



Global Security Program



Global Security Program Overview

Rodney K. Wilson, Director
Global Security Program

rkwilso@sandia.gov

505-844-5269



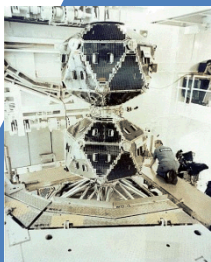
Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,
for the United States Department of Energy's National Nuclear Security Administration
under contract DE-AC04-94AL85000.

Global Security Program

A 40-plus year history

1960s-70s

*Nonproliferation Treaty
Nuclear Nonproliferation Act
Proliferation Detection
Technologies*



- Satellite Verification
- Safeguards Technology
- Ground-based Sensors
- IAEA Physical Protection Missions

1980s

*INF Treaty
Conv. on the Physical
Protection of Nuclear
Materials*



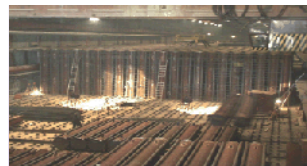
- Verification strategy (Treaty On-Site Inspection)
- Arms Control Technology Options
- IAEA unattended monitoring technologies

1990s

*START I and II
Nunn-Lugar Cooperative
Threat Reduction
Warhead Safety and Security
Exchange*



- Russian MPC&A Program
- FSU Threat Reduction



- Fissile Material Monitoring



- Cooperative Monitoring Center
- Regional Security
- Visiting Scholars

2000s

*Multilateral cooperation on
interdiction (PSI)
UNSCR 1540, GICNT
DPRK Denuclearization*



- MPC&A Transition
- Second Line of Defense
- Megaports
- Warhead Monitoring
- Bilateral Transparency



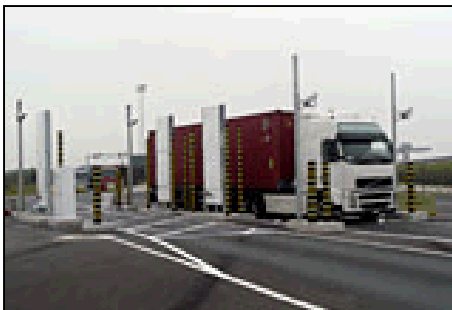
- Radiological Threat Reduction
- IAEA Support
- Next Generation Safeguards
- WMD Detection



Global Security Program

Our mission is focused on a broad threat

Mission: Reducing proliferation and terrorism threats to U.S. national security through global technical engagement



Multi-Threat Risk Reduction

- Limit the spread of sensitive materials and technologies by:
 - Reducing motivation to acquire/use WMD
 - Impeding access by proliferators to WMD expertise
 - Securing borders and ports
 - Securing critical materials and facilities



Nuclear and Radiological Risks

- Reduce the threat from malevolent use of nuclear and radiological materials by:
 - Enabling global reductions in NW arms and supporting infrastructure
 - Reducing fissile material inventories
 - Securing weapons and material
 - Strengthening international safeguards and nonproliferation regimes
 - Detecting / interdicting nuclear smuggling



Biological and Chemical Risks

- Reduce the risk from the malevolent use of biological and chemical materials by:
 - Enhancing the safety and security of high-risk pathogens, chemicals, and facilities
 - Strengthening capacities to detect and control dangerous infectious diseases

Global Security Program

*We apply a systems approach where S&T intersect,
and both inform and implement policy*

