angeles and Long Beach. The Corps' development of a regional dredged material management plan is critical to achievement of the task force's goals.

Without completion of this plan, the region's contaminated sediment problem will be increasingly difficult and costly to solve. Safe navigation will be jeopardized and our nation's largest, most productive port complex will not be able to meet the ever-expanding demand.

Congress appropriated $100,000 in fiscal year 2000, and $225,000 in fiscal year 2001 for this study. The President has included $200,000 in the recommended budget for fiscal year 2002, resulting in a need to add $150,000. Your support of a total appropriation of $350,000 is respectfully requested.

With your Subcommittee's leadership and support, the Corps has performed its Congressionally mandated missions for Los Angeles County in an excellent manner. We appreciate your continued support of the Corps and its important mission.

Thank you for your consideration of these requests.

PREPARED STATEMENT OF THE NATIONAL AUDUBON SOCIETY

Mr. Chairman, on behalf of the one million members and supporters of Audubon, thank you for the opportunity to submit our views on the fiscal year 2002 budget of the U.S. Corps of Engineers. Our mission, to protect birds, other wildlife, and their habitat, is the focal point of our statement on the Corps' fiscal year 2000 budget.

EVERGLADES RESTORATION

Thank you for your past support of the restoration of America's Everglades. The Everglades ecosystem, from the Mississippi River Valley in the north through Lake Okeechobee, the Everglades, Florida Bay, the Keys, and the coral reefs to the south, is a unique and world-renowned eco-region. Because of its unique biological wealth and beauty, the 17,000 square mile area of Everglades National Park has been declared a World Heritage Site, UNESCO Biosphere Reserve and Ramsar Wetland. The Everglades, America's premiere wetland, is also one of the nation's most endangered ecosystems.

The Everglades has been abused for more than 100 years. Its restoration is the most ambitious environmental challenge our nation has ever undertaken. The outcome is uncertain. What happens depends on how much Americans recognize the need to balance the use and conservation of natural resources. If our effort is successful, restoration of the South Florida/Everglades ecosystem will serve as the hemispheric model for sustainability.

Congress approved, and the State of Florida supports, the Comprehensive Everglades Restoration Plan (CERP) as a framework for changes to the Central and Southern Florida (C&SF) Project, which along with Modified Water Deliveries and the C–111 project, are needed to restore, preserve, and protect the South Florida ecosystem, while providing for other water-related needs of the region.

We urge the Subcommittee to consider the following points:

—Everglades restoration is a long-term commitment, and it must be completed in its entirety. Each component depends on others therefore, all of the "building blocks" must be in place for the restoration to succeed.

—The budget must continue adequate funding for previously authorized programs whose performance assumptions have been included in the Comprehensive Everglades Restoration Plan (CERP), including Kissimmee River Restoration and Critical Projects.

—The budget must adequately fund CERP implementation at a level consistent with the implementation schedule as reflected in the plan.

—We are concerned that CERP Pilot Projects will not be implemented in the most expeditious manner, if funding is not provided in fiscal year 2002 ($8 million). Additionally, the regional aquifer storage and recovery (ASR) study must be completed expeditiously, ahead of or concurrently with the ASR Pilot Projects.

—With the passage of the Restoring the Everglades, an American Legacy Act last year, Congress began a long-term commitment (more than 20 years) to Ever-

glades restoration. To be successful, Everglades restoration must remain a national priority.

UPPER MISSISSIPPI RIVER ENVIRONMENTAL MANAGEMENT PROGRAM (EMP)

Cover 400 bald eagles and nearly 30,000 wild tundra swan use the Upper Mississippi River. We urge you to include $33.17 million in the President's fiscal year 2002 budget request for the Upper Mississippi River System Environmental Management Program (EMP) found in the Army Corps of Engineers' Construction General Budget. The Environmental Management Program is a cooperative and cost shared effort. Those participating include the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Geological Survey, and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

The mission of the EMP is to "ensure the coordinated development and enhancement of the Upper Mississippi River System." The efforts of the EMP contribute to the management of navigation and flood control. The EMP enhances and rehabilitates riverine wetland areas up and down the river stimulating transportation uses, attracting visitors, adding recreational opportunities, and bolstering local economies. The EMP helps preserve this natural treasure by managing river navigation and flood control, and promoting recreation on the river. It helps folks enjoy the river now while ensuring its preservation for future generations.

THE CHALLENGE 21 PROGRAM (OR THE FLOOD MITIGATION AND RIVERINE RESTORATION PROGRAM, SEC 212 WRDA 1999)

Mr. Chairman, the need for the Challenge 21 program is demonstrated by the fact that today, many communities along the Mississippi River are experiencing severe flooding along with economic and environmental damage. The Challenge 21 program would greatly reduce the devastating effects of the flooding that these communities are facing. Indeed, this flooding is precisely the type of situation that Challenge 21 programs are intended to mitigate.

Increasingly, flooded communities are implementing non-structural solutions to reduce flooding. These solutions include moving frequently flooded homes and business out of the floodplain, and working to return the floodplains of rivers and creeks to a condition where they can naturally moderate floods. In addition to reducing flood losses, non-structural projects help meet many other goals of riverside communities, including improving water quality, increasing opportunities for recreation, and improving and restoring wildlife habitat. Unfortunately, most federal spending does little to support non-structural solutions to flood damage reduction.

Challenge 21, a non-structural flood damage reduction program authorized in 1999, is explicitly designed to help support such community-driven and environmentally beneficial efforts. Challenge 21 allows the Army Corps to relocate vulnerable homes and businesses in smaller communities away from floodplains, restore floodplain wetlands, increase opportunities for riverside recreation, and improve quality of life in riverside communities. Challenge 21 also authorizes the Army Corps to work with other Federal agencies to more efficiently and effectively help local governments both reduce flood damages and conserve, restore, and manage riverine and floodplain resources. Individual Challenge 21 projects cannot exceed $25 million, and local communities must provide 35 percent of the cost.

The Water Resources Development Act of 1999 requires the Army Corps to study appropriate locations for Challenge 21 projects in 23 separate locations. Five additional Challenge 21 projects were authorized in the Water Resources Development Act of 2000. Challenge 21 currently is authorized for only five years. In April 2003, the Army Corps must report to Congress the results of an independent review to evaluate the efficacy of the program in achieving the dual goals of flood hazard mitigation and riverine restoration, and make recommendations concerning continuation of the Challenge 21 program. But before the Army Corps can make a meaningful assessment, it must have the funding to implement the program.

Unfortunately, though $20 million is authorized for fiscal year 2001, the program has received no funding. Consequently, none of the innovative and effective non-structural flood control projects that could have been implemented under Challenge 21 and might have benefited residents in Mississippi River communities during this year's flooding are in place. Residents of these communities and other flood-prone communities throughout the country deserve to see Challenge 21 fully funded and implemented.

Failure to appropriate adequate funds to implement the environmentally appropriate, common sense, and community supported flood control projects authorized by this program will doom both specific projects and the entire program to failure. This

deserving program should be fully funded so it can achieve both flood hazard mitigation and restoration of this nation's great rivers.

THE SECTION 1135 AND 206 PROGRAMS

The Section 1135 Program (Project Modification for Improvement of the Environment) allows the Army Corps to modify the structures and operations of existing Army Corps projects to improve the quality of the environment where those projects have contributed to the degradation of the environment. The program also authorizes the restoration of areas harmed by Army Corps projects. Non-federal interests must provide 35 percent of the cost, and modifications may not interfere with a project's original purpose.

The environmental damage caused by existing Army Corps projects, many constructed before federal laws requiring mitigation, are enormous. These projects have caused devastating environmental harm to the Everglades, and severely degrade such rivers as the Missouri, Upper Mississippi, Illinois, and Apalachicola Rivers. The harm includes the loss of rivers' critical side channels, sandbars and wetlands, and jeopardizes the continued existence of federally listed endangered species.

Despite the significant adverse impacts of Army Corps projects throughout the nation, the Section 1135 program has never been fully funded. As a consequence, even though this program has been authorized since 1986, only 45 Section 1135 projects had been completed or were under construction as of 1999. It is clear that the interest in this program is far more intense than these project numbers indicate. In fiscal year 2001, 355 Section 1135 projects had to compete for funding totaling only $21 million.

The Section 206 Program (Aquatic Ecosystem Restoration), allows the Army Corps to undertake small-scale projects to restore the aquatic environment, regardless of the existence or impact of Army Corps' projects in the area. Projects carried out under this program must improve the quality of the environment, be in the public interest, and be cost-effective. Individual projects under this program may not exceed $5 million, and non-federal interests must provide 35 percent of the cost.

The Army Corps reports that between 1996 (when Section 206 was enacted into law) and 1999, six projects had reached the planning and/or design phase under this program. The interest in this program far exceeds the level of funds being appropriated, however, and many communities are unable to participate in this program due to inadequate funding. In fiscal year 2001, 185 projects under the Section 206 program had to compete for funding totaling only $19 million.

Many communities are working with Army Corps districts to restore lost wetlands, side channels, and other riparian habitat. Many of these restoration projects are designed to offset the habitat losses and other environmental impacts of Army Corps levee, dam, and dredging projects that were constructed before federal laws required mitigation. Unfortunately, far more community-driven projects are being rejected due to inadequate funding. Both the Section 1135 and 206 programs should be fully funded so that communities can work with the Army Corps to reverse damage done, and to ameliorate the environmental and economic impacts caused by altering our nation's rivers, floodplains, and wetlands.

We strongly urge you to appropriate full funding for the U.S. Army Corps of Engineers' Challenge 21, Section 206, and Section 1135 programs in fiscal year 2002.

LOWER COLUMBIA RIVER AND TILLAMOOK BAY ECOSYSTEM RESTORATION PROGRAM

The Columbia and Tillamook estuaries are of great importance to the region and the nation, offering critical habitat to endangered salmon and steelhead and more than 200,000 wintering waterfowl and shorebirds. But they also face significant threats. Since 1850, the two estuaries have lost more than 70 percent of their historical wetland and riparian habitat, primarily because of construction of agricultural levees and floodplain development. The Columbia River and its estuary have also been damaged by channelization and dredging for navigation.

In addition, the health of these estuaries has been severely compromised over the past half century by conversion of river habitat, dams, mining, and logging, which have transformed the ecology and economy of the region. The huge price paid by the river's ecosystems is illustrated most clearly by severe declines in native salmon species. Wild fish have been reduced to only one percent of their pre-development abundance, and 12 salmon and steelhead species in the Columbia River Basin are listed under the Endangered Species Act.

The Lower Columbia River and Tillamook Bay Ecosystem Restoration program, run by the Army Corps of Engineers, is supported by a diverse group of stakeholders including labor, environmental and citizen groups, as well as federal, state, municipal and tribal governments. These stakeholders are dedicated to enhancing

the fish and wildlife habitat in these estuaries. This program offers a cooperative solution to managing natural resources that will benefit all of the salmonids in the Columbia River system. Adequately funded, the program will restore more than 16,000 acres of critical fish and wildlife habitat, augment existing monitoring efforts, and help citizens protect and manage resources.

Again, we strongly urge you to appropriate full funding of $30 million for the U.S. Army Corps of Engineers to implement Section 536 of the Water Resources Development Act 2000, the Lower Columbia River and Tillamook Bay Ecosystem Restoration.

MISSOURI RIVER RESTORATION

The Missouri River Fish and Wildlife Mitigation Project is the primary habitat restoration program for the lower Missouri River between Sioux City, Iowa and St. Louis. Congress established it in 1986 to help reverse the long-term decline of the Missouri's fish and wildlife habitat due to the federally sponsored channelization and stabilization projects of the Pick-Sloan era. Congress approved $12 million in fiscal year 2001 for the project, the highest appropriation yet received. It is imperative that at least this level of funding be maintained.

The Missouri River remains a nationally significant resource, attracting tens of millions of visitors annually and supporting over 150 species of fish and wildlife. However, severe loss of habitat such as side channels, wetlands, and sandbars threaten the river's long-term health. As the nation prepares to celebrate the 200th anniversary of Lewis and Clark's Voyage of Discovery, we have a once-in-a-lifetime opportunity to restore the Missouri River and revitalize riverside communities.

Supporting the Missouri River Fish and Wildlife Mitigation Project will help reverse the decline of river wildlife by restoring historic chutes, side channels, wetlands, backwaters, and other habitat fish and wildlife need to feed, conserve energy, and reproduce.

While restored habitat areas are important for the Missouri's fish and wildlife, they are also important for people. Waterfowl hunting, fishing, birdwatching, and other recreational translate into real dollars for Missouri River communities, as recreation and tourism-dependent businesses support visitors to these areas.

By supporting the Missouri River Fish and Wildlife Mitigation Project, Congress can also help us properly commemorate the upcoming bicentennial of Lewis and Clark's Voyage of Discovery. With your help, we can restore a string of natural places along the Missouri—places that Lewis and Clark might recognize and that attract recreation and tourism, support river wildlife, and improve the quality of life in riverside communities.

We urge you to bolster critically important efforts to reverse the decline of the nation's longest river by supporting an appropriation of at least $12 million for the Missouri River Fish and Wildlife Mitigation Project in fiscal year 2002.

SAVANNAH HARBOR EXPANSION, GEORGIA

Authorized in the Water Resources Development Act of 1999, the $230 million harbor expansion project on the Lower Savannah River along the border between Georgia and South Carolina poses a serious threat to the ecological health of the Savannah National Wildlife Refuge. Dredging will destroy many of the freshwater tidal wetlands in the wildlife refuge to accommodate the Georgia Port Authority's belief that new shipping business must be brought to Savannah. A preliminary economic study has shown that the costs of the harbor expansion far outweigh the potential benefits, even before necessary environmental mitigation costs are included in the analysis. The Army Corps of Engineers has failed to conduct studies to address many of the environmental impacts, while numerous state and federal environmental agencies have stated repeatedly that the decision to deepen the harbor is premature.

We oppose the $400,000 appropriation included in the President's budget for the Savannah Harbor Expansion, and urge re-direction of these funds into further study of the environmental consequences of this potentially destructive project.

BIG SUNFLOWER DREDGING AND YAZOO PUMP PROJECT, MISSISSIPPI

The Big Sunflower River "Maintenance" project and Yazoo Backwater Pumping Station are part of an environmentally-destructive Corps plan to re-plumb the Mississippi River Delta through a series of water diversions and channels. The Big Sunflower project involves dredging of the entire width of the Mississippi River for 104 miles—to reduce seasonal flooding by only a few inches. The Yazoo Backwater Pump Project would create the world's largest pump system to move water from south Delta wetlands into the Mississippi River, disrupting natural water cycles in some

of the last intact bottomland hardwood forests and forested wetlands in the Mississippi Delta.

We oppose the Administration's request for $500,000 to fund the Yazoo pump and $1 million for dredging. We support re-directing these funds to reforestation, as a non-structural alternative to flood control and other environmentally sound projects to benefit the area. While the pump project alone is estimated to cost at least $150 million to complete, cost estimates performed by EPA for reforestation and easement purchases would only be around $75 million.

DEVILS LAKE EMERGENCY OUTLET, NORTH DAKOTA

Audubon supports de-funding of this environmentally-damaging project to create an outlet from Devils Lake to the Sheyenne River. The outlet would reduce surface elevations of Devils Lake by only inches, yet would contribute to increased flooding and reduced water quality downstream and potentially violate an international treaty with Canada. None of the Administration requested $1.7 million should be appropriated for this project.

This Subcommittee has done an excellent job of opposing this project in the past, and we commend your efforts. We urge you to continue your opposition to the project, and we will continue to support you in your efforts.

Thank you for providing us with this opportunity to testify on the Corps budget request.

PREPARED STATEMENT OF ALABAMA STATE DOCKS

ALABAMA INLAND WATERWAYS

Each year, with the annual appropriations cycle of the U.S. Congress for the U.S. Army Corps of Engineers (COE) budget for Civil Works, the partnership between the Federal Government and the State of Alabama is revalidated. This partnership is critical to the Port of Mobile and the Alabama inland waterway systems that service the four state area of Alabama, Mississippi, Tennessee and Georgia. Without the partnership our communities would be at a distinct disadvantage in their ability to compete at the regional, national and international level.

The Port of Mobile, for which the Alabama State Port Authority (ASPA) serves as the local cost sharing partner, was ranked 12th nationwide in 1999 for total cargo tonnage. This tonnage generally is split equally between domestic and foreign cargoes. The high level of domestic waterborne traffic transiting the Port of Mobile is attributable to the Port's multimodal hub status. Not only are we serviced by two Interstate Highways (I–10 & I–65) and four Class I Railroads (CNIC, CSX, BNSF & NS), but the State is also blessed with a system of six navigatable inland waterways.

The Alabama-Coosa, Appalachicola-Chatahochee-Flint, Black Warrior-Tombigbee, Gulf Intercoastal Waterway, Tennessee and the Tennessee-Tombigbee form a network crisscrossing the heart of the South. Additionally, in the event of any navigational construction in the Lower Mississippi River, this system provides the only access for waterborne commerce on the Ohio, Illinois, Upper Mississippi and Missouri River Systems to deep water ports and international commerce.

Just as with any other mode of transportation, maintenance of these systems is essential not only to their day-to-day operations, but also to the perception of their reliability. If they are not consistently maintained we achieve a self fulfilling prophecy that produces a spiraling downturn of cargo and could ultimately lead to their closure. At a time when the highways and railroads of the region are becoming ever more congested with freight traffic, this is not the time to further constrain the safest, most economical and least environmentally damaging mode of domestic transportation in the U.S.

I therefore strongly request that these systems be provided with a level of funding for fiscal year 2002 at least equal to that appropriated for fiscal year 2001.

PORT OF MOBILE

The Water Resources Development Act of 1986 authorized the deepening of the main channel serving the Port of Mobile to 55 feet by 550 feet. Actual construction however was limited (45 feet by 400 feet) as a result of limited local cost sharing capability. The initial construction work was completed in 1990.

Operations and maintenance cost, of the Mobile Harbor federal project in 1991 were approximately twenty-two million dollars ($22,000,000). Over the subsequent ten (10) years these maintenance costs have averaged approximately the same amount. It is the desire of the Port of Mobile to obtain twenty-two million, eight

hundred thousand dollars ($22,800,000) for Operations and Maintenance funding for fiscal year 2002. Assuming that no catastrophic event impacts the Mobile Bay this should be sufficient to not only maintain the main channel, but also other channels which have not received maintenance over the last ten plus (10+) years (i.e., Arlington and Chickasaw). Additionally, significant growth in the Port of Mobile since the deepening has established a need to continue to lengthen the 45′ channel as authorized. We therefore request two million, three hundred thousand dollars ($2,300,000) in Construction General funds. Our total request is twenty-five million, one hundred thousand dollars ($25,100,000).

The Port of Mobile is the terminus of approximately fifteen hundred miles of inland waterway systems serving the State of Alabama. As such, the Port of Mobile supports testimony of the waterway systems serving the Port and requests steady state funding for them.

PREPARED STATEMENT OF THE GULF INTRACOSTAL CANAL ASSOCIATION

Operation and Maintenance.—$80,319

Key projects here are the dredging of the Intracoastal Waterway at strategic locations ($15.5 million), Houston Ship Channel ($12.2 million), and Sabine Neches Waterway ($14.2 million).

NEW ORLEANS DISTRICT (INCLUDING MISSISSIPPI RIVER AND TRIBUTARIES)

General Investigations.—$18,172

Critical projects are the Calcasieu Lock Replacement and Bayou Sorrel Lock (total $1.4 million). Both of these structures represent traffic bottlenecks on the GIWW main stem. Also critical is the Morganza to the Gulf Study ($6.5 million).

Construction General.—$266,680

The single most important project here is the Inner Harbor Navigation Canal Lock ($30 million). This is a most critical project in terms of safety and efficiency of the entire Gulf Intracoastal Waterway traffic flow. It must continue on schedule. The present structure was completed in 1921, and it represents the most critical bottleneck on the waterway.

Operation and Maintenance.—$169,150

Critical to the continuing efficiency of the waterway is $18.7 million for dredging and lock maintenance. A key initiative in maintaining all the waterway's efficiencies is reduction of downtime for maintenance. The building of spare lock gates prior to major lock maintenance has proven to be a major factor in reducing job duration and resulting delays. This process is proving very attractive in saving overall project costs as well. An additional $2.0 million is needed for spare gates at Old River Lock in anticipation of its major overhaul.

MOBILE DISTRICT

Operations and Maintenance

We support the Corps efforts to install mooring buoys in Mobile Bay to provide Safe Haven for tows waiting weather ($375,000). The securing of additional dredge material disposal sites is critical to the long term future of the Intracoastal Waterway, and GICA strongly supports funding for these items.

This testimony, April 16, 2001, is submitted by Raymond Butler, Executive Director of the Gulf Intracoastal Canal Association, for the official record before the House and Senate Energy and Water Development Appropriations Subcommittees. The Gulf Intracoastal Canal Association (GICA) is the oldest of the regional waterway associations, having been established in Victoria, Texas in 1905. The Gulf Intracoastal Waterway transports 110 million tons of freight annually, the third highest volume among our inland and coastal waterways after the Mississippi and Ohio Rivers. GICA's membership includes port authorities, port commissions and navigation districts, barge and towing companies, petroleum refineries, chemical manufacturers, shipyards, marine fabricators, fuel terminal facilities, and individuals whose businesses are waterway related and dependent. We have 180 members in the five states of Texas, Louisiana, Mississippi, Alabama, and Florida served by the Gulf Intracoastal Waterway. In addition, the GIWW is the link that binds the North-South Rivers to the Intracoastal Canal, the coastal ports, and ultimately the heartland of America. The Mississippi River intersects the GIWW at New Orleans, one of our busiest ports, and the Tennessee-Tombigbee Waterway intersects the GIWW at Mobile. Our system of Inland Waterways Barge Transportation provides this country

with the safest, most environmentally friendly and fuel-efficient means of surface transportation. The values and efficiencies provided by barge transportation accrue to our country in almost every area of commerce. We should begin to view our waterways as the solution to many of our country's transportation related problems.

SPECIFIC BUDGET REQUESTS FOR FISCAL YEAR 2002

GALVESTON DISTRICT

The Gulf Intracoastal Canal Association (GICA) supports the approval of the following amounts for the Galveston District:

General Investigations.—$4,555,000

Included here are the Brazos River to Port O'Connor ($974 thousand), High Island to Brazos River ($535 thousand), and Port O'Connor to Corpus Christi 216 Studies ($1 million). The Matagorda Bay Alternate Route ($910 thousand), which has the potential to reduce existing maintenance costs significantly and improve transit safety, is included. The Sabine-Neches Waterway Widening and Deepening Project ($1.1 million) is of major concern for barge/ship transit safety.

Construction General.—$54,165,000

It is most critical that these projects continue uninterrupted. The Houston Ship Channel Widening and Deepening is now well into completion stages and is most critical to barge/ship transit safety. Total fiscal year 2002 needs for this project are $46.8 million. The completion of the channel to Victoria ($6.6 million) and the mouth of the Colorado River ($1.8 million) are two additional projects that must continue to avoid additional costs and improve waterway efficiency.

OTHER AREAS

The GICA also supports the operations and maintenance funding request for Tri Rivers Waterway Development Association. We support sound economic development efforts to improve the ACF waterway as a vital link for southeast Alabama, southwest Georgia, and northwest Florida to export goods to other national and international markets via the Gulf Intracoastal Waterway. We support finding the ACF system at levels equal to last year's budget of $5.1 million.

In other areas, the GICA strongly supports repeal of the 4.3 cent per gallon Deficit Reduction Tax placed on fuel. This tax has now outlived its original purpose and is contributing to the General Fund, which is well in excess of the needs it supplies.

The Gulf Intracoastal Canal Association respectfully enters these comments for the record. We appreciate the privilege of providing such critical input.

PREPARED STATEMENT OF THE SACRAMENTO AREA FLOOD CONTROL AGENCY

We appreciate the opportunity to provide testimony to this Subcommittee, and extend our sincere appreciation for your past support of this community's efforts to protect the citizens and properties in the capital city of California. In our continuing efforts to protect the Sacramento metropolitan area, the Sacramento Area Flood Control Agency (SAFCA), and its member agencies, support the following Federal appropriations for fiscal year 2002:

SACRAMENTO'S 2002 FLOOD CONTROL FEDERAL APPROPRIATIONS REQUEST

[In millions of dollars]

Project	Proposed Budget	SAFCA Request
South Sacramento Streams: Prevention of flooding of portions of Sacramento from the south, where four creeks convey foothill runoff through urbanized areas into Beach Lake and the Delta. NEW START	.....	[1] 10.0
Folsom Modifications: Modifications to Folsom Dam to provide greater efficiency in managing flood storage in Folsom Reservoir.	.....	[1] 12.0
American River Common Elements: 24 miles of levee improvements along the American River and 12 miles of improvements along the Sacramento River levees, flood gauges upstream of Folsom Dam, and improvements to the flood warning system along the lower American River. Request includes $5.0 million to begin work on levee parity, authorized in WRDA 1999.	.....	[1] 17.0
Sacramento River Bank Protection: Will correct harmful erosion along the banks of the American River that threatens the integrity of the existing levees.	.....	[1] 3.0
Magpie Creek: Authorized under the Corps' Section 205 program, this project will provide a high degree of flood protection on Magpie Creek.	.....	[1] 3.0

SACRAMENTO'S 2002 FLOOD CONTROL FEDERAL APPROPRIATIONS REQUEST—Continued

[In millions of dollars]

Project	Proposed Budget	SAFCA Request
American River Plan: Funds to continue previously authorized planning and design of Sacramento flood protection projects.	.....	[2] 1.0
American River Watershed (Natomas): Reimbursement to SAFCA for the Federal share of the flood control improvements undertaken by the local project sponsor.	.....	[1] 5.0
Lower Strong & Chicken Ranch Sloughs (D05 Pump Station): a feasibility study to restore 100-year level of flood protection to Chicken Ranch Slough drainage to the American River. This area has flooded four times since 1986.	.....	[3] 0.2
Magpie Creek on McClellan AFB: A feasibility study to evaluate alternatives for providing improved flood protection on McClellan Air Force Base in connection with the reuse of that base	.....	[1] 0.2
Total I	.....	51.40

[1] Construction.
[2] Preconstruction Engineering and Design.
[3] General Investigation.

According to the Corps of Engineers, Sacramento has the highest risk of flooding of any major urban area in the country. Located at the confluence of the Sacramento and American Rivers, the Sacramento floodplain is home to over 400,000 residents, 150,000 homes, 5,000 businesses, the State Capitol, and 1,300 government facilities. Additionally, there are 200,000 jobs in the floodplain, as Sacramento is a regional employment hub for it neighbors in Placer, El Dorado, and Yolo counties. The Corps of Engineers estimates a major flood on the American River would cause between $7 and $16 billion in damage and likely result in lives being lost. Improved flood protection is our region's most critical infrastructure need.

The Sacramento Area Flood Control Agency is a joint powers agency formed in 1989 to provide the local response to the 1986 flood. Since its formation, SAFCA has raised over $140 million in local funds that have been expended on planning and construction of flood control facilities and on public education. Over the same period, approximately $130 million in State and Federal funds have been appropriated for the same purpose.

As part of the 1999 Water Resources Development Act, Congress authorized the most significant set of flood control improvements since Folsom Dam was constructed in 1955. These improvements will raise the minimum level of protection from about 85-year to 140-year and provide a foundation for additional improvements to achieve the federal, state and local goal of at least 200-year flood protection. Additionally, because these projects will improve the ability of federal dam operators to control American River flows, they also benefit Sacramento's downstream neighbors in Yolo County. Property owners, flood control engineers, businesses and environmentalists all agree Sacramento needs to move forward with these improvements as rapidly as possible. Last year, the projects were authorized and funded by the State and, by an 82 percent margin, Sacramento property owners voted to tax themselves to provide the local share. These actions clearly demonstrate the strong state and local support for these projects. We hope you can understand our desire for appropriation levels that will allow these and other projects to proceed forward on an optimum schedule.

SOUTH SACRAMENTO STREAMS GROUP PROJECT

In 1995, homes in the South Sacramento area were threatened by rain swollen creeks which reached to within a foot, and in some areas less, of overtopping the levees and channels and flooding adjacent residential subdivisions. The Corps 1998 feasibility study concluded much of the urban area of South Sacramento has less than 50-year flood protection from these urban streams. There are over 100,000 people and 41,000 structures in the floodplain of Morrison, Unionhouse, Florin and Elder Creeks that make up the South Sacramento Streams Group Project. Congress authorized the NED plan recommended by the Corps as part of the 1999 WRDA. However, a misunderstanding resulted in Congress only appropriating funds to advance preliminary engineering and design in 2002. This project is ready to start construction, and we are requesting a new start and a $10 million appropriation. Additionally, we are asking the committee to approve a 215 crediting agreement so that we can use the non-federal funds to initiate construction this summer.

