



U.S. Department of Energy  
Office of Inspector General  
Office of Audit Services

# Audit Report

## Follow-up on the Management of Plutonium-239 Sealed Sources Recovery Activities

OAS-M-06-09

September 2006



## Department of Energy

Washington, DC 20585

September 12, 2006

MEMORANDUM FOR THE MANAGER, LOS ALAMOS SITE OFFICE

FROM:

*George W. Collard*  
George W. Collard  
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Office of Inspector General

SUBJECT:

INFORMATION: Audit Report on "Follow-up on the Management of Plutonium-239 Sealed Sources Recovery Activities"

### INTRODUCTION AND OBJECTIVE

The mission of the National Nuclear Security Administration's (NNSA) Off-site Recovery Project (OSRP) is to recover unwanted radioactive sealed sources (sources) held in the public sector, thereby reducing the threat of the sources being used in radiological dispersal devices or a "dirty bomb." Plutonium-239 (Pu-239), one of the radioactive sealed sources recovered by OSRP, requires additional safeguards because it is a special nuclear material. These sources were manufactured in the United States (U.S.) and loaned or leased to colleges and universities, commercial companies and other countries by the Atomic Energy Commission. Due to the fact that they are on loan, they remain the property of the Department of Energy. As of May 2006, there were 772 outstanding Pu-239 sources, equaling approximately 27,500 grams that the OSRP had yet to recover.

On August 11, 2005, we reported that the OSRP could not immediately recover Pu-239 sources when they became excess and unwanted because of a lack of secure interim storage. Specifically, in July 2004, OSRP had discontinued recoveries of Pu-239 after filling the 8,000 grams of dedicated interim storage space that the Nevada Test Site (Nevada) and Los Alamos National Laboratory (Los Alamos) provided for these sources. In response to the need for additional storage, Nevada and Los Alamos committed to providing additional Pu-239 interim storage. Since that time, the Pu-239 sealed source waste stream was approved to be accepted at the Waste Isolation Pilot Plant (WIPP). Subsequently, 8,000 grams of Pu-239 were shipped to and permanently disposed of at WIPP.

The objective of this audit was to determine whether additional storage space had been provided and whether the OSRP now has sufficient Pu-239 storage to fulfill its recovery mission.

### CONCLUSIONS AND OBSERVATIONS

As a result of WIPP's approval of the Pu-239 waste stream, the OSRP no longer had a need for the additional interim storage space identified in 2004. Consequently, neither Los Alamos nor Nevada fulfilled the commitment to provide additional storage and,



instead had reduced total OSRP combined storage from 8,000 grams of dedicated space to 2,000 grams of undedicated storage space. However, we noted that because the space had not been specifically dedicated for Pu-239 storage, OSRP continued to experience difficulties in planning to recover sealed sources. Additionally, no contingency storage plan existed in the event of shipping delays to WIPP.

### Dedicated Storage

Although NNSA and Los Alamos officials determined that the recent approval to dispose of Pu-239 sources at WIPP had reduced its storage needs to 2,000 grams of dedicated storage space for Pu-239 sources, the space currently provided had to be shared with other program offices activities. The sharing arrangement has resulted in frequent conflicting priorities for the space. For example, a May 2006 International Atomic Energy Agency training mission took priority over the OSRP space needs during the month-long training session. OSRP officials told us that, although they were successful in balancing WIPP shipments and storage priorities for its Pu-239 material, such conflicting priorities make it difficult to plan for recoveries. We noted that other training is scheduled in the future, which could also delay planned recoveries.

The current lack of dedicated Pu-239 storage also hampered OSRP's ability to recover Pu-239 from other countries. For example, the Office of Global Threat Reduction (NA-21) received a request to recover U.S.-origin Pu-239 sources from Australia and tasked the OSRP to recover those sources as well as sources from New Zealand, Philippines and Thailand. Because Pu-239 must be sent by ship, and nuclear material shipments are scheduled from Australia to the U.S. only about every three years, OSRP officials told us it is difficult to plan for the international recovery of up to 1,200 grams without having dedicated storage space available. OSRP will also have to plan for future international recovery opportunities since there are approximately 6,500 grams of Pu-239 sources located in other countries.

