

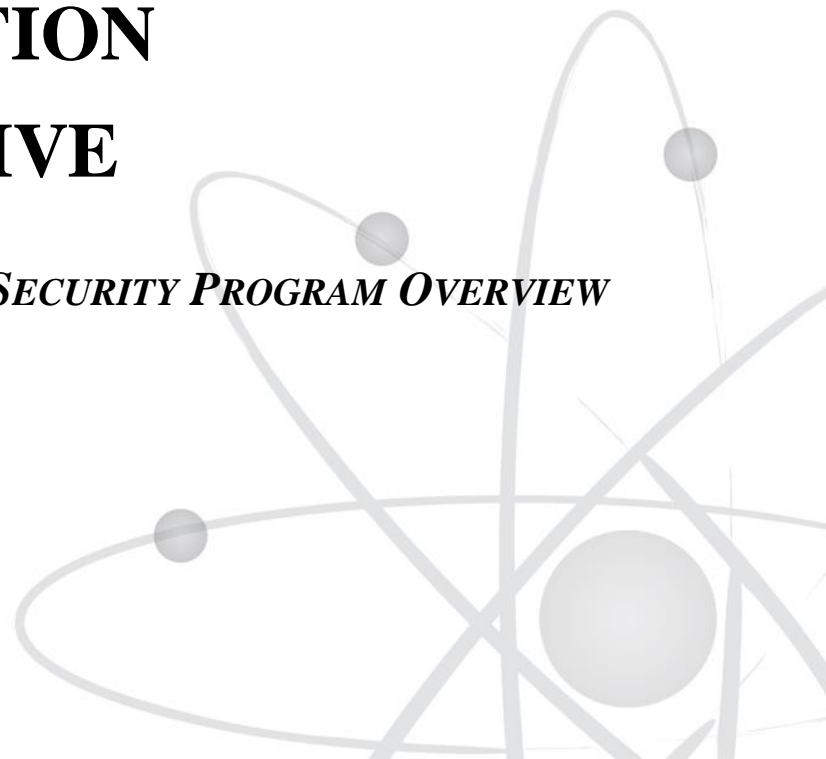


U.S. Department of
ENERGY



GLOBAL THREAT REDUCTION INITIATIVE

RADIOLOGICAL SECURITY PROGRAM OVERVIEW



❑ **Mission:** Reduce and protect vulnerable nuclear and radiological material located at civilian sites worldwide

❑ **Goals:**

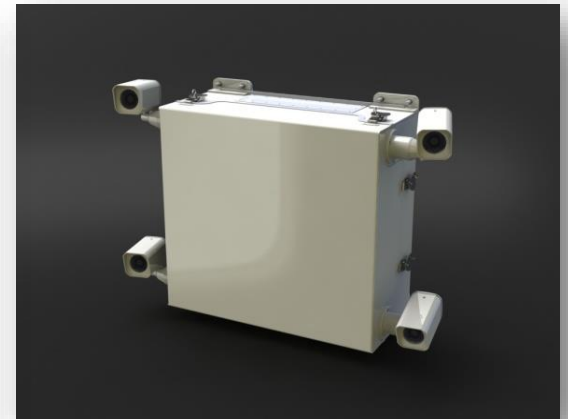
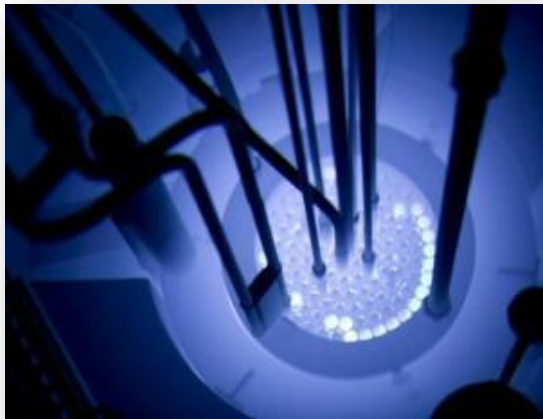
- ❑ Convert research reactors and isotope production facilities from HEU to LEU (permanent threat reduction)
- ❑ Remove and dispose of excess nuclear and radiological materials (permanent threat reduction)
- ❑ Protect high priority nuclear and radiological materials from theft and sabotage

MISSION

REDUCE AND PROTECT VULNERABLE NUCLEAR AND RADIOLOGICAL MATERIAL LOCATED AT CIVILIAN SITES WORLDWIDE.