FOLSOM DAM MODIFICATIONS

When Folsom Dam, the only flood control structure along the American River was completed in 1955, Sacramento was thought to have a very high level of flood protection (500-year or greater) consistent with other urban areas in the nation. However, five recent large storms have demonstrated that the American River can produce far larger floods than anticipated at the time Folsom was designed. The Corps has concluded that Folsom can control only about an 85-year storm. This is far less protection than the project was authorized to provide and substantially less than other similarly situated major urban areas around the nation including St. Louis, Kansas City, Dallas, Omaha, Minneapolis, and Pittsburgh.

Following unsuccessful efforts to obtain authorization of a new flood control dam on the American River in 1992 and 1996, the Corps, the State and SAFCA shifted their focus to identifying improvements to Folsom Dam that will cost effectively increase flood protection. As a result of these efforts, Congress authorized improvements to the outlet works at Folsom dam in the 1999 WRDA, and approved a new start in 2001.

This single project, the centerpiece of the Federal program in Sacramento, nearly doubles the level of flood protection for 150,000 homes and 5,000 businesses in Sacramento and improves the level of protection for downstream communities in Yolo County. The project risks are extreme, the benefits of the project are significant, and an aggressive schedule is clearly justified. We are therefore requesting an appropriation of $12 million so that construction on this important project can continue.

AMERICAN RIVER COMMON ELEMENTS PROJECT

In 1996, Congress did not approve a comprehensive flood control project for Sacramento, but did authorize levee-strengthening projects that were common to all the long-term alternative plans. These included 26 miles of levee stabilization along the lower American River, raising and strengthening 12 miles of the east levee of the Sacramento River, and an early warning system to protect recreational visitors along the American River. The purpose of these projects is to prevent the types of levee failures and resultant flooding that occurred in the Central Valley in 1986 and 1997. An appropriation of $17 million is requested so that the work authorized on American River Levees in 1996 and 1999 can be completed.

SACRAMENTO BANK PROTECTION PROJECT (AMERICAN RIVER LEVEES)

SAFCA, the State of California and the Corps have found that bank protection improvements are needed to stop erosion that otherwise threatens urban levees along the lower American River. Over the last four years SAFCA has led a collaborative process through which flood control, environmental and neighborhood interests have reached agreement on how to complete this work in a manner which protects the sensitive environmental and aesthetic values of the American River in addition to improving the reliability of the levee system. As a result, an American River bank protection construction program was implemented under the Sacramento River Bank Protection authorization. An appropriation of $3 million is needed to complete projects already started.

MAGPIE CREEK (SECTION 205 CONTINUING AUTHORITIES PROGRAM)

The Magpie Creek Diversion Project, constructed by the Corps in 1955 as an element of the Sacramento River Flood Control Project, is inadequate for even the 100-year flood event using the most up-to-date hydrologic data. The resulting floodplain encompasses downstream residential and commercial structures and would close Interstate 80, the major east-west transportation route through Sacramento. The Corps has completed a favorable report recommending the initiation of a Section 205 small flood control project in the area adjacent to the McClellan Air Force Base. In addition, Congress specifically directed a separate Section 205 study pursuant to Section 104 of the Water Resources Development Act of 1999 for the on-base portion of Magpie Creek. The off-base improvements have a benefit to cost ratio of 2.5 to 1. Both portions protect existing urban development and are essential to provide capacity for future improvements on McClellan Air Force Base to allow for orderly conversion of this closed base to a Sacramento employment center. Congress earmarked funds in last year's Energy and Water Appropriations bill to initiate work on the off-base portion of the project, but construction has been delayed. SAFCA seeks a $3.0 million earmark as part of the proposed fiscal year 2002 budget for the Section 205 Program and requests the Corps be directed to initiate construction of the Magpie Creek Diversion Project with those funds. SAFCA also requests Con-

gress direct the Corps to move forward with an investigation of alternatives for controlling flooding on base.

AMERICAN RIVER PLAN

An appropriation of $1 million is needed so that the Corps can complete its evaluation of alternative projects for providing a minimum of 200-year flood protection for Sacramento. This evaluation, ordered by Congress in 1999, is focused on three measures. The first includes modifying levees so more water can safely be conveyed through Sacramento in a flood. The second option is enlarging Folsom Dam so that more water can be effectively stored during a flood, and the third incorporates improvement in long range weather forecasting into flood control operations. Combinations of these measures are also being evaluated, and the full feasibility study will be presented to Congress in 2002.

AMERICAN RIVER WATERSHED (NATOMAS FEATURES)

In 1992, the recommended plan for the American River was construction of a flood detention dam at Auburn and levee improvements around Natomas and along lower Dry and Arcade Creeks. Congress did not authorize the recommended project in the 1992 WRDA, but in subsequent legislation that year Congress did authorize the levee improvements around the Natomas basin and North Sacramento. The authorizing legislation included provisions to reimburse the local agency for constructing levee improvements that were consistent with the Federal project. With over 75,000 residents at risk, subject to life threatening flood depths of 20 feet in some areas, SAFCA decided to initiate construction of the project using local funds with the potential for future Federal reimbursement. By borrowing heavily from other sources and debt financing through a capital assessment district, SAFCA proceeded to rapidly construct a $60 million project that was consistent with the 1992 authorization. However, the Corps 1992 report described levee improvements that were consistent with controlling flow in the American River with a dam at Auburn. SAFCA felt the construction of that project was uncertain and therefore decided to construct higher levees than those described in the Corps report. These improvements were instrumental in preventing flooding in 1995 and 1997. However, the borrowing of funds, coupled with additional future flood control obligations, has severely strained SAFCA's financing capability. The Corp has agreed to reimburse SAFCA $21 million, their estimate of the costs of building levees to the heights described in their 1992 report and Congress has appropriated funds consistent with that agreement. The Corp has also agreed to consider reimbursement for higher levees, and SAFCA and the Corps are jointly working on an agreement for additional reimbursement. In anticipation of a formal agreement on this matter, we are requesting an appropriation of $5 million.

LOWER STRONG AND CHICKEN RANCH SLOUGHS

SAFCA, in cooperation with Sacramento County, is seeking appropriations of $0.2 million to allow the Corp to complete it feasibility study for Lower Strong and Chicken Ranch Sloughs. Floodwaters from these urban streams are collected and pumped into the American River. In 1986 and again twice in 1997, the limited channel and pumping capacity led to significant flood damages to a number of residential and commercial structures. Most of the flooding occurs when the American River is at a high stage due to releases from Folsom Dam. The original pump station was built by the Corps as part of the American River and Folsom project in the 1950's but does not have sufficient capacity to prevent flooding from today's larger storms. The Corps has completed a reconnaissance evaluation and concluded that there is a federal interest in completing a feasibility study. This appropriation would allow that study to move forward on an optimal schedule.

PREPARED STATEMENT OF CHARLES H. BUCKNAM

Dear Subcommittee on Energy and Water Development: Thank you for agreeing to consider this request for funding of the Acid Drainage Technology Initiative (ADTI) through the federal multi-agency mechanism. The Army Corps of Engineers (USAGE) is being requested to provide annual funding of up to $200K, to match the standard set by the Office of Surface Mining (OSM). OSM funding is going primarily to the Coal Mining Sector of ADTI and a predictable base of funding is also needed for the Metal Mining Sector activities, in order to identify the best science for controlling acid and metal drainage from metal mines and related materials.

The Prediction Committee of the Acid Drainage Technology Initiative Metal Mining Sector (ADTI–MMS) has identified several needs to improve the scientific and technical foundation necessary for accurate prediction of mine waste drainage quality. More accurate prediction of mine waste drainage quality will lead to the management of mine wastes in a manner that will avoid adverse impacts to natural waters. ADTI–MMS Prediction Committee activities will benefit multiple federal agencies. Broad based funding from participating federal agencies (to augment the voluntary contributions from states, federal agencies, industry, universities and consulting companies), will greatly accelerate progress of the ADTI–MMS Prediction Committee.

Federal and state land-managing agencies, as well as mining companies, are continually challenged with making environmentally-sound decisions on how to best manage millions of tons of mine waste from abandoned, existing, and future metal-mining activities without adversely impacting water quality. Mine-waste management decisions are largely based on the predicted quality of drainage from mine wastes. Several predictive tests to help forecast minewaste drainage quality are available to industry and reviewing agencies, yet no consensus exists regarding how well these tests predict future drainage quality in the field. What is critically needed is a systematic, unbiased, scientific assessment of the available tests, an organized compilation of existing predictive data to evaluate the accuracy of tests, modification of existing or development of new tests, and evaluation and development of mine waste dissolution models. These aspects are essential for making scientifically based decisions on mine waste management.

The ADTI–MMS consists of volunteer representatives from government, academia, and the private sector who are involved in the environmentally sound management of metal-mine wastes. This group is focused on cost effective, environmentally sound methods and technologies to manage mine wastes and related metallurgical materials for abandoned, active and future mining and associated operations. The objective of the ADTI–MMS is to identify, evaluate, develop, disseminate information regarding, and promote understanding of these methods and technologies.

The Prediction Committee is one of five technical committees formed by the ADTI–MMS. The focus of the Prediction Committee is prediction of drainage quality from mining wastes (i.e. tailings, waste rock) and related metallurgical materials (e.g. stockpiles). Based on the predicted drainage quality from a mine waste, appropriate mine waste management plans can be developed to avoid adverse impacts to natural waters. In order to improve the scientific and technical foundation necessary for accurate prediction of mine waste drainage quality, the ADTI–MMS Prediction Committee identified the following needs.

—Survey, analyze and compile information from literature and active research regarding scientific and technical foundations and methods for mine waste drainage quality prediction.
—Develop standard methods for prediction of drainage quality from mine wastes and associated metallurgical materials.
—Develop reference standards for quality assurance of predictive test results.
—Generate empirical data on the long-term dissolution behavior of mine wastes by conducting field and laboratory tests on individual mine waste rock types.
—Conduct literature surveys and develop data bases for field validation of prediction methods.
—Conduct regional workshops with government, industry and academia to arrive at consensus on scientific and technical foundations and methods for predicting drainage quality.
—Disseminate the latest information on the best science for mine waste drainage quality prediction to those involved and interested in the sound prediction of drainage quality.

The ADTI–MMS Prediction Committee has made progress in these areas through voluntary efforts and limited funding from the Office of Surface Mining and Environmental Protection Agency. Furthermore, we are committed to continue this work. With broader based funding from participating federal agencies to augment these contributions, we can address these needs more effectively and in a much shorter time frame. Thank you for your time and interest in this vital area. Your continued funding of this Committee's activities will significantly improve our ability to develop the best science for addressing drainage issues with an organized and predictable schedule.

PREPARED STATEMENT OF REBECCA A. MILLER

Thank you for agreeing to consider this request for funding of the Acid Drainage Technology Initiative (ADTI) through the federal multi-agency mechanism. The Army Corps of Engineers (USAGE) is being requested to provide annual funding of up to $200K, to match the standard set by the Office of Surface Mining (OSM). OSM funding is going primarily to the Coal Mining Sector of ADTI and a predictable base of funding is also needed for the Metal Mining Sector activities, in order to identify the best science for controlling acid and metal drainage from metal mines and related materials.

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—Survey, analyze and compile information from literature and active research regarding scientific and technical foundations and methods for mine waste drainage quality prediction.
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—Conduct regional workshops with government, industry and academia to arrive at consensus on scientific and technical foundations and methods for predicting drainage quality.
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The ADTI–MMS Prediction Committee has made progress in these areas through voluntary efforts and limited funding from the Office of Surface Mining and Environmental Protection Agency. Furthermore, we are committed to continue this work.

With broader based funding from participating federal agencies to augment these contributions, we can address these needs more effectively and in a much shorter time frame.

Thank you for your time and interest in this vital area. Your continued funding of this Committee's activities will significantly improve our ability to develop the best science for addressing drainage issues with an organized and predictable schedule.

PREPARED STATEMENT OF THE COACHELLA VALLEY WATER DISTRICT; IMPERIAL IRRIGATION DISTRICT; METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA; AND SAN DIEGO COUNTY WATER AUTHORITY

FISCAL YEAR 2002 FUNDING REQUEST FOR HABITAT AND ENHANCEMENT AND IMPROVED WATER MANAGEMENT

It is requested that $2 million be provided in the Bureau of Reclamation fiscal year 2002 budget for Salton Sea area habitat enhancement, budget line item—Salton Sea Project. It is also requested that $2.8 million be provided in the Bureau of Reclamation fiscal year 2002 budget for water management reservoirs near the All-American Canal, budget line item—Colorado River Front Work and Levee System. This funding is needed to ensure the success and timely implementation of California's Colorado River Water Use Plan to bring California within its 4.4 million acre-feet per year normal apportionment of Colorado River water. In recent years, California has taken up to 5.2 million acre-feet per year, relying on surplus and unused apportionments of other states that will not be available in the future.

California's Colorado River Water Use Plan is a major undertaking by the State and its agencies that will enable California to reduce its reliance on Colorado River water by up to 800,000 acre-feet per year. Key components of California's Colorado River Water Use Plan include core voluntary cooperative water conservation/transfers from agricultural use to urban use which are needed for California to meet its water needs and maintain its urban and agricultural economies. At the same time, we must conserve and enhance critical wildlife habitats that could be affected by water conservation programs.

California and its Colorado River water users will be making expenditures in the billions of dollars to implement California's Colorado River Water Use Plan. This funding request deals with federal aspects and responsibilities that are critical to the success of the Plan.

The habitat enhancement measures in and around the Salton Sea and its national wildlife refuge are necessary to gain the environmental permits and approvals associated with implementing a key component of California's Colorado River Water Use Plan, cooperative water conservation/transfers of over 500,000 acre-feet of water per year from agriculture use to urban use. These actions are intended to conserve and enhance habitat that could be affected by agricultural water use efficiency improvements needed to provide water to meet urban water needs in southern California. The funds would be used to create lower salinity habitat in the Salton Sea deltas and surrounding areas, provide for wetland/upland restoration and conservation, and enhance piscivorous bird habitat.

The water management reservoirs would improve Colorado River and supply management, water conservation, and energy generation; help facilitate water storage and conjunctive use programs; provide water for environmental purposes; and provide for cooperative improved water supply management opportunities with Mexico. Much of the identified benefits relate to federal responsibilities for Colorado River management and water deliveries.

Successful implementation of California's Colorado River Water Use Plan is vital to the economy and water supply reliability of the State of California, and is critical to the Colorado River interests of the other Colorado River Basin states and Mexico. We respectively request that these items and funding levels be part of the Bureau of Reclamation's fiscal year 2002 budget.

PREPARED STATEMENT OF THE CENTRAL ARIZONA WATER CONSERVATION DISTRICT

Mr. Chairman: The Central Arizona Water Conservation District (CAWCD) is pleased to offer the following testimony regarding the fiscal year 2002 Energy and Water Development Appropriations Bill.

The Central Arizona Project or "CAP" was authorized by the 90th Congress of the United States under the Colorado River Basin Project Act of 1968. We thank the Committee for its continuing support of the CAP. The CAP is a multi-purpose water

resource development project consisting of a series of canals, tunnels, dams, and pumping plants which lift water nearly 3,000 feet over a distance of 336 miles from Lake Havasu on the Colorado River to the Tucson area. The project was designed to deliver the remainder of Arizona's entitlement of Colorado River water into the central and southern portions of the state for municipal and industrial, agricultural, and Indian uses. The Bureau of Reclamation (Reclamation) initiated project construction in 1973, and the first water was delivered into the Phoenix metropolitan area in 1985. For the first time, CAP delivered its normal year entitlement of 1.5 million acre-feet in 2000, allowing Arizona to utilize its full Colorado River apportionment of 2.8 million acre-feet.

CAWCD was created in 1971 for the specific purpose of contracting with the United States to repay the reimbursable construction costs of the CAP that are properly allocable to CAWCD, primarily water supply and power costs. In 1983, CAWCD was also given authority to operate and maintain completed project features. Its service area is comprised of Maricopa, Pima, and Pinal counties. CAWCD is a tax-levying public improvement district, a political subdivision, and a municipal corporation, and represents roughly 80 percent of the water users and taxpayers of the state of Arizona. CAWCD is governed by a 15-member Board of Directors elected from the three 2 counties it serves. CAWCD's Board members are public officers who serve without pay.

Project repayment is provided for through a 1988 Master Repayment Contract between CAWCD and the United States. Reclamation declared the CAP water supply system (Stage 1) substantially complete in 1993, and declared the regulatory storage stage, or Plan 6 (Stage 2), complete in 1996. No other stages are currently under construction. Project repayment began in 1994 for Stage 1 and in 1997 for Stage 2. To date, CAWCD has repaid $548 million of CAP construction costs to the United States. In 2000, CAWCD and Reclamation successfully negotiated a settlement of the dispute regarding the amount of CAWCD's repayment obligation for CAP construction costs. This dispute has been the subject on ongoing litigation in United States District Court in Arizona since 1995. The CAWCD Board of Directors formally approved a settlement stipulation on March 2, 2000, and the stipulation was subsequently approved by the United States District Court on May 9, 2000. The settlement stipulation provides a three-year timeframe in which to complete several other activities that are necessary for the settlement to become final.

In its fiscal year 2002 budget request, Reclamation seeks $31,442,000 for the CAP. Of this amount, $24,420,000 is requested for the construction of Indian distribution systems. The balance, $7,022,000, is sought for other CAP activities, most of which would be at least partially reimbursable by CAWCD. Under the settlement stipulation, these costs would not affect CAWCD's repayment obligation. Of the total $31,442,000 requested, $1,418,000 is earmarked to fund activities associated with implementation of a 1994 biological opinion of the U.S. Fish and Wildlife Service (FWS) pertaining to delivery of CAP water to the Gila River Basin and for native fish activities on the Santa Cruz River.

For the Gila River Basin, these funds are requested for payments to FWS for non-native fish eradication activities and native fish conservation ($500,000), and for the Santa Cruz River Basin, funds are requested for the construction of fish barriers ($708,000) and non-native fish eradication activities ($60,000). In addition, Reclamation is seeking $148,000 to cover its non-contract costs. Historically, CAWCD has objected to Reclamation's continued spending in these areas. Both environmentalists and CAWCD challenged the 1994 biological opinion in court. However, given its settlement with the United States over CAP costs, CAWCD supports Reclamation's budget request to allow it to complete Endangered Species Act compliance for CAP deliveries in the Gila River basin.

CAWCD continues to support appropriations necessary to ensure timely completion of all CAP Indian distribution systems. We note that Reclamation's fiscal year 2002 budget request of $24,420,000 for CAP Indian distribution systems is $1,409,000 less than the fiscal year 2001 budget request for this item. CAWCD supports full funding for this program.

CAWCD also supports the continuation of funding for the Tucson Reliability Division. The requested $375,000 will allow planning work to continue and will assist Tucson in developing and implementing a plan to ensure adequate reliability for its CAP water allocation.

In its fiscal year 2002 budget request, Reclamation also seeks $13,103,00 for its Lower Colorado River Operations Program. This program is necessary for Reclamation to continue its activities as the "water master" on the lower Colorado River. In addition, this program provides Reclamation's share of funding to complete the lower Colorado River Multi-Species Conservation Program (MSCP). Of the $13,103,000, $2,808,000 is requested for administration of the Colorado River,

$2,695,000 is for water contract administration and decree accounting, and $7,600,000 is for fish and wildlife management and development. The fish and wildlife management and development program includes funding for the MSCP ($3,129,000) endangered species protection ($1,364,000) riparian and native fish habitat and ecological restoration ($2,907,000), and program administration ($200,000).

CAWCD supports Reclamation's budget request for the Lower Colorado River Operations Program. The increased funding level is necessary to support the MSCP effort as well as environmental measures necessary to fully implement the interim surplus criteria for the lower Colorado River. These are both critical programs upon which lower Colorado River water and power users depend. CAWCE also supports increasing Reclamation's funding by $12,500,000 in 2002 to support MSCP pilot projects. The $12,500,000 includes $7,000,000 for the acquisition of private properties along the lower Virgin River through the Land and Water Conservation Fund. $2,500,000 for the Colorado River Indian Tribes Ahakhav and Deertail Backwater Restoration Project proposal to restore approximately 1,500 acres of native aquatic, wetland, and riparian habitat, and $3,000,000 to support habitat conservation planning and data acquisition by the U.S. Fish and Wildlife Service on behalf of the MSCP.

The MSCP is a cost-shared program among federal and non-federal interests to develop a long-term plan to conserve endangered species and their habitat along the lower Colorado River from Lake Mead to Mexico. CAWCD is one of the cost-sharing partners. Development of this program will conserve hundreds of threatened and endangered species and, at the same time, allow current water and power operation to continue. The MSCP pilot projects are essential to begin the process of protecting and conserving species and habitat on the lower Colorado River. The interim surplus criteria allow the Secretary of the Interior to declare limited Colorado River surpluses for the next 15 years to assist California in gradually reducing its use of Colorado River to its annual apportionment of 4.4 million acre-feet.

Finally, in its fiscal year 2002 budget request, Reclamation seeks $685,000 for the South/Central Arizona Investigations Program. This program includes funding for the Central Arizona Salinity Investigations ($300,000), Southern Arizona Regional Water Management Study ($150,000), Verde River Basin Water Management Plan ($35,000), West Salt River Valley Water Management Study ($50,000), and the Upper Gila Watershed Restoration Program ($150,000). CAWCD again supports funding for Reclamation's investigations in south/central Arizona. The West Salt River Valley Water Management Study, in particular, will study the integration and management of water resources in the West Salt River Valley, including the use of CAP water. CAWCID supports continued funding for this effort. In addition, the Southern Arizona Regional Water Management Study will continue work with Pima County water providers to develop a plan for integrating CAP water, groundwater, and reclaimed effluent. CAWCD supports funding for this effort as well.

CAWCD welcomes this opportunity to share its views with the Committee, and would be pleased to respond to any questions or observations occasioned by this written testimony.

PREPARED STATEMENT OF THE MID-DAKOTA RURAL SYSTEM, INC.

FISCAL YEAR 2002 FUNDING REQUEST

First let me thank the Subcommittee for the opportunity to testify in support of fiscal year 2002 appropriations for the Mid-Dakota Rural Water Project and for the Subcommittee's support both past and present.

The Mid-Dakota Project is requesting $30.684 million in Federal appropriations for fiscal year 2002. As with our past submissions to this Subcommittee, Mid-Dakota's fiscal year 2002 request is based on a detailed analysis of our ability to proceed with construction during the fiscal year. In all previous years, Mid-Dakota has fully obligated its appropriated funds, including Federal, state, and local, and could have obligated significantly more were they available.

Mid-Dakota understands and appreciates pressures on Congress to pass and maintain a balanced and seemingly an austere budget and in that respect we understand the difficulties before congressional appropriators to provide sufficient funds to fully fund our request. However, we request and strongly urge Congress to appropriate the full amount of Mid-Dakota's request.

HISTORY OF PROJECT FUNDING

The Project was authorized by Congress and signed into law by President George H.W. Bush in October 1992. The Federal authorization for the project totaled $100 million (1989 dollars) in a combination of Federal grant and loan funds (grant funds may not exceed 85 percent of Federal contribution). The State authorization was for $8.4 million (1989 dollars.) The total authorized indexed cost of the project now stands at approximately $144 million (fiscal year 2001). All Federal funding considered, the Government has provided 61 percent of its commitment ($81.8 million of $134 million) to provide construction funding for the Project. When considering the Federal and state combined awards, the project is approximately 63 percent complete, in terms of financial commitments.

Mid-Dakota wishes to thank this committee for its support over the past eight years. Within the limited monetary parameters of current Federal awards and funds appropriated by the state of South Dakota, we have been able to put those scarce resources to good work, making exceptional progress on project construction, albeit not nearly as fast as is needed or as we had initially envisioned.

SUMMARIZATION OF FEDERAL FUNDING

[In millions of dollars]

Fed. fiscal year	Mid-Dakota Request	Pres. budget	House	Senate	Conf. enacted levels	Bureau award levels	Additional funds	Total fed. funds provided
1994	7.991	0	0	2.000	2.000	1.500	0	1.500
1995	22.367	0	0	8.000	4.000	3.600	0	3.600
1996	23.394	2.500	12.500	10.500	11.500	10.902	2.323	13.225
1997	29.686	2.500	11.500	12.500	10.000	9.400	1.500	10.900
1998	29.836	10.000	12.000	13.000	13.000	12.221	1.000	13.221
1999	32.150	10.000	10.000	20.000	15.000	14.100	2.000	16.100
2000	28.800	5.000	15.000	7.000	14.000	12.859	1.000	13.859
2001	24.000	6.040	11.040	6.040	10.040	9.398	0	9.398
2002	30.684	.....	.....	.....	.....	.....	.....	.....
Totals	.....	36.040	72.040	79.040	79.540	73.980	7.823	81.803

Additionally, the State of South Dakota has contributed $9.67 million in grants to the Mid-Dakota Project in previous years. The State of South Dakota completed its initial authorized financial obligation to the Mid-Dakota Project in the 1998 Legislative Session.

The $10.04 million funding provided by the Subcommittee in fiscal year 2001 provided Mid-Dakota with the opportunity to achieve significant accomplishments for the fiscal year. These are later summarized in the section titled "Construction in Progress." Mid-Dakota will continue to deliver quality drinking water to 14 community systems and approximately 1,800 rural customers (farms and ranches). Mid-Dakota estimates that an additional 300 rural farm and ranch accounts along with two more community systems will be receiving project water at the close of contracts awarded in fiscal year 2000/2001. The generosity of the Subcommittee has already had a deep and favorable effect on the lives of over 12,000 South Dakotans.

IMPACTS OF PREVIOUS AWARDS

As is evident by the previous table ("Summarization of Federal funding") Mid-Dakota has typically received less than one-half of its funding requests as an enacted appropriation. As disturbing as the funding short-falls are, even more disturbing is the fact that the Federal government is not alone in absorbing negative impacts of insufficient funding. In addition to making the Mid-Dakota Project more expensive to the Federal government, the resulting delays also have had a direct and proportional effect on the rate of debt service to be paid by the Project and ultimately the water users. The repayment agreement entered into by Mid-Dakota and the Federal government (the Bureau of Reclamation acting on the government's behalf), demands that Mid-Dakota's "minimum bill" increase proportionally with the indexing applied to the Project. This is done by establishing the ratio of the Federal authorization at the time Mid-Dakota submitted its Final Engineering Report (FER) in 1994, compared to the authorized ceiling today with indexing applied. This same ratio is then applied to Mid-Dakota's "minimum bill" as was identified at the time of execution of the repayment agreement.

By the Federal Government's (through the Bureau of Reclamation) own design, slowing down the development of the Mid-Dakota Project will ultimately make the Project more expensive, in terms of rates paid by water users, construction costs, total debt of the Project and Bureau of Reclamation's oversight costs.

IMPACTS OF FISCAL YEAR 2002 AWARD

The most obvious impact of any significant reduction from Mid-Dakota's request will be the delay of construction of one or more Project components. The $30.684 million dollar request will allow the Project to proceed with construction of multiple contracts summarized later in this testimony. An award of less than our request will result in the deletion or reconfiguration of one or more of these contracts from the fiscal year 2002 construction schedule. Further, reduced appropriations have the effect of adding more cost to the amount needed for completion of the Project.

Mid-Dakota has consistently informed members of Congress and appropriate Federal agencies about the detrimental effects insufficient funding have on the Project and ultimately the people who are to receive the water. In previous years, Mid-Dakota and the public, which we will serve, have been able to make the most of the resources provided by the Project. However, failure to provide full funding has had profound consequences.

