

111TH CONGRESS
1ST SESSION

H. R. 730

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.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 27, 2009

Mr. SCHIFF (for himself, Mr. McCAUL, and Mr. ISRAEL) introduced the following bill; which was referred to the Committee on Homeland Security, and in addition to the Committee on Foreign Affairs, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

A BILL

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.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Nuclear Forensics and
5 Attribution Act”.

1 **SEC. 2. 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
6 of the United States. In the wake of an attack, attri-
7 bution of responsibility would be of utmost impor-
8 tance. Because of the destructive power of a nuclear
9 weapon, there could be little forensic evidence except
10 the radioactive material in the weapon itself.

11 (2) Through advanced nuclear forensics, using
12 both existing techniques and those under develop-
13 ment, it may be possible to identify the source and
14 pathway of a weapon or material after it is inter-
15 dicted or detonated. Though identifying intercepted
16 smuggled material is now possible in some cases,
17 pre-detonation forensics is a relatively undeveloped
18 field. The post-detonation nuclear forensics field is
19 also immature, and the challenges are compounded
20 by the pressures and time constraints of performing
21 forensics after a nuclear or radiological attack.

22 (3) A robust and well-known capability to iden-
23 tify the source of nuclear or radiological material in-
24 tended for or used in an act of terror could also
25 deter prospective proliferators. Furthermore, the
26 threat of effective attribution could compel improved

1 security at material storage facilities, preventing the
2 unwitting transfer of nuclear or radiological mate-
3 rials.

4 (4)(A) In order to identify special nuclear mate-
5 rial and other radioactive materials confidently, it is
6 necessary to have a robust capability to acquire sam-
7 ples in a timely manner, analyze and characterize
8 samples, and compare samples against known signa-
9 tures of nuclear and radiological material.

10 (B) Many of the radioisotopes produced in the
11 detonation of a nuclear device have short half-lives,
12 so the timely acquisition of samples is of the utmost
13 importance. Over the past several decades, the abil-
14 ity of the United States to gather atmospheric sam-
15 ples—often the preferred method of sample acquisi-
16 tion—has diminished. This ability must be restored
17 and modern techniques that could complement or re-
18 place existing techniques should be pursued.

19 (C) The discipline of pre-detonation forensics is
20 a relatively undeveloped field. The radiation associ-
21 ated with a nuclear or radiological device may affect
22 traditional forensics techniques in unknown ways. In
23 a post-detonation scenario, radiochemistry may pro-
24 vide the most useful tools for analysis and character-
25 ization of samples. The number of radiochemistry

1 programs and radiochemists in United States Na-
2 tional Laboratories and universities has dramatically
3 declined over the past several decades. The nar-
4 rowing pipeline of qualified people into this critical
5 field is a serious impediment to maintaining a robust
6 and credible nuclear forensics program.

7 (5) Once samples have been acquired and char-
8 acterized, it is necessary to compare the results
9 against samples of known material from reactors,
10 weapons, and enrichment facilities, and from med-
11 ical, academic, commercial, and other facilities con-
12 taining such materials, throughout the world. Some
13 of these samples are available to the International
14 Atomic Energy Agency through safeguards agree-
15 ments, and some countries maintain internal sample
16 databases. Access to samples in many countries is
17 limited by national security concerns.

18 (6) In order to create a sufficient deterrent, it
19 is necessary to have the capability to positively iden-
20 tify the source of nuclear or radiological material,
21 and potential traffickers in nuclear or radiological
22 material must be aware of that capability. Inter-
23 national cooperation may be essential to catalogue
24 all existing sources of nuclear or radiological mate-
25 rial.

1 **SEC. 3. SENSE OF CONGRESS ON INTERNATIONAL AGREE-**
2 **MENTS FOR FORENSICS COOPERATION.**

3 It is the sense of the Congress that the President
4 should—

5 (1) pursue bilateral and multilateral inter-
6 national agreements to establish, or seek to establish
7 under the auspices of existing bilateral or multilat-
8 eral agreements, an international framework for de-
9 termining the source of any confiscated nuclear or
10 radiological material or weapon, as well as the
11 source of any detonated weapon and the nuclear or
12 radiological material used in such a weapon;

13 (2) develop protocols for the data exchange and
14 dissemination of sensitive information relating to nu-
15 clear or radiological materials and samples of con-
16 trolled nuclear or radiological materials, to the ex-
17 tent required by the agreements entered into under
18 paragraph (1); and

19 (3) develop expedited protocols for the data ex-
20 change and dissemination of sensitive information
21 needed to publicly identify the source of a nuclear
22 detonation.

