

Off-Site Source Recovery Project Operations

for NNSA Office of Global
Threat Reduction

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Off-Site Source Recovery Project
Los Alamos National Laboratory

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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 disposes 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

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



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

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, CRCPCD)
- Emergency Responders
- Professional Organizations



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



The screenshot shows the homepage of the Off-Site Source Recovery Project (OSRP) website. At the top left is the Los Alamos National Laboratory logo. A navigation bar contains links for 'ABOUT LANL', 'NEWS', 'LIBRARY', and 'JOBS', along with a search box. The main title is 'Off-Site Source Recovery Project (OSRP)'. Below this are navigation links for 'Home', 'About Us', 'Organization', and 'OSRP in the News'. A left sidebar lists various resources like 'Register Sources', 'FAQs', 'Special Form Certificates', 'Operations & Recoveries', 'Applied Technologies', 'Storage Capabilities', 'Off-Site Material', 'Documents & Publications', and 'Useful Links'. The main content area features a large banner with the text 'National Security through Source Recovery' and an image of a radioactive source. To the right of the banner is a text box stating: 'The OSRP recovers excess and unwanted radioactive sealed sources from around the globe as part of NNSA's Global Threat Reduction Initiative'. Below the banner is an 'Overview' section with text describing the project's mission and expansion. Further down, there is a section for 'Watch a video' and 'See our U.S. recoveries to date'. At the bottom of the page, there is a footer with the Los Alamos National Laboratory logo and the slogan 'The World's Greatest Science Protecting America'.

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Off-Site Source Recovery Project (OSRP)

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Register Sources

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- Special Form Certificates
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- Applied Technologies
- Storage Capabilities
- Off-Site Material
- Documents & Publications
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CONTACTS

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National Security through Source Recovery

The OSRP recovers excess and unwanted radioactive sealed sources from around the globe as part of NNSA's Global Threat Reduction Initiative

Overview

The Off-Site Source Recovery Project (OSRP) recovers excess, unwanted, abandoned, orphan radioactive sealed sources and other radioactive material from the environment. The initial scope of the Project included all Greater than Class C (GTCC) sealed sources. In the post 9/11 environment the mission expanded from environmental concerns to national security.

In October 2003, the Project moved from the Department of Energy's (DOE) Office of Environmental Management to the National Nuclear Security Administration (NNSA) under the Radiological Threat Reduction Program (NA-211). The expanded OSRP mission includes beta-and-gamma emitting sources, which are of concern to both the U.S. government and the International Atomic Energy Agency (IAEA). Read **more** on the OSRP mission expansion and **register sources**.

To date, the Project has recovered more than 11,000 radioactive sources, more than two-thirds of the actinide sources known to be excess and unwanted. The OSRP expects to recover a total of 18,000 actinide sources by decade's end.

Watch a video of sources being loaded for packaging and transport to the Waste Isolation Pilot Plant (WIPP).

See our U.S. recoveries to date

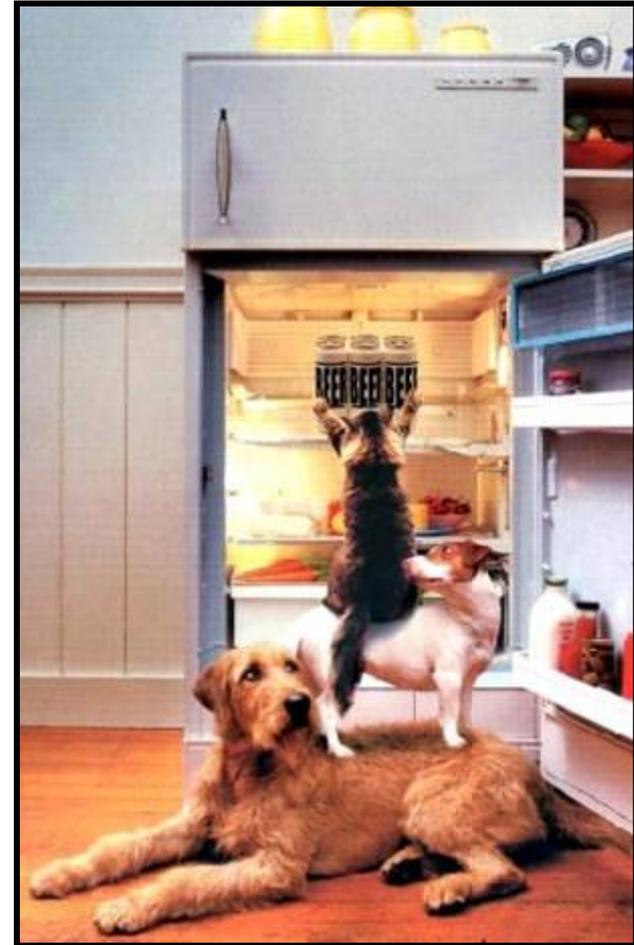
Any site having unwanted or excess radioactive sealed sources should **register** as soon as possible.