CONSTRUCTION IN PROGRESS

Mid-Dakota began construction in September 1994, with the construction of its Water Intake and Pump Station. Since that eventful day of first construction start, we have bid, awarded, and completed 17 project components and are constructing on seven other major Project components. The following table provides a synopsis of each major construction contract:

SUMMARIZATION OF CONSTRUCTION

[In millions of dollars]

Cont. No.	Description	Cont. budget [1]	Cont. bid award	Final cont. price	Over (under) budget	Percent over (under) budget
1–1	Oahe Water Intake and Pump Station	4.662	3.959	3.945	(0.717)	(15)
2–1	Oahe Water Treatment Plant	13.361	9.920	10.278	(3.083)	(23)
3–1A	Raw Water Pipeline	1.352	1.738	1.719	0.367	27
3–1B	Main Pipeline—Blunt	7.823	6.916	7.024	(0.799)	(10)
3–1C	Main Pipeline—Highmore	5.439	4.791	4.798	(0.641)	(12)
3–2A	Main Pipeline—Ree Hights	3.261	3.155	3.149	(0.112)	(3)
3–2B	Main Pipeline—St. Lawrence, SD	3.691	3.349	3.352	(0.339)	(9)
4–1A/B (1–5)	Distribution System—West	9.345	9.983	10.731	[2] 1.386	15
4–1A/B (6)	Distribution System—North West	8.333	8.329	9.028	[2] 0.695	8
4–2 (1)	Distribution System—Central	4.727	4.717	4.700	(0.027)	(.5)
4–2 (2)	Distribution System—South Central	2.763	2.835	3.000	[2] 0.237	9
4–2 (4–5)	Distribution System—Central	5.753	4.952	In Prog.	n/a	n/a
4–2A (4)	Distribution System—Central	1.042	.991	In Prog.	n/a	n/a
5–1	Water Storage Tank—Highmore	1.545	1.434	1.433	(0.108)	(7)
5–1A (1)	Water Storage Tank—Onida	0.471	0.395	0.400	(0.075)	(16)
5–1A (2)	Water Storage Tank—Okobojo	0.381	0.338	0.333	(0.048)	(13)
5–1A (3)	Water Storage Tank—Agar	0.422	0.391	0.385	(0.037)	(9)
5–1A (4)	Water Storage Tank—Gettysburg	0.952	0.814	0.808	(0.144)	(15)
5–2 (1)	Water Storage Tank—Mac's Corner	.460	.573	.561	0.101	22
5–2 (2)	Water Storage Tank—Rezac Lake	.438	.493	In Prog.	n/a	n/a
5–2 (3)	Water Storage Tank—Collin's Slough	.254	.393	In Prog.	n/a	n/a
5–2A (1)	Water Storage Tank—Ames [3]	.300	.378	In Prog.	n/a	n/a
5–2A (2)	Water Storage Tank—Cottonwood Lake [3]	.800	.696	In Prog.	n/a	n/a
5–2A (3)	Water Storage Tank—Wessington Springs [3]	.515	.491	In Prog.	n/a	n/a
	Totals	78.090	72.031	65.644	(3.344)	(5)

[1] Contract budget is determined by Mid-Dakota's estimate for the contract at the time of bidding.
[2] A significant portion of cost increases are attributable to the placement of additional users as construction proceeds.
[3] Contract bid and awarded in fiscal year 2001, only site and concrete work given authorization to proceed.

As is evident by the foregoing table, Mid-Dakota has been very successful in containing Project costs. Currently the construction of major Project components are approximately 5 percent under budget, providing an estimated saving of over $3.3 million. The savings are an example of sound engineering, good management, and advantageous bid lettings. While we can't guarantee future contract bid lettings will continue to provide the level of savings currently experienced, we do think it speaks well of the Mid-Dakota Project and how we've managed Project funding to date.

RESPONSE TO RELATED CRISIS SITUATIONS

Mid-Dakota also provided the solution to a number of crisis situations in the past. The following are some of the most notable examples:

—Mid-Dakota was the catalyst of the "rescue" effort in the City of Gettysburg, SD, to provide the town with a dependable, quality water supply (Mid-Dakota) just as they were about to lose their existing water intake, due to sluffing of the hillside at that location.

—Mid-Dakota constructed an advanced project feature in Virgil, South Dakota. The town of Virgil, SD now has a new distribution system, replacing the old one that was in disrepair and draining the town coffers to keep it running and supply drinking water to Virgil residents.

—Mid-Dakota has agreed to take over the operations of the Southern Spink and Northern Beadle Rural Water System (SSNB). The SSNB is a small community water supply system that lacks the necessary capacity to properly operate a potable water supply system.

—Mid-Dakota replaced approximately eight miles of pipeline along U.S. Highway 212. An existing water pipeline located in the Highway right-of-way would have to be relocated increasing the cost of the Highway improvement. Mid-Dakota instead placed its pipeline (that would have been constructed in the future) out of the way of the Highway improvement. This lessened the cost of the Highway project and provided for an uninterrupted supply of water to people along the pipeline route.

—Mid-Dakota recently (January 2001) took over operational responsibility for the water system in the City of St. Lawrence, South Dakota. The community (pop. <300) was having trouble maintaining a qualified operator to maintain their systems as is mandated by EPA. An Administrative agreement between Mid-Dakota and the City provided a viable solution to their dilemma.

Additionally, Mid-Dakota is keeping in close contact with the City of Huron, SD, (population 12,400) regarding potentially serious EPA water quality violations anticipated with the implementation of the Safe Drinking Water Act (SDWA) enhanced surface water rules due in 2003. Engineers who have analyzed the current drinking water source for Huron (James River) have concluded that the City will not be able to treat the current James River source without very significant and costly upgrades to their existing treatment facilities. Further the engineers have concluded that without these upgrades or switching to a new source i.e., Mid-Dakota, the City will be out of compliance with the Disinfection and Disinfection byproducts rule (D/DBP) to be implemented in 2003. Huron is located at the East end of the Mid-Dakota Project (Mid-Dakota is being built in a general West to East manner) and is currently Mid-Dakota's largest contracted user. It is anticipated that with sufficient funding, beginning with fiscal year 2002 and continuing thereon, Mid-Dakota can be in a position to connect to Huron in time to remedy the potential EPA non-compliance issue faced by Huron.

TENTATIVE FISCAL YEAR 2002 CONSTRUCTION SCHEDULE

Mid-Dakota[3] has developed an aggressive construction schedule for fiscal year 2002, with plans to install nearly 700 miles of rural pipeline and 45 miles of main transmission pipeline. The proposed construction would provide service to an estimated 17,000 more people than are currently receiving or scheduled to receive Project drinking water (estimate includes the City of Huron, SD). Our construction schedule will also provide the necessary main pipeline infrastructure to move forward with many more rural and community connections in the future. Federal funding allocated in any given fiscal year is always the limiting factor that drives Mid-Dakota's construction schedule.

[3] Project features listed in table are subject to rescheduling based upon funding provided, readiness to proceed, and other factors. Actual construction activities, therefore, may not coincide exactly with schedule presented here.

CONSTRUCTION SCHEDULE FISCAL YEAR 2002

[Schedule is based upon Mid-Dakota's "Capability Statement" provided to the Bureau of Reclamation in January 2001]

PROJECT FEATURE [1]	Construction estimates	Percent construction phase services	Cost of construction phase services	Total feature cost
Main Pipeline—Wolsey	$5,777,000	5.5	$317,735	$6,094,735
Main Pipeline—Huron	4,959,000	5.5	272,745	5,231,745
Distribution System—Ames [2]	3,100,613	12.5	387,577	3,488,190
Distribution System—Cottonwood Lake [2]	4,801,077	12.5	600,135	5,401,212
Distribution System—Wessington Springs [2]	2,824,714	12.5	353,089	3,177,803
Storage Tank—Ames	$225,000	14.0	31,500	256,500
Storage Tank—Cottonwood Lake	675,000	14.0	94,500	769,500
Storage Tank—Wessington Springs	425,000	14.0	59,500	484,500
Storage Tank—Redfield	300,000	14.0	42,000	342,000
Subtotal Construction	23,087,404	9.4	2,158,781	25,246,185
Contingencies [3]	([4])	10.0		2,308,740
Engineering, Design and Consultants				975,000
Administration and General	([4])	2.0		461,748
Bureau of Reclamation Oversight	([4])	3.0		692,622
Total RWS fiscal year 2002				29,684,295
Wetland Component				1,000,000
Total Fiscal Year 2002 Request				30,684,295

[1] Construction of Features not listed in any order of priority.
[2] Completion of a "Distribution System" must include the accompanying Water Storage Tank in order to be hydraulically operable.
[3] Contingencies include 5 percent (bidding) and 5 percent (Change Order).
[4] Percent of construction.

CLOSING

Mid-Dakota is intensely aware of the difficult funding decisions that face the Energy and Water Appropriations Subcommittee and we do not envy the difficult job that lies ahead. We strongly urge the Subcommittee to look closely at the Mid-Dakota Project and recognize the dire need that exists. Consider the exceptionally high level of local and state support and lastly, our readiness, our credibility, and our ability to proceed.

Again, we thank the Subcommittee for its strong support, both past and present.

Prepared Statement of the Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water

FISCAL YEAR 2002 BUDGET REQUEST

The Fort Peck Assiniboine and Sioux Tribes and Dry Prairie Rural Water respectfully request fiscal year 2002 appropriations for the Bureau of Reclamation from your subcommittee on Energy and Water Development. Funds will be used to construct critical elements of the Fort Peck Reservation Rural Water System, Montana, (Public Law 106–382, October 27, 2000). The amount requested is $7,553,000 as set out below:

Fiscal Year 2002 Budget Request

Item	*Budget*
Non-Contract Construction Activities:	
Tribal Administration/Easements	$115,160
Dry Prairie Administration	61,020
Intake Design/Oversight and Inspection	712,800
WTP Design/Oversight	1,811,285

Fiscal Year 2002 Budget Request—Continued

Item	*Budget*
Dane Valley Design/Oversight	174,732
Subtotal	2,874,997
Design and Construction Activities	
Intake Construction (100 percent)	2,880,000
WTP Construction (<5 percent)	813,272
Dane Valley Contruction	984,408
Subtotal	4,677,681
Total	7,552,678

PROPOSED ACTIVITIES

This project, which includes all of the Fort Peck Indian Reservation in Montana and the Dry Prairie portion of the project outside the Reservation (see map), was authorized by Public Law 106–382, October 27, 2000. The budget request provides for final design of the intake and treatment plant for this regional drinking water project. Most important, the budget request provides for 100 percent of the construction costs of the intake on the Missouri River and 15 percent of the construction costs of the treatment plant. A minor project would be undertaken in the Dry Prairie area to bring existing water supplies to Dane Valley residents and mitigate costs of hauling water so prevalent there. All other construction will be of common facilities on the Fort Peck Indian Reservation. The budget request is consistent with (but slightly lower than) the construction schedule in the Final Engineering Report. (See Table 3 for the construction schedule).

STATUS OF PROJECT PLANNING

The Final Engineering Report, incorporating the costs of facilities to serve both the Reservation and the Dry Prairie Rural Water System outside the Fort Peck Indian Reservation is scheduled for completion in June 2001. The draft FER was submitted for review by Reclamation on January 5, 2001. The FER includes a water conservation plan. Bureau of Reclamation concluded a value engineering session on the project on March 2, 2001.

The Final Engineering Report shows that construction costs of the project total $192 million, October 1998$. Costs on the Fort Peck Indian Reservation will be $124 million with 100 percent federal cost share. Construction costs off Reservation in the Dry Prairie area will be $68 million. The federal cost share in the Dry Prairie area will be $51 million (76 percent), the State share will be $8.5 million (12 percent with an approved mechanism for funding by the Montana legislature) and the local share will be $8.5 million (12 percent). The total Federal costs will be $175 million (October 1998$), less or comparable to similar projects in the Western United States.

Environmental baseline investigations have been concluded within the Reservation and the Dry Prairie areas of the project. The latter investigations are currently being incorporated into an environmental assessment to be completed in draft form by June 30, 2001, and in final form by September 30, 2001.

By September 30, 2001, the project will have completed the FER, water conservation plan and NEPA compliance thereby fulfilling all statutory pre-requisites for start of construction in fiscal year 2002.

LOCAL PROJECT SUPPORT

The State of Montana, by action of its legislature, appropriated $62,000 in fiscal year 1997 to provide for a Needs Assessment and cost estimate of facilities outside the Reservation in the Dry Prairie part of the project. The 1999 Montana Legislature approved an additional $182,000 in planning funds for use by Dry Prairie in fiscal year 1999 and 2000. The needs and facility costs determined for the Dry Prairie Water System were incorporated into the Final Engineering Report. In addition, the 1999 Montana Legislature approved a funding mechanism from its Treasure State Endowment Program to finance the non-federal share of project planning and construction. Demonstrating support of Montana for the project, there were only three votes against the statutory funding mechanism in both the full House and Senate.

The Fort Peck Tribes have supported the project since 1992 when they conceived it and sought means of improving the quality of life in the region. The planning was

a logical step after successful completion of an historic water rights compact with the State of Montana. This compact was the national "ice breaker" that increased the level of confidence by other Tribes in Indian water right settlement initiatives. The Tribes did not seek financial compensation for the settlement of their water rights but contemplated water development for meaningful projects as now authorized.

Dry Prairie support is demonstrated by a financial commitment of all 14 communities within the service area to participate in the project. Rural support is strong, with about 70 percent of area farms and ranches intending to participate as evidenced by their intent fees of $100 per household.

ENTERPRISE COMMUNITY DESIGNATION AND NEED FOR WATER QUALITY IMPROVEMENT

The Fort Peck Indian Reservation is designated as an Enterprise Community, underscoring the level of poverty and need for economic development in the region. The success of the Enterprise Community designation within the Reservation will be enhanced with the availability of safe and adequate municipal, rural and industrial water supplies that this regional project will bring to the Reservation. Outside the Fort Peck Indian Reservation, the Dry Prairie area has income levels that are higher than within the Reservation but lower than the State average.

The geologic setting of the Fort Peck Indian Reservation and the counties outside the Reservation is comparable to the rest of eastern Montana, North Dakota and South Dakota. With the exception of the Missouri River, which is a high quality water source, the groundwater supplies of the region are of poor quality. More than 80 percent of rural households draw water from near-surface aquifers with nitrates exceeding primary contaminant levels for drinking water pursuant to regulations implementing the Safe Drinking Water Act. Some of the worst water on the North American Continent lies below the Fort Peck Indian Reservation in the Madison Formation. This water is not used for human or livestock consumption. It is a brine several times more concentrated than sea water. Above this unsuitable aquifer are lesser aquifers that have been subjected to oil and gas development and have been contaminated, in part, by those activities.

The Poplar River, which flows through the central portions of the Fort Peck Indian Reservation and the region is the subject of an Apportionment Agreement between Canada and the United States. Half of the water supply is available for Canada as measured at the International Boundary, and the balance is available for use in the United States. Depletion of this resource by agricultural and coal-fired power generation on the Canadian side increases the concentrations of chemicals and contaminants in the supply for the United States. The Poplar River and its principle tributaries are neither dependable supplies of water nor are they of suitable quality for this project. Thus, the Fort Peck Tribes and Dry Prairie have successfully planned a regional water project, comparable to Garrison, WEB, Mni Wiconi and Mid-Dakota that relies on the high quality waters of the Mainstem Missouri River.

The feature of this project that makes it more cost effective than similar projects is its proximity to the Missouri River. The southern boundary of the Fort Peck Indian Reservation is formed by the Missouri River for a distance of more than 60 miles. Many of the towns in this regional project are located two to three miles from the river, including Nashua, Frazer, Oswego, Wolf Point, Poplar, Brockton, Culbertson, and Bainville. As shown on the enclosed project map, a looping transmission system outside the Fort Peck Indian Reservation will deliver water 30 to 40 miles north of the Missouri River. Therefore, the distances from the Missouri River to all points in the main transmission system are shorter than in other projects of this nature in the Northern Great Plains.

For comparison of water quality of this project with other regional projects, please refer to Tables 1 and 2.

TABLE 1.—COMPARISON OF FORT PECK TOTAL DISSOLVED SOLID LEVELS WITH COMPARABLE PROJECTS

Project	Community	Total Dissolved Solids (mgl)
Fort Peck	Fort Kipp	2,730
Lewis and Clark	Upper Limit	2,600
Mni Wiconi	Red Shirt	2,332
Mni Wiconi	Reliance	2,056
Mni Wiconi	Murdo	1,761

TABLE 1.—COMPARISON OF FORT PECK TOTAL DISSOLVED SOLID LEVELS WITH COMPARABLE PROJECTS—Continued

Project	Community	Total Dissolved Solids (mgl)
Mni Wiconi	Kennebec	1,740
Mni Wiconi	Presho	1,398
Fort Peck	Poplar	1,380
Fort Peck	Frazer	1,180
Lewis and Clark	Lower Limit	1,179
Mni Wiconi	Wakpamni Lake	1,125
Mni Wiconi	Horse Creek	869
Fort Peck	Brockton	748
Mni Wiconi	Pine Ridge Village	416

TABLE 2.—COMPARISON OF FORT PECK SULFATE LEVELS WITH COMPARABLE PROJECTS

Project	Community	Sulfate (mgl)
Lewis and Clark	Upper Limit	1,500
Mni Wiconi	Reliance	1,139
Fort Peck	Fort Kipp	1,120
Mni Wiconi	Red Shirt	1,080
Mni Wiconi	Murdo	1,042
Mni Wiconi	Kennebec	984
Mni Wiconi	Presho	644
Lewis and Clark	Lower Limit	538
Fort Peck	Frazer	498
Mni Wiconi	Horse Creek	410
Mni Wiconi	Wakpamni Lake	398
Fort Peck	Brockton	212
Fort Peck	Poplar	103
Mni Wiconi	Pine Ridge Village	70

TABLE 3.—CONSTRUCTION SCHEDULE FORT PECK ASSININBOINE SIOUX MRI SYSTEM/DRY PRAIRIE RWS

[Amounts in dollars]

Segment	Total cost	Fort Peck/Dry prair	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Intake	2,880,000	Fort Peck		2,880,000									2,880,000
Treatment Plant	16,734,000	Fort Peck		814,000	11,161,000	4,759,000							16,734,000
Poplar to Big Muddy	22,681,000	Fort Peck				4,515,000	6,894,000	10,310,000	962,000				22,681,000
Big Muddy to Plentywood	19,433,000	Dry Prair							4,023,000	6,104,000	9,306,000		19,433,000
Highway 13 to FP Boundary	9,247,000	Fort Peck							4,024,000	5,223,000			9,247,000
FP Boundary to Scobey	4,025,000	Dry Prair									860,000	3,165,000	4,025,000
Scobey to Plentywood	9,838,000	Dry Prair										9,838,000	9,838,000
Scobey to Opheim	7,945,000	Dry Prair										7,945,000	7,945,000
Poplar to Wolf Point	14,889,000	Fort Peck				4,515,000	6,895,000	3,479,000					14,889,000
Wolf Point to Porcupine Ck	25,301,000	Fort Peck							4,024,000	6,103,000	15,174,000	0	25,301,000
Porcupine Creek to Glasgow	3,874,000	Dry Prair										3,874,000	3,874,000
Glasgow to Opheim	3,506,000	Dry Prair										3,506,000	3,506,000
FP OM Buildings	1,000,000	Fort Peck							250,000	250,000	250,000	250,000	1,000,000
DP OM Buildings	500,000	Dry Prair							125,000	125,000	125,000	125,000	500,000
FP Electrical, Meters, Easements	4,164,000	Fort Peck				595,000	595,000	595,000	595,000	595,000	595,000	594,000	4,164,000
DP Electrical, Meters, Easements	3,521,000	Dry Prair				503,000	503,000	503,000	503,000	503,000	503,000	503,000	3,521,000
Planning, Design, Admin:													
Fort Peck	27,397,000	Fort Peck	3,143,000	1,044,000	3,156,000	4,067,000	4,067,000	4,067,000	2,786,000	2,394,000	2,434,000	239,000	27,397,000
Dry Prairie	14,626,000	Dry Prair	50,000	51,000	50,000	202,000	202,000	202,000	1,864,000	2,648,000	4,276,000	5,081,000	14,626,000
Total	191,561,000		3,193,000	4,789,000	14,367,000	19,156,000	19,156,000	19,156,000	19,156,000	23,945,000	33,523,000	35,120,000	191,561,000

PREPARED STATEMENT OF THE NATIONAL URBAN AGRICULTURE COUNCIL

Mr. Chairman, Members of the Subcommittee, I am Roger Waters, President of the National Urban Agriculture Council (NUAC). NUAC is a national nonprofit organization established as a center for the promotion and implementation of effective water management in the urban landscape.

I would like to offer testimony on six Bureau of Reclamation programs: Drought Emergency Assistance; Efficiency, Incentives, Water Management and Conservation, Technical Assistance to States, Soil and Moisture Conservation, and the Title XVI—Water Reclamation and Reuse.

I would like to request that the Subcommittee support efforts to increase the overall budget of the Bureau of Reclamation. As a result of a report by NUAC, "Withering in the Desert: The Need to increase the Bureau of Reclamation's Budget" we know the Bureau's budget was reduced by 36 percent from fiscal year 1991 through fiscal year 2000. We are quite concerned about that trend given the fact that many communities in the West are concerned that the agency no longer has adequate resources to carry out its mission or to properly maintain its infrastructure. I urge the Subcommittee to increase the Bureau's core activities, including the operation and maintenance of facilities designed to provide reliable supplies of water and power to Western farmers and communities.

It is for the above reason that the Western Water Industry has come together in an "Invest In the West" campaign to push for an increase the Bureau's Budget to $1 billion over the next five fiscal years. NUAC is proud to be a part of the Westwide coalition on this issue that includes the Western Coalition of Arid States, the WateReuse Association, the Family Farm Alliance, the national Water Resources Association, the Association of California Water Agencies, the Oregon Water Resources Congress, the Upper Missouri Water Association and the Water users Association.

DROUGHT EMERGENCY ASSISTANCE

NUAC has been an active participant in the efforts of the Interim National Drought Policy Commission's efforts to produce a report and plan for moving forward on recommendations for a national drought policy for the country. Part of the core mission of NUAC is to act as a center for the acceptance, promotion, and implementation of practical, science-based water resource management and conservation practices. An important element of that mission is making sure water users are prepared for the eventuality of drought. We have been supportive of the efforts of the Commission to produce such a vision as part of their recommendations in the final report.

The Bureau of Reclamation requested $500,000 for fiscal year 2002. NUAC believes and would ask that Congress consider that given the drought problems in this country, that a budget of $5 million be included in this program for fiscal year 2002. The Bureau of Reclamation and the Department of Agriculture appear to be the best agencies suited to working with state and local governments, tribes and local water users by undertaking activities that can result in down the road savings by the Federal Government not having to provide emergency bailouts to the degree they would if such preparedness does not take place.

EFFICIENCY INCENTIVES PROGRAM

NUAC is supportive of this program that provides a partnership among the Bureau of Reclamation, water users, and states to implement water use efficiency and conservation solutions that are tailored to local conditions. The Bureau of Reclamation requested only $500,000 for the program for fiscal year 2002. We would like to see the program increased up to $5,000,000 so a greater amount of work can take place with water districts for planning assistance and training on the development of water conservation plans and water efficient landscapes. The need for this type of training was one of the reasons NUAC was founded. Water Resource managers and policy makers are increasingly challenged by management issues. Paramount to making good management decisions is the availability of sound scientifically information. This information is an aid in the development of practical and environmentally sound programs which are both cost effective and socially responsible.

WATER MANAGEMENT AND CONSERVATION PROGRAM

On the surface this program appear to be a duplication of other Bureau of Reclamation assistance programs. The. Bureau of Reclamation requested $7.507 million for this program for fiscal year 2002. One of the questions that has arisen in this program is whether the Bureau of Reclamation has construction authority for funds

provided to districts under the program. This is an issue we would like the Committee to clear up so projects could go forward. We believe the funding requested is adequate, but if construction is going to occur under this program we would suggest a cap on the size of the project receiving such funding so it does not become a program for the few and not the many.

TECHNICAL ASSISTANCE TO THE STATES

NUAC is concerned with how this program has been cut by Congress over the past several years. We believe the data collection and analyses for management of water and related land resources that occurs with this funding is important in the absence of this country having a national water policy, We would ask that the request of not be cut, and if possible, the funding be increased to $3 million to help make up the shortfall that has occurred from previous cuts.

SOIL MOISTURE AND CONSERVATION

The modest amount of the Bureau of Reclamation's request makes this program appear unimportant. NUAC would like to see this increased by a modest amount to $500,000 but have that increase tied to assisting in the efforts from the recommendations of the final National Drought Policy Commission Report. We also believe this program should be examined to see if it couldn't assist in proper site management of Federally funded structures that are going to need water for their urban landscapes.

TITLE XVI—WATER RECLAMATION AND REUSE

NUAC is supportive of the funding that has been provided in the fiscal year 2002 request for the projects that are underway under the Title XVI program. The $19.5 million requested is substantially below the $30.5 million provided by Congress, for fiscal year 2001 and we would request that you consider increasing the funding at least up to that level this year. The funding provided for research, new starts, and feasibility studies needs to be examined from the standpoint of how long it is going to take to fund the existing projects, instead of looking to increase the number of project. We believe there is a need for a serious discussion among water policy leaders on how to fundthe future of this program in a timely manner. With regard to research, we see this as an area for the private and public sector to move forward on their own. It is important that discussions continue how and for what type of research does need to take place and the role Reclamation should play in that agenda. We believe the results of those discussions would be beneficial in terms of laying the groundwork for any future legislative changes to the program and NUAC looks forward to continuing to be a part of that effort.

Thank you for the opportunity to provide testimony for the record on these programs.

LETTER FROM ELMER MCDANIELS

TUMALO IRRIGATION DISTRICT,
Bend, Oregon, April 16, 2001.

Senator PETE DOMENICI,
Chair, Committee on Appropriations, Subcommittee on Energy and Water, U.S. Senate, Washington, DC.

DEAR SENATOR DOMENICI: The Tumalo Irrigation District (TID) in Bend, Oregon respectfully requests your support for inclusion of $600,000 in the fiscal year 2002 Energy and Water appropriations bill for the District's Bend Feed Canal Project. The 106th Congress authorized the U.S. Bureau of Reclamation to participate in the further construction associated with the project in the amount of $2.5 million.

The TID is proposing to pipe a critical portion of our open canals, essentially eliminating water loss and enhancing public safety along the project's approximate 14,500 foot length. The conserved water would be used to deliver enhanced water to the TID irrigators even in drought years, as they currently receive inadequate water in 8 of 10 years. It will also increase stream flows in Tumalo Creek and the Deschutes River.

The TID Board of Directors has expressed its willingness to pay their share of the estimated $5 million project cost of this important project which would benefit both the District and the general public. We appreciate the previous funding that

we have received for work in this area and look forward to your favorable consideration of our request.

Sincerely,

ELMER MCDANIELS,
Manager.

PREPARED STATEMENT OF THE OREGON WATER RESOURCES CONGRESS

Mr. Chairman, Members of the Subcommittee, I am Beverly Bridgewater, President of the Oregon Water Resources Congress (OWRC). The OWRC represents irrigation, water control, drainage and water improvement districts, private ditch and irrigation corporations, cities and counties, individual farmers and ranchers statewide as well as having agribusiness associates as members.

I am writing to urge your support for the attached list of projects in the Bureau of Reclamation's fiscal year 2002 Budget Request. The funding for these projects represents a valuable commitment to meeting the needs of our member organizations at a time when many are confronted with the problem of how to meet water delivery needs for their district populations while at the same time addressing environmental and Native American requirements. There are particular projects like the Deschutes Ecosystem Restoration project and the Klamath project in Southern Oregon that typify this balance.

I would also like to request that you provide the write-in funding for the Tumalo Irrigation District, Bend Feed Canal, Umatilla Boundary Change Environmental Assessment projects and funding for implementation of herbicide monitoring programs.

OWRC continues to be concerned about the inadequate funding for the Oregon Water Management and Technical Assistance program, the Efficiency Incentives program and the Water Management Conservation Program. These are valuable programs for water users to address the combination of water/environmental/Native American/growth related issues in the State.

OWRC has also been following the work of the Interim National Drought Policy Commission. OWRC would like the Subcommittee to consider increasing the funding for the Bureau of Reclamation drought assistance program up to $5 million so our water users are in the position to benefit from the recommendations of the Commissions report.

With a recent court ruling, irrigation districts are required to have an NPDES permit under the Clean Water Act for application of herbicides to canals. Monitoring of these systems will be crucial to maintaining the ability to deliver an uninterrupted supply of water to the irrigators. We are requesting funding in the Bureau of Reclamation program for assistance in this effort.

