



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

Audit Report

Management Controls over Operations of the Integrated Disposal Facility at the Hanford Site

OAS-M-08-04

December 2007



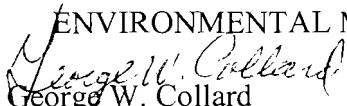
Department of Energy

Washington, DC 20585

December 18, 2007

MEMORANDUM FOR THE CHIEF OPERATING OFFICER, OFFICE OF ENVIRONMENTAL MANAGEMENT

FROM:


George W. Collard

Assistant Inspector General
for NNSA and Energy Audits
Office of Inspector General

SUBJECT:

INFORMATION: Audit Report on "Management Controls over Operations of the Integrated Disposal Facility at the Hanford Site"

BACKGROUND

Pursuant to a June 2004 Record of Decision on the *Hanford Site Solid Waste Program Environmental Impact Statement*, the Department of Energy committed to construct and begin utilizing the Integrated Disposal Facility (IDF) as early as 2007. The Department's Office of River Protection and its prime contractor CH2M HILL Hanford Group, Inc. completed the construction of the IDF in April 2006, at a cost of \$23 million. The IDF is Resource Conservation and Recovery Act compliant and is capable of disposing of low-level radioactive waste and mixed low-level radioactive waste.

The Department planned to use IDF as the primary disposal site for Immobilized Low-Activity Waste generated at the Hanford Site Waste Treatment Plant. Additionally, IDF could be used to dispose of waste originating from various onsite and offsite sources, including waste generated at the proposed Bulk Vitrification Pilot Plant at the Hanford Site. Since its completion in 2006, the Department had not disposed of any waste in IDF. The Department plans to begin start-up operations of the facility in 2010 in preparation for disposing of waste from the Bulk Vitrification Pilot Plant.

In 2002, the Office of Environmental Management implemented a new cleanup strategy that emphasized risk-reduction through cost-effective solutions. Accordingly, we conducted this audit to determine whether it is cost-effective to start up operations of the IDF as planned.

RESULTS OF AUDIT

Start-up of operations at the IDF in 2010 would not be economical based on the currently projected waste streams requiring disposal. Specifically, facilities which produce waste streams designated for IDF have been delayed, including the:

- Waste Treatment Plant which will not produce waste until 2017; and,
- Bulk Vitrification Pilot Plant which will not produce waste until at least 2011.



Further, currently projected on-site and off-site waste volumes can be disposed of at other existing Hanford Site Resource Conservation and Recovery Act compliant facilities until 2017.

The Department had not re-evaluated its plans to determine whether it would be cost-effective to begin operating IDF in 2010. In particular, the Department had not determined whether the start-up of IDF was warranted by resolving uncertainties associated with waste volume forecasts, and by considering alternatives for managing waste to be generated by the Bulk Vitrification Pilot Plant.

The Department could potentially save approximately \$13 million by postponing operations of the IDF until 2017 when the low-activity waste generated at the Waste Treatment Plant will be available for disposal. To achieve savings, we recommended that the Chief Operating Officer for Environmental Management re-evaluate current plans to start up operations of the IDF in 2010.

MANAGEMENT REACTION

Management concurred with our recommendation and indicated that it is currently reassessing all projects, including the start-up of the IDF. However, management noted that clean-up operations at the Hanford Site operate within a regulatory environment and any changes in the planned start-up of the IDF will need to be coordinated with the regulators.

Attachment

cc: Under Secretary of Energy
Chief of Staff
Assistant Secretary, Office of Environmental Management
Team Leader, Audit Liaison Team, CF-1.2
Manager, Office of River Protection
Manager, Richland Operations Office

REPORT ON MANAGEMENT CONTROLS OVER OPERATIONS OF THE INTEGRATED DISPOSAL FACILITY AT THE HANFORD SITE

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INTEGRATED DISPOSAL FACILITY START-UP

Integrated Disposal Facility Operations

The Integrated Disposal Facility (IDF) may not be needed as a disposal facility until 2017, at the earliest. The IDF was constructed to dispose of immobilized low-activity waste from the Waste Treatment Plant and the Bulk Vitrification Pilot Plant, as well as on-site and off-site low-level and mixed low-level sources. However, generation of these waste streams has been delayed. Specifically:

