Sandia National Laboratories Support for NNSA Global Threat Reduction Projects

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Presented by

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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.

Presentation Outline

- **NNSA NA-21 Global Threat Reduction Programs**
  - Global Nuclear Material Threat Reduction
  - Global Radiological Threat Reduction
  - Organization of NA-21

- **Sandia National Laboratories Support for GTRI Programs**
  - Support for Russian Research Reactor Fuel Return program (RRRFR)
  - Physical protection and logistical support for BN-350 Spent Fuel Storage project
  - Physical protection support for Global Research Reactor Security Program (GRRSP)

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Office of Global Material Threat Reduction

- **Mission of NA-21**
  - To identify, secure, remove and/or facilitate the disposition of vulnerable, high-risk nuclear and other radiological materials around the world that pose a potential threat to the United States and the international community.

- **Goals**
  - Securing and/or removing vulnerable, high-risk nuclear and radiological materials throughout the world; and
  - Minimizing and, to the extent possible, eliminating the use of highly enriched uranium (HEU) in civil nuclear applications worldwide.

- **Program Divisions**
  - Global Nuclear Materials Threat Reduction
  - Global Radiological Threat Reduction

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Global Nuclear Materials Threat Reduction

- **Reduced Enrichment for Research and Test Reactors Program**
  - Convert HEU fuel reactors (originally 106) to LEU fuel reactors
- **U.S. Foreign Research Reactor Spent Nuclear Fuel Acceptance Program**
  - Repatriating U.S. origin HEU spent fuel (41 countries) back to the United States
- **Russian Research Reactor Fuel Return Program**
  - Repatriating Soviet supplied fuel (24 research reactors) back to Russia
  - Countries must agree to convert reactors to LEU fuel

VVR-SM reactor in Tashkent

Fresh Fuel Storage Containers at Ukraine reactor

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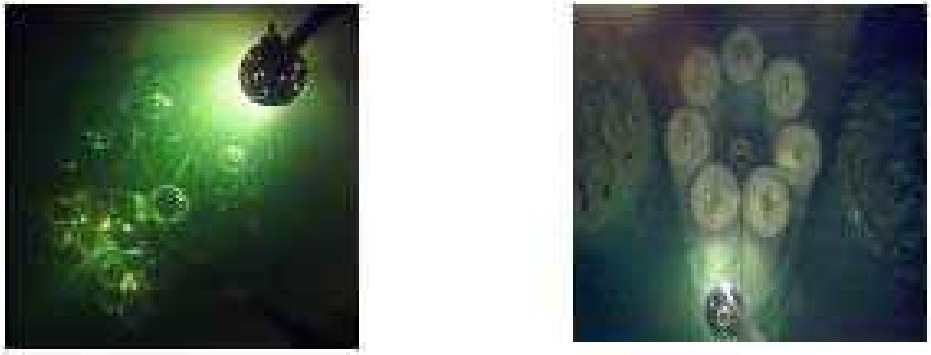
Global Nuclear Materials Threat Reduction

- **Emerging Threats and Gap Material Program**
  - Vulnerable, high-risk nuclear & radiological materials not being addressed in other programs
- **BN-350 Spent Fuel Storage Program**
  - Securing the spent fuel of a former Soviet breeder reactor & transporting it to a more secure area
- **Global Research Reactor Security Program**
  - Securing international research reactor's fuel from theft



BN-350 Fuel Before and After Packaging Takes Place

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Global Radiological Threat Reduction

- **U.S. Radiological Threat Reduction Program**
  - Reduce risk of radiological dispersal device by recovering excess sealed sources
  - Since 1999 more that 10,000 radioactive sealed sources have been removed and secured

- **International Radiological Threat Reduction Program**
  - Work with international counterparts to locate, identify, recover, consolidate and enhance the security of high-risk radioactive materials
  - Security upgrades completed at more than 200 sites

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National Nuclear Security Administration
Office of Global Threat Reduction

- **Andrew Bieniawski**
  - Assistant Deputy Administrator & Head of NA-21 Office of Global Threat Reduction
- **NA-21 Organized by World Regions**

- **Office of North and South America Threat Reduction**
  - Nicole Nelson-Jean, Director
  - Also Coordinator of Fuel Conversion Programs
- **Office of European and African Threat Reduction**
  - Ioanna Iliopulos, Director
  - Also Coordinator of Material Protection
- **Office of Former Soviet Union and Asian Threat Reduction**
  - Kelly Cummins, Director
  - Also Coordinator of Material Removal

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SNL Support for Physical Protection (PP) of Nuclear & Radiological Materials

- **International Radiological Threat Reduction**
  - Projects in Greece, Lithuania, Egypt, & Russia.
- **International Biological Threat Reduction**
- **Site assessments for Russian Research Reactor Fuel Return**
- **BN-350 Spent Fuel Storage Project**
  - Security at temporary storage facility, during transportation, and at long term storage site.
- **Global Research Reactor Security Program**
- **PP training (IAEA courses) & research and testing of systems**

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Physical Protection Upgrade Process

- **Scope Development**
  - NNSA initiation & guidance
  - Vulnerability analysis
  - Develop PPS concept
  - Approvals of concept
    - Peer review
    - Review & approval by NNSA
    - Negotiation w/host site
- **Design**
  - Place contract for design
  - Conceptual design & cost estimate
  - Final design & cost estimate
  - Working drawings
- **Procurement & Installation**
  - Place contract for equipment and installation
  - Procure equipment, shipment & customs
  - Installation
    - Contractor staging
    - Inspections
    - Contractor testing
    - Operator training
    - SNL performance evaluation
  - Certification & commissioning
- **Sustainability**
  - Maintenance of PPS
    - Maintenance support contract
    - Training
    - Spare parts
  - Operational procedures
  - Response force
  - Assurance visits

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GRRSP Project Completion Schedule

Completed	FY06	FY07	FY08
Korea	Bulgaria	Poland	Mexico
Japan	Greece	Indonesia	So.Africa
Taiwan	Serbia	Jamaica	Vietnam
Czech Republic	Hungary	Morocco	Turkey
	Portugal	Peru	Libya
	Romania	Chile	

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Questions ?????

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