GOALS

1. CONVERT
2. REMOVE
3. PROTECT





• 861 International buildings have been secured as of January 2012.



Cs-137 (30 year half life):

Blood, research, and sterilization irradiators;
1,000 - 50,000 Ci

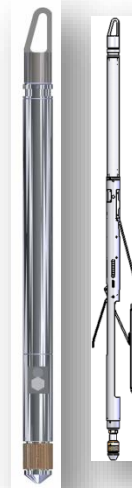
Co-60 (5 year half life):

Teletherapy and Gamma Knife units (cancer treatment);
1,000 – 10,000 Ci,
and panoramic irradiation (sterilization);
100,000 – 10,000,000 Ci



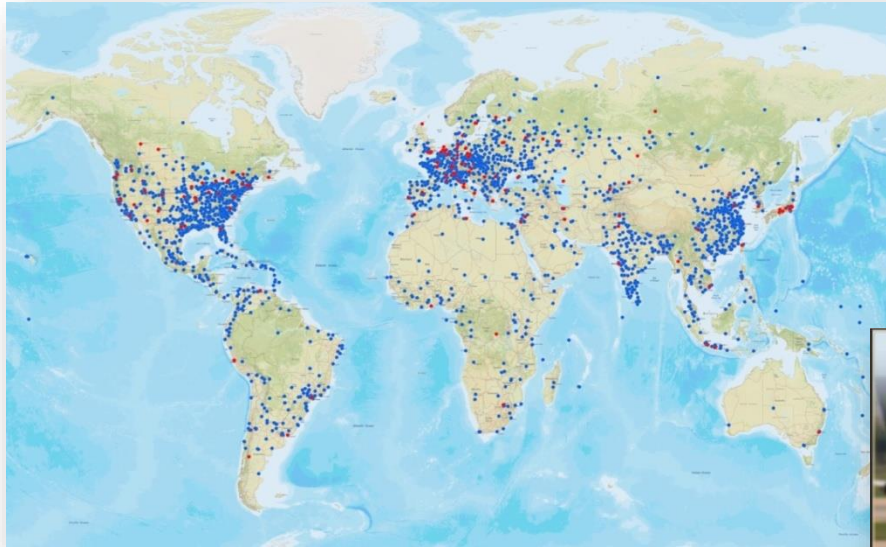
Ir-192 (73 day half life):

Brachytherapy (cancer treatment) and radiography
(industrial imaging);
10 - 150 Ci



Am-241 (432 year half life):

Oil well-logging;
8 - 20 Ci

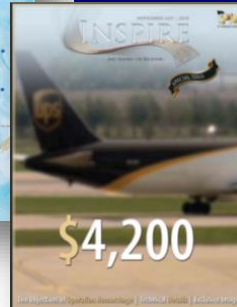


Evolving Terrorist Philosophy

Frequent, low-cost and low-tech, attacks where the intent is not killing people but to inflict significant economic damage.

“\$4,200. That is the total cost of **Operation Hemorrhage**...to bring down America we do not need to strike big...it is more feasible to stage smaller attacks that involve less players and less time to launch and thus we may circumvent the security barriers America worked so hard to erect. This strategy of attacking the enemy with smaller, but more frequent operations what some may refer to as the strategy of a thousand cuts. The aim is to bleed the enemy to death...”

Inspire Magazine,
“The Objectives of Operation Hemorrhage,”
November 2010.



