

U.S. Activities in Russia: Past, Current & Future



**Presented by Jill Zubarev
U.S. DOE/NNSA**

**21st CEG Annual Meeting
5-6 September 2007**

1

Cooperative Efforts in Russia

- For over a decade, the United States and Russia have been cooperating on nuclear and radiological activities.
 - Long-standing programs such as the Nunn-Lugar (CTR) program managed by Department of Defense
 - Various programs and projects managed by DOE/NNSA – MPC&A, EWGPP, GTRI
 - Other projects such as AMEC, Scientist Redirection, and Export Control
- The United States provides approximately \$1 billion/year.
- Highlights...

2



AMEC – Three Projects Completed

Project 1.1 – TUK-108/1 SNF Cask

- Initiated in 1997.
- First Russian dual-purpose prototype cask certified for military use in 2000.
- Serial production in Russia began in 2000.
- To date, 108 casks have been fabricated by Russian industry.

Project 1.1-1 – Interim Storage/Transshipment Facility

- Accommodates 19 TUK-108/1 casks for interim storage up to one year.
- Approved by Russian Acceptance Commission for operation in 2004.

Project 1.1-2 – First Russian Mobile Cask Conditioning System for Interim Storage of Naval Spent Nuclear Fuel

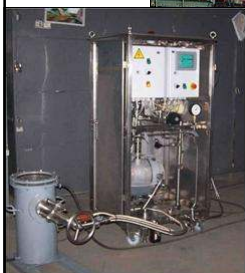
- 65 TUK-108/1 casks loaded with fuel and placed in storage at Zvezda Naval Shipyard in the Far East.
- License for storage of 15 casks expires on 30 March 2007; casks contain up to 3.2 liters of residual water.
- Need to resolve this issue.



3



AMEC



- Completion of these three projects is a decisive step in creation of an integrated, efficient Russian management network for storage and transportation of spent nuclear fuel from decommissioned submarines.

4



AMEC - Two Additional Projects

Project 1.11 (a)

- Management of toxic and hazardous wastes stored in drums, to include cleaning, compacting and recycling drums.
- Pilot project is being implemented at Zvezdochka, Severodvinsk.

Project 1.11 (b)

- Recycling of mercury-containing fluorescent lamps accumulated in the military bases of North Navy (current stock exceeds 150,000 lamps).
- Project is being implemented at Navy Yard 10, Polyarninsky, Murmansk Region.

5



CTR

- 15th Anniversary of the Nunn-Lugar program
 - Dismantlement of ICBMs, ICBM silos, road- and rail-mobile missile launchers
 - Elimination of SLBMs
 - Dismantlement of SSBNs (one Typhoon in FY 2007)
 - Disposition of Spent Fuel from nuclear submarines
 - Nuclear Weapons Storage Security
 - Nuclear Weapons Transportation Security
 - Chemical Weapons Destruction (CWD)

6

EWGPP

- Construction of fossil-fuel energy plants to allow shutdown of Russia's three remaining weapons-grade plutonium production reactors in Seversk and Zheleznogorsk.
 - Seversk shutdown to be completed in 2008.
 - Zheleznogorsk in 2010.
- Eliminates ~1.2 MT of weapons-grade plutonium per year.
- Funding includes over \$30 million from Canada, Finland, Republic of Korea, the Netherlands, New Zealand, and UK.



Seversk Fossil Fuel Plant

7

MPC&A

Objectives:

- Secure nuclear weapons and weapons-usable nuclear materials by:
 - Upgrading security at nuclear sites
 - Consolidating these materials to secure sites

To date:

- Over 75 percent of the Russian warhead sites completed.
- 160 buildings containing hundreds of metric tons of weapons-usable nuclear material secured.
- Converted ~2 MT of HEU to LEU.
- Remaining work will be completed by the end of 2008.

