

***In the Senate of the United States,***

*September 26 (legislative day, September 17), 2008.*

*Resolved*, That the bill from the House of Representatives (H.R. 2631) entitled “An Act to strengthen efforts in the Department of Homeland Security to develop nuclear forensics capabilities to permit attribution of the source of nuclear material, and for other purposes.”, do pass with the following

**AMENDMENT:**

Strike out all after the enacting clause and insert:

1 ***SECTION 1. FINDINGS.***

2 *Congress finds the following:*

3 *(1) The threat of a nuclear terrorist attack on*  
4 *American interests, both domestic and abroad, is one*  
5 *of the most serious threats to the national security of*  
6 *the United States. In the wake of an attack, attribu-*  
7 *tion of responsibility would be of utmost importance.*  
8 *Because of the destructive power of the weapon, there*

1       *could be little forensic evidence except the radioactive*  
2       *material in the bomb itself.*

3               *(2) Through advanced nuclear forensics, using*  
4       *both existing techniques and those under development,*  
5       *it may be possible to identify the source and pathway*  
6       *of a weapon or material after it is interdicted or deto-*  
7       *nated. Though identifying intercepted smuggled mate-*  
8       *rial is now possible in some cases, pre-detonation*  
9       *forensics is a relatively undeveloped field. The post-*  
10       *detonation nuclear forensics field is also immature,*  
11       *and the challenges are compounded by the pressures*  
12       *and time constraints of performing forensics after a*  
13       *nuclear or radiological attack.*

14               *(3) A robust and well-known capability to iden-*  
15       *tify the source of nuclear or radiological material in-*  
16       *tended for or used in an act of terror could also deter*  
17       *prospective proliferators. Furthermore, the threat of*  
18       *effective attribution could compel improved security*  
19       *at material storage facilities, preventing the unwit-*  
20       *ting transfer of nuclear or radiological materials.*

21               *(4)(A) In order to identify special nuclear mate-*  
22       *rial and other radioactive materials confidently, it is*  
23       *necessary to have a robust capability to acquire sam-*  
24       *ples in a timely manner, analyze and characterize*

1        *samples, and compare samples against known signa-*  
2        *tures of nuclear and radiological material.*

3                *(B) Many of the radioisotopes produced in the*  
4        *detonation of a nuclear device have short half-lives, so*  
5        *the timely acquisition of samples is of the utmost im-*  
6        *portance. Over the past several decades, the ability of*  
7        *the United States to gather atmospheric samples,*  
8        *often the preferred method of sample acquisition, has*  
9        *diminished. This ability must be restored and modern*  
10       *techniques that could complement or replace existing*  
11       *techniques should be pursued.*

12               *(C) The discipline of pre-detonation forensics is*  
13       *a relatively undeveloped field. The radiation associ-*  
14       *ated with a nuclear or radiological device may affect*  
15       *traditional forensics techniques in unknown ways. In*  
16       *a post-detonation scenario, radiochemistry may pro-*  
17       *vide the most useful tools for analysis and character-*  
18       *ization of samples. The number of radiochemistry*  
19       *programs and radiochemists in United States Na-*  
20       *tional Laboratories and universities has dramatically*  
21       *declined over the past several decades. The narrowing*  
22       *pipeline of qualified people into this critical field is*  
23       *a serious impediment to maintaining a robust and*  
24       *credible nuclear forensics program.*

1           (5) *Once samples have been acquired and charac-*  
2 *terized, it is necessary to compare the results against*  
3 *samples of known material from reactors, weapons,*  
4 *and enrichment facilities, and from medical, aca-*  
5 *demie, commercial, and other facilities containing*  
6 *such materials, throughout the world. Some of these*  
7 *samples are available to the International Atomic*  
8 *Energy Agency through safeguards agreements, and*  
9 *some countries maintain internal sample databases.*  
10 *Access to samples in many countries is limited by na-*  
11 *tional security concerns.*

12           (6) *In order to create a sufficient deterrent, it is*  
13 *necessary to have the capability to positively identify*  
14 *the source of nuclear or radiological material, and po-*  
15 *tential traffickers in nuclear or radiological material*  
16 *must be aware of that capability. International co-*  
17 *operation may be essential to catalogue all existing*  
18 *sources of nuclear or radiological material.*

19 **SEC. 2. SENSE OF CONGRESS ON INTERNATIONAL AGREE-**  
20 **MENTS FOR FORENSICS COOPERATION.**

21 *It is the sense of the Congress that the President*  
22 *should—*

23           (1) *pursue bilateral and multilateral inter-*  
24 *national agreements to establish, or seek to establish*  
25 *under the auspices of existing bilateral or multilateral*

1        *agreements, an international framework for deter-*  
2        *mining—*

3                *(A) the source of any confiscated nuclear or*  
4                *radiological material or weapon; and*

5                *(B) the source of any detonated weapon and*  
6                *the nuclear or radiological material used in such*  
7                *a weapon;*

8                *(2) develop protocols for the data exchange and*  
9                *dissemination of sensitive information relating to nu-*  
10               *clear or radiological materials and samples of con-*  
11               *trolled nuclear or radiological materials, to the extent*  
12               *required by the agreements entered into under para-*  
13               *graph (1); and*

14               *(3) develop expedited protocols for the data ex-*  
15               *change and dissemination of sensitive information*  
16               *needed to publicly identify the source of a nuclear det-*  
17               *onation.*

18        **SEC. 3. RESPONSIBILITIES OF DOMESTIC NUCLEAR DETEC-**  
19                **TION OFFICE.**

20               *(a) ADDITIONAL RESPONSIBILITIES.—Section 1902 of*  
21        *the Homeland Security Act of 2002 (6 U.S.C. 592) is*  
22        *amended—*