OWRC also requests that the Subcommittee support efforts to increase the overall budget of the Bureau of Reclamation. The Bureau's budget was reduced by 36 percent from fiscal year 1991 through fiscal year 2000. Because of that trend, many communities in the West are concerned that the agency no longer has adequate resources to carry out its mission or to properly maintain its infrastructure. I urge the Subcommittee to increase funding for the Bureau's core activities, including the operation and maintenance of facilities designed to provide reliable supplies of water and power to Western farmers and communities.

Thank you for considering our requests and we look forward to favorable action by the Subcommittee.

Projects and Programs in fiscal year 2002 Bureau of Reclamation Budget that OWRC Supports

Crooked River Project	$696,000
Deschutes Ecosystem Restoraton Project	[1] 2,000,000
Deschutes Project	498,000
Deschutes Project, Wickiup Dam	12,000,000
Eastern Oregon Projects	607,000
Grand Ronde Water Optimization Study	150,000
Klamath Project	13,010,000
Oregon Investigations Program	457,000
Rogue River Basin Project, Talent Division	479,000
Tualatin Project	256,000
Tualatin Valley Water Supply Feasibility Study	100,000
Umatilla Basin Project (Phase III)	50,000
Umatilla Project	2,636,000
Broader Programs:	
Columbia and Snake River Salmon Recovery Project	11,000,000

Projects and Programs in fiscal year 2002 Bureau of Reclamation Budget that OWRC Supports—Continued

Endangered Species Recovery Implementation	1,971,000
Requests for New Money	
Tumalo Irrigation District, Bend Feed Canal	600,000
Umatilla Boundary Change Environmental Assessment (Hermiston-West Extension)	100,000
Umatilla Boundary Change Environmental Assessment (West Extension)	100,000
Herbicide Monitoring Program in Irrigation Canals	100,000

[1] Fiscal Year 2002 Budget request was $500,000.

PREPARED STATEMENT OF THE GARRISON DIVERSION CONSERVANCY DISTRICT

Over the years, Garrison Diversion Unit appropriations have been used to provide a reliable, high quality water supply to rural communities in need throughout North Dakota and to maintain the 120 miles of canals and pumping plants already in place.

The Garrison Diversion Project continues to be the backbone of a series of rural water projects to serve municipal, rural and industrial water needs in North Dakota. Completing Garrison Diversion will assure our citizens affordable access to an adequate quantity and quality water supply for municipal, rural and industrial systems. In addition, Garrison Diversion programs and funding are the key to future economic development, recreation, tourism and wildlife enhancement in our state.

The President's budget request includes $25,900,000 for the Garrison Diversion Unit. An additional $14,100,000 is needed to continue the important work of the MR&I program to serve Indian and non-Indian needs on four North Dakota reservations, as well as a variety of projects across the state. Additional appropriations will continue a very successful effort to develop rural water supply systems across the state. This funding impacts the lives of families and business owners statewide who are working to provide a basic water infrastructure that will serve as a base for efforts to stop the devastating out migration of North Dakota's most valuable resource, her young people.

Meeting the Indian MR&I needs also concerns North Dakotans. The four Indian reservations in the state face some of the most severe water problems in North Dakota. The unmet needs on the reservations are growing. Additional appropriations and an appropriate ceiling increase will allow tribal leaders to continue working on their most critical water needs. Additional funding is desperately needed to continue this important program. We concur that this need is of the highest priority.

The Dakota Water Resources Act provides for a full evaluation and completion of an Environmental Impact Statement on the ways to meet the water quality and quantity needs in the Red River Valley. Funding is needed to continue this important work already underway.

Mr. Chairman, we fully support and appreciate the committee's current and past efforts in regard to funding for the Garrison Diversion Unit. Because water is a valuable resource in North Dakota, we are committed to finding solutions to our state's water needs.

Of additional concern, Mr. Chairman, is the overall Bureau of Reclamation budget. Current trends show this budget number has been shrinking on an annual basis. Additional funding and a redirection of the funding allowed for "water supply programs" is definitely needed. Although water conservation, water reuse and restoring fish and wildlife resources are important, the Bureau's budget needs to be refocused and increased to place more emphasis on completing the authorized projects already on the books.

We would strongly request that you support efforts to increase the overall budget of the Bureau of Reclamation. The Bureau's budget has been cut 36 percent from fiscal year 1991 to fiscal year 2000. This is the primary Federal agency that we rely upon for funding of our infrastructure needs. We know the Bureau of Reclamation has a $5 billion backlog of work. That work, which includes our project, as well as any new authorizations in this Congress, will not be addressed in a timely manner if the Bureau continues to be cut and underfunded. We support the western water industry's campaign to increase the Bureau's Water and Related Resources budget over a five-year period from its present $719,000,000 to $1,000,000,000.

LETTER FROM GAIL L. ACHTERMAN

DESCHUTES BASIN RESOURCES CONSERVANCY,
Bend, Oregon, April 16, 2001.

Senator PETE DOMENICI,
Chairman, Committee on Appropriations, Subcommittee on Energy and Water, U.S. Senate, Washington, DC

DEAR CHAIRMAN DOMENICI: The Deschutes Basin Resources Conservancy (DRC) in Bend, Oregon respectfully requests your support of inclusion of $2 million in the fiscal year 2002 Energy and Water Appropriations bill for DRC's programs that were authorized for $2 million per year in Public Law 106–270. The Administration fiscal year 2002 request of $500,000 is woefully inadequate for DRC to carryout its mission as originally authorized by Congress in 1996.

The DRC is a community-based cooperative endeavor that believes economic progress and natural resource conservation must both be accommodated to benefit the basin and its residents. Our goal is to improve water quantity and quality in the Deschutes Basin. Since 1998, when we first received funding, the DRC has supported 21 restoration projects. We have,been able to leverage the Federal money that we have received for work in the Basin on one to five basis $1 Federal to $5 Non-Federal.

The Federal money we receive allows DRC to bring together state, Federal, Tribal and local governmental entities with private interests in our area to carryout out basin wide ecosystem restoration. As part of our 2001 program we are establishing innovative programs such as the Deschutes Water Bank that will assist in efforts throughout the region to efficiently transfer water to meet the region's changing needs. We are on the cutting edge of new water quality approaches through our Carbon Sequestration program whereby farmers in the Basin are converting from traditional tillage to no-till methods so that soil erosion will decrease and carbon stored in the soils will increase.

The DRC appreciates the past support of the Subcommittee and looks forward to your future support. Thank you for making this letter a part of your hearing record on the fiscal year 2002 Energy and Water Appropriations Budget for the Bureau of Reclamation.

Sincerely,

GAIL L. ACHTERMAN,
Executive Director.

PREPARED STATEMENT OF WASHOE COUNTY, NEVADA

Washoe County, Nevada, submits the following testimony in support of the Spanish Springs Valley Wastewater Reclamation Project unit of the Truckee River Reclamation Project authorized in Public law 106–554 as an amendment to the Bureau of Reclamation Title XVI program. The objectives of the Truckee River Reclamation Project are to treat and recycle existing wastewaters for multiple uses within the watershed to augment the local water supplies and to provide a high quality return flow to the Truckee River to meet the requirements of the Pyramid Lake settlement and the protection of the Paiute Indian Nation.

The limited watershed of the Truckee River and the many demands upon it for environmental needs, protection of tribal uses, and domestic and commercial needs in the burgeoning communities of Reno and Sparks compels water recycling and reuse as the river continues its course to Pyramid Lake, an acknowledged national resource and a site of significance to the Paiute Nation. This region of northern Nevada relies upon the Truckee River as its major source of water. The Truckee River Reclamation Project has these various objectives as its goal.

The Spanish Springs area is the fastest growing suburban area of Reno. While new subdivisions constructed after 1996 have connected to the community sewer system, there are approximately 2000 homes which rely on septic tanks for wastewater treatment. This is a lost opportunity to enhance the water supply to the region. Connection of these homes to the community sewer system would take some of the pressure off of Truckee River water supplies by creating additional wastewater effluent for non-potable water uses. The community represents a moderate income area and lacks the financial resources to accomplish this project on its own.

Washoe County is working with the Spanish Springs community to develop a wastewater facilities plan, scheduled to be complete by February 2002. This plan will provide for the collection and treatment of septic tank flows which are otherwise lost to the groundwater aquifer. These flows will become part of the non-potable wastewater effluent supply which reduces demands on Truckee River water.

The total cost of the Spanish Springs Reclamation Project was originally estimated at $30 million, $23 million for wastewater reclamation/water quality protection and $7 million for extension of the water reuse system to the Spanish Springs Valley. Current estimates, as a result of further facility planning and preliminary design work on the water reuse system are: $39 million for the wastewater reclamation project and $7.6 million for the extension of the water reuse system.

The septic tank conversion project will be phased over a number of years to lessen the impact to the community of this large scale endeavor. The extension of the water reuse system will commence in fiscal year 2003. Following is an anticipated schedule of expenditures over the first three years of implementation of the project:

FISCAL YEAR 2002

Budget.—$400,000 ($100,000 Federal Request)

Wastewater Reclamation/Water Quality Protection: Activity.—Completion of Facility Plan and Final Design of Phase I.

FISCAL YEAR 2003

Budget.—$13,100,000 ($3,275,000 Federal Request)

Wastewater Reclamation/Water Quality Protection: Activity.—Construction of Phase I improvements, conversion of approximately 250 on-site treatment systems. Design of Phase II improvements.

Water Reuse System Extension: Activity.—Construct extension of water reuse system to Spanish Springs Valley unincorporated area.

FISCAL YEAR 2004

Budget.—$5,500,000 ($1,375,000 Federal Request)

Wastewater Reclamation/Water Quality Protection: Activity.—Construction of Phase II improvements, conversion of additional 250 on-site treatment systems. Design of Phase II improvements.

PREPARED STATEMENT OF THE MNI WICONI PROJECT

FISCAL YEAR 2002 CONSTRUCTION BUDGET REQUEST

The Mni Wiconi Project beneficiaries (as listed below) respectfully request appropriations for construction in fiscal year 2002 for the project in the amount of $47,503,000 as follows:

Oglala Sioux Rural Water Supply System:	
Core Facilities (Pipelines and Pumping Stations)	$17,481,000
Distribution System on Pine Ridge	7,868,000
West River/Lyman-Jones Rural Water Systems	8,908,000
Rosebud Sioux Rural Water System	11,892,000
Lower Brule Sioux Rural Water System	1,354,000
Total Mni Wiconi Project	47,503,000

Additionally, operation, maintenance and replacement funds in the amount of $6,500,000, an increase over last year's budget of $6,000,000 and reflective of the growing operational capability of the project, is requested. This brings the total funds request to $54,003,000 for fiscal year 2002.

The subcommittee is asked to note that the total budget requests of the Administration over the last several years have been relatively unchanged. Thus, as the OMR budget has increased to address increasing service to more people, there has been less funding available each year for construction. We are hopeful that the subcommittee can give attention to the fact that the project is now mid-way in construction and needs, at a minimum, a constant or increasing construction budget that can bring the project to conclusion in a reasonable time frame.

NEED FOR OSRWSS TO REACH MURDO IN FISCAL YEAR 2002—MAJOR MILESTONE

The Oglala, Lower Brule and Rosebud Sioux Tribes have not yet been informed of the President's request for the fiscal year 2002 construction budget for the Mni Wiconi Project as required by the Indian Self-Determination Act (Public Law 93–638, as amended). The funding request presented above is reasonable and within the capability of the sponsors to utilize.

The principle elements in the budget for fiscal year 2002, delayed by inadequate funding in fiscal year 2001, are $17.481 million for the Oglala Sioux Rural Water

Supply System (OSRWSS) core and funds for OSRWSS, Rosebud, Lower Brule and West River/Lyman-Jones to build distribution systems that will interconnect with the OSRWSS core facilities. The OSRWSS core system funds and most of the funds designated for distribution systems are needed to complete the project to Murdo in fiscal year 2002, where water can be delivered to the largest areas of demand in the West River/Lyman-Jones service area and all of the Rosebud service area. By completing the project to Murdo, all of the interconnection points for the Lower Brule Sioux Tribe will also be provided.

Only the Pine Ridge Indian Reservation and parts of West River/Lyman-Jones will be without points of interconnection to the OSRWSS core. This landmark in progress on the project in fiscal year 2002 is the most significant event in the project to date. The requested funding level is needed to achieve the objective and to permit interconnection to the OSRWSS core for delivery to approximately 50 percent of the project water users.

Important to note is the fact that the intake and treatment plant on the Missouri River will be fully operational in summer 2001 and will deliver water to Vivian where the Lower Brule Sioux Tribe is building a core pipeline that will permit interconnection by West River/Lyman-Jones.

Completion of the OSRWSS core pipeline system to Murdo is needed to take greater advantage of the completed intake and treatment plant. The funding request for fiscal year 2002 will permit completion of the necessary construction to Murdo, thereby providing interconnection to a population of 26,000, 50 percent of the project population. Absent sufficient funds in fiscal year 2002, only 8,000 persons will be provided with interconnection to the OSRWSS core to receive water from the Missouri River. Emphasis is placed on the importance of serving an additional 14,000 residents of the project in fiscal year 2002.

All proposed sponsor construction activity will build pipelines that will provide project water immediately to beneficiaries. In many cases, construction is ongoing, and fiscal year 2002 funds are required to complete those projects.

Funding for OSRWSS core and distribution facilities are necessary to bring the benefits of the Empowerment Zone designation to the Pine Ridge Indian Reservation, one of five rural designations across the Nation. There is great anticipation on the Pine Ridge Indian Reservation. The Federal projection that as much as $.5 to $1.0 billion in economic activity can be generated, however, is largely dependent on the timely completion of a water system, which depends on appropriations for this project.

Finally, the Subcommittee is respectfully requested to take cognizant of the fact that fiscal year 2002 will conclude with construction of facilities that permit sponsors and the Subcommittee to bring the end of the project into sight. While amendment of the legislation is required to extend the completion date beyond fiscal year 2003 to as distant as fiscal year 2007, the Subcommittee has consistently supported the project, and the end can now be visualized. Key to the conclusion of the project in fiscal year 2003 and beyond is the completion of the OSRWSS core to the northeast corner on the Pine Ridge Indian Reservation were most on the remaining 50 percent of the design population resides. Toward this end, funds are included in the fiscal year 2002 budget to build the connecting pipelines between the northeast corner of the Pine Ridge Indian Reservation and the central portion of the Reservation near Kyle. Rosebud is similarly engaged in the construction of major connecting pipelines that will join the OSRWSS core near Murdo and deliver water southerly to the central portions of the Rosebud Indian Reservation and to service areas for West River/Wyman-Jones. Funds in fiscal year 2002 are necessary to ensure that when water reaches the northeast corner of the Pine Ridge Indian Reservation from the OSRWSS core, pipelines and related facilities are available to receive and deliver Missouri River water into the Reservation.

UNIQUE NEEDS OF THIS PROJECT

Each year our testimony addresses the fact that the project beneficiaries, particularly the three Indian Reservations, have the lowest income levels in the Nation. The health risks to our people drinking unsafe water are compounded by reductions in health programs. We respectfully submit that our project is unique and that no other project in the Nation has greater human needs. Poverty in our service areas is consistently deeper than elsewhere in the Nation. Health effects of water borne diseases are consistently more prevalent than elsewhere in the Nation, due in part to (1) lack of adequate water in the home and (2) poor water quality where water is available. Higher incidences of impetigo, gastroenteritis, shigellosis, scabies and hepatitis-A are well documented on the Indian reservations of the Mni Wiconi Project area. At the beginning of the third millennium one cannot find a region in

which social and economic conditions are as deplorable. These circumstances are summarized in Table 1. Mni Wiconi builds the dignity of many, not only though improvement of drinking water, but through employment and increased earnings during planning, construction, operation and maintenance. We urge the subcommittee to address the need for creating jobs and improving the quality of life on the Pine Ridge and other Indian reservations of the project area.

Employment and earnings among the Indian people of the project area is expected to positively impact the high costs of health-care borne by the United States and the Tribes. Our data suggest clear relationships between income levels and Federal costs for heart disease, cancer and diabetes. During the life of the Mni Wiconi Project, mortality rates among the Indian people in the project area for the three diseases mentioned will cost the United States and the Tribes more than $1 billion beyond the level incurred for these diseases among comparable populations in the non-Indian community within the project area. While this project alone will not raise income levels to a point where the excessive rates of heart disease, cancer and diabetes are significantly diminished and the projected $1 billion in costs due to excessive rates of incidence is not eliminated, the employment and earnings stemming from the project will, nevertheless, reduce mortality rates and costs of these diseases.

TABLE 1.—1990 BUREAU OF CENSUS ECONOMIC STATISTICS

Indian reservation/state	Per capita families below		Unemployment (percent)
	Income (dollars)	Poverty level (percent)	
Pine Ridge (Shannon County)	3,029	59.6	32.7
Rosebud (Todd County)	4,005	54.4	27.3
Lower Brule (Lyman County)	4,679	45.0	15.7
State of South Dakota	10,661	11.6	4.2
National	14,420	10.0	6.3

Financial support for the Indian membership has already been subjected to drastic cuts in funding programs through the Bureau of Indian Affairs and through Welfare Reform. This project, progressing through the budget fighting efforts at the National level, was a source of strong hope that would off-set the loss of employment and income in other programs and provide for a healthier environment. Tribal leaders anticipate that Welfare Reform legislation and other budget cuts nation-wide will create a crisis for tribal government when tribal members move back to the reservations in order to survive. This movement has already started. Recent Census Bureau data indicate that the population of Shannon County (Pine Ridge Indian Reservation) increased over 21 percent between 1990 and 1997. The population of Todd County (Rosebud Indian Reservation) has increased over 11 percent in the same time period. Those population increases are greater than anticipated and will create water needs that will more than utilize the benefits of the Mni Wiconi Project Act. Public policy has resulted in accelerated population growth on the reservations. The Act mandates that:

. . . the United States has a trust responsibility to ensure that adequate and safe water supplies are available to meet the economic, environmental, water supply and public health needs of the Pine Ridge, Rosebud and Lower Brule Indian Reservations. . .

Indian support for this project has not come easily because the historical experience of broken commitments to the Indian people by the Federal Government is difficult to overcome. The argument was that there is no reason to trust and that the Sioux Tribes are being used to build the non-Indian segments of the project and the Indian segments would linger to completion. These arguments have been overcome by better planning, an amended authorization and hard fought agreements among the parties. The Subcommittee is respectfully requested to take the steps necessary the complete the critical elements of the project proposed for fiscal year 2002.

The following sections describe the construction activity in each of the rural water systems.

OGLALA SIOUX RURAL WATER SUPPLY SYSTEM—DISTRIBUTION

Pine Ridge and parts of West River will be the last project sponsors to interconnect with the OSRWSS core to receive Missouri River water. With projects now designed and proceeding under construction award there are 932 services and 450 miles of distribution and service pipelines, down from earlier projections due to the

pace of funding. We continue to extend the start of new projects. The Manderson Loop has been under construction since fiscal year 1996, and the fifth of five phases will be scheduled for completion with fiscal year 2002 funds. The Red Shirt Project in the northwest corner of the Reservation is underway and is scheduled for completion in fiscal year 2001.

Of particular importance to the Oglala Sioux Tribe is the start of the main transmission system from the northeast corner of the Reservation to Kyle in the central part of the Reservation. The transmission line is needed to interconnect the OSRWSS core system with the distribution system within the Reservation in order to deliver Missouri River water to the populous portions of the Reservation. With adequate funds, this critical segment of the project can be initiated in fiscal year 2002 and concluded to coincide with the westward construction of the OSRWSS core to the northeast corner of the Reservation. This component of the Oglala system has been deferred due to inadequate funding although the design and easements have been completed on large portions of the project.

WEST RIVER/LYMAN-JONES RURAL WATER SYSTEM—DISTRIBUTION

Mni Wiconi core pipeline construction makes it possible for WR/LJ to serve it's membership. Having the OSRWSS water treatment plant on line and completing the core pipeline to Murdo in fiscal year 2002 are major milestones in Mni Wiconi project development. Efforts undertaken over 30 years ago by the project originators are bearing fruit.

Completion of projects under construction this year is our highest priority. The Ft Pierre West project serves WR/LJ users that are closest to the water source and have anxiously awaited operation of the treatment plant. The Mellette East and Kennebec North projects will benefit from the Rosebud core pipeline that is now in service and the Lower Brule core line that is under construction, thereby bringing quality water service to WR/LJ and Tribal members in these chronically short water areas.

Completion of the core pipeline to Murdo will further the delivery of quality water to population centers along Interstate Hwy 90 and service to great numbers of America's traveling public. The realization of the health and economic benefits of quality water, which have long been a vision of the Mni Wiconi project sponsors, will began to take place. Bringing quality water to rural residents of the region will remove the burden of hauling their drinking water. Providing reliable water supplies to livestock producers in the region removes the economic threat of having to liquidate their herds in times of drought.

Continuing appropriations for the Mni Wiconi project has provided hope to those not yet served. Those members that will be served last are developing faith that their needs will be addressed. WR/LJ with reach 34 percent completion with the requested fiscal year 2002 appropriation. Those members see hope in continued progress of the Mni Wiconi project.

ROSEBUD RURAL WATER SYSTEM

For the Rosebud Sioux Tribe the second year of new millennium may be the most challenging in the history of the Sicangu Mni Wiconi. The proposed work plan has two primary objectives; the connection with the OSRWSS Core at Murdo and additional distribution and service lines.

The connection to the OSRWSS core will reduce the dependence on interim ground water supplies in Mellette County. It will provide a reliable source of high quality water for economic development, the residents in the rural areas near Corn Creek and the WR/LJ Mellette East Project. The Corn Creek area, located in western Mellette County, suffers from both a lack of water and low quality where it is available. This project expands on the work started in 2001 and will require additional funding in 2003. The Tribe recently completed an engineering review session the results of which should reduce the amount of funding required in 2003.

Additional distribution and service lines are planned for the Spring Creek/Grass Mountain area. These connections will utilize improvements completed in 2000, 2001 and scheduled for completion to bring water to several rural homes in Crazy Horse Canyon. Many of the private wells in this area have concentrations of arsenic that exceed the recently revised primary drinking water standard. The final project proposed is additional distribution and service lines in eastern Todd County near Okreek. For water to be available for this area the interim supplies currently being utilized in portions of Mellette County will have to be replaced with water supplied from the OSRWSS Core pipeline.

LOWER BRULE RURAL WATER SYSTEM—DISTRIBUTION

The Lower Brule Rural Water System's (LBRWS) new microfiltration water treatment plant has been in operation for slightly more than a year and continues to provide high quality water to the communities of Lower Brule and West Brule and some scattered homesites on the Reservation. As well as providing high quality water for use on the Reservation, the new plant provides water to West River/Lyman Jones's (WR/LJ) Reliance service area including the Town of Reliance through the West Brule to Reliance core pipeline. WR/LJ is also utilizing the water to flush their newly constructed lines between Reliance and Vivian as well as filling and testing their Vivian elevated tank. Cooperation and communication between the sponsors on the timing and need of water for flushing and testing has developed into a very good working relationship.

The Fort George Butte—County Line Road pipeline is complete and the Vivian to Presho pipeline is nearly complete, both of which will be tested and placed into operation as soon as water is available from the Oglala Sioux Rural Water Supply System (OSRWSS) core pipeline. These pipelines will initially serve only WR/LJ users until the on-Reservation distribution system can be constructed.

LBRWS has committed current funding for the construction of the Presho to Kennebec and Kennebec North pipelines during the 2001 construction season. This will result in the core pipeline from Vivian to Kennebec serving WR/LJ service areas along the pipeline and the cities of Vivian, Presho and Kennebec. If adequate funds are available, the pipeline north of Kennebec will be extended from the Reservation boundary to State Highway 1806 on the Reservation.

In order to include Lower Brule in the Mni Wiconi Project, a cost estimate was hurriedly put together and included in the Final Engineering Report without review. After the Project received funding and construction began, the LBRWS quickly realized that the original estimated cost was severely under estimated. The Bureau of Reclamation confirmed the error in the original estimate in their Cost Containment Report dated October 1999.

Primarily, as a result of the severely under estimated cost in the Final Engineering Report, the LBRWS has reached its authorized ceiling with the receipt of the 2001 funds. However, an amendment to increase the ceiling for Lower Brule has been requested and LBRWS is proceeding with the optimism that the amendment will be approved in a time frame that will not impact the progress that is currently being made. To that extent, LBRWS is requesting $1,354,000 in fiscal year 2002 funds. This amount would provide adequate funds to construct the Kennebec to Reliance core pipeline and complete the core pipeline to be provided under the LBRWS. This will allow service to all of the cities and rural users in the WR/LJ system in Lyman County.

The completion of the core pipeline will allow LBRWS to turn its focus to the on-Reservation distribution service areas, with current cost estimates totaling $6,886,000. The first of these to be constructed will be the Fort Hale Service Area, which was previously designed but not constructed due to lack of funding and a commitment to complete construction of the core pipeline prior to beginning the distribution lines. Again, completion of the core pipeline between Kennebec and Reliance and the distribution pipeline to serve our on-Reservation users will only be possible with an increase in its authorized cost ceiling of $8,240,000.

On a related topic, the Mni Wiconi Act authorized in Public Law 100–516 was amended by Public Law 103–434 to authorize and fund a wastewater needs assessment for the three Tribal Reservations within the Project. This assessment has been completed and costs have been identified, however, further analysis will be needed at the time funding is obtained to update the cost of the necessary improvements.

PREPARED STATEMENT OF THE CITY OF SALEM, OREGON

The City of Salem requests your consideration in obtaining $200,000 in additional funding from the United States Bureau of Reclamation for the continued development of a natural treatment system being built by the City of Salem, Oregon. Salem has been working since 1996 to develop a natural reclamation system (NRS) to complement Salem's existing secondary wastewater treatment plant. This natural system uses treatment wetlands composed of shallow marshes to treat wastewater prior to the water either being returned to the Willamette River or possibly being reused as a valuable source of irrigation water.

The Salem Natural Reclamation System was originally authorized by Congress in 1998 as amendments to the Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (Public Law 102–575). This law authorizes the United States Bureau of Reclamation to participate in the (1) planning, (2) design and (3) con-

struction of the NRS with the Federal share of the project to not exceed 25 percent of the total cost of the project. The original cost estimate for the Natural Reclamation System was $35 million. The City of Salem wants to thank you again for this authorizing legislation.

The process the City of Salem is following to develop the full scale Natural Reclamation System is to first build a demonstration project at Salem's Willow Lake Wastewater Treatment Plant, operate and test the demonstration system over a four-year period, and finally, depending on the outcome, make a decision on the full-scale system by the year 2005. The 2005 date fits with the planned expansion of the Willow Lake Treatment Plant.

Actual cost-share funding of the project is to be obtained from the Bureau of Reclamation for each phase of work through a Cost Sharing Agreement between the City and the Bureau. The planning study for the Natural Reclamation System was completed by the City's consultant, CH2M-Hill, in December 1999, and a cost sharing agreement with the Bureau of Reclamation was completed in June 2000. The City received $50,000 from the Bureau in July 2000 for 25 percent of the planning study and wants to again thank both you and the Bureau for this support.

Next, the City had our consultant, CH2M-Hill, prepare design drawings and specifications for the Natural Reclamation System. Part of the design process has been the establishment of a citizens' advisory committee to learn about the NRS project and help make the project successful. The Bureau of Reclamation staff are involved with this committee. The cost of the design is slightly more than $800,000, and the 25 percent share would be $200,000. The City is interested in amending the cost sharing agreement with the Bureau in order to receive these funds.

Finally, bid opening for the construction of the demonstration Natural Reclamation System was held April 4, 2001. The City received eight bids on the demonstration project and the low bid should be awarded within the next few weeks. Construction of the demonstration system should begin soon and should be completed by next spring 2002.

In summary, the City of Salem has appreciated the support on this project from Congress and the Bureau of Reclamation and hopes you will be able to provide additional funding.

PREPARED STATEMENT OF THE COLORADO RIVER COMMISSION OF NEVADA

INTRODUCTION

It has long been said that the Colorado River is the lifeblood of the West. Today, the Colorado River supplies vital water and power resources for more than 20 million people in Arizona, California and Nevada.

Concerns have been raised about the reliability of these water and power resources following the U.S. Fish and Wildlife Service's 1994 designation of critical habitat for four endangered fish species in the Colorado River Basin.