8

Radioisotopic Thermoelectric Generators (RTGs)

RTGs:

- Are widely used to supply power to lighthouses & navigational beacons
- Use sealed high-level radiological sources, mostly Strontium-90
- Contain 25,000-250,000 Curies or more



GTRI efforts are helping to:

- Alarm RTGs in the Baltic Sea and the Far East
- Remove and dispose RTGs from the Arctic
- Remove RTGs from the Far East and transfer to secure storage



GTRI has spent ~\$8.7 million

9

Map of Remaining 485 RTGs (Dec 2007)



10

Radon Facilities

Radon Facilities:

- Store thousands of high-activity sources suitable for use in a “dirty bomb”
- 16 facilities throughout Russia

Status of GTRI efforts:

- 5 facilities have completed security upgrades
- 7 facilities have security upgrades in progress, including one being funded by the UK
- 3 facilities have security upgrades planned in 2008 to be completed in 2009
- 1 facility will be assessed, and subsequent contracts for security will be placed

GTRI has spent ~\$7 million

- Upgrades may include: Underground Storage Wells, Central Alarm Station, Tamper-Indicating Devices, Access Control, Closed Circuit TV, and Intrusion Detection

11

Map of Radon Facilities

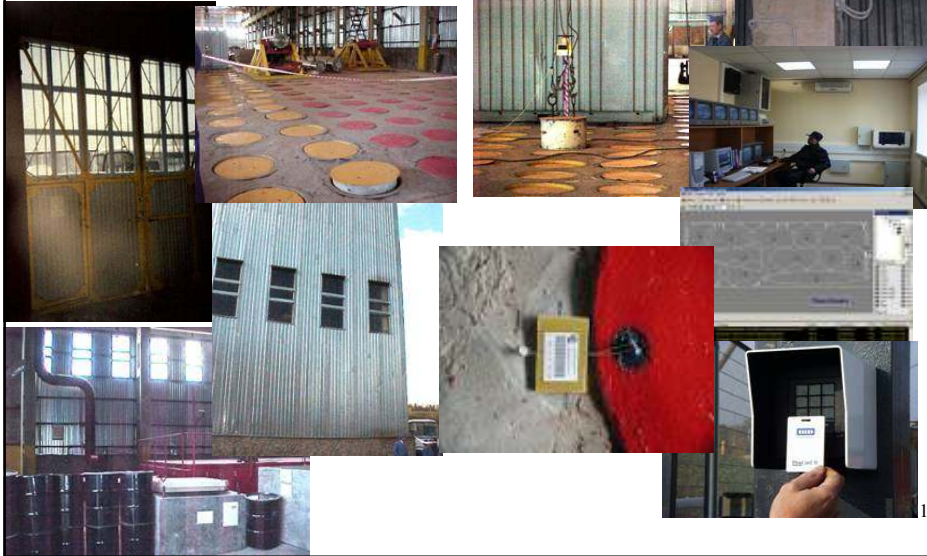


12

Radon Facility: Upgrades

Before

After



13

Orphan Sources



Orphan Sources:

- 2,400 high-activity sources – mostly Cobalt-60 and Cesium-137 – have been removed from 26 sites and transferred to secure storage.

Major Accomplishment:

- GTRI cooperated with Russia to remove more than 5,500 curies of Cobalt-60 and Cesium-137 – enough material for five “dirty bombs” – from a highly vulnerable site in Chechnya.

GTRI has spent ~\$7 million.

14

Opportunities for New Partnerships

- **DOE/NNSA has received Congressional authorization to seek and take international funds to support several important nuclear nonproliferation and security programs – EWGPP, six programs under Global Threat Reduction Initiative (GTRI), and Second Line of Defense (SLD).**
 - Over \$37 million from six nations – Canada, Finland, Republic of Korea, the Netherlands, New Zealand, and UK.
 - Credit under G8 Global Partnership
 - Opportunities to work with GTRI in other countries, too
- **Why?**
 - Threat remains; increasingly challenging to global nuclear nonproliferation and security projects
 - Already have successful cooperation and “piggybacking”
 - Acceleration may reduce the cost significantly
- **New partnerships will:**
 - Avoid duplication
 - Minimize bureaucracy
 - Take advantage of existing relationships
 - Enable acceleration
 - Extend successful model from the NW to other regions
 - Fund specific activities that currently are unfunded

15