

110TH CONGRESS
2D SESSION

H. R. 2631

IN THE SENATE OF THE UNITED STATES

JUNE 19, 2008

Received; read twice and referred to the Committee on Homeland Security and
Governmental Affairs

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.

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

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
9 of the United States. In the wake of an attack, attri-
10 bution of responsibility would be of utmost impor-
11 tance. Because of the destructive power of the weap-
12 on, there could be little forensic evidence except the
13 radioactive material in the bomb itself.

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

25 (3) A robust and well-known capability to iden-
26 tify the source of nuclear or radiological material in-

1 tended for or used in an act of terror could also
2 deter prospective proliferators. Furthermore, the
3 threat of effective attribution could compel improved
4 security at material storage facilities, preventing the
5 unwitting transfer of nuclear or radiological mate-
6 rials.

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

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

22 (C) The discipline of pre-detonation forensics is
23 a relatively undeveloped field. The radiation associ-
24 ated with a nuclear or radiological device may affect
25 traditional forensics techniques in unknown ways. In

1 a post-detonation scenario, radiochemistry may pro-
2 vide the most useful tools for analysis and character-
3 ization of samples. The number of radiochemistry
4 programs and radiochemists in United States Na-
5 tional Laboratories and universities has dramatically
6 declined over the past several decades. The nar-
7 rowing pipeline of qualified people into this critical
8 field is a serious impediment to maintaining a robust
9 and credible nuclear forensics program.

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

21 (6) In order to create a sufficient deterrent, it
22 is necessary to have the capability to positively iden-
23 tify the source of nuclear or radiological material,
24 and potential traffickers in nuclear or radiological
25 material must be aware of that capability. Inter-

1 national cooperation may be essential to catalogue
2 all existing sources of nuclear or radiological mate-
3 rial.

4 **SEC. 3. SENSE OF CONGRESS ON INTERNATIONAL AGREE-**
5 **MENTS FOR FORENSICS COOPERATION.**

6 It is the sense of the Congress that the President
7 should—

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

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

22 (3) develop expedited protocols for the data ex-
23 change and dissemination of sensitive information
24 needed to publicly identify the source of a nuclear
25 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 to ensure an enduring national
2 technical nuclear forensics capability to strengthen
3 the collective response of the United States to nu-
4 clear 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.

Passed the House of Representatives June 18, 2008.

Attest: LORRAINE C. MILLER,
Clerk.