In response, representatives of the U.S. Department of the Interior, Arizona, California, and Nevada, Native American tribes, along with various stakeholders and water and power agencies along the lower Colorado, have formed a regional partnership, which is developing a first-of-its kind multi-species conservation program aimed at protecting sensitive, threatened and endangered species of fish, wildlife and their habitat.

The partnership formed a 35-member steering committee, which has been designated by the U.S. Fish and Wildlife Service as an Ecosystem Conservation and Recovery Implementation Team (ECRIT) under the Federal Endangered Species Act. The steering committee has retained the services of professional facilitator and technical consultant teams to help develop a plan for the conservation program. The conservation plan is scheduled for completion in Fall 2002.

PROGRAM DESCRIPTION

The multi-species conservation program will work toward the recovery of listed species through habitat restoration and species conservation, and reduce the likelihood of additional species listings under the Federal and California Endangered Species Act.

The MSCP planning area includes the historic floodplain of the lower Colorado River and reservoir full-pool elevations from Lake Mead to the Southerly International Boundary with Mexico. MSCP habitat restoration and preservation activities are intended to address the following habitat types: aquatic, wetland/marsh, riparian and upland desert fringe. It is the intent of the MSCP to re-vegetate native

cottonwood-willow and mesquite trees in the floodplain, and remove the non-native salt cedar, or tamarisk, that has become established.

The MSCP will be implemented over a 50-year period. The long-term program is also intended to accommodate current water diversions and power production and optimize opportunities for future water and power development. This comprehensive program will provide long-term environmental compliance for participating Federal agencies, pursuant to Section 7 of the Federal Endangered Species Act, and non-Federal agencies under Section 10. California Agencies will also pursue programs and actions to achieve compliance with California Environmental Quality and Endangered Species Acts.

Over the past four years, interim conservation measures (ICMs) have been developed and implemented to address the immediate critical needs for certain endangered species. ICMs benefiting the endangered razorback sucker, bonytail, and southwestern willow flycatcher were initiated.

PROGRAM DEVELOPMENT COST

Current, program development costs are projected at about $6.7 million over five years for planning needs and implementation of ICMs. A Federal/non-Federal cost-sharing agreement is in place for development of the program and implementation of interim conservation measures. The Federal and non-Federal participants shared program development costs on a "50/50" basis. Among the non-Federal participants, the shares were distributed as follows: 50 percent of the non-Federal share was borne by California, 30 percent by Arizona, and the remaining 20 percent by the State of Nevada.

PROGRAM IMPLEMENTATION

The MSCP will be implemented over the fifty-year period beginning in late-2002. However, MSCP proponents are desirous of implementing a series of "pilot projects" in order to begin evaluating potential habitat restoration and species conservation technologies within the planning area. Additionally, the pilot projects would be supplemented with species and habitat monitoring and research programs, providing the basis for a comprehensive adaptive management approach.

COLORADO RIVER INDIAN TRIBES PILOT PROJECT PROPOSAL

The Colorado River Indian Tribes (CRIT) have played an active role in the restoration of critical habitats for the past eight years. Since 1993, the tribe has restored, preserved and protected over 2,000 acres of riparian, wetland, and aquatic resources on the Lower Colorado River. In particular, the Ahakhav Tribal Preserve project has served as a model for riparian habitat restoration in the southwestern United States for Native American Tribes, the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, and various other public and private agencies. More importantly, it serves as a model for the Lower Colorado River Multi-Species Conservation Program (MSCP).

Located just south and west of Parker, Arizona, in La Paz County, the Ahakhav and Deertail Backwater Restoration Pilot Project is located on the Colorado River on the Colorado River Indian Reservation. The Ahakhav and Deertail Restoration Pilot Project provides numerous opportunities for MSCP covered species conservation and native habitat restoration. Many of the nearly 100 species proposed for coverage, or receiving benefits from MSCP conservation, occur on lands within the pilot project area. Anticipated actions for this pilot project include enhancement of riparian, wetland, and aquatic habitats and continued collaboration with ongoing Native American, Federal, and state environmental planning efforts, specifically the MSCP.

PILOT PROJECT AREA DESCRIPTION

The Ahakhav and Deertail backwaters extend from Rivermile (RM) 169 to 174 on the Colorado River. This restoration pilot project plans to restore native riparian, wetland, and aquatic habitats modified through development of the Colorado River water and hydroelectric power resources over the past century. This proposed pilot project would restore over 1,000 acres of native riparian habitat, 200 acres of open water, 250 acres of wetland/marsh complex, and 200 acres of fallowed agricultural land. Over 300 species of birds, 32 species of mammals, 19 fish species, 20 species of reptiles, and 9 amphibian species utilize the sites. In addition, 29 threatened or endangered species are expected to benefit from the proposed pilot project, including the endangered southwestern willow flycatcher, Yuma clapper rail, and razorback sucker.

PILOT PROJECT ACTIONS

In keeping with the overarching intent of the MSCP, habitat restoration at these sites is the primary component of the project. This MSCP pilot project seeks to restore wildlife habitat and some measure of pre-development hydraulic conditions in this area. This will be accomplished through re-excavation and re-connection of historic channel features, installation of water control structures, conversion of agricultural land and riparian re-vegetation activities. The following is a list of pilot project goals and objectives:

—Excavate historic channel features to improve water quality and flow in existing wetlands;
—Convert fallowed agricultural lands into cottonwood-willow forests;
—Re-vegetate stands of native cottonwood, willow, and mesquite trees in areas where exotic plant species have invaded;
—Implement pre- and post-restoration monitoring to measure success and aid in the development of future maintenance and restoration activity recommendations; and
—Provide environmental and cultural education and low-impact recreational opportunities for surrounding communities.

PILOT PROJECT FUNDING

It is proposed that the CRIT Ahakhav and Deertail Restoration Pilot Project of $2.5 million be funded through the U.S. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Operations (LCROP) budget line item.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

INTRODUCTION

It has long been said that the Colorado River is the lifeblood of the West. Today, the Colorado River supplies vital water and power resources for more than 20 million people in Arizona, California and Nevada.

Concerns have been raised about the reliability of these water and power resources following the U.S. Fish and Wildlife Service's 1994 designation of critical habitat for four endangered fish species in the Colorado River Basin.

In response, representatives of the U. S. Department of the Interior, Arizona, California, and Nevada, Native American tribes, along with various stakeholders and water and power agencies along the lower Colorado, have formed a regional partnership, which is developing a first-of-its kind multi-species conservation program aimed at protecting sensitive, threatened and endangered species of fish, wildlife and their habitat.

The partnership formed a 35-member steering committee, which has been designated by the U.S. Fish and Wildlife Service as an Ecosystem Conservation and Recovery Implementation Team (ECRIT) under the federaly Endangered Species Act. The steering committee has retained the services of professional facilitator and technical consultant teams to help develop a plan for the conservation program. The conservation plan is scheduled for completion in Fall 2002.

PROGRAM DESCRIPTION

The multi-species conservation program will work toward the recovery of listed species through habitat restoration and species conservation, and reduce the likelihood of additional species listings under the Federal and California Endangered Species Act.

The MSCP planning area includes the historic floodplain of the lower Colorado River and reservoir full-pool elevations from Lake Mead to the Southerly International Boundary with Mexico. MSCP habitat restoration and preservation activities are intended to address the following habitat types: aquatic, wetland/marsh, riparian and upland desert fringe. It is the intent of the MSCP to conserve, protect, and re-vegetate native cottonwood-willow and mesquite trees in the floodplain, and remove the non-native salt cedar, or tamarisk, that has become established.

The MSCP will be implemented over a 50-year period. The long-term program is also intended to accommodate current water diversions and power production and optimize opportunities for future water and power development. This comprehensive program will provide long-term environmental compliance for participating Federal agencies, pursuant to Section 7 of the Federal Endangered Species Act, and non-Federal agencies under Section 10. California Agencies will also pursue programs

and actions to achieve compliance with California Environmental Quality and Endangered Species Acts.

Over the past four years, interim conservation measures (ICMs) have been developed and implemented to address the immediate critical needs for certain endangered species. ICMs benefiting the endangered razorback sucker, bonytail, and southwestern willow flycatcher were initiated. LCR MSCP Interim conservation measures have been previously awarded to the CRIT for habitat restoration projects associated with the Ahakhav Tribal Preserve.

PROGRAM DEVELOPMENT COST

The cost to develop the long-term conservation plan is projected to be approximately $6.7 million over five years for planning needs and implementation of ICMs. A Federal/non-Federal cost-sharing agreement is in place for development of the program and implementation of interim conservation measures. The Federal and non-Federal participants shared program development costs on a "50/50" basis. Among the non-Federal participants, the shares were distributed as follows: 50 percent of the non-Federal share was borne by California, 30 percent by Arizona, and the remaining 20 percent by the State of Nevada.

PROGRAM IMPLEMENTATION

The MSCP will be implemented over the fifty-year period beginning in late-2002. However, MSCP proponents are desirous of implementing a series of "pilot projects" in order to begin evaluating potential habitat restoration and species conservation technologies within the planning area. Additionally, the pilot projects would be supplemented with species and habitat monitoring and research programs, providing the basis for a comprehensive adaptive management approach.

COLORADO RIVER INDIAN TRIBES PILOT PROJECT PROPOSAL

The Colorado River Indian Tribes (CRIT) have played an active role in the restoration of critical habitats for the past eight years. Since 1993, the tribe has restored, preserved and protected over 2,000 acres of riparian, wetland, and aquatic resources on the Lower Colorado River. In particular, the Ahakhav Tribal Preserve project has served as a model for riparian habitat restoration in the southwestern United States for Native American Tribes, the U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, and various other public and private agencies. More importantly, it serves as a model for the Lower Colorado River Multi-Species Conservation Program (MSCP).

Located just south and west of Parker, Arizona, in La Paz County, the Ahakhav and Deertail Backwater Restoration Pilot Project is located on the Colorado River on the Colorado River Indian Reservation. The Ahakhav and Deertail Restoration Pilot Project provides numerous opportunities for MSCP covered species conservation and native habitat restoration. Many of the nearly 100 species proposed for coverage, or receiving benefits from MSCP conservation, occur on lands within the pilot project area. Anticipated actions for this pilot project include enhancement of riparian, wetland, and aquatic habitats and continued collaboration with ongoing Native American, Federal, and state environmental planning efforts, specifically the MSCP.

PILOT PROJECT AREA DESCRIPTION

The Ahakhav and Deertail backwaters extend from Rivermile (RM) 169 to 174 on the Colorado River. This restoration pilot project plans to restore native riparian, wetland, and aquatic habitats modified through development of the Colorado River water and hydroelectric power resources over the past century. This proposed pilot project would restore over 1,000 acres of native riparian habitat, 200 acres of open water, 250 acres of wetland/marsh complex, and 200 acres of fallowed agricultural land. Over 300 species of birds, 32 species of mammals, 19 fish species, 20 species of reptiles, and 9 amphibian species utilize the sites. In addition, 29 threatened or endangered species are expected to benefit from the proposed pilot project, including the endangered southwestern willow flycatcher, Yuma clapper rail, and razorback sucker.

PILOT PROJECT ACTIONS

In keeping with the overarching intent of the MSCP, habitat restoration at these sites is the primary component of the project. This MSCP pilot project seeks to restore wildlife habitat and some measure of pre-development hydraulic conditions in this area. This will be accomplished through re-excavation and re-connection of historic channel features, installation of water control structures, conversion of agricul-

tural land and riparian re-vegetation activities. The following is a list of pilot project goals and objectives:

—Excavate historic channel features to improve water quality and flow in existing wetlands;
—Convert fallowed agricultural lands into cottonwood-willow forests;
—Re-vegetate stands of native cottonwood, willow, and mesquite trees in areas where exotic plant species have invaded;
—Implement pre- and post-restoration monitoring to measure success and aid in the development of future maintenance and restoration activity recommendations; and
—Provide environmental and cultural education and low-impact recreational opportunities for surrounding communities.

PILOT PROJECT FUNDING

It is proposed that the CRIT Ahakhav and Deertail Restoration Pilot Project of $2.5 million be funded through the U.S. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Operations (LCROP) budget line item, for which Federal, tribal, and state MSCP participants shall receive credit as part of their long-term conservation commitments.

PREPARED STATEMENT OF THE ARIZONA DEPARTMENT OF WATER RESOURCES

Your support and leadership are requested in securing additional fiscal year 2002 funding for the Department of the Interior with respect to the Federal/State/tribal Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The LCR MSCP is the multi-stakeholder process, organized in 1995, that is developing a long-term endangered species and habitat conservation program for the mainstream of the Lower Colorado River in the States of Arizona, California and Nevada. This comprehensive program, when completed and implemented in 2002, is intended to meet the needs of over 100 species and aquatic, wetland and riparian habitats along the Lower Colorado River from Lake Mead to the Southerly International Boundary with Mexico.

The purpose of the LCR MSCP is to provide Federal, State and tribal managers and users of the Lower Colorado River's water and hydroelectric power resources with a 50-year environmental compliance program meeting the needs of the Federal and California Endangered Species Acts, California Environmental Quality Act, California Natural Communities Conservation Planning Act and National Environmental Policy Act. This long-term compliance program is required in order for the Lower Colorado River Basin States to continue current River operations and accommodate future water and power operations.

The Arizona Department of Water Resources (Department) is the state agency charged with protecting Arizona's interests and rights in the water resources of the Colorado River System. In this capacity, the Department and approximately 35 other organizations and agencies, Federal, State and tribal, are members of the LCR MSCP Steering Committee, and have been designated as an "Ecosystem Conservation Recovery Implementation Team" (ECRIT) by the U.S. Fish and Wildlife Service for the purpose of the preparing the LCR MSCP, pursuant to Section 4(f)(2) of the Federal Endangered Species Act.

The purpose of this request for additional funding for the Bureau of Reclamation's Lower Colorado Region Lower Colorado River Operations Program (LCROP) budget line item, is in support of a critically needed habitat restoration project on the Colorado River Indian Tribes (CRIT) reservation near Parker, Arizona. The CRIT Ahakhav and Deertail Backwater Restoration Project proposal to restore approximately 1,500 acres of native aquatic, wetland and riparian habitat will provide immediate benefits to many Federally listed threatened and endangered species, as well as many state-listed or sensitive species. Enclosed with this letter is written testimony which describes the LCR MSCP and restoration project in more detail in support of our request.

The Colorado River Indian Tribes are an active participant in the LCR MSCP and are a recognized leader in the implementation of habitat restoration activities associated with the re-establishment of native riparian habitat along the Lower Colorado River. The CRIT habitat restoration is intended to kickoff implementation of the larger, more comprehensive species conservation and habitat restoration effort being developed through the consensus-based LCR MSCP.

The State of Arizona's Water Protection Fund, a riparian restoration and enhancement program, funded two other complementary restoration projects on CRIT lands. Those projects were recently completed, and have resulted in the successful restora-

tion of over 175 acres of riparian and wetland habitat. The State of Arizona contributed more than $1.3 million towards the implementation of these complementary projects.

The Department recognizes that the Bureau of Reclamation's LCROP budget line item is used for a variety of programs important to the Lower Colorado River Basin States. Specifically, Reclamation's continued compliance with the terms and conditions of the 1997 U.S. Fish and Wildlife Service biological opinion for current River operations is critical to maintaining the status quo. For this reason, the Department respectfully requests that the LCROP line item budget be increased by $2.5 million in support of the CRIT Ahakhav and Deertail Backwater Restoration Project, on behalf of the LCR MSCP process.

The Colorado River is, and will continue to be, a major and vital water and hydropower resource to the 17 million residents of southern California. Preservation and conservation of the Lower Colorado River's habitat and species is of major importance not only to the southwestern United States, but also to the Country as a whole.

The Department greatly appreciates your support of the LCR MSCP's CRIT Ahakhav and Deertail Backwater Restoration Project proposal, and again asks for your assistance and leadership in securing additional funding for this important project.

PREPARED STATEMENT OF THE LOWER COLORADO RIVER BASIN STATES—ARIZONA, CALIFORNIA AND NEVADA

INTRODUCTION

It has long been said that the Colorado River is the lifeblood of the West. Today, the Colorado River supplies vital water and power resources for more than 20 million people in Arizona, California and Nevada.

Concerns have been raised about the reliability of these water and power resources following the U.S. Fish and Wildlife Service's 1994 designation of critical habitat for four endangered fish species in the Colorado River Basin.

In response, representatives of the U. S. Department of the Interior, Arizona, California, Nevada and Native American tribes, along with various stakeholders and water and power agencies along the Lower Colorado River, have formed a regional partnership, which is developing a first-of-its kind Multi-Species Conservation Program (MSCP) aimed at protecting sensitive, threatened and endangered species of fish, wildlife and their habitat.

The partnership formed a 35-member steering committee, which has been designated by the U.S. Fish and Wildlife Service as an Ecosystem Conservation and Recovery Implementation Team (ECRIT) under the Federal Endangered Species Act. The steering committee has retained the services of professional facilitator and technical consultant teams to help develop a plan for the MSCP. The MSCP is scheduled for completion in Fall 2002.

PROGRAM DESCRIPTION

The MSCP will work toward the recovery of listed species through habitat restoration and species conservation, and reduce the likelihood of additional species listings under the Federal and California Endangered Species Act.

The MSCP planning area includes the historic floodplain of the Lower Colorado River and reservoir full-pool elevations from Lake Mead to the Southerly International Boundary with Mexico. MSCP habitat restoration and preservation activities are intended to address the following habitat types: aquatic, wetland/marsh, riparian and upland desert fringe. It is the intent of the MSCP to re-vegetate native cottonwood-willow and mesquite trees in the floodplain, and remove the non-native salt cedar, or tamarisk, that has become established.

The MSCP will be implemented over a 50-year period. The long-term program is also intended to accommodate current water diversions and power production and optimize opportunities for future water and power development. This comprehensive program will provide long-term environmental compliance for participating Federal agencies, pursuant to Section 7 of the Federal Endangered Species Act, and non-Federal agencies under Section 10. California agencies will also pursue programs and actions to achieve compliance with California Environmental Quality and Endangered Species Acts.

Over the past four years, interim conservation measures (ICMs) have been developed and implemented to address the immediate critical needs for certain endan-

gered species. ICMs benefiting the endangered Razorback Sucker, Bonytail, and Southwestern Willow Flycatcher were initiated.

In addition, implementation of this pilot project will enhance two other restoration projects, a riparian restoration and enhancement program, recently completed on CRIT lands and funded by the State of Arizona's Water Protection Fund. Those projects have resulted in the successful restoration of over 175 acres of riparian and wetland habitat. The State of Arizona contributed more than $1.3 million towards the implementation of these complementary projects.

PROGRAM DEVELOPMENT COST

Current program development costs are projected at about $6.7 million over five years for planning needs and implementation of ICMs. A Federal/non-Federal cost-sharing agreement is in place for development of the program and implementation of interim conservation measures. The Federal and non-Federal participants shared program development costs on a "50/50" basis. Among the non-Federal participants, the shares were distributed as follows: 50 percent of the non-Federal share was borne by California, 30 percent by Arizona, and the remaining 20 percent by Nevada.

PROGRAM IMPLEMENTATION

The MSCP will be implemented over the fifty-year period beginning in late-2002. However, MSCP proponents are desirous of implementing a series of "pilot projects" in order to begin evaluating potential habitat restoration and species conservation technologies within the planning area. Additionally, the pilot projects would be supplemented with species and habitat monitoring and research programs, providing the basis for a comprehensive adaptive management approach.

COLORADO RIVER INDIAN TRIBES PILOT PROJECT PROPOSAL

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Located just south and west of Parker, Arizona, in La Paz County, the Ahakhav and Deertail Backwater Restoration Pilot Project is located on the Colorado River on the Colorado River Indian Reservation. The Ahakhav and Deertail Restoration Pilot Project provides numerous opportunities for MSCP covered species conservation and native habitat restoration. Many of the nearly 100 species proposed for coverage, or receiving benefits from MSCP conservation, occur on lands within the pilot project area. Anticipated actions for this pilot project include enhancement of riparian, wetland and aquatic habitats and continued collaboration with ongoing Native American, Federal and State environmental planning efforts, specifically the MSCP.

PILOT PROJECT AREA DESCRIPTION

The Ahakhav and Deertail backwaters extend from Rivermile (RM) 169 to 174 on the Colorado River. This restoration pilot project plans to restore native riparian, wetland and aquatic habitats modified through development of the Colorado River water and hydroelectric power resources over the past century. This proposed pilot project would restore over 1,000 acres of native riparian habitat, 200 acres of open water, 250 acres of wetland/marsh complex and 200 acres of fallowed agricultural land. Over 300 species of birds, 32 species of mammals, 19 fish species, 20 species of reptiles and 9 amphibian species utilize the sites. In addition, 29 threatened or endangered species are expected to benefit from the proposed pilot project, including the endangered Southwestern Willow Flycatcher, Yuma Clapper Rail and Razorback Sucker.

PILOT PROJECT ACTIONS

In keeping with the overarching intent of the MSCP, habitat restoration at these sites is the primary component of the project. This MSCP pilot project seeks to restore wildlife habitat and some measure of pre-development hydraulic conditions in this area. This will be accomplished through re-excavation and re-connection of historic channel features, installation of water control structures, conversion of agricul-

tural land and riparian re-vegetation activities. The following is a list of pilot project goals and objectives:

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—Implement pre- and post-restoration monitoring to measure success and aid in the development of future maintenance and restoration activity recommendations; and,
—Provide environmental and cultural education and low-impact recreational opportunities for surrounding communities.

PILOT PROJECT FUNDING

It is proposed that the CRIT Ahakhav and Deertail Restoration Pilot Project of $2.5 million be funded by increasing the U.S. Bureau of Reclamation, Lower Colorado Region, Lower Colorado River Operations (LCROP) budget line item.

LETTER FROM JIM GERINGER

STATE OF WYOMING, OFFICE OF THE GOVERNOR,
Cheyenne, WY, April 4, 2001.

Hon. PETE V. DOMENICI, *Chairman,*
Hon. HARRY REID, *Ranking Minority Member,*
Subcommittee on Energy and Water Development, Committee on Appropriations, U.S. Senate, Washington, DC.

DEAR CHAIRMAN DOMENICI AND RANKING MINORITY MEMBER REID: This letter is sent in support of fiscal year 2002 funding for the Bureau of Reclamation's Colorado River Basin Salinity Control Program. I request, inclusion of this letter into the formal hearing record concerning fiscal year 2002 appropriations.

The Colorado River provides municipal and industrial water for more than 18 million people in seven states. It also provides irrigation water for about 2 million acres of land. The salinity of the river is high, in almost equal part, because of natural features such as underlying salt formations and saline springs and the use of water by man. Over-application of irrigation water by agriculture is also a large contributor of salt to the river, as irrigation water seeps through saline soils and returns to the river.

The 1944 Mexico Treaty obligates the United States to provide 1.5 million acre-feet of water to Mexico, but does not address quality. Mexico filed a formal protest in the 1960's when the salinity levels of water being delivered pursuant to the Treaty increased sharply. Several minutes to the Treaty were negotiated, including Minute 242, to address the water quality concerns voiced by Mexico. That minute requires that the average annual salinity of the Colorado delivered upstream from Morelos Dam (Mexico's principal diversion dam) does not exceed the average salinity of the water arriving at Imperial Dam by a specified amount.

The Environmental Protection Agency's interpretation of the 1972 amendments to the Clean Water Act required the seven Basin states to adopt water quality standards for salinity levels in the Colorado River. The Colorado River Basin Salinity Control Forum was created as an interstate coordination mechanism in 1973, consisting of gubernatorial appointees from Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming. To address salinity problems, and ensure the United States could meet its obligation to Mexico, the Congress passed the Colorado River Basin Salinity Control Act of 1974. Title I addressed the United States' obligations to Mexico to control river salinity concentrations, while Title II of the Act authorized measures upstream of Imperial Dam and directed the Secretary of the Interior to construct several salinity control projects, most of which are located in Colorado, Utah, and Wyoming. Title II of the Act, which was amended in 1984 and 1995, directed the Bureau of Reclamation to conduct a $75 million pilot program to award grants on a competitive-bid basis for salinity control projects. Cost savings under this pilot program have far exceeded expectations—down to about $30 per ton of salt control, from the previous average of about $80 per ton. The Forum was heavily involved in the development of the 1974 Act and has continued to have a very active role in overseeing the Federal agencies' salinity control program efforts.

For the past 28 years, the seven-state Colorado River Basin Salinity Control Forum has actively assisted the Federal agencies, including the Bureau of Reclamation, in implementing this unique, collaborative and important program. At its re-

cent October 2000 meeting, the Forum recommended that the Bureau of Reclamation should expend $17,500,000 in fiscal year 2002. This funding level is appropriate to reduce a growing "backlog" in meeting the pace of salt loading reductions necessary to control the salinity of Colorado River waters so as not to exceed the numeric salinity concentration criteria contained within the water quality standards for the Colorado River. Failure to maintain the standards' numeric criteria could result in the imposition of state-line water quality standards and impair the Colorado River Basin states' ability to develop their Compact-apportioned water supplies. "Catch-up" funding in the future will require expending greater sums of money, increasing the likelihood that the numeric salinity criteria are exceeded, and create undue burdens and difficulties for one of the most successful Federal/State cooperative non-point source pollution control programs in the United States.

The State of Wyoming greatly appreciates the Subcommittee's support of the Colorado River Salinity Control Program in past years. We respectfully suggest this important basin-wide water quality improvement program merits continued funding and support by your Subcommittee.

Best regards,

JIM GERINGER,
Governor.

PREPARED STATEMENT OF THE NEW MEXICO INTERSTATE STREAM COMMISSION

SUMMARY

This Statement is submitted in support of appropriations for the Colorado River Basin salinity control program of the Department of the Interior's Bureau of Reclamation. Congress designated the Bureau of Reclamation to be the lead agency for salinity control in the Colorado River Basin by the Colorado River Basin Salinity Control Act of 1974. Public Law 104–20 reconfirmed the Bureau of Reclamation's role. A total of $17.5 million is requested for fiscal year 2002 to implement the authorized salinity control program of the Bureau of Reclamation. The President's request for funding is not known at this time. An appropriation of $17.5 million for Reclamation's salinity control program is necessary to protect water quality standards for salinity, to prevent unnecessary levels of economic damage from increased salinity levels in water delivered to the Lower Basin states and Mexico.

STATEMENT

The water quality standards for salinity of the Colorado River must be protected while the Basin States continue to develop their compact apportioned waters of the river. Studies have shown that the implementation of the salinity control program has fallen below the threshold necessary to prevent future exceedence of the numeric criteria of the water quality standards for salinity in the Lower Basin of the Colorado River. The salinity standards for the Colorado River have been adopted by the seven Basin States and approved by EPA. While currently the standards have not been exceeded, salinity control projects must be brought on-line in a timely and cost-effective manner to prevent future effects that would cause the numeric criteria to be exceeded.

The Colorado River Basin Salinity Control Act was authorized by Congress and signed into law in 1974. The seven Colorado River Basin States, in response to the Clean Water Act of 1972, had formed the Colorado River Basin Salinity Control Forum, a body comprised of gubernatorial representatives from the seven states. The Forum was created to provide for interstate cooperation in response to the Clean Water Act, and to provide the states with information necessary to comply with Sections 303(a) and (b) of the Act. I am New Mexico's representative to the Forum. The Forum has become the primary means for the Basin States to coordinate with Federal agencies and Congress to support the implementation of the salinity control program for the Colorado River Basin.

The Bureau of Reclamation is currently completing studies on the economic impacts of the salinity of the Colorado River in the United States. Damages in the United States may soon be approaching $1 billion per year. Every salinity concentration increase of 30 milligrams per liter in the Colorado River causes salinity damages of approximately $100 million in the United States and threatens the quality of water delivered to Mexico that is protected by treaty under Minute No. 242 of the International Boundary and Water Commission (IBWC), United States and Mexico.

It is essential that appropriations for the funding of the salinity control program be timely in order to comply with the water quality standards for salinity to prevent

unnecessary economic damages in the United States, and to protect the quality of the water that the United States is obligated to deliver to Mexico. The amount of appropriations requested in the previous President's budget request was inadequate to protect the quality of water in the Colorado River and prevent unnecessary salinity damages in the states of the Lower Colorado River Basin. Although the United States has always met the water quality standard for salinity of water delivered to Mexico under Minute No. 242 of the IBWC, the United States through the U.S. Section of IBWC is currently addressing a request by Mexico for better quality water.

