



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Inspection Report

Waste Disposal and Recovery Act Efforts at the Oak Ridge Reservation



INS-RA-L-12-01

December 2011



Department of Energy
Washington, DC 20585

December 16, 2011

MEMORANDUM FOR THE MANAGER, OAK RIDGE OFFICE

FROM:

Sandra D. Bruce
Sandra D. Bruce
Assistant Inspector General
for Inspections
Office of Inspector General

SUBJECT:

INFORMATION: Inspection Report on "Waste Disposal and Recovery Act Efforts at the Oak Ridge Reservation"

BACKGROUND

The Department of Energy's (Department) expends billions of dollars to clean up contaminated sites and dispose of hazardous waste. The Department's Oak Ridge Office (ORO) is responsible for processing and disposing of the Transuranic (TRU) waste on the Oak Ridge Reservation (ORR), including approximately 3,500 cubic meters of legacy remote-handled (RH) and contact-handled (CH) TRU waste from more than 50 years of energy research and weapons production. The ORR was selected to receive \$755 million in American Recovery and Reinvestment Act of 2009 (Recovery Act) funds, of which \$143.5 million was allocated for the Transuranic Waste Processing Center (TWPC) in Lenoir City, Tennessee. The Department selected the TWPC project for Recovery Act funding because it was deemed to be "shovel-ready" and was set for immediate implementation.

In December 2009, the Department awarded Wastren Advantage, Inc. (Wastren) a \$109 million 3-year Cost-Plus-Award-Fee contract to manage and operate TWPC. About \$83 million of Recovery Act funds were allocated to accelerate the treatment and disposition of the legacy TRU waste by at least one year. In May 2010, Wastren submitted a Request for Equitable Adjustment for an additional \$110 million, noting that the scope of work was greater than originally anticipated.

OBSERVATIONS AND CONCLUSIONS

Our inspection did not identify significant issues with the use of Recovery Act funds. However, we noted that the TWPC project, although initially thought to be "shovel-ready," encountered a number of obstacles in processing and disposing of ORR's TRU waste. Because of technical problems, including significant ground water infiltration in RH waste storage casks, the TWPC project was behind schedule and at risk of not achieving its accelerated waste disposal goals. In response, Department officials initiated a number of program changes designed to ensure that new, realistic TRU waste processing goals are developed and achieved.

TRU Waste Performance Goals

Although ORO had achieved some success in TRU waste processing, ORO officials acknowledged that more needs to be done to address the obstacles encountered and meet established goals for processing and disposing of CH and RH TRU waste.¹ Obstacles encountered after award of the contract to Wastren included significant ground water infiltration of waste storage casks, high neutron levels, waste manipulator failures and certification requirements for CH waste that have caused processing and shipping disposal delays. To address the problems encountered, ORO has adopted a new approach and schedule for completing needed TRU waste processing and disposal activities. As noted in the following table, the revision in strategy will likely result in a significant reduction in volume and an increase in completion of the goals. The differences between the original contract requirements and the revised strategy are attributed to the waste processed from Request for Proposal to present.

TRU Waste Processing Requirement versus Strategy

Types of Waste to be Processed	Original Contract Requirements		Revised Strategy	
	Cubic Meters	Final Disposal Date	Cubic Meters (as of Nov 2011)	Final Disposal Date
CH TRU	1,000	Sep 2011	426	Mar 2016
RH TRU	500	May 2011	463	Sep 2016

In addition to modifying its overall processing goals and due to the prioritized redirection of National TRU Waste Certification resources, ORO officials have directed TWPC's future processing activities to focus on screening the legacy TRU inventory to segregate low-level waste (LLW) and mixed low-level waste (MLLW) from the overall TRU waste inventory; and, completing the required re-packaging of the entire inventory in preparation for disposition.² Specifically, the TWPC will focus on:

- Adding a second line of equipment to increase waste characterization throughput capability. After the waste has been processed and repackaged the LLW and MLLW will be segregated from the TRU waste inventory. Once segregated, the LLW/MLLW will be promptly shipped to the appropriate disposal site; and,

¹ Transuranic waste is radioactive waste that is associated with the human manipulation of fissionable material dating back to the Manhattan Project that requires special handling based on its composition. Remote Handled is waste that is processed with additional shielding due to its higher dose of radionuclides and is processed by remote control equipment, as opposed to Contact Handled which can be safely handled.