National Non-Proliferation Systems



Global Cooperative Threat Reduction



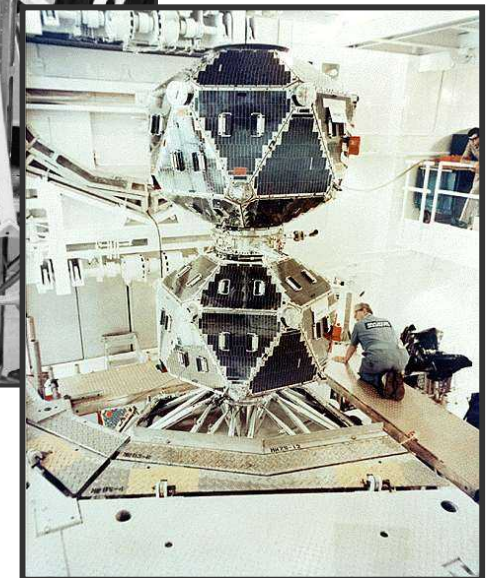
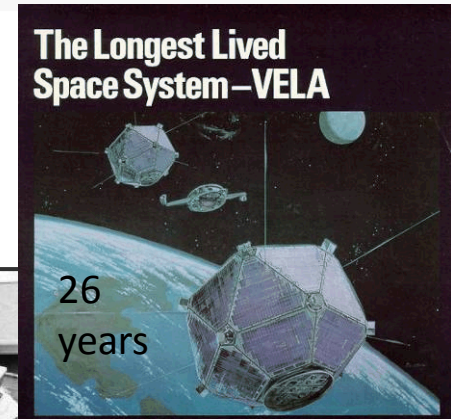
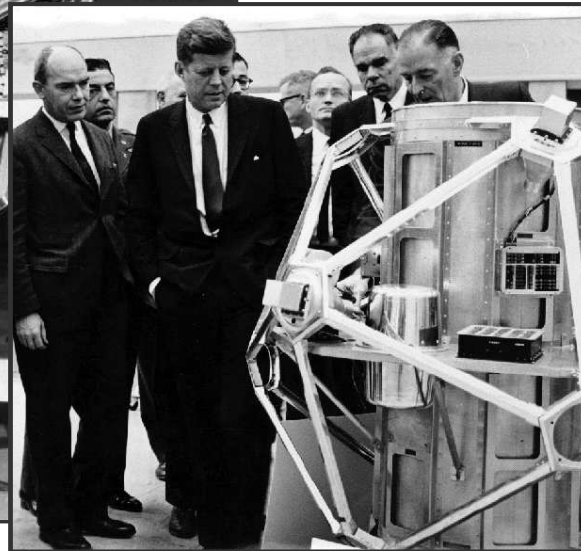
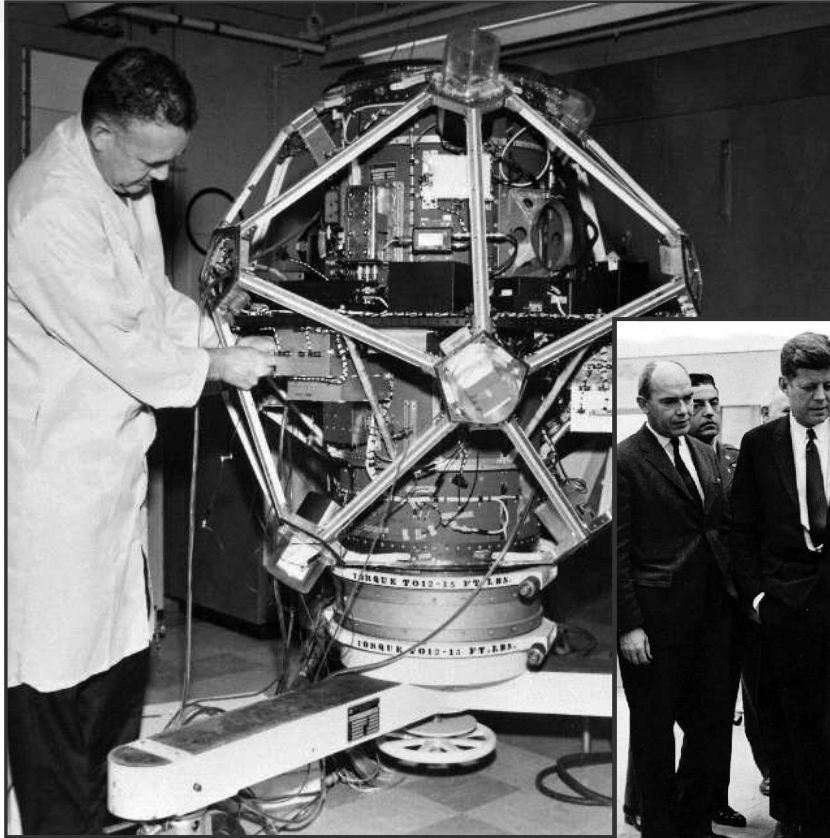
International Treaties and Negotiated Agreements





National Non-Proliferation Systems

Example: VELA-Hotel



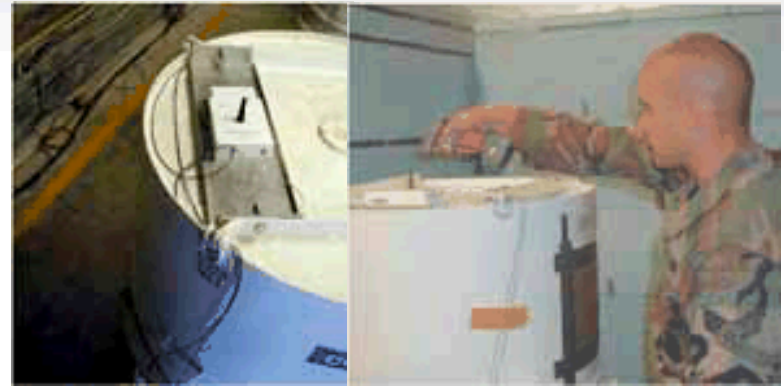
Mission: Nuclear Proliferation Monitoring