23               *(1) by striking “(a) MISSION”;*

24               *(2) in paragraph (9), by striking “and” at the*  
25        *end;*

1           (3) by redesignating paragraph (10) as para-  
2           graph (14); and

3           (4) by inserting after paragraph (9) the fol-  
4           lowing:

5           “(10) develop and implement, with the approval  
6           of the Secretary, and in consultation with the Attor-  
7           ney General, the Secretary of Defense, the Secretary  
8           of Energy, the Secretary of State, the Director of Na-  
9           tional Intelligence, and the heads of appropriate de-  
10          partments and agencies, a ‘National Strategy and  
11          Five-Year Implementation Plan for Improving the  
12          Nuclear Forensic and Attribution Capabilities of the  
13          United States Government’ and the methods, capabili-  
14          ties, and capacity for nuclear materials forensics and  
15          attribution, including—

16                 “(A) an investment plan to support nuclear  
17                 materials forensics and attribution;

18                 “(B) the allocation of roles and responsibil-  
19                 ities for pre-detonation, detonation, and post-det-  
20                 onation activities; and

21                 “(C) the attribution of nuclear or radio-  
22                 logical material to its source when such material  
23                 is intercepted by the United States, foreign gov-  
24                 ernments, or international bodies or is dispersed

1           *in the course of a terrorist attack or other nu-*  
2           *clear or radiological explosion;*

3           “(11) *establish, within the Domestic Nuclear De-*  
4           *tection Office, the National Technical Nuclear*  
5           *Forensics Center to provide centralized stewardship,*  
6           *planning, assessment, gap analysis, exercises, im-*  
7           *provement, and integration for all Federal nuclear*  
8           *forensics and attribution activities—*

9           “(A) *to ensure an enduring national tech-*  
10           *nical nuclear forensics capability to strengthen*  
11           *the collective response of the United States to nu-*  
12           *clear terrorism or other nuclear attacks; and*

13           “(B) *to coordinate and implement the na-*  
14           *tional strategic plan and 5-year plan to improve*  
15           *national forensics and attribution capabilities*  
16           *for all Federal nuclear and radiological forensics*  
17           *capabilities;*

18           “(12) *establish a National Nuclear Forensics Ex-*  
19           *pertise Development Program, which—*

20           “(A) *is devoted to developing and maintain-*  
21           *ing a vibrant and enduring academic pathway*  
22           *from undergraduate to post-doctorate study in*  
23           *nuclear and geochemical science specialties di-*  
24           *rectly relevant to technical nuclear forensics, in-*  
25           *cluding radiochemistry, geochemistry, nuclear*

1           *physics, nuclear engineering, materials science,*  
2           *and analytical chemistry; and*

3           “(B) shall—

4                   “(i) make available for undergraduate  
5                   study student scholarships, with a duration  
6                   of up to 4 years per student, which shall in-  
7                   clude, if possible, at least 1 summer intern-  
8                   ship at a national laboratory or appro-  
9                   priate Federal agency in the field of tech-  
10                  nical nuclear forensics during the course of  
11                  the student’s undergraduate career;

12                  “(ii) make available for graduate study  
13                  student fellowships, with a duration of up  
14                  to 5 years per student, which shall—

15                       “(I) include, if possible, at least 2  
16                       summer internships at a national lab-  
17                       oratory or appropriate Federal agency  
18                       in the field of technical nuclear  
19                       forensics during the course of the stu-  
20                       dent’s graduate career; and

21                       “(II) require each recipient to  
22                       commit to serve for 2 years in a post-  
23                       doctoral position in a technical nuclear  
24                       forensics-related specialty at a national

1                   laboratory or appropriate Federal  
2                   agency after graduation;

3                   “(iii) make available to faculty  
4                   awards, with a duration of 3 to 5 years  
5                   each, to ensure faculty and their graduate  
6                   students have a sustained funding stream;  
7                   and

8                   “(iv) place a particular emphasis on  
9                   reinvigorating technical nuclear forensics  
10                  programs; and”.

11               (b) *JOINT INTERAGENCY ANNUAL REPORTING RE-*  
12 *QUIREMENT TO CONGRESS AND THE PRESIDENT.—*

13               (1) *IN GENERAL.—*Section 1907(a)(1) of the  
14 *Homeland Security Act of 2002 (6 U.S.C. 596(a)(1))*  
15 *is amended—*

16               (A) in subparagraph (A)(ii), by striking  
17               “and” at the end;

18               (B) in subparagraph (B)(iii), by striking  
19               the period at the end and inserting “; and”; and

20               (C) by adding at the end the following:

21               “(C) the Director of the Domestic Nuclear  
22               Detection Office and each of the relevant Depart-  
23               ments that are partners in the National Tech-  
24               nical Forensics Center—

1           “(i) includes, as part of the assess-  
2           ments, evaluations, and reviews required  
3           under this paragraph, each relevant agen-  
4           cy’s activities and investments in support of  
5           nuclear forensics and attribution activities;

6           “(ii) attaches, as an appendix to the  
7           Joint Interagency Annual Review, the most  
8           current version of the plan required under  
9           section 1902(a)(10); and

10           “(iii) after March 31 of each year,  
11           funds allocated for activities authorized  
12           under section 1902 are not spent until the  
13           submission to Congress of the report re-  
14           quired under subsection (b).”.

Attest:

Secretary.



110<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**H.R. 2631**

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**AMENDMENT**