Congress amended the Colorado River Basin Salinity Control Act in July 1995 (Public Law 104–20). The salinity control program authorized by Congress by the amendment has proven to be very cost-effective, and the Basin States are standing ready with up-front cost sharing. Proposals from public and private sector entities in response to the Bureau of Reclamation's advertisement have far exceeded available funding. Basin States cost sharing funds are available for the $17.5 million appropriation request for fiscal year 2002. The Basin States cost sharing adds 43 cents for each Federal dollar appropriated.

Public Law 106–459 of last year gives the Bureau of Reclamation additional spending authority for the salinity control program. With the additional authority in place and significant cost sharing by the Basin States, it is essential that the salinity control program be funded at the level requested by the Forum and Basin States to protect the water quality of the Colorado River.

I urge the Congress to appropriate $17.5 million to the Bureau of Reclamation for the Colorado River Basin salinity control program. Also, I fully support testimony by the Forum's Executive Director, Jack Barnett, in request of this appropriation, and the recommendation of an appropriation of the same amount by the Federally chartered Colorado River Basin Salinity Control Advisory Council.

PREPARED STATEMENT OF THE CALIFORNIA SOCIETY OF PROFESSIONAL ENGINEERS

The California Society of Professional Engineers recommends your support of the fiscal year 2002, Federal Water Appropriations as recommended by the California Water Commission.

We have tracked the screening processes of the Commission each year as the final recommendations are developed. The Commission's process includes several discussions with clients, proponents, opponents, and the agencies as to their capabilities. We can assure you that the projects and funding levels recommended are needed, are sound and will contribute to economic, health, environmental and social benefits for California's citizens.

We call emphasis to the need to continue to support all projects associated with the CALFED Bay-Delta program, as this is the lynchpin necessary to complete in order to move on to other projects affecting conveyance and delivery of water to end use consumers.

The California Society of Professional Engineers is a 50-year old, 2500-member organization of professional engineers of all disciplines and areas of employment (construction, education, government, industry and private practice).

PREPARED STATEMENT OF THE CITY OF OCEANSIDE

Mr. Chairman, thank you for this opportunity to submit testimony on behalf of the City of Oceanside, California. The City of Oceanside respectfully requests your favorable consideration of a Bureau of Reclamation project and two Army Corps of Engineers projects that are critically important to our community.

First, the City of Oceanside requests $407,675 from the Bureau of Reclamation, Title 16 Water Reuse, for the expansion of the City's Mission Basin Brackish Groundwater Desalting Research and Development Project.

The City of Oceanside has been authorized to design, plan and construct a 3 million gallon per day expansion of its Mission Basin Brackish Groundwater Desalting Research and Development Project. The additional funding will reduce the impact of the Mission Basin Brackish Groundwater Desalting Research and Development project expansion on the ratepayer, as well as reduce the amount of imported water purchased by the City to supply its residents. The project will lessen the demand for imported water from the Colorado River and environmentally sensitive Sacramento-San Joaquin River Delta. Creating local, highly reliable water supplies is a goal of the Metropolitan Water District of Southern California, the San Diego Water Authority and the California State Legislature.

The City has received $1,852,325 to date in federal appropriations for this project. The actual cost to expand the project's capacity by 3 million gallons per day is $9.04

million. Therefore, a residual of $407,675 is allowed for the 3 million gallon per day expansion.

Second, the City of Oceanside requests $1 million from the Army Corps of Engineers' General Investigations (GI) Account to continue a special Oceanside Shoreline Study to determine how to mitigate the erosion of Oceanside's beaches resulting from the construction of the Camp Pendleton Marine Base Harbor.

Section 415 of the Water Resources Development Act of 2000 authorizes the City's requested Shoreline Special Study at full federal expense. Total cost of the three-year project is approximately $2 million. A total of $325,000 was included in the fiscal year 2001 Energy and Water Development Appropriations bill for this study. The study is now underway and will provide a summation of all historic and current documentation of the impacts of the federal construction on the Oceanside beach.

Oceanside has a 57-year history of beach erosion resulting from the Camp Pendleton Harbor construction that began in 1942. The federal government acknowledged responsibility for Oceanside's beach erosion in 1953. A later report to the U.S. Navy from the Army Corps of Engineers noted that the construction of the Camp Pendleton jetties had compartmentalized the littoral cell and resulted in the loss of 1.5 million cubic yards of sand in Oceanside during 1950–52. An additional U.S. Army Corps of Engineers report to Congress in 1956 concluded that the restoration of the protected beach at Oceanside would protect the upland area and restore and maintain a satisfactory recreational beach. In 1958, the Navy extended the north jetty to reduce the entrance channel maintenance problems. This action further aggravated the erosion of the beaches.

In 1967, Congress authorized a review study of beach erosion at Oceanside, resulting in the office of the Chief of Engineers confirming 100 percent federal responsibility for shoreline damages. Despite numerous and significant efforts in placing sand on the beach, periodic nourishment of sand from maintenance dredging of the harbor and sand bypassing project, no permanent solution to the massive erosion problem has been achieved.

Tourism is the San Diego region's second largest industry. The areas beaches, including Oceanside, represent a key attraction for our residents and our tourists. The San Diego Convention and Visitors Bureau notes that the majority of the region's visitor lodgings are located along the coastline. Total tourism dollars are identified as $4.7 billion annually. San Diego and Oceanside's beaches are clearly an economic contributor to the region's economic well-being.

Significant portions of Oceanside's beaches are not able to provide full recreational and tourism revenue benefits due to the eroded beach conditions. Furthermore, the beaches are too narrow to provide full and adequate protection to public infrastructure, commercial facilities and residential structures. Addressing this problem will significantly decrease storm damage costs along the City's shoreline.

Finally, the City of Oceanside requests $1.27 million from the Army Corps of Engineers' Operations and Maintenance (OM) Account for maintenance dredging for the entrance to Oceanside and Camp Pendleton Marine Corps Base Harbor. (This request for funding is for year two of a three-year contract. It has also been included in the fiscal year 2002 Administration Budget).

In 1960, Congress authorized (Public Law 85–500) full federal funding for maintenance of the Oceanside Harbor in recognition of the fact that the harbor entrance was constructed as an emergency wartime measure in 1942. To this day, the Oceanside Harbor entrance continues to serve the vital military installation of Camp Pendleton Harbor. In 1992, the Harbor District partnered with the federal government in a local cost share agreement to modify the harbor entrance and the authorized channel depth to reduce storm damage, provide surge protection to the harbor's infrastructure, and provide significant reduction of navigational hazards that have produced 11 deaths, 49 serious injuries, 134 boating accidents and $1.5 million of damage to vessels in the harbor entrance.

Oceanside Harbor is the only harbor between San Diego and Dana Point in Orange County. The State of California and the Federal Government have designated it as a harbor of refuge. The Oceanside Harbor would experience severe negative impacts should the dredging project not be funded. Such action would prevent access to the Pacific Ocean to the United States Navy and Marine Corps as joint users of the entrance channel. The economic impact upon the local fishing fleet, the commercial sport fishing fleet and the 1,000 recreational vessels berthed here, as well as the businesses supported by the harbor, would be critically impacted.

This maintenance program is essential for the safe navigation into Oceanside Harbor and the U.S. Marine Corps Base Camp Pendleton Harbor. The program also provides beach sand restoration, shoreline protection, recreational and commerce benefits. In fiscal year 2001 $2.035 million was budgeted for this project. Third year funding is estimated to be approximately $1 million.

Mr. Chairman, again, on behalf of the City of Oceanside, I request the Committee's support for these three critically important projects.

PREPARED STATEMENT OF THE COLUSA BASIN DRAINAGE DISTRICT—CALIFORNIA

Mr. Chairman and Members of the Subcommittee: Thank you for the opportunity to testify on the fiscal year 2002 budget request of the U.S. Bureau of Reclamation.

The Colusa Basin Drainage District respectfully requests that the Subcommittee support an appropriation of $500,000 in the Bureau of Reclamation budget for planning and design of flood control and watershed enhancement elements of the Colusa Basin Integrated Resources Management Plan authorized by the 106th Congress.

The cost-shared program is designed to address flooding problems and provide opportunities for future conjunctive use of water resources to meet the diverse needs of agricultural, urban and wildlife interests in the 650,000-acre Colusa Basin on the western side of the Sacramento Valley.

The District has secured State cost share funding for the site specific feasibility study of addressing flooding through structural and non-structural methods in three watersheds in the northern portion of the District. Past hydrologic studies show storms in this area caused the most damage to homes, agricultural land and public infrastructure. In fact, damage to public infrastructure is estimated to be 65 percent of the losses.

The program includes 10,000 acres of environmental restoration measures, small-scale detention reservoirs on intermittent streams that are prone to rapid flooding. The program will be implemented over a 20- to 25-year period on a willing-landowner basis. Any incidental water supplies created by the program will be devoted to environmental purposes.

We thank the Subcommittee for its past support and request that Reclamation continue to play a significant role in this project that is a model for the State and nation.

PREPARED STATEMENT OF THE NORTHERN CALIFORNIA WATER ASSOCIATION

Mr. Chairman, Members of the Subcommittee, my name is David Guy, Executive Director of the Northern California Water Association. I appreciate the opportunity to submit this testimony on behalf of the water suppliers and individual farmer members of the Northern California Water Association (NCWA). We submit the following testimony in support of our request that an additional $9,000,000 (above the President's request) be earmarked in the fiscal year 2002 Energy and Water Development Appropriations bill, under Bureau of Reclamation, Central Valley Project, Miscellaneous Project Programs, Anadromous Fish Screening Program, for fish screen projects on the Sacramento River. These screens represent classic "win-win" projects to benefit both the economy and the environment and are broadly supported in our communities.

NORTHERN CALIFORNIA WATER ASSOCIATION MISSION AND MEMBERSHIP

The NCWA mission is to promote the economic, social and environmental viability of Northern California by enhancing and preserving the water rights and supplies of our members. Our Association was formed in 1992 to provide agricultural water suppliers, farmers and landowners a united regional voice on California water policy. NCWA is committed to constructive leadership in the pursuit of real solutions to California's water problems. NCWA today represents nearly 70 agricultural water suppliers and individual farmers who irrigate over 850,000 acres of Northern California farmland.

NCWA's membership is geographically diverse, extending from the Coast Range to the Sierra Nevada foothills, and from Redding to Sacramento. Our members rely on the waters of the Sacramento, Feather, Yuba and American Rivers, smaller tributaries and groundwater to produce nearly every type of food and fiber grown in the region. These waters provide equally important fish and wildlife habitat and recreational uses.

The Sacramento Valley's initiative and effort to help protect salmon and other aquatic species is unprecedented and is now recognized as one of the most exciting and progressive voluntary salmon restoration efforts in the United States. Today, over a dozen NCWA members, representing over 500,000 acres of irrigable land, are in various stages of developing screens to prevent fish entrainment at their diversions. As a result, nearly 75 percent of all agricultural water use from the Sacramento River will soon flow through new, state-of-the-art, fish screens.

Since 1994, many NCWA members have initiated far-reaching efforts to screen diversions, refurbish fish ladders, construct siphons, remove dams, create habitat conservation plans and implement other habitat improvement projects to enhance the environment. We submit this request for funding, and your support, for our member agencies' ongoing efforts to enhance fishery protection and water infrastructure efficiency in the Sacramento Valley.

STATUTORY/PROGRAM AUTHORITY

The Central Valley Improvement Act (CVPIA; Public Law 102–575, Title 34) and the CalFed Program both emphasize the importance of providing additional anadromous fish species protection on the Sacramento River. The primary objective of the CVPIA Anadromous Fish Screen Program (CVPIA Section 3406(b)(21)) is to protect juvenile salmon, steelhead, sturgeon, bass and shad from entrainment. The Secretary of the Interior is required by the CVPIA to assist the State of California in developing and implementing measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions.

SACRAMENTO RIVER FISH SCREEN PROJECTS

The Natomas Mutual Water Company, Reclamation District 108 and Sutter Mutual Water Company are at the forefront of efforts to provide anadromous fish species protection on the Sacramento River. By consolidating existing diversions, installing new screening technology and upgrading and integrating distribution facilities, Natomas, RD 108 and Sutter are not only improving fishery protection, but also are simultaneously increasing water operation/management efficiencies.

Natomas Mutual Water Company (Natomas) has completed the feasibility, preliminary design and environmental evaluation work associated with consolidation of five Sacramento River diversions into two screened facilities. The project will remove pumping from an area ("Natomas Cross Canal Channel") that can be preserved for both fish passage as well as provide new protections for terrestrial species by preserving and enhancing important habitat.

The consolidation of diversions and upgrading of associated infrastructure will allow the Natomas project to also assist neighboring communities in achieving regional water management improvements by connecting the Sacramento and American Rivers for the first time, thus making regional groundwater recharge and banking possible while reducing diversion impacts on the American River. Over fifty regional water, business, environmental and public interest groups support this project. Thus the consolidated diversion and new screen facility is an important component for future integrated water resources management and cooperation in the American River basin.

Reclamation District 108 (RD 108) last year completed construction of a $12 million screen on the Sacramento River. The project, located at the district's Wilkins Slough diversion, protects migrating endangered winter-run Chinook salmon, as well as the spring-run Chinook and steelhead trout. The design for the new screen facility was chosen after several years were spent examining the performance of alternate screen technologies. The district held dedication ceremonies for the completed project on April 14, 2000.

RD 108 is currently developing a new fish screen project that will consolidate its three largest unscreened river diversions into one pumping plant with a new fish protection screen facility. This project is under reconnaissance investigation, scheduled for completion in April 2001. Total preliminary cost for design and construction of these facilities is estimated at $12 million. Funding assistance for the reconnaissance investigation has been received from the California Department of Fish and Game.

Sutter Mutual Water Company (Sutter Mutual) is proceeding with a fish screen feasibility study concerning its diversion on the Sacramento River at Tisdale Weir. This is the last major unscreened diversion on the Sacramento River, and thus a priority project for the California Department of Fish and Game, CalFed and the U.S. Bureau of Reclamation. A feasibility study, funded by the U.S. Bureau of Reclamation, is scheduled for completion in June 2001. Consolidation of one or two other Sutter Mutual diversions into an upgraded diversion at Tisdale is being investigated as part of the feasibility study. Feasibility, preconstruction engineering and design should be completed in the fall of 2002, with the project constructed and operational by the fall of 2003 or 2004. Early estimates indicate a total cost of $18–$30 million, depending on the results of the feasibility of consolidating the Sutter Mutual diversions.

Individually and together, these projects to consolidate and screen diversions and improve water supply infrastructure and efficiencies represent the best efforts of

local communities working with state and federal agencies to provide state-of-the-art fishery protection in conjunction with efficient water delivery to meet agricultural and human needs. We strongly urge and respectfully request your support for $9,000,000 in addition to the President's budget request for Sacramento River Fish Screen Projects, under the Bureau of Reclamation, Central Valley Project, Miscellaneous Project Programs, Anadromous Fish Screening Program.

PREPARED STATEMENT OF THE GLENN-COLUSA IRRIGATION DISTRICT BOARD OF DIRECTORS

Mr. Chairman, Members of the Subcommittee, my name is Donald Bransford, President of the Glenn-Colusa Irrigation District Board of Directors. I appreciate the opportunity to submit this testimony on behalf of the water suppliers, individual farmer members, and farm families dependant on Glenn-Colusa Irrigation District.

The Glenn-Colusa Irrigation District ("GCID") is located in the heart of the Sacramento Valley and is the largest and one of the oldest diverters of water from the Sacramento River. GCID diverts water from the Sacramento River through a 65-mile long irrigation canal into a complex system of over 430 miles of laterals. The water is delivered to more than 1,200 families who farm approximately 141,000 acres of valuable, productive, agricultural land. Farmers within GCID grow such diverse crops as rice, wheat, tomatoes, cotton, corn, walnuts, almonds and pistachios, which are shipped across the nation and the world. More than $270 million of agricultural products are produced annually on Glenn-Colusa Irrigation District farms, helping to sustain an estimated 12,000 jobs in the region.

GCID is also the sole source of surface water deliveries for three wildlife refuges—the Sacramento, Delevan, and Colusa National Wildlife Refuges—that comprise some 20,000 acres of critical wildlife habitat. Winter water supplied by GCID to thousands of acres of rice land also provides a rich oasis for migrating waterfowl.

Specifically, GCID has three requests of the Energy and Water Development Subcommittee in the fiscal year 2002 appropriations bill. First, GCID requests the Subcommittee's support for a an allocation of $6,600,000 in the Energy and Water Development Appropriations Bill, under Bureau of Reclamation, Fish and Wildlife Management and Development, to continue work on the GCID fish screen improvement project. The amount requested is $6,000,000 more than the budget request for the project. The additional funds are needed to begin to reimburse GCID for costs incurred by the District that have yet to be cost-shared by the Bureau of Reclamation.

The GCID Fish Screen Improvement Project is critical to the protection of five runs of anadromous fish in the Sacramento River, including the winter-run Chinook salmon. It has consistently been among the highest priority fish protection projects in the Central Valley. The project is also critical to the restoration of full water deliveries to more than 1,200 families who farm approximately 141,000 acres of valuable, productive, agricultural land.

Pursuant to the authorization provided in the Central Valley Project Improvement Act (CVPIA) the U.S. Bureau of Reclamation (Reclamation) is the lead Federal agency working in cooperation with GCID and the California Department of Fish and Game as co-lead state agencies, to implement long-term fish protection at GCID's Sacramento River diversion near Hamilton City.

A final Environmental Impact Report/Environmental Impact Statement was completed and reviewed extensively, resulting in the selection of the preferred fish screen alternative in early 1998. The preferred alternative for the Fish Screen Improvement Project consists of two important elements, the fish screen extension and the gradient facility. Construction of the fish screen extension and related channel improvements began in spring of 1998 and will continue into early 2001. An appropriation of $500,000 in fiscal year 2001 was granted to continue construction on the new fish screen facility at the site. These funds were appropriated as a non-reimbursable construction expense under the CVP, Sacramento River Division as set forth in the authorizing language of the CVPIA.

Reclamation staff estimates a need for an appropriation of $2.6 million for fiscal year 2002 for the fish screen extension portion of the Project. These funds will be necessary in fiscal year 2002 to cover the costs of the intensive hydraulic and biological testing during fiscal year 2001 that must be performed after completion of construction. The testing is necessary to confirm that the screen is functioning as designed and to ensure that off-site mitigation work stays on schedule.

GCID urges support for a total of $6.6 million for the project, $4 million above the budget request, to begin reimbursing the district for costs incurred by the District in excess of the District's required cost share. GCID's growers have contributed

to GCID's share of the cost of the permanent fish facility. To date, GCID has expended more than $12 million on construction of the fish screen extension, biological monitoring, environmental review of the long-term solution, land acquisition, environmental mitigation and downstream channel improvements. This represents $4 million more than the District's authorized cost share.

Second, GCID requests an appropriation of $4,000,000 in the Energy and Water Development Appropriations Bill, under Corps of Engineers, Construction General, to continue hydraulic and biological testing on the gradient restoration facility and initiate bank stabilization work in the vicinity of River Mile 208. This represents an increase of $1,716,000 above the budget request of $2,284,000 for the project. The project is critical to stabilizing the Sacramento River at GCID's diversion and ensuring the long-term viability of the new fish screen structure at the Hamilton City Pumping Plant under inevitable changing river conditions.

Restoring the gradient on the Sacramento River near Hamilton City is an essential component of the Fish Screen Improvement Project (Project). When fully constructed, the Project will vastly improve the passage of fish in the reach of the River near GCID's diversion. The design of the

Gradient Facility is based upon natural riffles observed in the Sacramento River. By mimicking a natural riffle, the Gradient Facility will provide for fish passage and recreational boating through the Facility. It will stabilize the river elevation and improve the effectiveness of the new fish screen built at GCID's pump station.

In 1999, GCID urged support of a proposed post-authorization change under Section 902 of the Water Resources Development Act of 1996 from a total project cost for the Gradient Facility of $20.7 million to $26 million. As a result, a post-authorization increase to $26 million was approved. In 1999, GCID also urged support of a post-authorization change to include bank protection work in the vicinity of River Mile 208 as part of the Gradient Facility. As a result, for the protection of the Gradient Facility and Fish Screen Extension, a post-authorization change to include work at River Mile 208 was approved.

For fiscal year 2001, GCID received support of appropriations in the amount of $4.1 million for the U.S. Army Corps of Engineers (Corps) to complete design, plans and specifications, award construction contracts and construct the Gradient Facility. The construction contract for the Gradient Facility was awarded on February 24, 2000, and construction of the Gradient began in April 2000.

Again, the optimum schedule indicates a need for $4 million in fiscal year 2002 to complete the Gradient Facility element of the project. GCID urges support for this amount to ensure that this portion of the Project proceeds as scheduled. Upon completion of construction in mid-2001, funds will be necessary to cover the intensive hydraulic and biological testing that must be performed. The testing is necessary to confirm that the screen is functioning as designed. Funds will also be necessary for planting of on-site vegetation, for off-site mitigation work required to compensate for the Project's impacts to habitat and for completion of design plans, specifications, award of contracts and construction of bank protection in the vicinity of River Mile 208.

Third, GCID requests an additional $2 million in the Energy and Water Development Appropriations Bill, under Bureau of Reclamation, Water and Related Resources (CVP, Sacramento River Division) to carry out detailed, site-specific environmental assessment and permitting work on, as well as to facilitate non-Federal participation with respect to, a Sites Reservoir, including an evaluation of the utilization of both the GCID Main Canal and the Tehama-Colusa Canal as a means to convey water into that proposed reservoir.

With a storage capacity of 1.6 million-acre feet of water, the proposed Sites Reservoir Project is an important part of the solution to California's water supply and water quality problems. Sites Reservoir has been identified within the Sacramento Valley in northern California as a potential element of an integrated water supply program involving state, local and Federal entities and agencies. The funds requested will be used to carry out detailed, site-specific environmental assessment and permitting work on, as well as to facilitate non-Federal participation with respect to a Sites Reservoir, including an evaluation of the utilization of both the GCID Main Canal and the Tehama-Colusa Canal as a means to convey water into that proposed reservoir.

Sites Reservoir is one of the two potential storage projects identified in the CALFED Record of Decision (ROD) for further study. Sites Reservoir could enhance water management flexibility in the Sacramento Valley. The ROD further notes that the Sites Reservoir would increase reliability of supplies for a significant portion of the Sacramento Valley and also provide storage and operational benefits for other CALFED programs, including water quality and the Environmental Water Account ("EWA").

In a more recent development, Mr. Chairman, the State Water Resources Control Board (SWRCB) on April 26, 2001 issued an order to stay the contentious Phase 8 Bay-Delta water rights hearings. The decision initiates an integrated water management program designed to protect Northern California water rights by assuring that the Sacramento Valley will receive full water supplies—both now and into the future. Projects will be developed to provide water for farms, cities and fish and wildlife in the Sacramento Valley, while also helping to meet environmental needs and improve water supplies and quality in other parts of the state.

The agreement, as part of this integrated program, contains a strong commitment to Sites reservoir and local water management projects in Northern California. Given that the Bureau of Reclamation was a principal signatory to this agreement, it is appropriate that the agency be provided additional resources to help Federal water users in the region to accelerate work on Sites Reservoir.

Finally, the U.S. Bureau of Reclamation has the authority to study Sites (Public Law 89–561, 80 Stat. 707) and this is not a new study. The Bureau or Reclamation's last study on Sites was completed in 1981. Again, on behalf of GCID's Board of Directors and all of the farm families in our region, I strongly urge you to approve this request.

Thank you for the opportunity to submit these prepared remarks.

PREPARED STATEMENT OF THE CENTRAL MONTANA RESOURCE AND CONSERVATION AREA, INC.

FISCAL YEAR 2002 APPROPRIATIONS REQUEST

The Central Montana Resource and Conservation Area, Inc., in association with six (6) small communities and numerous ranchers, in four counties, in central Montana, respectfully request funds in the Bureau of Reclamation budget to investigate the engineering viability and costs of the Musselshell Valley Regional Water Project, in the amount of $375,000 as set out below:

Fiscal Year 2002 Appropriations Request

Item	*Amount*
Exploratory Water Wells	$195,000
Technical Investigations	160,000
Reclamation Oversight	20,000
Total	375,000

NEED FOR PROJECT

Drought, inability to meet existing and future Safe Drinking Water Act requirements, exceedingly poor water quality of unregulated contaminants and inability of income levels within the regional project boundaries to support the development of individual projects are factors that underscore the need for this project, shown in location on Figure 1. Each community has expended their own funds in search of better water. Having found none, other than extensive individual treatment, this is the only alternative.

The project would serve a current population of 4,330 summarized as follows:

Musselshell Valley Regional Population

Community	*Estimated Current Population*
Judith Gap	138
Harlowton	1,075
Ryegate	302
Lavina	178
Roundup	2,078
Melstone	121
Musselshell	40
Spring Water Colony	96
Rural Ranchers	304
Total	4,332

Roundup.—Poor quality of water in the Roundup public water system demonstrates the need for improvement and, while different from other communities,

draws attention to other problems in the region. The source of public water supply in Roundup is a well drilled into an abandoned coal mine. As shown in the table below, problems with this water supply include high concentrations of dissolved iron and manganese, sulfates, hydrogen sulfide and total dissolved solids.

The relatively high concentrations of magnesium and sodium combine with the sulfate to form magnesium sulfate (Epson salt) and sodium sulfate (Glauber's salt) which make the water slightly bitter and which act as a laxative for people not accustomed to the water. There are additional concerns about treatment requirements when the proposed sulfate rule is put into effect. The waters in the developed parts of the mine exhibit the characteristics shown in the following table.

ROUNDUP WATER QUALITY INDICATORS

Contaminant	Recommended limits (mg/l)	At current pumping levels (mg/l)	At increased pumping levels (mg/l)
Total Dissolved Solids	500	2,800	4,000
Sodium	n.a.	450	670
Magnesium	n.a.	120	150
Sulfate	250	1,400	1,400
Iron	.300	4.100	N/A
Manganese	.050	.330	.368

There are additional concerns about the adequacy or longevity of the water supply from the underground coal mine. Tests conducted in 1995 indicate that increased pumping from the mine will result in a decrease in water quality. Water quality in the undeveloped part of the mine will become a larger component of the pumped water if the pumping rate is increased.

Judith Gap.—Judith Gap obtains its public water supply from a well completed in the basal Kootenai sandstone (Third Cat Creek sand). Problems include lack of backup pumping capacity and dissolved iron in the water.

Harlowton.—Harlowton obtains public water supply from three wells (detailed below) completed in the Claggett Shale and Eagle Sandstone. The principal problem with the public water supply system is aging facilities, namely the water wells. Water quality problems contribute to the need to replace the aging water wells. Five wells have been drilled for public water supply at Harlowton over five decades; however, only three of the wells remain in service. Of those three wells, only two are used most of the time because water quality is poor and the casing is deteriorating at the other well. Gasoline product was recently discovered in the upper part of the Claggett Shale near the City reservoir site. Although a remediation program has been implemented, this raises concerns about contamination of the existing wells, particularly those with deteriorated casing.

Thompson Well.—The Thompson well was completed in June 1949 with a reported yield of 716 gpm from a total depth of 390 feet. Over the years, the casing has deteriorated such that it is presently not possible to install a pump below about 120 feet and a restriction is present at 30 feet due to failing casing. Well yield has been reduced to 175 gpm, and it is only a matter of time before this well will fail completely. The well produces water high in iron. The iron concentration of 0.68 mg/l and the sulfate concentration of 393 mg/l exceed National Secondary Drinking Water Regulations. Recommended upper limits are 0.3 mg/l for iron and 250 mg/l for sulfate. The total dissolved solids concentration for 1,100 mg/l is more than twice the National Secondary Drinking Water recommendation of 500 mg/l.

Prichard Well.—The Prichard well was completed in August 1961 at a total cased depth of 1,220 feet. The well is a flowing artesian well with an initial yield reported in 1961 of more than 1,000 gpm. The well was used at a flow rate of 400 to 500 gpm historically, however, the rate is presently reduced to about 375 gpm because the deteriorating well casing allows sand to enter the well in addition to small fragments of rusted casing and cement from behind the casing. Water from the well is corrosive due to a hydrogen sulfide content of 0.84 mg/l, a factor contributing to the casing deterioration. The strong sulfur odor from the water is partly, but not completely, mitigated by strong chlorination to oxidize the sulfide and by a chemical treatment system. Total dissolved solids concentrations in the well water exceed the National Secondary Drinking Water recommended upper limit of 500 mg/l. This well is the principal source of water at Harlowton.