- The Waste Treatment Plant that will produce the immobilized low-activity waste for disposal had been scheduled to begin operations in 2007, but currently is not projected to be operational until 2017 or later. Immobilized low-activity waste is the vitrified form of the radioactive low-activity fraction of liquid wastes stored in underground tanks at the Hanford Site.
- The Department of Energy (Department) halted development and construction of the Bulk Vitrification Pilot Plant, in part, due to technical uncertainties about the project. Since 2004, the project's start-up date has been extended from 2005 to 2011. Even if the Bulk Vitrification Pilot Plant is operational and generates immobilized low-activity waste in 2011, disposal of the 50 waste boxes to be generated by the Bulk Vitrification Pilot Plant would not justify the cost of starting up and operating the IDF without other sources of waste. Rather, it may be more cost effective to temporarily store the waste boxes until additional waste is available from the Waste Treatment Plant in 2017.
- The off-site low-level waste to be disposed of at IDF has also not materialized. The Department has not accepted off-site shipments of mixed low-level waste at the Hanford Site since mid 2004. The Department entered into a Settlement Agreement with Washington State in January 2006, not to accept off-site waste until the *Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington* is completed and approved, currently scheduled for 2009. The Department is currently preparing this Environmental Impact Statement, in part, to reassess the effect of low-level and mixed low-level waste at the Hanford Site. The Hanford Site's life cycle low-level waste and mixed low-level waste projections have decreased since 2003 due, in part, to the above delays. Additionally, our analysis showed that the existing Resource Conservation and Recovery Act waste trenches at the Hanford Site have

available capacity to dispose of the on-site and off-site low-level waste and mixed low-level waste that are currently projected in the Department's Solid Waste Integrated Forecast Technical (SWIFT) database until 2017. Therefore, IDF may not have to be used until that date.

In commenting on a draft of this report, Environmental Management officials indicated that they did not have sufficient information to conclude that existing Hanford Site disposal facilities will have sufficient capacity to dispose of on-site and off-site waste until 2017. These officials stated that another database, the Waste Information Management System, provides more comprehensive and strategic information on future waste volumes than the SWIFT database. Nonetheless, these officials acknowledged this database contains very little waste forecast for shipment to the Hanford Site. This is because waste generation sites revised their disposition plans once the Hanford Site suspended the acceptance of off-site waste. Environmental Management officials also pointed out that possible suspension of waste disposal activities at other sites may necessitate the use of Hanford Site disposal facilities.

Given the uncertainty of waste volumes, we could not validate the quantity and timing of additional waste streams that may be destined for IDF beyond currently forecasted amounts. As previously discussed, our analysis is based on available data which showed that existing Hanford Site Resource Conservation and Recovery Act disposal facilities have the capacity to dispose of currently projected on-site and off-site waste streams. Uncertainty about waste planned for disposition at the Hanford Site underscores the need to conduct a thorough analysis of projected waste streams and the most cost-effective approach for disposition before any plans to start IDF operations are initiated.

Department officials also pointed out that temporary storage of Bulk Vitrification Pilot Plant waste and other changes to the planned operations of the IDF would require coordination with the regulators. Department officials noted that the June 2004 Record of Decision on the *Hanford Site Solid Waste Program Environmental Impact Statement* communicated a preference to use IDF rather than other Resource Conservation and Recovery Act-compliant disposal facilities for low-level radioactive waste and mixed low-level waste, with a clear plan to begin operations as early as 2007.

We, nevertheless, noted that the Department has obtained regulator approval in other instances for changes to Records of Decision that affect waste disposal at the Hanford Site. For example, the Department reached agreement in May 2007, with the U.S. Environmental Protection Agency and Washington State to amend a Record of Decision. This amendment enabled another Hanford Site facility to dispose of additional quantities of mixed-low-level waste in storage or waste that has been generated while supporting the Hanford Site's cleanup mission.

**Reassessing
Mission Needs**

Since IDF has been completed, the Department had not reassessed its plans to start up operations in 2010. In particular, the Department had not determined whether the start-up of IDF was warranted by resolving uncertainties associated with waste volume forecasts, and by considering alternatives for managing waste to be generated by the Bulk Vitrification Pilot Plant. Specifically, the Department had not considered the use of interim storage for the projected 50 boxes of waste to be generated by the Bulk Vitrification Pilot Plant, although a Department official acknowledged that there are temporary storage alternatives for the waste generated by the Bulk Vitrification Pilot Plant.