1 **SEC. 4. RESPONSIBILITIES OF DOMESTIC NUCLEAR DETEC-**
2 **TION OFFICE.**

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

6 (1) in subsection (a)—

7 (A) in paragraph (9), by striking “and”
8 after the semicolon;

9 (B) by redesignating paragraph (10) as
10 paragraph (14); and

11 (C) by inserting after paragraph (9) the
12 following:

13 “(10) develop and implement, with the approval
14 of the Secretary and in coordination with the heads
15 of appropriate departments and agencies, methods
16 and capabilities to support the attribution of nuclear
17 or radiological material to its source when such ma-
18 terial is intercepted by the United States, foreign
19 governments, or international bodies or is dispersed
20 in the course of a terrorist attack or other nuclear
21 or radiological explosion;

22 “(11) establish, within the Domestic Nuclear
23 Detection Office, the National Technical Nuclear
24 Forensics Center to provide centralized stewardship,
25 planning, assessment, gap analysis, exercises, im-
26 provement, and integration for all Federal nuclear

1 forensics activities in order to ensure an enduring
2 national technical nuclear forensics capability and
3 strengthen the collective response of the United
4 States to nuclear terrorism or other nuclear attacks;

5 “(12) establish a National Nuclear Forensics
6 Expertise Development Program which—

7 “(A) is devoted to developing and main-
8 taining a vibrant and enduring academic path-
9 way from undergraduate to post-doctorate
10 study in nuclear and geochemical science spe-
11 cialties directly relevant to technical nuclear
12 forensics, including radiochemistry, geo-
13 chemistry, nuclear physics, nuclear engineering,
14 materials science, and analytical chemistry; and

15 “(B) shall—

16 “(i) make available for undergraduate
17 study student scholarships, with a duration
18 of up to four years per student, which shall
19 include, whenever possible, at least one
20 summer internship at a national laboratory
21 or appropriate Federal agency in the field
22 of technical nuclear forensics during the
23 course of the student’s undergraduate ca-
24 reer;

1 “(ii) make available for graduate
2 study student fellowships, with a duration
3 of up to five years per student, which—

4 “(I) shall include, whenever pos-
5 sible, at least two summer internships
6 at a national laboratory or appro-
7 priate Federal agency in the field of
8 technical nuclear forensics during the
9 course of the student’s graduate ca-
10 reer; and

11 “(II) shall require each recipient
12 to commit to serve for two years in a
13 post-doctoral position in a technical
14 nuclear forensics-related specialty at a
15 national laboratory or appropriate
16 Federal agency after graduation;

17 “(iii) make available to faculty
18 awards, with a duration of three to five
19 years each, to ensure faculty and their
20 graduate students a sustained funding
21 stream; and

22 “(iv) place a particular emphasis on
23 reinvigorating technical nuclear forensics
24 programs, while encouraging the participa-
25 tion of undergraduate students, graduate

1 students, and university faculty from his-
2 torically Black colleges and universities,
3 Hispanic-serving institutions, and Tribal
4 Colleges and Universities;

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

8 (2) by adding at the end the following new sub-
9 section:

10 “(b) DEFINITIONS.—In this section:

11 “(1) HISTORICALLY BLACK COLLEGE OR UNI-
12 VERSITY.—The term ‘historically Black college or
13 university’ has the meaning given the term ‘part B
14 institution’ in section 322(2) of the Higher Edu-
15 cation Act of 1965 (20 U.S.C. 1061(2)).

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

20 “(3) TRIBAL COLLEGE OR UNIVERSITY.—The
21 term ‘Tribal College or University’ has the meaning
22 given that term in section 316(b) of the Higher
23 Education Act of 1965 (20 U.S.C. 1059c(b)).”.

24 (b) AUTHORIZATION OF APPROPRIATIONS.—There is
25 authorized to be appropriated the sum of \$30,000,000 for

1 each of the fiscal years 2009, 2010, and 2011 to carry
2 out paragraphs (10) through (13) of section 1902(a) of
3 the Homeland Security Act of 2002, as added by sub-
4 section (a) of this section.

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