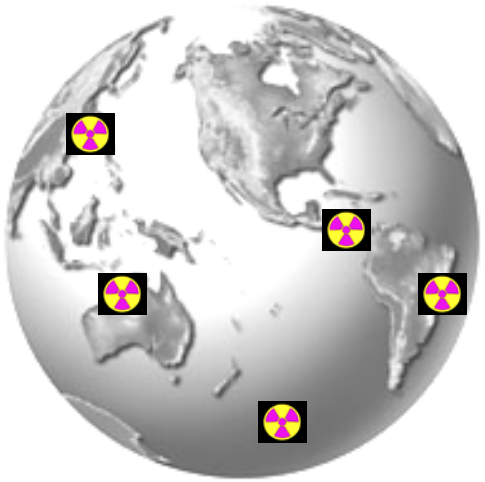

Off-Site Source Recovery Project Operations

for NNSA Office of Global Threat Reduction

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Off-Site Source Recovery Project
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LA-UR-08-06830

Overview

- Introduction to OSRP and Sealed Source Problem
- Capabilities Including Packaging
- Highlights/Accomplishments
- Am-241 “Recycle”
- International Expansion

What is the Off-Site Source Recovery Project (OSRP)?

- Begun in 1999 at Los Alamos National Laboratory as part of DOE-EM
- Recovers and permanently dispositions excess, unwanted sealed sources
- Manages ten primary isotopes, including: Am-241, Cf-252, Cm-244, Co-60, Cs-137, Ir-192, Ra-226, Pu-238, Pu-239, and Sr-90
- Other source types managed as needed.

DOE Source "Recovery" History

- Late 1970s – 1999: LANL destroys old Pu-239 sources – about 1,100 total
- 1992 - agreement with NRC - DOE to accept sources identified as threat to public health, safety or loss of control - 15 responses from 1992-2000
- 1999 – DOE EM consolidated 2 programs into the OSR Project
- 2003 - Transferred to NNSA Defense Nuclear Nonproliferation, now Global Threat Reduction
- 2004 – Scope expansion beyond three GTCC isotopes

Who Uses Radioactive Sealed Sources?

50+ Years of Isotope Distribution in the U.S.

Oil and Gas Service Companies

Colleges and Universities

Manufacturing

Medical Facilities

Military Installations

Construction Industry

DOE and Government Sites

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The OSRP Mission for NNSA's Radiological Threat Reduction Program

Remove to secure storage or disposal disused radiological sources that present a potential risk to health, safety, or security (priority agreed between NNSA and U.S. NRC)

Current Isotopes Managed

A Gammator containing Cesium 137 recovered from a school district in Texas

Nuclides Originally Managed
^{241}Am
^{239}Pu
^{238}Pu
^{252}Cf

Additional Nuclides Currently Managed
^{244}Cm
^{226}Ra
^{90}Sr
^{60}Co
^{137}Cs
^{192}Ir

All nuclides currently found in sealed sources of concern to IAEA

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NNSA Office of Global Threat Reduction

- Reorganized in 2006, now NA-21
- Three major activities: Convert, Protect, Remove
- Organized geographically: North and South America; Europe and Africa; and Former Soviet Union and Asia

Why Recover/Remove Sources?

- Bad things happen due to no disposal pathway – accidental exposures, inappropriate burial, loss of control and identification
- One of NNSA's 3 options – remove makes sense for materials not in use
- Allows the ultimate sustainability – IF there is a permanent disposal pathway
- Often relatively inexpensive, uncomplicated

Locating Sources for Management

- Individual Source Owners
- OSRP Website
- Regulators (NRC, States, CRCPD)
- Emergency Responders
- Professional Organizations

OSRP Web Site: http://osrp.lanl.gov

Capabilities: What is Required for Successful Source Recovery?

- First - a Team of qualified people that work together well.
- Second - Tools.
- Third - a Place to put down what you pick up.
- Last - a Plan for the Future.

Los Alamos Source Recovery Team

- Fully trained team for field recovery
  - Certified Health Physicists
  - Qualified RAM Shippers
  - Radiological Control Technicians
  - WIPP-Qualified Packagers
  - MC&A Custodians
  - TRU and LLW Disposal Experts
  - TRU Characterization Capability

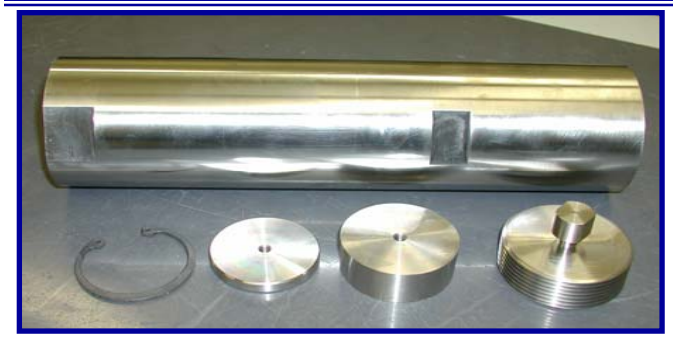
Other Major OSRP Activities

- Source and manufacturer research
- Source registration website and management database
- Outreach, work with manufacturing/using industries
- Contamination control
- Container research and certification
- Transportation
- Storage and Disposal
- Support to IAEA

Tools and Equipment

TRU sealed sources – special form capsules, shielded Type A fissile-certified transportation containers – domestic and international use

Capabilities



Model II CoCA No.
USA/0696/S-96

- Perform special form encapsulation for sealed sources (off-site) to simplify transportation
- Package sealed sources in accordance with DOT/NRC regulations and, for TRU sources, to WIPP waste acceptance criteria
- Hot cells for removal from devices, consolidation