Radiological Scope

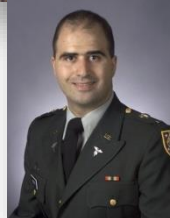
GTRI estimates that there are over 13,000 buildings that house risk-significant quantities of radioactive materials:

- ❑ United States ~2,700
- ❑ Other Than High Income Economy Countries ~5,800
- ❑ High-Income Economy Countries ~4,800

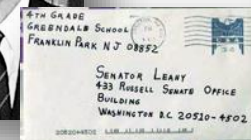
Facility Insiders

Disturbing trend of medical professionals performing acts of terrorism/violence:

- ❑ “Amerithrax” anthrax letter attacks in September 2001,
- ❑ Glasgow Airport bombing in June 2007,
- ❑ Fort Hood shootings in November 2009,
- ❑ Arrest of radiology technicians in Ottawa, Canada on bomb making charges in August 2010.



Global Radiological Incidents



- ❑ Stolen Cs-137 (North Carolina, 1998)
- ❑ Coworker Attack with Ir-192 Injures 75 People (China, 2003)
- ❑ Unauthorized Access to Gamma Knife Room (Pittsburgh, 2006)
- ❑ Dhiren Barot “Dirty Bomb” Plot Arrest (UK, 2006)
- ❑ Aafia Siddiqui Arrested with RDD Plans (Pakistan, 2008)
- ❑ Cs-137 Source Stolen for Extortion (Argentina, 2009)



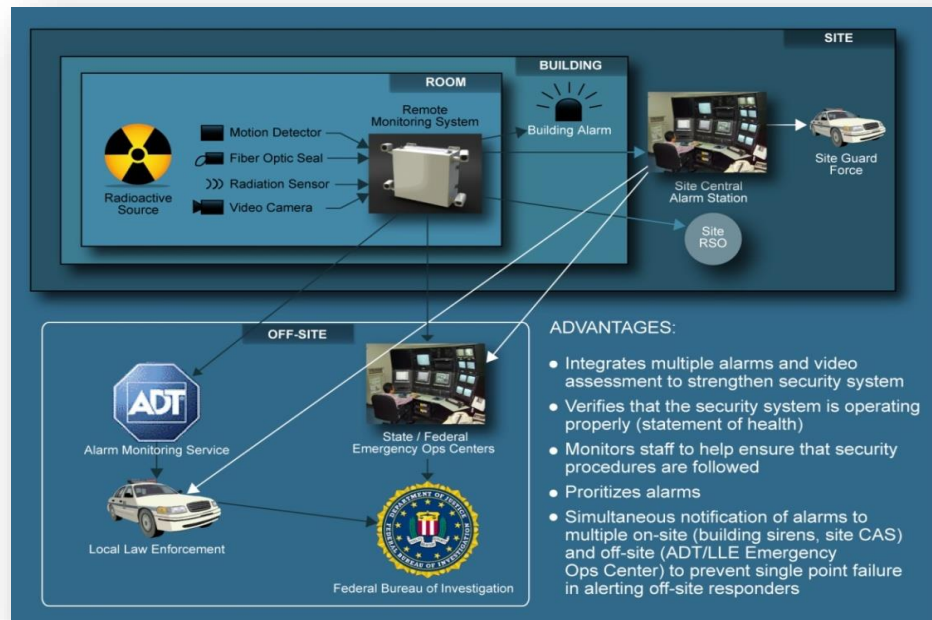
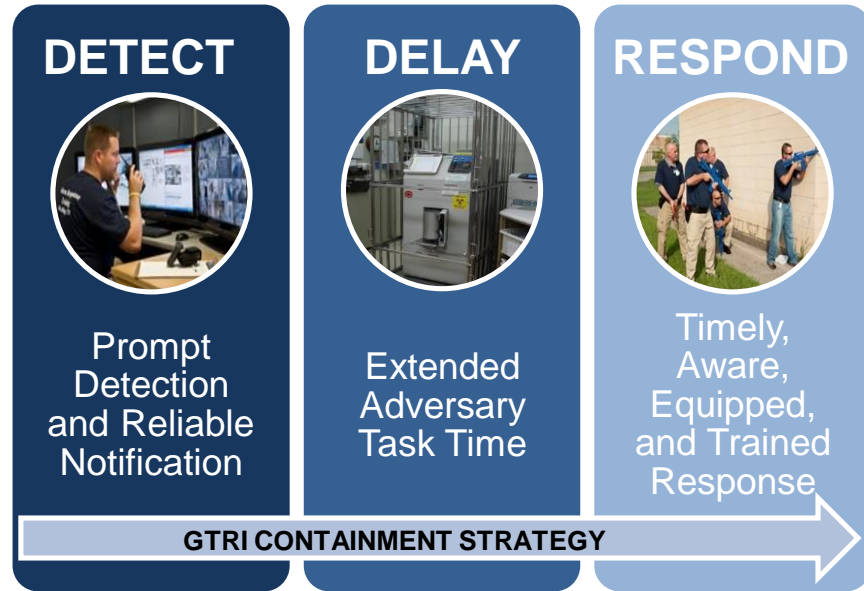
- The 2012 Nuclear Security Summit included radiological material security on the agenda.

