

In the Senate of the United States,

December 23, 2009.

Resolved, That the bill from the House of Representatives (H.R. 730) 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. SHORT TITLE.***

2 *This Act may be cited as the “Nuclear Forensics and*
3 *Attribution Act”.*

4 ***SEC. 2. FINDINGS.***

5 *Congress finds the following:*

6 *(1) The threat of a nuclear terrorist attack on*
7 *American interests, both domestic and abroad, is one*
8 *of the most serious threats to the national security of*
9 *the United States. In the wake of an attack, attribu-*

1 *tion of responsibility would be of utmost importance.*
2 *Because of the destructive power of a nuclear weapon,*
3 *there could be little forensic evidence except the radio-*
4 *active material in the weapon itself.*

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

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

23 (4)(A) *In order to identify special nuclear mate-*
24 *rial and other radioactive materials confidently, it is*
25 *necessary to have a robust capability to acquire sam-*

1 *ples in a timely manner, analyze and characterize*
2 *samples, and compare samples against known signa-*
3 *tures of nuclear and radiological material.*

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

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

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

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

16 **SEC. 4. RESPONSIBILITIES OF DOMESTIC NUCLEAR DETEC-**
17 **TION OFFICE.**

18 *(a) ADDITIONAL RESPONSIBILITIES.—Section 1902 of*
19 *the Homeland Security Act of 2002 (as redesignated by*
20 *Public Law 110–53; 6 U.S.C. 592) is amended—*

21 *(1) in subsection (a)—*

22 *(A) in paragraph (9), by striking “and”*
23 *after the semicolon;*

24 *(B) by redesignating paragraph (10) as*
25 *paragraph (14); and*

1 (C) by inserting after paragraph (9) the fol-
2 lowing:

3 “(10) lead the development and implementation
4 of the national strategic five-year plan for improving
5 the nuclear forensic and attribution capabilities of the
6 United States required under section 1036 of the Na-
7 tional Defense Authorization Act for Fiscal Year
8 2010;

9 “(11) establish, within the Domestic Nuclear De-
10 tection Office, the National Technical Nuclear
11 Forensics Center to provide centralized stewardship,
12 planning, assessment, gap analysis, exercises, im-
13 provement, and integration for all Federal nuclear
14 forensics and attribution activities—

15 “(A) to ensure an enduring national tech-
16 nical nuclear forensics capability to strengthen
17 the collective response of the United States to nu-
18 clear terrorism or other nuclear attacks; and

19 “(B) to coordinate and implement the na-
20 tional strategic five-year plan referred to in
21 paragraph (10);

22 “(12) establish a National Nuclear Forensics Ex-
23 pertise Development Program, which—

24 “(A) is devoted to developing and maintain-
25 ing a vibrant and enduring academic pathway

1 *from undergraduate to post-doctorate study in*
2 *nuclear and geochemical science specialties di-*
3 *rectly relevant to technical nuclear forensics, in-*
4 *cluding radiochemistry, geochemistry, nuclear*
5 *physics, nuclear engineering, materials science,*
6 *and analytical chemistry;*

7 “(B) shall—

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

16 “(ii) make available for doctoral study
17 student fellowships, with a duration of up
18 to 5 years per student, which shall—

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

1 “(II) require each recipient to
2 commit to serve for 2 years in a post-
3 doctoral position in a technical nuclear
4 forensics-related specialty at a national
5 laboratory or appropriate Federal
6 agency after graduation;

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

12 “(iv) place a particular emphasis on
13 reinvigorating technical nuclear forensics
14 programs while encouraging the participa-
15 tion of undergraduate students, graduate
16 students, and university faculty from his-
17 torically Black colleges and universities,
18 Hispanic-serving institutions, Tribal Col-
19 leges and Universities, Asian American and
20 Native American Pacific Islander-serving
21 institutions, Alaska Native-serving institu-
22 tions, and Hawaiian Native-serving institu-
23 tions; and

24 “(C) shall—

1 “(i) provide for the selection of indi-
2 viduals to receive scholarships or fellowships
3 under this section through a competitive
4 process primarily on the basis of academic
5 merit and the nuclear forensics and attribu-
6 tion needs of the United States Government;

7 “(ii) provide for the setting aside of up
8 to 10 percent of the scholarships or fellow-
9 ships awarded under this section for indi-
10 viduals who are Federal employees to en-
11 hance the education of such employees in
12 areas of critical nuclear forensics and attri-
13 bution needs of the United States Govern-
14 ment, for doctoral education under the
15 scholarship on a full-time or part-time
16 basis;

17 “(iii) provide that the Secretary may
18 enter into a contractual agreement with an
19 institution of higher education under which
20 the amounts provided for a scholarship
21 under this section for tuition, fees, and
22 other authorized expenses are paid directly
23 to the institution with respect to which such
24 scholarship is awarded;

1 “(iv) require scholarship recipients to
2 *maintain satisfactory academic progress;*
3 *and*