Cost Impacts

In conducting our analysis, we determined that the Department could potentially save approximately \$13 million in operating costs by delaying start-up of IDF. These savings could be achieved by using existing disposal or temporary storage facilities for (1) on-site and off-site low-level and mixed low-level waste and (2) waste generated from the Bulk Vitrification Pilot Plant.

RECOMMENDATION

In order to institute a viable operating plan for the IDF, we recommend that the Chief Operating Officer, Office of Environmental Management re-evaluate the cost-effectiveness of starting up operations in 2010, in part, by considering alternative options for storing and disposing of projected low-level and mixed low-level waste at the Hanford Site.

**MANAGEMENT
AND AUDITOR
COMMENTS**

Management concurred with our recommendation. In separate technical comments, management indicated that it is currently reassessing all projects, including the start-up of the IDF. However, as noted previously, management indicated that any changes in the planned start-up and operation of the IDF would have to be coordinated with the regulators.

Management's comments are responsive to our recommendation. We made several changes to the body of this report in response to management's technical comments.

Appendix 1

OBJECTIVE

The objective of this audit was to determine whether it is cost-effective to start up operations of the Integrated Disposal Facility (IDF) as planned.

SCOPE

The audit was performed from October 2006 to December 2007, at the Hanford Site in Richland, Washington. The scope of the audit covered the IDF.

METHODOLOGY

To accomplish the audit objective, we:

- Obtained and reviewed laws, regulations, policies, and procedures relevant to the Department of Energy's IDF;
- Obtained and reviewed cost and schedule baselines for the IDF;
- Obtained and reviewed cost and schedule baselines for the projects identified as producing waste forms to be disposed of at the IDF, such as the Waste Treatment Plant and the Bulk Vitrification Pilot Plant;
- Reviewed findings from related prior audits and reviews;
- Analyzed the CH2M HILL Hanford Group, Inc. contract with the Office of River Protection; and,
- Interviewed key personnel at the Office of River Protection, the Richland Operations Office and CH2M HILL Hanford Group, Inc., and the Office of Disposal Operations.

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 finding and conclusion based on our audit objective. The audit included tests of controls and compliance with laws and regulations related to the Office of River Protection's IDF at the Hanford Site. 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 examined the establishment of performance measures in accordance with the Government Performance and Results Act of 1993, as they related to the audit objective. We found that performance measures for the IDF had been established. Specifically, performance measures of \$3 million were established

Appendix 1

for the completion of construction of the IDF in Fiscal Year 2006. We did not conduct a reliability assessment of computer-processed data because only a limited amount of computer-processed data was used during the audit.

Management waived an exit conference.



Department of Energy

Washington, DC 20585

October 11, 2007

MEMORANDUM FOR GEORGE W. COLLARD

ASSISTANT INSPECTOR GENERAL FOR
PERFORMANCE AUDITS

FROM:

INÉS TRIAY *Inés Triay*
PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR
ENVIRONMENTAL MANAGEMENT

SUBJECT:

Draft Audit Report, "Construction of the Integrated Disposal
Facility at the Hanford Site."

This memorandum provides the Office of Environmental Management's (EM's) consolidated comments on the Office of Inspector General's Draft Report on "Construction of the Integrated Disposal Facility." These comments have been coordinated with the Richland Operations Office and the Office of River Protection.

We agree with and accept the two recommendations of the report: 1) that EM re-evaluate the cost-effectiveness of starting up operations of the Integrated Disposal Facility (IDF) in 2010, in part, by considering alternative options for storing and disposing of the 50 bulk vitrification boxes; and 2) that EM ensure the mission need for future projects is re-evaluated as conditions change.

However, EM has several concerns with some of the specific findings within the Draft Report. We believe there are other pertinent factors that should be acknowledged in this review, including the Department's June 2004 Record of Decision on the Hanford Solid Waste Environmental Impact Statement and other programmatic factors that could potentially affect future off-site waste volumes requiring disposal in the IDF. The attachment documents these concerns and detailed comments on the Draft Report. Ultimately, EM's decision to commission the IDF will be based on careful evaluation of a myriad of technical, regulatory, programmatic, and contract considerations.

Thank you for the opportunity to review the Draft Report. If you have any questions regarding the attachment, please contact Mr. Frank Marcinowski, Deputy Assistant Secretary for Regulatory Compliance at (202) 586-0370.



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