

United States Government

Department of Energy

memorandum

DATE: September 28, 2009

Audit Report Number: OAS-L-09-17

REPLY TO

ATTN TO: IG-32 (A08SR030)

SUBJECT: Report on "Audit of Mixed Low-Level Waste Disposal within the Department of Energy"

TO: Deputy Assistant Secretary for Regulatory Compliance, Office of Environmental Management

INTRODUCTION AND OBJECTIVE

Environmental cleanup of contaminated nuclear weapons manufacturing and test sites within the Department of Energy (Department) complex is estimated to generate approximately 419,000 cubic meters of mixed low-level waste that will require disposal between 2008 and 2050. Mixed low-level waste is defined as waste that contains both hazardous and radioactive waste components. The Department requires that radioactive waste be treated, stored, and disposed of at the site where the waste is generated, if practical, or at another Department facility. If Department capabilities are not practical or cost effective, exemptions may be approved to allow use of non-Department facilities for the storage, treatment, or disposal of Department radioactive waste.

Site cleanup activities throughout the Department complex are projected to continue through 2050 and will be accelerated as a result of the additional funding provided to the Department by the *American Recovery and Reinvestment Act of 2009* (Recovery Act). Cleanup of these sites will likely generate mixed low-level waste requiring treatment and disposal in a *Resource Conservation and Recovery Act* (RCRA) permitted facility. Two sites may dispose of their own mixed low-level waste onsite, namely the Hanford Site and the Nevada Test Site (NTS). The remaining sites are not permitted to dispose of their own mixed low-level waste onsite and thus must dispose of their waste at an offsite location.

The Hanford Site and NTS are also permitted to dispose of Class A and greater mixed low-level waste¹ generated at other Department sites. The Hanford Site is currently disposing of mixed low-level waste generated onsite, but it is not accepting waste from other Department sites pending the completion of the *Tank Closure and Waste Management Environmental Impact Statement* and the publication of the appropriate Records of

¹ Class A mixed low-level waste contains Transuranic (TRU) radionuclide concentrations less than 10 nanocuries/gram (nCi/gm), equivalent to the Nuclear Regulatory Commission's (NRC's) Class A waste. Greater than Class A mixed low-level waste contains TRU radionuclide concentrations between 10 and 100 nCi/gm, equivalent to the NRC's Class B and Class C waste. NRC's waste classifications are defined in 10 CFR 61.55.

Decision. In accordance with its waste disposal permit, NTS is limited to accepting no more than 20,000 cubic meters of the Department's mixed low-level waste generated onsite and offsite. The NTS disposal facility must permanently close by December 1, 2010, or sooner if volume capacity is reached. The NTS disposal facility had approximately 13,500 cubic meters of mixed low-level waste capacity remaining as of the week ending June 2009.

Due to the significant risk associated with not having a disposal option for mixed low-level waste after December 1, 2010, we conducted this audit to determine whether the Department has an effective strategy for disposing of mixed low-level waste throughout the complex.

CONCLUSIONS AND OBSERVATIONS

Nothing came to our attention to indicate that the Department does not have an effective strategy for disposing of mixed low-level waste in the immediate future. Specifically, the Department plans to:

- Use the existing NTS disposal facility to dispose of greater than Class A mixed low-level waste generated at the site and other sites until December 1, 2010;
- Permit and construct a new facility at NTS with the capacity to dispose of 18,000 cubic meters of mixed low-level waste, including greater than Class A waste, self-generated and generated at other sites;
- Dispose of greater than Class A waste generated on-site at Hanford; and,
- Use commercial disposal facilities for Class A or less mixed low-level waste.

The Department estimates that the new disposal facility at NTS will not be available until February 2011, at the earliest, which will be approximately two months after the current facility is closed. However, the Department does not anticipate that the lack of a new RCRA compliant facility at the NTS for a two-month period will have an impact on cleanup operations.

Although it has a strategy for disposing of its mixed low-level waste, we noted that the Department had not determined the total volume of greater than Class A mixed low-level waste that will require disposal beyond 2010. We reviewed the Department's overall volume of mixed low-level waste forecasted to be dispositioned through 2050, as contained in the *Waste Information Management System* (WIMS). We noted the following during our review:

- The information in WIMS has not been updated since 2008. As such, the WIMS does not take into account the additional volumes of waste that will be generated and require disposal as a result of accelerated cleanup activities under the Recovery Act; and,

- Approximately 47,000 cubic meters of mixed low-level waste requiring disposal between 2011 and 2050 was not specifically identified by the level of contamination. The Department's current disposal capacity plans may not be adequate to meet these needs if a substantial portion of the 47,000 cubic meters is identified as greater than Class A mixed low-level waste.


The Department acknowledged that waste volumes need to be updated and stated that it intends to update the WIMS forecast as soon as there is a clear understanding of the scope of work that will be completed under the Recovery Act and a clear understanding of the volumes and types of waste that will be generated. While we do not anticipate that the lack of updated information in WIMS will have an impact on disposal operations in the immediate future, it could have an impact on the long-term future disposal capacity needs of the Department.

SUGGESTED ACTIONS

To address the issues discussed above, we suggest that the Deputy Assistant Secretary for Regulatory Compliance, Office of Environmental Management:

- Complete plans to permit and construct a new mixed low-level waste disposal facility at NTS; and,
- Update the WIMS forecast for mixed low-level waste.

No recommendations are being made in this report; therefore, a formal response is not required. We appreciate the cooperation of your staff during the conduct of our audit.


George W. Collard
Assistant Inspector General
for Performance Audits
Office of Inspector General

Attachment

cc: Team Leader, Audit Liaison Team, CF-1.2
Audit Liaison, Office of Environmental Management, EM-33
Audit Liaison, Savannah River Operations Office
Audit Liaison, Nevada Site Office
Audit Liaison, Hanford Site Office

SCOPE AND METHODOLOGY

This review was performed between February 2008 and July 2009 at the Department of Energy's (Department) Savannah River Site in Aiken, South Carolina; and the Department's Headquarters in Washington, D.C. The scope of our audit included a review of the current mixed low-level waste disposal options and planned mixed low-level waste disposal options after December 1, 2010. To accomplish the objective, we:

- Obtained and reviewed documents relating to current and planned disposal options for mixed low-level waste;
- Reviewed the Department's 2008 mixed low-level waste forecast, as displayed in the *Waste Information Management System*, to determine the types and volumes of mixed low-level waste that will require disposal between 2011 and 2050; and,
- Interviewed key Savannah River Operations Office and Headquarters personnel regarding the disposal options for mixed low-level waste after December 1, 2010.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. 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 also assessed performance measures in accordance with the *Government Performance and Results Act of 1993* related to the management and disposal of mixed low-level waste. We found that the Department had established a corporate performance measure to track mixed low-level waste disposal. We did not assess the reliability of computer processed data since it was not used to satisfy our audit objective. An exit conference was held with the Deputy Assistant Secretary for Regulatory Compliance on September 14, 2009.