For registration, questions, and comments, please e-mail osrp@lanl.gov or call 1-877-676-1749.

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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



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Other Major OSRP Activities

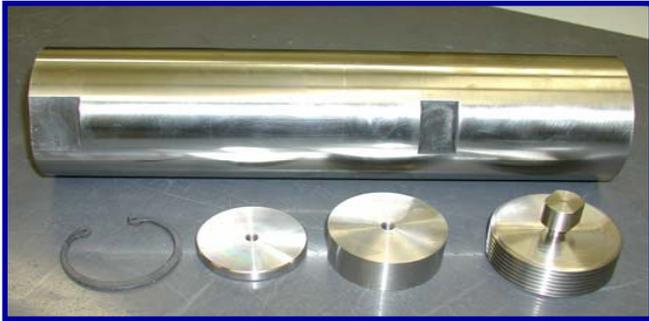
- Source and manufacturer research
- Source registration website and management database
- Outreach, work with manufacturing/using industries
- Contamination control
- Container research and certification
- Transportation
- Storage and Disposal
- Support to IAEA

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

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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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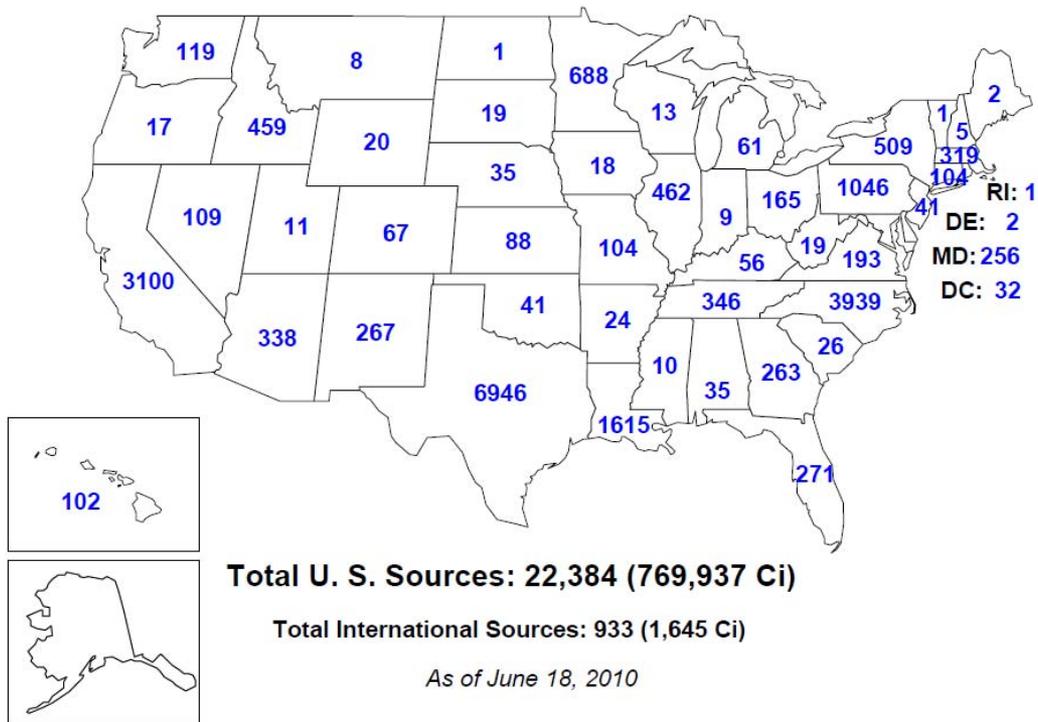
OSRP Recovery Summary

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



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



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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??