South Well.—The South well was completed in 1975 at a total depth of 921 feet and, although a flowing well, is equipped with a pump to increase the well yield to 280 gpm. The well is in good condition; however, it yields water with a hydrogen

sulfide concentration of 0.26 mg/l. Although the hydrogen sulfide concentration in this water does not pose as serious an odor problem as that from the Prichard well, the water is corrosive and O & M requirements for the pump house valves and plumbing and for pump column replacement are greater than normal.

Ryegate.—Ryegate provides public water supply from shallow wells along the Musselshell River. The groundwater level in the wells fluctuates in response to changes in the river level, and the well yields fluctuate accordingly. The alluvial aquifer along the river is thin such that the alluvium does not provide significant groundwater storage and the well yields are therefor dependent upon local recharge from the surface flow in the river. This has two undesirable results: (1) the well yields become inadequate in years when surface flow in the river is low and (2) water from the wells has been determined to be Groundwater Under Direct Influence of Surface Water (GWUDISW) and therefore must be treated under the Surface Water Treatment Rule (SWTR). The Ryegate public water supply system presently does not have surface water treatment capabilities.

Lavina.—Lavina does not have a public water supply system. Private wells provides water to individual homes. Similar to Ryegate, the wells are completed in the shallow alluvium along the Musselshell River with well depths ranging from 18–30 feet in depth. Such wells are subject to contamination by animal wastes and other pollutants on the land surface and, similar to Ryegate, the shallow groundwater may be under the influence of surface water and, while not regulated as a public water system subject to SDWA regulation, is potentially contaminated with pathogens and poses a significant health risk. The groundwater level here is also influenced by changes in river flow.

Melstone.—The public water supply at Melstone is obtained from the surface flow of the Musselshell River and is treated in a surface water treatment plant. Wells filled at Melstone in the past have not been successful in providing an adequate water supply with acceptable water quality. The principal problem with the present water supply is that Melstone is far enough downstream on the Musselshell River that the surface water flow ceases unless it is supported by releases from the Deadman Basin Reservoir. In periods of drought, storage in the reservoir is not adequate to maintain surface flow to Melstone. The community residents must seek alternative sources of water supply.

Finally, the regional water project is needed to combine local, Montana and Bureau of Reclamation funding into an affordable project. The ability of water users in the public water systems and in the rural areas to pay for the initial investment in a suitable water system, adequate in supply and capable of meeting present and future regulatory requirements, is limited by income levels averaging $16,725.00 annually.

PLAN TO ADDRESS REGIONAL PROJECT NEEDS

Despite the inadequacies of year-round streamflow in the Musselshell River and the poor quality of water in groundwater resources relied upon by the regional communities, the area is blessed with high quality water in the Madison Aquifer on the northwestern flank of the Big Snowy Mountains. This regional water project proposes to develop a well field in the Madison Aquifer about seven miles southeast of Moore, Montana. An alternative would locate a well field about 1.5 miles west of Garneill, or 5 miles north of Judith Gap, on the northeastern flank of the Little Belt Mountains. These well fields are in favorable terrain to develop groundwater with wells less than 2,000 feet deep. The proposed investigation would permit exploration of the Madison Aquifer in the area of the proposed well field near Moore. As many as two exploratory wells would be drilled.

The ultimate plan for development will provide for as many as six high capacity wells and the treatment of raw water derived from the well field. Pipeline with diameters ranging from 2 to 16 inches would be constructed over distances totaling 342 miles to serve six communities as identified above and 152 rural connectors. Only three pumping stations and two reservoirs would be required. The plan would serve a population of 4.332 (given above) at an estimated cost (reconnaissance level) of $34 million. The funds sought through the fiscal year 2002 appropriations process would provide for significant improvement in the cost estimates and the status of knowledge respecting the Madison Aquifer, the latter based on exploratory drilling of the wells.

Based on the ability to pay analysis to be concluded in the proposed investigation, a non-federal cost share of 20 percent may be a reasonable funding proposal. Assuming the reconnaissance level cost estimate is accurate, the project would seek approximately $27.2 million in federal cost share through the Bureau of Reclamation budget, and the remaining costs ($6.8 million) would be divided equally be-

tween the local water users and the State of Montana, provided the Montana Legislature finds the project worthwhile and authorized funding from the regional water project fund.

LOCAL PROJECT SUPPORT

Attached to this testimony are a letter from the Governor of Montana, the Honorable Judy Martz, letters from the Montana House and Senate representatives from the project area, the Montana Department of Environmental Quality, and from participating communities. These letters demonstrate broad support for an investigation of the type described here.

LETTER FROM JUDY MARTZ

STATE OFFICE OF THE GOVERNOR, OF MONTANA,
Helena, Montana, March 23, 2001.

Hon. PETE DOMENICI,
Chairman, Subcommittee on Appropriations for Energy and Water Development, U.S. Senate, Washington, D.C. 20515.

DEAR CHAIRMAN DOMENICI: I would appreciate the support of your Subcommittee for the $375,000 requested by the Musselshell Valley Regional Water Project for fiscal year 2002 for planning of their project with local communities, farmers and ranchers.

The federal appropriations requested will permit the project to progress, a project that will greatly improve the quality of life in Central Montana where water supplies and water quality are in need of significant improvement.

Respectfully,

JUDY MARTZ,
Governor.

LETTER FROM JERRY C. BURNS, P.E.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY,
Billings, Mt, March 16, 2001.

Mr. J. JAY ERDIE,
President, Central Mt RC&D Area, Inc., Roundup, Montana.

DEAR MR. ERDIE: Thank you for submitting a copy of the fiscal year 2002 Appropriations Request for the above referenced project, and for the opportunity to comment. The following comments regarding the need for the project are based partly on first hand knowledge of the water systems and on records in the Department of Environmental Quality Public Water Supply Program. I have worked in this program for the past 22 years. My comments regarding the proposed water supply source are based on recent conversations with the Montana Bureau of Mines and Geology.

Need for Project:

Roundup.—In addition to the stated needs, which are consistent with our records, the interference with disinfection and the infiltration gallery pose sanitary risks to health. Break point chlorination can not be practiced due to high levels of iron and manganese. Therefore, adequate chlorine residuals cannot be maintained throughout the distribution system. The secondary water supply source is an infiltration gallery that appears to be under the direct influence of surface water. Also, the present piping at the clearwell allows water from the well to recharge the infiltration gallery. This connection between sources needs to be corrected and the surface water influence needs to be addressed. Filtration or elimination of the gallery will likely be required.

Ryegate.—The infiltration wells have been determined to be under the direct influence of surface water. The Department of Environmental Quality will be issuing a letter in the near future requiring compliance with the Surface Water Treatment rule within 18 months of receipt of the letter.

Lavina.—The Town is not served by a public system. However, the school is classified as a public water supply system. The well is shallow and has a history of coliform violations. This well has also been threatened by an underground gasoline tank leak from a nearby service station.

Melstone.—Raw water shortages and operational problems have plagued this system. Operational problems have resulted in treatment technique violations.

Judith Gap.—Judith Gap has a history of intermittent bacterial problems. The wells in town have been abandoned due to a petroleum release. Leaving only one well to serve the town.

Harlowton.—Our records agree with the stated problems, and also show that Harlowton has at times experienced severe water shortages as a result of the aging water supply wells.

Plan to Address Regional Project Needs:

The Madison Aquifer has a very good potential for providing the necessary quality and quantity. I recommend working closely with the Montana Bureau of Mines and Geology for locating test wells.

I strongly support efforts to correct the deficiencies with systems included in this proposal and to develop a regional water system. With the new and upcoming regulations in the Safe Drinking Water Act, it is, and will continue to be, very difficult for small communities to provide the technical and financial resources to stay in compliance. Small communities with surface water systems will experience the most difficulty.

Please feel free to use this letter as a letter of support for the project. If you or anyone reading this letter has any questions or would like information out our Public Water Supply files, please call me at 247–4445.

Sincerely,

JERRY C. BURNS, P.E.,
Billings Regional Office.

LETTER FROM ALAN J. OLSON

MONTANA HOUSE OF REPRESENTATIVES,
Helena Montana, March 6, 2001.

Mr. J. JAY ERDIE, INC.,
President, Central Mt RC&D Area, Roundup, MT.

DEAR MR. ERDIE: I am very interested in the regional water project being proposed by the RC&D. The project would service most of the communities and surrounding areas in my House District.

I know of the struggles these communities have faced with adequate water quantities and quality over the years. The City of Roundup has to get their municipal water from an abandoned coal mine. The water is nearly undrinkable. The water for the other communities up and down the river valley is also extremely poor, not to mention their dependence on the continued flow of the Musselshell River. Again, this year flows do not look promising.

Knowing how low the income levels are for this area, I am happy to see this regional approach to finding a long term solution that may be affordable for the area citizens. I am totally in support of the project and would be glad to assist you where possible.

Sincerely,

ALAN J. OLSON,
House District 8.

LETTER FROM ALMEDA F. MOORE

CITY OF ROUNDUP,
Roundup, Montana, March 6, 2001

Mr. J. JAY ERDIE,
Chairman, Central Mt RC&D Area, Inc., Roundup, MT.

DEAR MR. ERDIE: The City of Roundup is very supportive of the proposed Musselshell Valley Regional Water Project. We have spent nearly three years and $50,000 searching for an alternative water source near Roundup. There is no such thing.

In addition we have spent several thousands of dollars investigating water treatment options and costs. The total capital cost is staggering, and added to the ongoing projected operations and maintenance costs it is prohibitive. It is not clear how and at what additional cost we could handle the waste stream resulting from water treatment.

We support the proposed regional water project because water was identified by the public as our number one priority in our Capital Improvement Plan. We believe that a regional approach, though quite expensive in front-end capital cost, would be

financially manageable for continued operations and maintenance costs, and would result in the best and most stable water supply we could ever hope for.

Sincerely,

ALMEDA F. MOORE,
Mayor.

LETTER FROM JOHN PECCIA

CITY OF HARLOWTON,
Harlowton, Montana, March 14, 2001.

J. JAY ERDIE,
President, Central Mt RC&D Area, Inc., Roundup, MT.

DEAR MR. ERDIE: The Mayor and City Council of Harlowton whole heartedly support the collective effort to solve the regional water quality and quantity problems that have plagued the Musselshell Valley for years.

Harlowton acquires its water from a series of wells in the vicinity. Even when fully operational, our water quality has been very poor, in many cases fax less than secondary national drinking water standards. Age and deterioration have left us with only three of the original five wells, and those remaining are producing at reduced levels.

Hill water treatment for compliance with current and future standards is far beyond the financial means of this relatively poor community. This is especially true with the local debt our citizens have recently encumbered with our new wastewater treatment project.

Please keep us informed as this proposal progresses. We offer our assistance wherever possible.

Sincerely,

JOHN PECCIA,
Mayor.

LETTER FROM MARK SOLNOSKY

TOWN OF RYEGATE,
Ryegate, Montana, March 14, 2001.

Mr. J. JAY ERDIE,
President, Central Mt RC&D Area, Inc., Roundup, MT.

DEAR MR. ERDIE: The Town of Ryegate gets its water from the alluvial gravels adjacent to the Musselshell River. As a result, we are dependent upon the flows of the river. Recently we were informed that our water was classified as groundwater, under the influence of surface water, by the Water Quality Bureau of the State of Montana. This will require treatment of some form that a community of our size cannot afford.

The proposal put forth by our area RC&D for a regional water system is totally supported by the Mayor and City Council of Ryegate. This proposal appears to solve the individual potable water supply problems of the entire Musselshell Valley. We appreciate your efforts as this area of Montana is in dire straits when it comes to safe, clean drinking water.

Sincerely,

MARK SOLNOSKY,
Mayor.

LETTER FROM JAMES C. PINKERTON

TOWN OF MELSTONE,
Melstone, Montana, March 14, 2001.

JAY ERDIE,
Chairman of Central Montana, Roundup, MT.

DEAR MR. ERDIE: The Melstone City Council would just like to confirm the fact that we are in full support of the Musselshell Valley Water Project. We are very excited about being part of the project and are willing to help in any way.

Thank you for including us.

Sincerely,

JAMES C. PINKERTON,
Mayor.

LETTER FROM JANET M. SUMMERS

TOWN OF LAVINA,
Lavina, Montana, March 16, 2001

Mr. J. JAY ERDIE,
President, Central Mt RC&D Area, Inc., Roundup, MT.

DEAR MR. ERDIE: The Town of Lavina has never had a potable water system. We do have a sanitary sewer collection and lagoon system that we are in the process of upgrading.

We would like in the future to provide the community with a potable water system and increased fire protection, but we are faced with the same quality and quantity problems encountered up and down the Musselshell Valley. Presently, water is obtained from individual private shallow groundwater wells which depend on the flow in the Musselshell River. This flow varies from feast to famine, as the river is entirely unpredictable, The quality of this shallow water is marginal at best.

The Mayor and Town Council would like to go on record as supporting the investigation of the feasibility of this project and request your assistance in providing the basic element of life to our citizens.

Sincerely,

JANET M. SUMMERS,
Mayor.

PREPARED STATEMENT OF THE CROW CREEK SIOUX

Fiscal Year 2002 Budget Request

The Crow Creek Sioux Tribe respectfully requests fiscal year 2002 appropriations for the Bureau of Reclamation from your subcommittee on Energy and Water Development. Funds will be used to finalize all pre-authorization documents (Special Study and Environmental Assessment) underway and supported by the subcommittee since fiscal year 1995. The amount requested is $179,000 as set out below:

Fiscal Year 2002 Budget Request

Tribal Administration and Coordination	$69,600
Finalize Special Study and Conduct Value Engineering	37,560
Finalize Environmental Assessment	30,575
Reclamation Oversight	41,265
Total	179,000

Proposed Activities

The Crow Creek Sioux Tribe, in cooperation with the Bureau of Reclamation, has concluded draft documents: "Special Study, Crow Creek Sioux Municipal Rural and Industrial Water Project" and the environmental assessment for the referenced project. The Bureau of Reclamation has reviewed the draft documents and has made formal comments on the documents that will pen-nit the Tribe to finalize them. The request for funds is to provide the means to conclude the Special Study and the environmental assessment during this session of Congress when draft bills will be presented to the South Dakota delegation by the Tribe for consideration of a project authorization. This is not a new project concept but one that has been in development for more than five years with the support of the Bureau of Reclamation and periodic line-item appropriations by Congress. The request for this year will finalize the planning phase of the project and permit the Tribe to advance to the construction phase given an authority through enabling legislation.

This has been a long process. Requirements for the planning phase of the project have evolved to meet requirements of Bureau of Reclamation oversight. Reclamation has advised us of the need for additional funds to complete the necessary work. Reclamation should be consulted for their concepts on the remaining requirements.

In addition to the completion of the documents, it is expected that value engineering of the preferred project alternative will be conducted to determine if savings can

be realized while meeting the objectives to develop a safe and dependable supply of water for the Crow Creek Indian Reservation.

Exigent Conditions

There is an immediate need to construct facilities to distribute Missouri River water and improve water quality throughout the Crow Creek Indian Reservation. This action will reduce health risks to the membership of the Crow Creek Sioux Tribe and other residents of the Reservation. With the exception of the community of Fort Thompson, water supplies and water quality are deplorable throughout the Reservation. There is an immediate need to extend pipelines from Fort Thompson to the community and day school at Stephan where water quality is extremely poor, and existing wells are limited in capacity.

Inspired by efforts of the Crow Creek Sioux Tribe, including the planning for the Reservation municipal, rural and industrial water system, the water treatment facilities at Fort Thompson have been improved with microfilters that produce a high quality water for residents of the community. The new water treatment facilities are incorporated as a part of the Reservation-wide project and, with construction of necessary pipelines, will permit delivery of high-quality water north to Stephan.

The need for the Reservation-wide project is underscored by the recent population releases from the 2000 census. Our planning had projected population increases on the Reservation from 1990 to 2000 at a rate of 14.3 percent. The actual rate of growth experienced in the last decade was 26.7 percent, significantly greater than the seemingly liberal projection made from the 1990 census.

The subcommittee is respectfully requested to carefully consider our needs and provide the necessary funding to complete the planning stage of our project.

Project Construction Costs and Recommended Project Alternative

Costs of alternatives, including construction contracts and non-contract costs, range from $15,403,000 (Alternatives b, d and e) to $17,853,000 (Alternative a). After accounting for funding already authorized by Congress for the Mid-Dakota project that could be transferred to the reservation project by amended legislation (Alternatives a and b) or used within the reservation in general conformity to plans by Mid-Dakota, additional funding authorization from Congress ranging from $10,634,000 (Alternatives b, d and e) to $12,946,000 (Alternative a) is required.

Based on the least cost scenario and self-determination, the Crow Creek Sioux Tribe's preferred project alternative is Alternative a ($12,946,000 in new funding authority; see description below): source of water on Lake Sharpe near Fort Thompson constructed, operated., maintained and replaced by the Crow Creek Sioux Tribe. Environmental factors, such as cultural and historic resources, and identifiable impacts on physical and biological resources are not significantly different between alternatives and had least influence on the recommended alternative.

Five alternatives for developing the project were:

—A project constructed, operated, maintained and replaced by the Crow Creek Sioux Tribe and meeting all needs through year 2030 within the Crow Creek Indian Reservation. Source of water would be the Missouri River with modifications to the existing intake and water treatment plant at Fort Thompson.

—A project constructed, operated, maintained and replaced by the Crow Creek Sioux Tribe and meeting all needs through year 2030 within the Crow Creek Indian Reservation. Source water would be the Missouri River from the intake and water treatment plant constructed by Mid-Dakota on Lake Oahe. The reservation system would be connected to the Mid-Dakota system along the northern and eastern borders of the reservation. Mid-Dakota would sell water to the Tribe as a bulk user.

—A project constructed, operated, maintained and replaced by the Crow Creek Sioux Tribe to service the Fort Thompson and Crow Creek community areas, and rural areas in between, from intake and water treatment plant at Fort Thompson. The balance of the project would be constructed, operated and maintained by Mid-Dakota with water supply from the Mid-Dakota intake and water treatment plant.

—A project constructed, operated, maintained and replaced exclusively by Mid-Dakota to service the entire reservation with water supply from the Mid-Dakota intake and water treatment plant.

—A project constructed by Mid-Dakota throughout the reservation and operated, maintained and replaced by the Crow Creek Sioux Tribe with water supply from the Mid-Dakota intake and water treatment plant.

—Future Operation, Maintenance and Replacement (OMR) Costs.

Future operation, maintenance and replacement costs, including staff, equipment. electricity, chemicals and all other materials necessary for repair and replacement,

have an estimated range in cost from $597,195 (Alternative a) to $826,185 (Alternatives b, d and e).

Present Value of Net Costs

Net costs were estimated as the present value of the costs of construction and OMR less the off-setting value of construction and OMR earnings by members of the Crow Creek Sioux Tribe, an under-employed labor force. Present value of net costs ranges from $15,348,180 (Alternative a) to $22,673,000 (Alternatives d and e).

Construction Schedule

A construction schedule beginning in fiscal year 2003 and ending in fiscal year 2006 is proposed. Construction and non-contract employment would provide 131 full-time equivalent man years of employment. Annual levels of funding needs would range from $2,135,000 in fiscal year 2003 to $6,736,000 in fiscal year 2005.

Environmental Factors

Pipelines proposed for the project range from 1.5 to 12 inches in diameter and have lengths ranging from 269.8 miles (Alternative c) to 276.4 miles (Alternative a). From five to seven pump stations with horsepower ranging from 103.0 to 164.5 are representative of the alternatives. From six to eight reservoirs with up to 495,000 gallons of capacity are proposed. Future population growth will require approximately five acres of new wastewater lagoons by year 2030.

Approximately 70 wetlands will be crossed by the project on the basis of the current layout, which will be modified in later designs to avoid wetlands. As many as 31 perennial stream crossings will be made. Nearly 43 miles of prime farmlands will be crossed by pipelines where most of the farmlands are defined as "prime" if irrigated in the future. Approximately 23 miles of unstable soils will be crossed. Up to 134 miles of trust lands (slightly less than 50 percent of the total) will be crossed by pipelines.

An Environmental Assessment and a class I cultural resource inventory and descriptive report have been prepared.

Population

The statistical summary below shows that population of the Crow Creek Indian Reservation in 1990 was 1,756 persons. 1,532 Indian persons and 224 non-Indian persons. Based on the rate of growth in the Indian and non-Indian population over the past several decades, year 2030 population estimates were made resulting in a future population of 3,417. These estimates recognize a relatively high growth rate within the Indian population and out-migration of non-Indians.

Income and Employment

Median household income in 1990 on the Crow Creek Indian Reservation averaged $12,763 as contrasted with averages for the state of South Dakota of $22,503. The Indian labor force on the reservation represented 55.7 percent of the population and 29 percent were unemployed. Across the state of South Dakota. 74.3 percent of the population was in the labor force, and 4. 1 percent were unemployed. Income levels on the reservation are extremely low, and unemployment is extremely high.

Ability to Pay

Consistent with the income levels described above, annual residual household income on the reservation is $8,924 after deducting the costs of housing and electricity from median household income. Results from the American Housing Survey of 1993, showed that 80 percent of those surveyed were paying $13.59 per month for water and sewer for comparable levels of residual income. Sewer costs on the reservation are $13 per month leaving $0.59 per month for water bill payments if residents of the reservation are expected to pay as much as 80 percent of the population with comparable income in the American Housing Survey.

Existing Public Water Systerms and Water Quality of Sources

Existing public water systems in the communities of Fort Thompson, Stephan, Big Bend and Crow Creek serve a population of 1,520. The maximum flow capacity of the systems is 53O gallons per minute, and reservoirs with 241,000 gallons of capacity are available.

Fort Thompson receives water from the Missouri River, which has good-quality water (479 milligrams per liter total dissolved solids as contrasted with the suggested level for secondary contaminants of 500 milligrams per liter). Crow Creek community receives its water from wells with total dissolved solids of 706 milligrams per liter. Stephan and Big Bend also receive water from wells with total dissolve solids ranging from 1,500 to 1.928 milligrams per liter. Wells serving the

households in the rural areas have water quality ranging from an average 702 milligrams per liter total dissolved solids to a maximum of 4,440.

Future Water Sources

The best available source of future water for the reservation is the Missouri River with water quality reflective of Fort Thompson. The annual flow of the Missouri River at Pierre is 15,873,000 acre-feet annually as contrasted with the largest stream on the reservation (Crow Creek) with an average annual flow of 13,749 acre feet. The Missouri River is dependable with minimum monthly flow of 192.000 acre-feet.

Periods of no flow are experienced on all reservation streams. Groundwater sources are generally (but not universally) adequate for single households in the rural areas and water quality ranges from good to poor. Nitrates may be increasing in groundwater sources, and there is evidence of copper exceeding maximum contaminant levels in rural water, but the source of copper is unknown and can be naturally occurring or introduced through the plumbing.

NOTE: the reporting is from the draft Special Study, which will change in detail. but not substance, in the final report to be concluded.)

PREPARED STATEMENT OF THE COLORADO RIVER BASIN SALINITY CONTROL FORUM

This testimony is in support of funding for the Colorado River Basin salinity control program. Congress has designated the Department of the Interior, Bureau of Reclamation (Reclamation), to be the lead agency for salinity control in the Colorado River Basin. This role and the authorized program were refined and confirmed by the Congress when Public Law 104–20 was enacted. A total of $17,500,000 is requested for fiscal year 2002 to implement the needed and authorized program. Failure to appropriate these funds will result in significant economic damage in the United States and Mexico. The President's request for funding is not known at this time. Studies have shown that implementation of the program has fallen behind the needed pace to control salinity concentrations. Water quality commitments to downstream U.S. and Mexican water users must be honored while the Basin states continue to develop their Compact apportioned waters of the Colorado River. Concentrations of salts in the water above water quality standard mandated levels would cause hundreds of millions of dollars in damage in the United States and result in poorer quality water being delivered by the United States to Mexico. For every 30 mg/l increase in salinity concentrations, there is $75 million in additional damages in the United States. The Forum, therefore, believes implementation of the program needs to be accelerated to a level beyond that requested by the past President.

The program authorized by the Congress in 1995 has proven to be very successful and very cost effective. Proposals from the public and private sector to implement salinity control strategies have far exceeded the available funding. Hence, Reclamation has a backlog of proposals and is able to select the best and most cost-effective proposals. Funds are available for the Colorado River Basin states' cost sharing for the level of federal funding requested by the Forum. Water quality improvements accomplished under Title II of the Colorado River Basin Salinity Control Act also benefit the quality of water delivered to Mexico. Although the United States has always met the commitments of the International Boundary & Water Commission's (Commission) Minute 242 to Mexico with respect to water quality, the United States Section of the Commission is currently addressing Mexico's request for better water quality at the Southerly International Boundary.

OVERVIEW

In 2000, Congress reviewed the program as authorized in 1995. Following hearings, and with Administration support, the Congress passed legislation that increased the ceiling authorized by this program by $100 million. Reclamation is now prepared to receive proposals to move the program ahead and the Basin states have funds available to cost-share up-front.

The Colorado River Basin Salinity Control Program was authorized by Congress in 1974. The Title I portion of the Colorado River Basin Salinity Control Act responded to commitments that the United States made, through Minute 242, to Mexico concerning the quality of water being delivered to Mexico below Imperial Dam. Title II of the Act established a program to respond to salinity control needs of Colorado River water users in the United States and to comply with the mandates of the then newly legislated Clean Water Act. Initially, the Secretary of the Interior

and Reclamation were given the lead federal role by the Congress. This testimony is in support of adequate funding for the Title II program.

After a decade of investigative and implementation efforts, the Basin states concluded that the Salinity Control Act needed to be amended. Congress revised the Act in 1984. That revision, while keeping the Secretary of the Interior as lead coordinator for Colorado River Basin salinity control efforts, also gave new salinity control responsibilities to the Department of Agriculture, and to the Bureau of Land Management. Congress has charged the Administration with implementing the most cost-effective program practicable (measured in dollars per ton of salt removed). The Basin states are strongly supportive of that concept as the Basin states consider cost sharing 30 percent of federal expenditures up-front for the salinity control program, in addition to proceeding to implement their own salinity control efforts in the Colorado River Basin.

The Colorado River Basin Salinity Control Forum (Forum) is composed of gubernatorial appointees from Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. The Forum has become the seven-state coordinating body for interfacing with federal agencies and Congress to support the implementation of the program necessary to control the salinity of the river system. In close cooperation with the Environmental Protection Agency (EPA) and under requirements of the Clean Water Act, every three years the Forum prepares a formal report analyzing the salinity of the Colorado River, anticipated future salinity, and the program necessary to keep the salinities in control.

In setting water quality standards for the Colorado River system, the salinity levels measured at Imperial, and below Parker, and Hoover Dams in 1972 have been identified as the numeric criteria. The plan necessary for controlling salinity and to reduce downstream damages has been captioned the "plan of implementation." The 1999 Review of water quality standards includes an updated plan of implementation. The level of appropriation requested in this testimony is in keeping with the agreed upon plan. If adequate funds are not appropriated, state and federal agencies involved are in agreement that damage from the high salt levels in the water will be widespread in the United States as well as Mexico and will be very significant.

JUSTIFICATION

The $17,500,000 requested by the Forum on behalf of the seven Colorado River Basin states is the level of funding necessary to proceed with Reclamation's portion of the plan of implementation. In July of 1995, Congress amended the Colorado River Basin Salinity Control Act. The amended Act gives Reclamation new latitude and flexibility in seeking the most cost-effective salinity control opportunities, and it provides for proposals and more involvement from the private as well as the public sector. The result is that salt loading is being prevented at costs often less than half the cost under the previous program. Congress this last year recommitted its support to the revised program when it enacted Public Law 106–459. The Basin states are, pursuant to Public Law 104–127 (FAIRA), cost sharing up-front on an annual basis, which adds 43 cents for every federal dollar appropriated. The federally chartered Colorado River Basin Salinity Control Advisory Council, created by the Congress in the Salinity Control Act, has met and formally supports the requested level of funding. The Basin states urge the Subcommittee to support the funding as set forth in this testimony.

ADDITIONAL SUPPORT OF FUNDING

In addition to the funding identified above for the implementation of the newly authorized program, the Salinity Control Forum urges the Congress to appropriate necessary funds needed to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operation. Reclamation has completed the Paradox Valley unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into a deep aquifer through an injection well. The continued operation of this project and other completed projects will be funded through Operation and Maintenance funds.