International Treaties and Negotiated Agreements

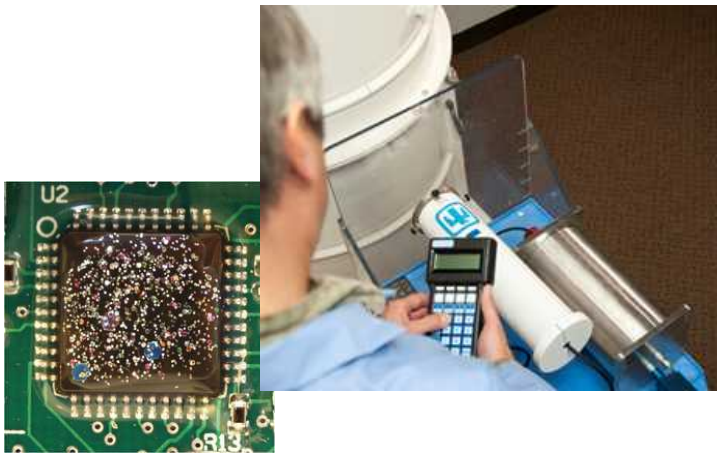
Example: Considering a treaty involving nuclear warheads



START Radiation Detection Equipment



Warhead Technology Monitoring Project



Radiation Detection Equipment



The TOBOS simulated storage facility in St. Petersburg, RU.



Storage Monitoring Collaboration Field Trials

Global Cooperative Threat Reduction

Example: Global Threat Reduction Initiative



Threat



Consequence

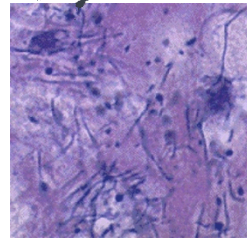
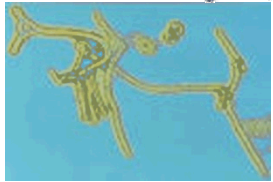
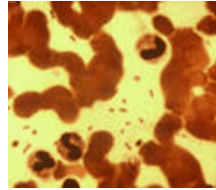
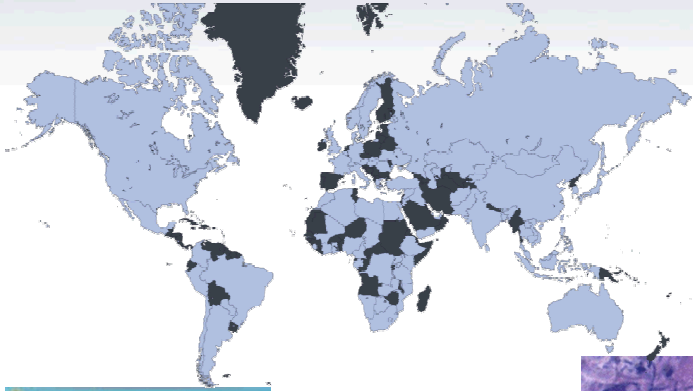


Prevention



Global Cooperative Threat Reduction

Example: International Bio Threat Reduction



Global Cooperative Threat Reduction

Example: Gulf Nuclear Energy Infrastructure Institute (GNEII)



Regional Scoping Trip:
November 2009



LOI Signed:
16 Mar. 2010

Module 1: Fundamentals

Week 1
Critical Thinking, the
Scientific Method, &
Systems Thinking

Week 2
Basic Nuclear &
Reactor Physics

Week 3
Nuclear Fuel Cycle: Front
End, Production Cycle,
Back End

Week 4
Nuclear Material
Control: History, Policy
Issues, Technical Issues

Week 5
Nuclear Power Plant
Management and
Operations

Week 6
Radiological Materials
Management

Week 7
Nuclear Safety:
Reactor Safety
Systems

Week 8
Nuclear Safety:
Accident Modeling &
Emergency
Preparedness

Week 9
Nuclear Safeguards:
Terminology, Systems &
Measurements

Week 10
Nuclear Safeguards:
Export Control, the
Fuel Cycle & Sub-
State Threats

Week 11
Nuclear Security:
Physical Protection System
Design, Implementation &
Evaluation

Week 12
Nuclear Security:
Vulnerability
Assessments for
Nuclear Facilities

Module 2: Capstone

GN605

Independent
student work to
identify, structure,
and conduct a
research project
analyzing a
regional nuclear
energy issue

Mission: GNEII seeks to develop a responsible nuclear energy culture and institutionalize key safety, safeguards, security, and nonproliferation norms in the future decision-makers of Middle East region nuclear energy programs through professional development and training.

Pilot Course Begins: 20
Feb. 2011



MOU Signed:
20 Feb. 2011



Integrated "3S" Approach
Curriculum Finalized:
January 2011



Global Security Program: Summary

As proliferation and terrorism threats continue to increase and evolve, Sandia's Global Security Program will anticipate US needs and develop systems solutions to the challenges presented in a dynamic and complex international environment:

- Building on Sandia's science and technology foundations that are strengthened by strong relationships with the nation's top universities
- Building on more than 40 years of experience in domestic and international security
- Building on strong relationships with the nation's industrial base
- Building on relationships with and experiences in more than 120 countries

Meeting the global security challenges today and in the future