### Planned Storage

As a result of these concerns, NNSA management has initiated actions to provide OSRP with 2,000 grams of dedicated storage at Los Alamos' TA-55 by the end of Fiscal Year 2006. The Deputy Administrator for Defense Programs directed the Los Alamos Site Office Manager to incorporate this action into Los Alamos' contract performance execution plans. However, specific plans and schedules to provide the dedicated storage space had not been prepared at the time of our audit. Specifically, Los Alamos had not prepared plans to complete the safety authorization basis, risk assessment, management self-assessment, and a laboratory readiness review that are pre-requisites to providing the dedicated space.

### Contingency Plans

Providing dedicated storage space to OSRP should improve its ability to schedule the recovery of sealed sources, however, it does not provide full assurance that the project will be able to continue its mission if WIPP is unable to dispose of the sources in the future. According to an OSRP official, even with the dedicated storage space for 2000

grams of Pu-239, any interruption of final disposal at WIPP would limit OSRP's ability to continue to recover additional sources. In fact, shipments to WIPP have been interrupted in the past due to causes outside of OSRP's control, such as recertification issues, shipping security issues, the transfer of the Los Alamos Waste Certification program responsibility to a Carlsbad contractor, and the Los Alamos shutdown. In addition to providing the 2,000 grams of dedicated storage, OSRP officials told us that a contingency storage plan is needed in the event final disposal of Pu-239 at WIPP is interrupted.

Unless NNSA provides dedicated storage space and prepares a contingency storage plan for the sealed source recovery mission, OSRP is at risk of missing or delaying opportunities to permanently eliminate the radiological threat posed by the sources.

### RECOMMENDATIONS

We recommend that the Manager, Los Alamos Site Office:

- Ensure that Los Alamos completes actions necessary to provide dedicated storage space to the OSRP, including preparation of the safety authorization basis, risk assessment, management self-assessment and a laboratory readiness review; and,
- Prepare a contingency plan for the storage of recovered sources in the event final disposal of Pu-239 at WIPP is interrupted.

### MANAGEMENT COMMENTS

Management concurred with the recommendations, but believed they should be directed to the site because the Los Alamos Laboratory will complete the necessary actions to provide dedicated storage and will prepare a contingency plan in the event that disposal at "WIPP" is interrupted.

### AUDITOR RESPONSE

Management's comments are responsive. We made changes to the report, as appropriate, to address management's comments.

### SCOPE AND METHODOLOGY

This follow-up audit was performed from May 2006 to June 2006 at NNSA Headquarters; Los Alamos National Laboratory; the Los Alamos Site Office; Nevada Site Office; and, Nevada Test Site.

To accomplish the audit objective, we:

- Examined OSRP international recovery authorizations and strategic plans;
- Toured potential storage locations;
- Reviewed Department memorandums regarding OSRP;

- Reviewed Congressional testimonies, inquiries, and NNSA responses;
- Analyzed OSRP actual sealed source recoveries by year;
- Reviewed prior Office of Inspector General and Government Accountability Office audit reports regarding sealed sources; and,
- Interviewed NNSA and contractor officials at NNSA Headquarters, Los Alamos and Nevada.

The audit was performed in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We relied on information processed on automated data processing equipment to accomplish our audit objective and therefore we tested the reliability of the automated data. Finally, we reviewed the implementation of the Government Performance Results Act of 1993, as it related to the Off-site Recovery Project.

We appreciate the cooperation of your staff during the audit.

Attachment

cc: Administrator, National Nuclear Security Administration  
Chief of Staff  
Director, Policy and Internal Controls Management, NA-66  
Team Leader, Audit Liaison Team, CF-1.2

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