In addition, the Forum supports necessary funding to allow for continued general investigation of the salinity control program. It is important that Reclamation have planning staff in place, properly funded, so that the progress of the program can be analyzed, coordination between various federal and state agencies can be accomplished, and future projects and opportunities to control salinity can be properly planned to maintain the water quality standards for salinity so that the Basin states can continue to develop their Compact-apportioned waters of the Colorado River.

PREPARED STATEMENT OF THE TUCSON REGIONAL WATER COUNCIL

The Tucson Regional Water Council (TRWC) thanks you for the opportunity to provide testimony concerning the Bureau of Reclamation's fiscal year 2002 budget request. TRWC is a non-profit organization in Tucson, Arizona, whose members are water providers, business and professional people, and concerned citizens dedicated to ensuring a long-term, stable quality water supply for southern Arizona. Our 260 members appreciate the Committee's long support of the Central Arizona Project. We are grateful to you and your colleagues for your years of dedication to this project.

The TRWC wishes to address the Bureau of Reclamation's budget that pertains to water resources in southern Arizona and, in particular, the Bureau's plans that continue to positively impact our Central Arizona Project water planning.

Colorado River water delivered by the Central Arizona Project will be part of the City of Tucson's water supply starting in April. This new supply enables the City to turn off groundwater wells that are pumping water from underneath the metropolitan area, which should halt further subsidence. The other CAP contract holders in the metropolitan area, particularly those located north of the City of Tucson, are proceeding with their plans to develop the necessary infrastructure to receive and deliver Colorado River water. In August 2000, the Bureau of Reclamation's Phoenix Area Office published an appraisal study titled "Alternatives for Using Central Arizona Project Water in the Northwest Tucson Area." It is vital for the well being of the residents of these areas to have access to a renewable water supply and to partner with the Bureau of Reclamation in developing delivery systems.

In addition, in order to fully utilize CAP water, users must have reliability features as part of the Central Arizona Project. It is imperative for the Bureau of Reclamation to proceed with their planning for Tucson Reliability and for the Northwest region. We respectfully request that the Bureau of Reclamation budget line item: Tucson Reliability Division be approved. This line item allows the Bureau to continue its planning process.

In addition, work done by the Bureau of Reclamation in southern Arizona is necessary for this region to continue its water resources planning. We are experiencing great growth, which requires coordination with other agencies. Valuable services provided by the Bureau through its inter-regional budget items include environmental and interagency coordination, general planning activities, providing technical assistance, and planning investigations programs.

Of particular importance is the on-going Bureau Investigations Defined Program for southern Arizona, the Southern Arizona Water Management Study. This study is assisting the State of Arizona, several municipalities in southern Arizona, and two Indian Nations in coordinating planning efforts and Central Arizona Project water exchanges. The study is instrumental in identifying long-range water needs, water supply and treatment management options, and developing efficient water management strategies.

The Tucson Regional Water Council is closely associated with the Bureau under the Tucson Area Water Reclamation and Reuse Study, which is funded under Title XVI—Water Reclamation and Reuse Program. The study, which is known locally as the Regional Effluent Planning Partnership, is in its fourth year. Regional participants meet monthly to cooperatively plan for use of reclaimed wastewater, this regions only water resource that will increase in the future. We are in the process of developing the Feasibility Study report, which includes projects from three municipalities.

The Bureau of Reclamation is providing water management and resource planning services that are crucial for southern Arizona residents. We respectfully request that the Bureau receive its full funding requests for fiscal year 2002.

PREPARED STATEMENT OF THE STATE OF SOUTH DAKOTA

The Perkins County Rural Water System in South Dakota, which was authorized by Congress through passage of Public Law 106–136 during 1999, has submitted a request to your subcommittee for federal fiscal year 2002 funding. I am writing in support of their request.

Perkins County has a shortage of good quality water. During times of drought, conditions become desperate. Perkins County experienced drought conditions last summer. Dams dried up and people had to haul water for livestock and domestic use.

Several years ago, local people in Perkins County had a vision to bring high quality Missouri River water to the county and proceeded to work out an innovative agreement to extend the North Dakota Southwest Pipeline to Perkins County. The

North Dakota Southwest Pipeline is a federal project that draws water from the Missouri River and runs south through southwestern North Dakota. The significant federal investment in the Southwest Pipeline Project indicates the recognition of the severe water problems that exist in this area.

The people of Perkins County and the rest of South Dakota have invested much time, effort, and funding to bring the Southwest Pipeline from North Dakota to the South Dakota border. In fact, South Dakota has already invested $1.1 million from the state Water and Environment Fund to reserve capacity in the Southwest Pipeline. I just authorized an additional $150,000 loan to help local sponsors complete the Final Engineering Report required by the federal project authorization. This report will be completed later this summer so that any federal funding obtained can be used immediately for final design and construction.

This federal, state, and local partnership has worked hard and well to bring quality Missouri River water to the Perkins County border. However, now is the time to complete construction of the distribution system in Perkins County and get the people the water they so desperately need. By approving the funding request from Perkins County Rural Water System, you will be helping to make that happen.

I make this request knowing that federal budget restraints and limited resources prevent many projects from being funded or receiving the full request. I also understand that tough decisions concerning the types of projects that are to receive federal assistance will have to be made as the appropriation process is completed. But, it would be very unfortunate if this needed project is delayed further.

Thank you in advance for your consideration of the Perkins County Rural Water System budget request. If I can be of any assistance, please do not hesitate to contact me.

PREPARED STATEMENT OF THE PERKINS COUNTY RURAL WATER SYSTEM, INC.

The Perkins County Rural Water System, Inc. respectfully submits this written testimony to the Appropriations Subcommittee on Energy and Water Development for appropriations for fiscal year 2002.

Perkins County is located in northwestern South Dakota on the North Dakota state line. We are the second largest county in South Dakota and have a total of 2,866 square miles. Perkins County has a population of 3,542 people, of which 2,065 live in the two incorporated towns of Lemmon and Bison. Number one business in our county is agriculture and support services for the farmer and rancher. We have three manufacturing plants in Lemmon that employ approximately 130–140 full time jobs. Other large employers in Perkins County are federal government offices, state highway district offices, rural electric offices, county government, hospital and clinic and three school districts. Perkins County and the rest of northwestern South Dakota is a semi-arid climate with an annual precipitation of 14 inches, of which 76 percent falls normally in April through September.

History of this project goes back to 1982 when a group of farmers and ranchers in Perkins County were contacted by Southwest Pipeline Project in North Dakota if they would be interested in obtaining water to serve Perkins County. At that time, approximately 100 farms and ranches and the towns of Bison and Lemmon were interested, so Perkins County was included in their feasibility study. In November of 1992, Southwest Water Pipeline Project had grown to the point that Perkins County was contacted about receiving water from the project and to be included in the engineering design work. A committee of interested landowners and representatives from the two incorporated towns were organized through the Perkins County Conservation District/Natural Resources Conservation Service. From this committee, nine directors volunteered to serve on a board to study the feasibility of rural water for the county. In March of 1993, Perkins County Rural Water System, Inc. was organized as a non-profit organization. Two grants were obtained from the South Dakota Department of Environment and Natural Resources for $50,000 each to do a feasibility study. At the same time, the Directors were able to acquire good intention fees from rural landowners, state land, federal land, and the two towns for a total of $28,250 to cost share the state money on an 80–20 share basis. A feasibility study was conducted for Perkins County Rural Water by KBM, Inc. of Grand Forks, North Dakota, and the Alliance of Rapid City, South Dakota in 1994. In the 1995–96 South Dakota legislature, we obtained state authorization and appropriation of one million dollars. This money was used to up-size the pipe in North Dakota for our capacity and for administration costs of Perkins County Rural Water. We have signed a contract with the North Dakota State Water Commission to deliver 400 gallons per minute to the border. We have also signed contracts with both towns to be the sole supplier for their water systems. We have had

a very good response from the rural farmers and rancher in that 50 to 60 percent have signed and paid for water contracts delivered to their farmstead. The total for those contracts equals $81,500 plus obligations of another $72,000 when the project becomes a reality. To the ranchers and farmers of Northwestern South Dakota, that is a substantial investment for them to make. We also will be signing a contract with a grazing association that run livestock on US Forest Service land. In the fall of 1999, we received federal authorization with the 106th Congress for a 75 percent grant of twenty million dollars. We were unable to obtain appropriations in 2000 for the 2001 budget though we were able to obtain a loan from the State of South Dakota for $150,000 to operate till fiscal year 2002. The budget presented has been sent to the Bureau of Reclamation in Bismarck, North Dakota to be entered in their budget processing for 2002 thru 2003.

During our feasibility study, conducted by the combination of two engineering firms of the Alliance of South Dakota and KBM, Inc. of North Dakota, several alternatives were looked at to provide Perkins County with quality water. These alternatives were pumping water from Shadehill Lake or from deep-water wells drilled into the Fox Hills formation. Due to the high salt content, both of these sources would have to use reverse osmosis treatment that is very costly to build and operate. Buying bulk water from a large rural water system turned out to be the most feasible. Water from Southwest Water Authority is already treated at a large treatment plant and distributed to the border of North Dakota and South Dakota.

The quality of water in Northwestern South Dakota is the main concern for the health and well being of the people. Although the water in Perkins County typically meets the primary standards established by the US EPA, most of the chemicals in the water are exceedingly high by the State of South Dakota standards. Due to the fact that new standards by the EPA are set each year, it will be impossible for small water systems such as those in our towns to comply. Just across the line in North Dakota, two small towns have exceeded the fluoride levels from the same aquifer that water is pumped in South Dakota. At this time, fluoride in the Town of Lemmon is within one to two tenths of the MCL set by EPA through the Safe Drinking Water Act. In the deep wells of both Bison and Lemmon, the total dissolved solids, sulfates, and sodium consistently exceed the recommended levels set by EPA. Sodium is the major concern with the water in Perkins County. Running at 450 parts per million and above, the medical community has problems with people who have to be on a salt free diet. In the rural areas, bacteria contamination has been noted in wells that are dug into shallow aquifers. There are two letters in the appendix that relate to both the medical and the rural problems. Also, the rural population has noticed declining water levels in these same wells due to drought and over use. We are currently in a drought that has dried up any surface water supplies for livestock. If water had been available, some ranches would not have had to sell or ship livestock out of the county last fall.

In Table 1, we show construction costs of our project, which includes approximately 375 miles of pipeline along the support appendages. A map of the total system is appendix one. We will have reservoirs strategically located within the county to use for both storage and pressure to be able to provide the quantity of water that the people of Perkins County needs. The connection to Southwest Water Pipeline is included at 5.5 million dollars. This money will cover the capitalization of the pipeline to provide PCRWS with the water needed to operate. Since we have paid and will pay for the construction on both sides of the border, we will be able to obtain water at the cost of operation and maintenance. With State money, we have been able to pay for our share of the up sizing of the pipe that has been constructed in the last 3–4 years to the border. Also included is 1.75 million dollars for public water system's upgrading within the county that have deteriorated to the point that they could not afford to purchase our water.

In Table 2, we have included the operation's cost of the system. This table includes total operation costs, debt service and reserve payments when the system is operating at peak capacity.

Table 3 includes the request for fiscal year 2002. The request is 1.25 million dollars higher than requested for 2002. Since we did not receive any money for 2001, our time line is moving up for completion of the project. We are able to do this much construction work in one year and hope to finish the project in 4–5 years with this size appropriation per year.

At the end of the report, we have included letters representing people who have a problem with the water quality in Perkins County. They include the county extension educator, doctors in our local hospital and a letter from the Town of Lemmon stating the problems that they have with the current water status. Also there is a letter from our engineering firm showing how the system may save money because of the low pipe price at this time.

One of the reasons given for not obtaining money for fiscal year 2001 is that we are categorized as a new project. This is not totally true. Our start began in 1986 with the congressional approval of Southwest Water Authority (SWA) in North Dakota. We were going to attach an amendment increasing the ceiling level of SWA, but both the state and our congressional delegation believed it would be faster if we went with stand-alone legislation. Since the whole project costs $20 million dollars, we could be built in four to five years. Other wise our contracts would be too small for the larger construction firms to bid.

Water quality and quantity in Perkins County has been a plague for the county over many years. Droughts, both long and short term, are a fact of life for the people in this area. Being able to obtain quality water during these periods and having a backup system for other times would make the life in the county easier. Due to our isolation from major water supplies, this may be our only chance to obtain water at an affordable cost.

At the present time, we are working on our final engineering report, environmental and cultural resources reports, and, with a 50–60 percent signup rate, we are still signing up farmers and ranches. Upon obtaining the amount requested, we would be able to start construction in the spring of 2002 and have the system built in 3–4 years. We know that funds are hard to obtain, but finding quality water in our area is even harder. Thank you for reading our report and, on the behalf of the people of Perkins County South Dakota, we hope you can find the funds to build our system.

TABLE 1.—PIPELINE CONSTRUCTION—SOUTHWEST PIPELINE

Item	No. units	Units	Unit price	Extended price
Mobilization	1	LS	$50,000.00	$50,000.00
Water Main:				
1.5″ PVC	671,400	lf	2.00	1,342,800.00
2.0″ PVC	228,500	lf	2.10	479,850.00
3.0″ PVC	222,000	lf	2.25	499,500.00
4.0″ PVC	283,800	lf	2.50	709,500.00
6.0″ PVC	379,500	lf	4.00	1,518,000.00
8.0″ PVC	204,500	lf	6.75	1,380,375.00
1.0″ Poly	300	lf	4.50	1,350.00
4.0″ Poly	4,500	lf	12.25	55,125.00
1.0″ Curb Stop	6	ea	175.00	1,050.00
1.5″ Curb Stop	166	ea	275.00	45,650.00
Water Meters:				
Residential Meters	172	ea	275.00	47,300.00
2″ Water Meters	17	ea	450.00	7,650.00
4″ Meter Station	1	ea	12,000.00	12,000.00
8″ Meter Station	1	ea	15,000.00	15,000.00
Frost Proof Water Meter	27	ea	950.00	25,650.00
Water Service Installation	184	ea	100.00	18,400.00
River Crossings	13	ea	5,000.00	65,000.00
Non-cased Bore	94	ea	600.00	56,400.00
Cased Bore	8,600	lf	50.00	430,000.00
Gate Valves:				
2″	85	ea	300.00	25,500.00
3″	15	ea	375.00	5,625.00
4″	36	ea	400.00	14,400.00
6″	50	ea	475.00	23,750.00
8″	40	ea	620.00	24,800.00
Pressure Reducing Valves	40	ea	11,000.00	440,000.00
ARV Station	193	ea	1,200.00	231,600.00
Reservoir Pumping Station	4	ea	175,000.00	700,000.00
Booster Stations	4	ea	150,000.00	600,000.00
Signs	418	ea	21.00	8,778.00
Seeding	225	Ac.	300.00	67,500.00
Gravel	18,000	Ton	10.00	180,000.00
Municipal Improvements	1	LS	1,750,000.00	1,750,000.00
Reservoir (2,000,000 Gal)	1	LS	1,200,000.00	1,200,000.00
Connection to SW Pipeline	1	LS	5,500,000.00	5.500,000.00
Subtotal—Construction				17,532,553.00

TABLE 1.—PIPELINE CONSTRUCTION—SOUTHWEST PIPELINE—Continued

Item	No. units	Units	Unit price	Extended price
US Bureau of Rec. Admin				544,494.00
Engineering:				
Design & Construction Admin				496,107.00
Construction Observation				340,000.00
Additional Services				160,000.00
Legal & Administration				100,000.00
Contingencies & Construction Int				826,846.00
Total project costs				20,000,000.00

TABLE 2.—*Cost of Perkins County Rural Water*

COST OF CONSTRUCTION & ENGINEERING	$14,500,000.00
COST OF UPFRONT AND INCREMENTAL COSTS	5,500,000.00
TOTAL PROJECT COSTS	20,000,00.00
PROJECTED FUNDING:	
GRANT FUNDS:	
FEDERAL 75 percent	15,000,000.00
STATE 10 percent	2,000,000.00
LOAN FUNDS: LOCAL 15 percent	3,000,000.00
YEARLY OPERATIONAL & MAINTENANCE (w/o water)	161,000.00
DEBT SERVICE (40 years @ 6 percent)	179,000.00
ANNUAL RESERVE ($350,000 after 20 years)	17,500.00
TOTAL	357,500.00
PROJECTED WATER USAGE:	
RURAL	48,600,000
CITIES	85,800,000
GRAZING ASSOC	75,000,000
TOTAL (gal/yr)	209,400,000
COST OF WATER:	
Minimum monthly charge ($40.00 per month)	84,000.00
Pasture taps ($175 per year)	21,875.00
Grazing Assoc. ($175 per year)	2,450.00
O&M cost ($1.38/1000 gal)	289,800.00
TOTAL	398,125.00

TABLE 3.—*Perkins County Rural Water System, Inc. Budget fiscal year 2002*

ITEM	*EXTENDED PRICE*
FINAL ENGINEERING (COMPLETION) ADMIN. (INCLUDES BOR COST)	$380,000.00
50 PERCENT LEMMON INFRASTRUCTURE	720,000.00
50 PERCENT MAINLINE TO LEMMON	550,000.00
VAULT AND PIPE TO ND-SD BORDER	100,000.00
50 PERCENT MAINLINE TO BISON	900,000.00
LODGEPOLE POCKET	600,000.00
TOTAL	3,250,000.00

LETTER FROM CLARK B. JOHNSON

CITY OF LEMMON,
Lemmon, SD, March 6, 2001.

PERKINS COUNTY RURAL WATER SYSTEM INC.
Bison, SD.

DEAR PERKINS COUNTY RURAL WATER: We write this letter in support of funding that can be obtained to expedite the construction of the Perkins County Rural Water

System. The City of Lemmon is being held in a very "crucial" situation. Many blocks of the city water mains are in desperate need of replacement before pipeline water can be delivered to our system. Lemmon is experiencing many and increasing numbers of water main breaks. However, some existing wells are planned to be used in conjunction with pipeline water for fire protection and watering of city parks. This entire project needs to be designed with all factors considered so that precious tax dollars are not wasted in joining the two systems. Consequently, Lemmon cannot go forward with this critical project until significant dollars are appropriated so they are assured this project will become a reality. Meanwhile, the city continues to experience an increasing number of pipeline failures.

Lemmon's existing water supply continues to be a public health hazard. The water source is high in flouride and sodium. High levels of flouride and sodium are health hazards that will be eliminated when pipeline water is delivered to the Lemmon area.

One should also note, the tremendous support the system has received in the immediate rural area around the city. These rural residents have already paid at least $475 each in hopes of obtaining quality water sometime in the future. The rural signups are a testament to the poor quality of rural water. When people voluntarily part with their own money—there is a problem.

We hope these concerns will help you to obtain funding for the Perkins County Rural Water System.

Sincerely,

CLARK B. JOHNSON,
President of the Council, City of Lemmon.

LETTER FROM ROBERT E. GROSSMAN, MD

WEST RIVER HEALTH SERVICES,
Hettinger, ND, February 28, 2001.

PAUL ADCOCK,
Manager, Perkins County Rural Water System, Inc.; Bison, SD.

DEAR MR. ADCOCK: I would heartily endorse your water project. I do feel that the benefits from decreased sodium, specially in light of the high elderly population and the large number of patients with cardiac disease, the new water is a wonderful resource.

As a physician who cares for many people in that area, I would definitely endorse the water project for Perkins County.

Sincerely,

ROBERT E. GROSSMAN,
MD, FAAFP.

LETTER FROM VINCENT GUNN

SOUTH DAKOTA STATE UNIVERSITY,
Bison, South Dakota, February 28, 2001.

PERKINS COUNTY RURAL WATER SYSTEM, INC.,
Bison, South Dakota.

DEAR SIRS: As a SDSU County Educator for Agronomy, I am writing this letter to express the Great Need for improving the water quality in Perkins County located in northwestern South Dakota.

I have personally collected water samples from many drinking water sources located throughout Perkins County. Almost all the human water samples are contaminated with excessive sodium (about 1600 to 2400 ppm), total dissolved solids, nonsodium salts such as sulfates, and fluoride. These high levels of salts and solids present health hazards to the water consumer that need to be corrected.

During the past six months I have been testing livestock water for total salts after reports were received of cattle, sheep and horses being killed in Perkins County, South Dakota. Excessive salts such as sodium and sulfates were found in the livestock drinking water. The water killed cattle at the 7800 parts per million level that is substantially lower than the supposedly 10,000 parts per million "book value" salt concentration level required to kill livestock.

Likewise, many houseplants, trees, and shrubs cannot tolerate the high salt level found in our human drinking water. Many well-documented circumstances have been seen with the Perkins County human drinking water killing plants.

Please find us a water source that is safe for human, livestock, and plant health.

Sincerely,

VINCENT GUNN,
SDSU County Educator.

LETTER FROM JIM WEST

KBM, INC.,
Grand Forks, North Dakota, February 28, 2001.

PAUL ADCOCK,
Mgr., Perkins County Rural Water System, Inc., Bison, SD.

DEAR PAUL: Yesterday, a Mr. Roger Fjeldahl from Northern Pipe Products Inc. was in my office and indicated that PVC pipe was at very low price. Apparently, last fall PVC pipe prices fell, and they are very attractive from a funding point of view.

If you or your funding institution is interested in low prices, it would be prudent to obtain money as soon as possible to began installation of pipe. The pipe prices will probably continue to escalate upward for the next seven years.

Respectfully Submitted,

JIM WEST,
Vice President.

PREPARED STATEMENT OF THE TUCSON REGIONAL WATER COUNCIL

The Tucson Regional Water Council (TRWC) thanks you for the opportunity to provide testimony concerning the Bureau of Reclamation's fiscal year 2002 budget request. TRWC is a non-profit organization in Tucson, Arizona, whose members are water providers, business and professional people, and concerned citizens dedicated to ensuring a long-term, stable quality water supply for southern Arizona. Our 260 members appreciate the Committee's long support of the Central Arizona Project. We are grateful to you and your colleagues for your years of dedication to this project.

The TRWC wishes to address the Bureau of Reclamation's budget that pertains to water resources in southern Arizona and, in particular, the Bureau's plans that continue to positively impact our Central Arizona Project water planning.

Colorado River water delivered by the Central Arizona Project will be part of the City of Tucson's water supply starting in April. This new supply enables the City to turn off groundwater wells that are pumping water from underneath the metropolitan area, which should halt further subsidence. The other CAP contract holders in the metropolitan area, particularly those located north of the City of Tucson, are proceeding with their plans to develop the necessary infrastructure to receive and deliver Colorado River water. In August 2000, the Bureau of Reclamation's Phoenix Area Office published an appraisal study titled "Alternatives for Using Central Arizona Project Water in the Northwest Tucson Area." It is vital for the well being of the residents of these areas to have access to a renewable water supply and to partner with the Bureau of Reclamation in developing delivery systems.

In addition, in order to fully utilize CAP water, users must have reliability features as part of the Central Arizona Project. It is imperative for the Bureau of Reclamation to proceed with their planning for Tucson Reliability and for the Northwest region. We respectfully request that the Bureau of Reclamation budget line item: Tucson Reliability Division be approved. This line item allows the Bureau to continue its planning process.

In addition, work done by the Bureau of Reclamation in southern Arizona is necessary for this region to continue its water resources planning. We are experiencing great growth, which requires coordination with other agencies. Valuable services provided by the Bureau through its inter-regional budget items include environmental and interagency coordination, general planning activities, providing technical assistance, and planning investigations programs.

Of particular importance is the on-going Bureau Investigations Defined Program for southern Arizona, the Southern Arizona Water Management Study. This study is assisting the State of Arizona, several municipalities in southern Arizona, and two Indian Nations in coordinating planning efforts and Central Arizona Project water exchanges. The study is instrumental in identifying long-range water needs, water supply and treatment management options, and developing efficient water management strategies.

The Tucson Regional Water Council is closely associated with the Bureau under the Tucson Area Water Reclamation and Reuse Study, which is funded under Title XVI—Water Reclamation and Reuse Program. The study, which is known locally as the Regional Effluent Planning Partnership, is in its fourth year. Regional participants meet monthly to cooperatively plan for use of reclaimed wastewater, this regions only water resource that will increase in the future. We are in the process of developing the Feasibility Study report, which includes projects from three municipalities.

The Bureau of Reclamation is providing water management and resource planning services that are crucial for southern Arizona residents. We respectfully request that the Bureau receive its full funding requests for fiscal year 2002.

PREPARED STATEMENT OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Metropolitan Water District of Southern California (MWD) is pleased to submit the following testimony for the record, regarding programs contained in the U.S. Bureau of Reclamation's, the Department of Energy's and the Army Corps of Engineers' fiscal year 2002 budget for your Subcommittee's hearing record.

MWD strongly recommends your approval of a Reclamation and Corps of Engineers fiscal year 2002 budget that includes $263.6 million in funding for the CALFED Bay-Delta Program. We urge your support for reauthorization of the California Water Supply and Ecosystem Enhancement Act (California Bay-Delta Act). In addition, MWD urges your support for the San Joaquin Water Supply and Exchange Program, as part of the reauthorization of the California Bay-Delta Act. We ask for your support for additional federal funding for Reclamation's Colorado River Basin Salinity Control Program. We request that Congress appropriate $17.5 million for implementation of the basinwide program that will ensure protection of water quality for this important source of water supply. MWD also urges your support for Reclamation's Endangered Species Recovery Implementation effort that will provide for conservation of endangered and threatened species and habitat along the lower Colorado River, and requests an additional $2.5 million for the Lower Colorado River Operations Program, which provides mitigation for impacts associated with Reclamation's projects.

California has developed a Colorado River Water Use Plan (California Plan) to provide a framework for the agencies which rely on river water to reduce diversions to within California's 4.4 million acre-foot per year normal apportionment. Successful implementation of the California Plan is vital to the water supply reliability of the State of California, and is critical to the Colorado River interests of the six other Colorado River Basin states and Mexico. MWD supports Reclamation funding of $2 million for Salton Sea Habitat Enhancement activities in support of environmental permits required to proceed with the California Plan. Two water management reservoirs near the All-American Canal, an 8,000 acre-foot reservoir to the east of the Imperial Valley, and a 3,000 acre-foot on the western side of the Valley would help facilitate the implementation of the California Plan and could be of significant benefit to the other Colorado River Basin states and Mexico. Reclamation funding of $2.8 million is needed in fiscal year 2002 in order to provide for environmental impact analysis, and if a decision is made to move forward, the initial stage of project design.

MWD supports the recommendation by the National Drought Policy Commission that drought planning assistance funding needs to be increased at the national level and recommends the Bureau's drought planning program be increased to $5 million. Finally, MWD desires your support of funding necessary for work required to remove radioactive uranium mill tailings in Moab, Utah. These programs are essential for regional water supply reliability.

We look forward to working with you and your Subcommittee. Please contact Brad Hiltscher, MWD's Legislative Representative in Washington, D.C. at (202) 296–3551, if we can answer any questions or provide additional information.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA—RECOMMENDATIONS FOR FISCAL YEAR 2002 APPROPRIATIONS

Appropriations Bill	MWD Recommendation
U.S. Bureau of Reclamation:	
California Bay-Delta Ecosystem Restoration	$210.9 million
Salton Sea Habitat Enhancement Activities	$2 million

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA—RECOMMENDATIONS FOR FISCAL YEAR 2002 APPROPRIATIONS—Continued

Appropriations Bill	MWD Recommendation
Water Management Reservoirs near the All-American Canal	$2.8 million
Colorado River Basin Salinity Control Program—Title II	$17.5 million plus sufficient funds for required operation and maintenance of constructed units and for plan formulation
Endangered Species Conservation/Recovery Projects	$12.179 million
Lower Colorado River Operations Program	$2.5 million above President's budgeted amount (Support 3 state/federal/tribe effort)
Land and Water Conservation Fund	$7 million
Water Conservation Field Services Program Earmark	$500,000 for MWD
National Fish and Wildlife Foundation	$1.3 million for LCR MSCP (Support 3 state/federal/tribe effort)
Office of Native American Affairs	$250,000 for LCR MSCP (Support for 3 state/federal/tribe effort)
Drought Assistance Program	$5 million
Brackish Water Desalination	$3 million
Department of Energy: Removal of Radioactive Tailings in Moab, Utah	$10 million
U.S. Army Corps of Engineers: Bay-Delta Related Activities	$52.7 million

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