“Taking into account that radioactive sources are widely used and can be vulnerable to malicious acts, we urge States to secure these materials, while bearing in mind their beneficial use in industrial, medical, agricultural, and research applications.” – Communiqué Language



- U.S. provided an Appendix on approaches to security of radioactive sources to a proposed German Paper on *Security of Radioactive Sources*

- ❑ **GTRI provides voluntary security assistance which include:**
 - ❑ Voluntary security upgrades;
 - ❑ Specialized training for local law enforcement;
 - ❑ No-fault table top exercises;
 - ❑ Transportation Security



Sample Security Enhancements



In-Device Delay (IDD) Kit:

Increases time needed to access sources in certain radiation devices



Dual Technology Motion Sensors:

Motion or heat triggers alarm



Data Seal:

Broken seal will result in transmission of images and alarms wirelessly



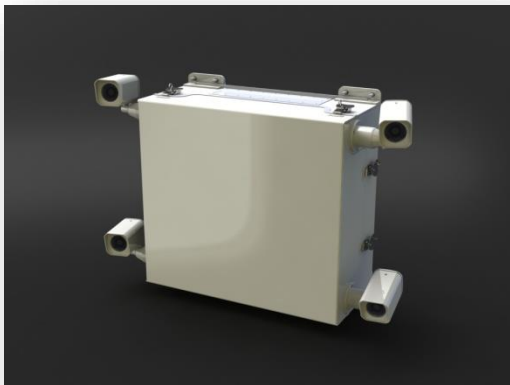
Balanced Magnetic Switch (BMS):

Unauthorized entry triggers alarm



Iris Reader:

Requires eye scan for access



Remote Monitoring System (RMS):

Alarms trigger surveillance



Personal Radiation Detector (PRD):

Used by response force



Area Radiation Detector:

Release of radiation triggers alarm and data transmission

GTRI Alarm Response Training

Three-day course for first responders that teaches site security and local law enforcement how to protect themselves and their communities when responding to alarms indicating the possible theft/sabotage of civilian nuclear and radioactive materials.

GTRI pays for all attendee costs except for salary (e.g. travel, lodging, car rental, and per diem)



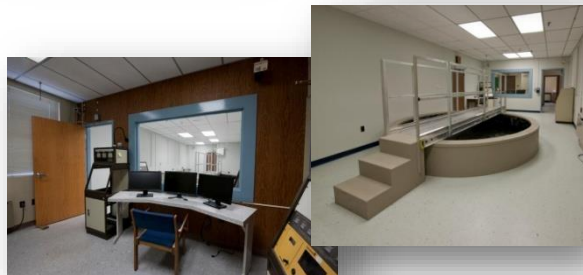
Y-12 National Security Complex in Oak Ridge, TN



- Realistic scenarios using radioactive sources, irradiators and security equipment
- Classroom instruction and hands-on exercises



Trained to current GTRI standard security upgrades, RFID Tamper indicating devices, Remote Monitoring System, etc.



Research and Test Reactor Course

Personal Radiation Device (PRD) "Train the Trainer" Course



DHS certified and included in the DHS training course catalog

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