

# Sandia National Laboratories

## *Global Security Program and International Nuclear Threat Reduction*

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Partnership for Nuclear Security (PNS) Implementers Meeting  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee  
January 23, 2012



Sandia National Laboratories is a multi program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND 2011-6359C



# SANDIA NATIONAL LABORATORIES

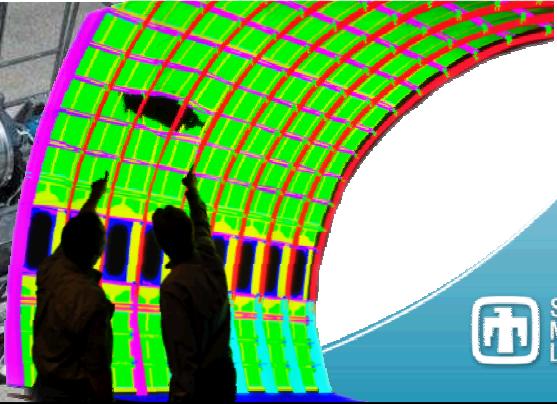
## International, Homeland, and Nuclear Security

### Program Areas

- Critical Asset Protection
- **Global Security**
- Homeland Defense and Force Protection
- Homeland Security

### Expertise

- Countering Bioterrorism
- Nuclear, Radiological, and Chemical Risk Reduction
- Nonproliferation and Arms Control
- Physical Security
- Emergency Response
- Systems Analysis and Engineering
- Border Security
- Aviation and Airworthiness Security



# 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

# Cooperative Monitoring Center

*Enabling International Technical Cooperation on Critical Security Issues*

Technology integration, testing, demonstration, and operation



System analysis, modeling, and simulation for design and evaluation



*The CMC averages 100 tours per year with visitors from over 120 countries*



Technical collaborations and experiments

Visiting scholars program, research, and analysis



Technology training courses and workshops



International business infrastructure

# Current PNS Projects at Sandia

- Gulf Nuclear Energy Infrastructure Institute – GNEII
- Radiation Measurements Cross Calibration Project – RMCC
- Workshop on the Safe and Secure Utilization of Research Reactors
- Global Nuclear Threat Prioritization & Country Engagement Strategy Development
- MENA Regional Training Center for Low Level Radioactive Waste Management
- Middle East Radionuclide Early Warning System
- Middle East Scientific Institute for Security (MESIS) Collaboration
- Engagement on Nuclear Security w/ Indian Academic Programs
- India-US Cooperative Research on Nuclear Security



# Gulf Nuclear Energy Infrastructure Institute (GNEII)

- A strategic effort to develop a nuclear energy safety and security culture in future program decision-makers in the Gulf region
- Partnership between Sandia, Texas A&M and Khalifa University of Science and Technology in Abu Dhabi, UAE
- Nuclear energy infrastructure (safety, safeguards & security) for development & education in a regional context
- *Not intended to train nuclear engineers or operators, intended instead to educate and prepare future leaders of Gulf nuclear energy programs*



Khalifa University, UAE



MOU signing, Feb. 2011



GNEII Pilot Course Graduates, May 2011

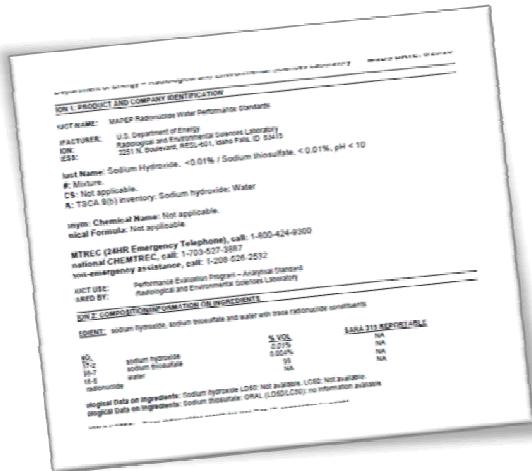
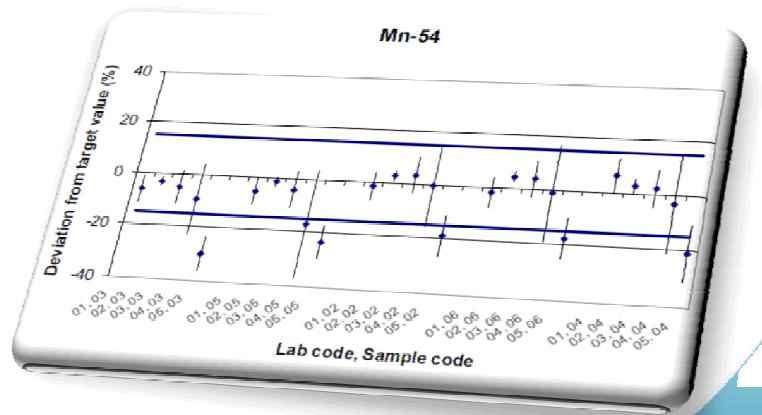


Pilot GNEII course sessions



# Radiation Measurements Cross Calibration Project (RMCC)

- **Build on regional capacities to produce reliable radiological data and provide a mechanism for sharing agreed-upon information.**
  - Build confidence by encouraging technological transparency
  - Increase confidence in data quality
- **Foster the development of a regional network of indigenous scientific experts.**
  - Enable scientists in the region to work cooperatively
  - Improve scientist-to-scientist communication
- **Create indigenous solutions to regional concerns**
  - Network of qualified labs for radiological measurements



# 2011 Workshop on Safe, Secure & Safeguarded Research Reactors



The Workshop was held at the CNESTEN Research Reactor near Rabat, Morocco

- Fourteen participants from Bahrain, Jordan, Libya, Morocco, Tunisia, the UAE, and Qatar as well as a representative from the AAEA
- Theoretical lectures on the 3Ss and daily tours of the corresponding facilities.
- Followed neutron-activation experiment from beginning to end
- Live hands-on internet reactor experiment performed at North Carolina State University's research reactor

“It made it all real to me!”

Research reactor workshop participant

# Some Lessons



RMCC

- **Key projects have been highly successful**

- GNEII, RMCC, RR Workshop are notable examples
- Established effective partnerships
- Careful planning (with flexibility)
- Work closely with PNS and country hosts
- Maintain dialogue and periodic re-evaluation

- **Challenges are common when establishing new partnerships**

- Recognize the need for patience, and *be patient*
- Develop trust, confidence and mutual respect
  - *Some misunderstandings can be expected*
- Recognize & respect cultural differences
  - *Respect alternative viewpoints*
  - *Nonjudgmental attitude is crucial*

- **National Labs *implement* policy**

- Respect protocol
- Confirm plans with sponsor
  - *Do not lead the charge*
- Seek permission, not forgiveness