Packaging Capabilities

- Field-sealable special form capsules for material exceeding A_2 limit with lapsed or lost special form certificate
- CoCA from DOT for Model II and III special form capsules
- Also C of C and CoCA from DOT for Type A fissile pipe overpack drum – the S300
- Developed lead inserts for special form capsules to be used with Ra-226 sources

Secure Storage - Recovered Sources

- Storage for recovered actinide sealed sources at LANL – about 600 drums.
- Storage under safeguards for Pu-239 sources
- Offsite storage for beta-gamma emitting isotopes

Recovered Sources – A Plan for the Future

- **WIPP disposal for US-origin TRU sources**
- **Pu-239 defense determination and permission to discard**
- **NTS disposal of DOE owned LLW (Sr-90, Co-60)**
- **Commercial disposition of beta-gamma sources – recycle, storage, and disposal**

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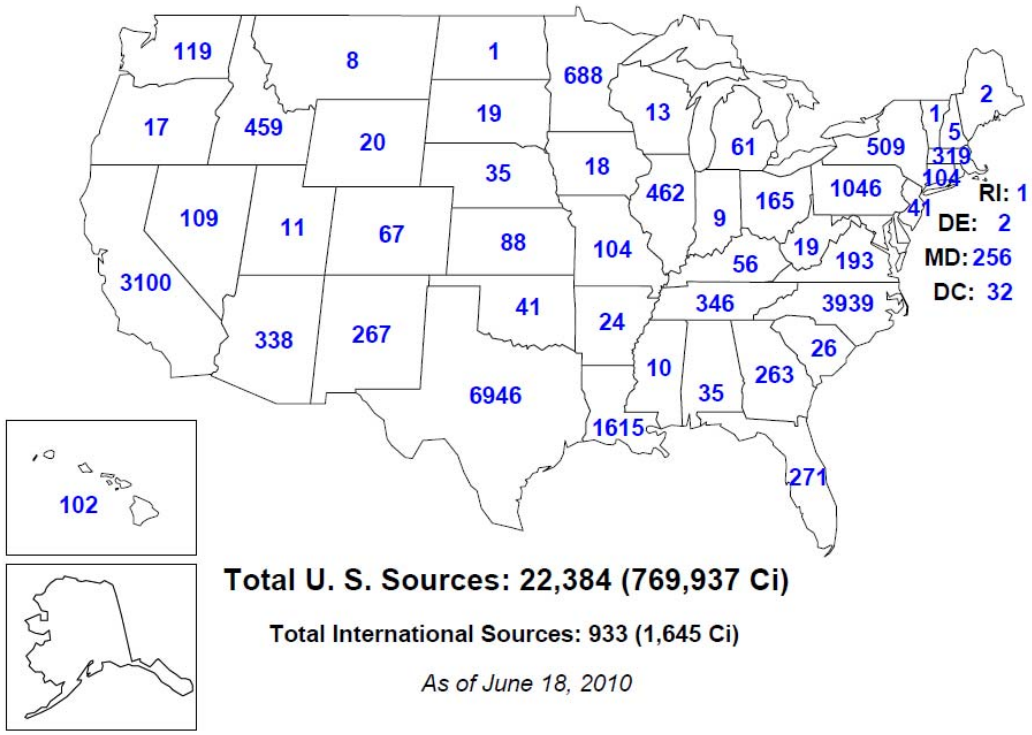
OSRP Recovery Summary

OSRP has recovered > 23,000 sources from 841 sites as of May 2010, as summarized below:

Isotope	Sources Recovered	Ci Recovered
^{60}Co	884	75,585
^{90}Sr	169	640,562
^{137}Cs	2,663	26,003
^{238}Pu	2,412	13,447
^{239}Pu	653	939
^{241}Am	14,510	14,978
Others	2,026	68
Total	**23,317**	**771,582**

OSRP Sources Recovered



Total U. S. Sources: 22,384 (769,937 Ci)

Total International Sources: 933 (1,645 Ci)

As of June 18, 2010

Major Accomplishments in FY 08

- Successfully disposed of Ra-226 at US Ecology
- Successfully disposed of DOE owned Co-60 and Sr-90 at the NTS
- Recovered over 450 sources of US origin from 8 countries.
- Completed or working recovery actions in Latin America, South America, Northern and Central Europe, Middle East, Africa and Asia
- Cooperative Efforts in China

Am-241 Source Status

- Lack of Am-241 domestic production potentially inhibiting petroleum exploration
- About 400 drums (~8,000 Curies) of larger recovered AmBe sealed sources still stored at LANL
- NNSA NA-21 and NE are in the process of deciding whether material can be recycled to source manufacturers
- LANL will implement based on direction from NA-21

Support to IAEA

- Repatriation of US origin sources from Africa, 1st round complete, another approved
- Participated in operations in Brazil, Uruguay, Africa, Australia and Singapore
- Latin American Partnership – IAEA, US State Department, GTRI, CNEN Brazil
- Spent High Activity Radioactive Source (SHARS) conditioning facility – hot testing successful
- Staff Augmentation and Consultancies

Bilateral International Efforts

- Work in support of NA-21 search & secure
- NA-21 responds to written requests from countries for repatriation of US-origin sealed sources
- Bilateral recoveries complete or underway in Sweden, Denmark, Chile, Ecuador, Italy, Switzerland, Austria and Israel, requests or registrations from Germany, Morocco, Lebanon and Japan
- Search and Secure

Other Future Work

- NA-21 providing voluntary site vulnerability assessments – domestic and international
- Seeking device manufacturer assistance in moving material back to the US for recovery

Questions??