² Low-level waste has low levels of radioactivity and is relatively short-lived. Mixed waste contains both hazardous chemicals and radioactive components and the disposal is subject to the Resource Conservation and Recovery Act.

- Onsite storage of the "suspect" TRU waste, waste that cannot be definitely determined to be LLW or MLLW, until final characterization and certification of this waste has been completed for final disposition.

According to a senior ORO official, this new focus and strategy is expected to provide more efficient characterization and shipping of LLW/MLLW, as well as accelerate the final characterization and certification of TRU waste upon return of the Central Characterization Project.

Operational Efficiency

In addition to the new strategy, Department officials also told us that they plan to make other improvements to increase operational efficiency. Specifically, officials plan to complete:

- Construction of a Cask Processing Enclosure that will be operational in April 2012. This enclosure is expected to significantly increase the processing rate of the RH casks;
- A permit for the recently-constructed, multi-purpose building that will provide additional on-site waste storage beginning third quarter, Fiscal Year (FY) 2012. The additional on-site storage will eliminate the need to transfer waste off-site for temporary storage, only to be returned again to the TWPC for final processing and shipment;
- Procurement of two new, more robust waste manipulators for use in the Hot Cell, which are protected enclosures used to handle radioactive materials;
- Activation of additional glovebox processing stations (enclosed workspaces equipped with gloved openings that allow manipulation in the interior of the enclosure, designed to prevent contamination) by fourth quarter, FY 2012 to enhance the CH TRU waste processing efficiency; and,
- Installation of a manipulator service building in FY 2013 to enable minor on-site repairs of manipulators to increase operational efficiency.

We believe that ORO's planned actions, if successfully implemented, should help mitigate the schedule issues we identified. The actions are consistent with a change in the National-level TRU waste program; an effort undertaken by the Department to safely and cost-effectively dispose of 90 percent of the Department's legacy TRU waste inventory by the end of 2015 while meeting environmental, safety and other regulatory requirements. Therefore, we have no further recommendations for corrective action and a formal response is not required. We do, however, suggest that management closely monitor implementation of planned actions.

Attachment

cc: Deputy Secretary
Associate Deputy Secretary
Under Secretary for Nuclear Security
Under Secretary for Science
Chief of Staff
Acting Chief Financial Officer
Chief, Health, Safety and Security Officer, Office of Health and Security

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

Given the Department's continuing challenges with contract and project management, we initiated this inspection to determine the effectiveness of the Department of Energy's (Department) project management of the Transuranic Waste Processing Center (TWPC).

SCOPE AND METHODOLOGY

We completed the fieldwork for this performance inspection in December 2011, at the Oak Ridge Reservation (ORR). To accomplish the inspection objective, we:

- Obtained, reviewed and analyzed applicable sections of the Department's Performance-Based Contracting Guide, Request for Proposal, Performance Work Statement, Performance Evaluation Plan and related documentation regarding the current contract;
- Interviewed senior Federal officials including, the Contracting Officer, Contract Specialist, Contracting Officer's Representative and the Project Manager concerning various contracting matters and challenges;
- Interviewed senior contractor officials on various contracting matters and challenges;
- Performed a comprehensive analysis of the originally projected against actual cost, schedules and completion dates;
- Obtained and reviewed Department requirements for effective project management, as well as by the Department's performance incentive documentation, including fee determining methodologies; and,
- Reviewed previous related reports by the Department's Office of Inspector General and the U.S. Government Accountability Office.

We conducted this performance inspection in accordance with the Council of the Inspectors General on Integrity and Efficiency's "Quality Standards for Inspections" issued by the President's Council on Integrity and Efficiency. Those standards require that we plan and perform the inspection to obtain sufficient, appropriate evidence to provide a reasonable basis for our conclusions and observations based on our inspection objective. We believe the evidence obtained provides a reasonable basis for our conclusions and observations based on our inspection objective. The inspection included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the inspection 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 inspection. Also, we assessed ORR's compliance with Government Performance and Results Act of 1993 and found that, although specific performance measures had been established through the use of Performance Evaluation Plans to incentivize the contractor to meet measurable metrics, these metrics had recognized the technical issues for

processing the waste, and were not established to meet the overall goals of the contract. Finally, we relied on computer processed data, to some extent, to satisfy our objective related to contract modifications and funding adjustments. We confirmed the validity of such data, as appropriate, by conducting interviews and reviewing source documents.

Management waived the exit conference.

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