4 “(v) require that—

5 “(I) a scholarship recipient who
6 *fails to maintain a high level of aca-*
7 *demie standing, as defined by the Sec-*
8 *retary, who is dismissed for discipli-*
9 *nary reasons from the educational in-*
10 *stitution such recipient is attending, or*
11 *who voluntarily terminates academic*
12 *training before graduation from the*
13 *educational program for which the*
14 *scholarship was awarded shall be liable*
15 *to the United States for repayment*
16 *within 1 year after the date of such de-*
17 *fault of all scholarship funds paid to*
18 *such recipient and to the institution of*
19 *higher education on the behalf of such*
20 *recipient, provided that the repayment*
21 *period may be extended by the Sec-*
22 *retary if the Secretary determines it*
23 *necessary, as established by regulation;*
24 *and*

1 “(II) a scholarship recipient who,
2 for any reason except death or dis-
3 ability, fails to begin or complete the
4 post-doctoral service requirements in a
5 technical nuclear forensics-related spe-
6 cialty at a national laboratory or ap-
7 propriate Federal agency after comple-
8 tion of academic training shall be lia-
9 ble to the United States for an amount
10 equal to—

11 “(aa) the total amount of the
12 scholarship received by such re-
13 cipient under this section; and

14 “(bb) the interest on such
15 amounts which would be payable
16 if at the time the scholarship was
17 received such scholarship was a
18 loan bearing interest at the max-
19 imum legally prevailing rate;

20 “(13) provide an annual report to Congress on
21 the activities carried out under paragraphs (10), (11),
22 and (12); and”;

23 (2) by adding at the end the following new sub-
24 section:

25 “(b) *DEFINITIONS.*—*In this section:*

1 “(1) *ALASKA NATIVE-SERVING INSTITUTION.*—
2 *The term ‘Alaska Native-serving institution’ has the*
3 *meaning given the term in section 317 of the Higher*
4 *Education Act of 1965 (20 U.S.C. 1059d).*

5 “(2) *ASIAN AMERICAN AND NATIVE AMERICAN*
6 *PACIFIC ISLANDER-SERVING INSTITUTION.*—*The term*
7 *‘Asian American and Native American Pacific Is-*
8 *lander-serving institution’ has the meaning given the*
9 *term in section 320 of the Higher Education Act of*
10 *1965 (20 U.S.C. 1059g).*

11 “(3) *HAWAIIAN NATIVE-SERVING INSTITUTION.*—
12 *The term ‘Hawaiian native-serving institution’ has*
13 *the meaning given the term in section 317 of the*
14 *Higher Education Act of 1965 (20 U.S.C. 1059d).*

15 “(4) *HISPANIC-SERVING INSTITUTION.*—*The term*
16 *‘Hispanic-serving institution’ has the meaning given*
17 *that term in section 502 of the Higher Education Act*
18 *of 1965 (20 U.S.C. 1101a).*

19 “(5) *HISTORICALLY BLACK COLLEGE OR UNIVER-*
20 *SITY.*—*The term ‘historically Black college or univer-*
21 *sity’ has the meaning given the term ‘part B institu-*
22 *tion’ in section 322(2) of the Higher Education Act*
23 *of 1965 (20 U.S.C. 1061(2)).*

24 “(6) *TRIBAL COLLEGE OR UNIVERSITY.*—*The*
25 *term ‘Tribal College or University’ has the meaning*

1 *given that term in section 316(b) of the Higher Edu-*
2 *cation Act of 1965 (20 U.S.C. 1059c(b)).”.*

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

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

8 ***(A) in subparagraph (A)(i), by striking “;***
9 ***and” and inserting a semicolon;***

10 ***(B) in subparagraph (B)(iii), by striking***
11 ***the period at the end and inserting “; and”; and***

12 ***(C) by adding at the end the following new***
13 ***subparagraph:***

14 ***“(C) the Director of the Domestic Nuclear***
15 ***Detection Office and each of the relevant depart-***
16 ***ments that are partners in the National Tech-***
17 ***nical Forensics Center—***

18 ***“(i) include, as part of the assessments,***
19 ***evaluations, and reviews required under***
20 ***this paragraph, each office’s or department’s***
21 ***activities and investments in support of nu-***
22 ***clear forensics and attribution activities***
23 ***and specific goals and objectives accom-***
24 ***plished during the previous year pursuant***
25 ***to the national strategic five-year plan for***

1 *improving the nuclear forensic and attribu-*
2 *tion capabilities of the United States re-*
3 *quired under section 1036 of the National*
4 *Defense Authorization Act for Fiscal Year*
5 *2010;*

6 *“(ii) attaches, as an appendix to the*
7 *Joint Interagency Annual Review, the most*
8 *current version of such strategy and plan;*
9 *and*

10 *“(iii) includes a description of new or*
11 *amended bilateral and multilateral agree-*
12 *ments and efforts in support of nuclear*
13 *forensics and attribution activities accom-*
14 *plished during the previous year.”.*

Attest:

Secretary.

11TH CONGRESS
1ST SESSION

H.R. 730

AMENDMENT