



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

# Audit Report

Disposal of the Rocky Flats  
Environmental Technology Site's  
Low-Level Mixed Waste



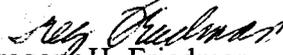
## Department of Energy

Washington, DC 20585

July 8, 2003

### MEMORANDUM FOR THE SECRETARY

FROM:

  
Gregory H. Friedman  
Inspector General

SUBJECT:

INFORMATION: Audit Report on "Disposal of the Rocky Flats Environmental Technology Site's Low-Level Mixed Waste"

### BACKGROUND

In February 2000, the Department of Energy entered into a contract with Kaiser-Hill Company, LLC to close the Rocky Flats Environmental Technology Site by December 15, 2006. Under the terms of the contract, Kaiser-Hill is responsible for treating and packaging low-level mixed waste (LLMW) greater than 10 nanocuries per gram, and the Department is responsible for providing a disposal site for the waste. Kaiser-Hill has about 1,300 cubic meters of this type of waste in its inventory and estimates that it could generate an additional 1,500 cubic meters prior to site closure. The waste consists mainly of sludge, metals, combustibles (e.g., rags, clothing, and wood), lead solids, and lead gloves. Kaiser-Hill anticipates a need for a disposal site by August 2003.

The objective of this audit was to determine whether the Department is prepared to dispose of the Rocky Flats LLMW.

### RESULTS OF AUDIT

We found that a disposal site may not be available in time to meet Rocky Flats needs. The Department's preferred disposal sites, the Nevada Test Site (NTS) and the Hanford Site (located in Washington State), are not currently accepting LLMW from other Department sites for disposal, and NTS is not expected to receive LLMW before January 2004. Further, a date by which Hanford will receive such waste is uncertain. If Hanford cannot accept Rocky Flats' waste by August 2003, the Department will have to pursue other temporary storage or final disposal options with both cost and schedule impacts to the accelerated closure of Rocky Flats. The Department has considered options with significant cost implications – as little as \$4 million to as much as \$320 million more than direct disposal at Hanford.

The 2000 agreement with the State of Washington provides that the Department, under certain circumstances and in consultation with the State, may be able to dispose of LLMW at Hanford prior to full completion of an environmental impact statement. We concluded that, if the environmental impact statement is delayed beyond August of 2003,



it would be prudent for the Department to pursue this option with the State of Washington. If successful, this may well eliminate the need to pursue more costly disposal alternatives. The report includes recommendations to initiate such action.

Based on its 2002 *Top to Bottom Review*, the Office of Environmental Management has adopted an accelerated, risk-based approach to cleanup activities. We believe our recommendation is consistent with this initiative.

#### MANAGEMENT REACTION

Management generally concurred with the audit finding and recommendations. While management stated that the path forward would be to complete the environmental impact statement, they agreed to pursue our recommendations if it was not complete by August 2003.

#### Attachment

cc: Deputy Secretary  
Under Secretary for Energy, Science and Environment  
Assistant Secretary for Environmental Management  
Manager, Rocky Flats Field Office  
Manager, Richland Operations Office

# DISPOSAL OF THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE'S LOW-LEVEL MIXED WASTE

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## **DISPOSAL FACILITY**

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### **Disposal Capabilities**

The Department identified the Nevada Test Site (NTS) and the Hanford Site as preferred disposal facilities for low-level mixed waste (LLMW) in its *Record of Decision for the Final Waste Management Programmatic Environmental Impact Statement*, issued in February 2000. In April 2001, the Rocky Flats Environmental Technology Site's (Rocky Flats) management contractor, Kaiser-Hill Company, LLC, (Kaiser-Hill) notified the Department that it was concerned that neither NTS nor the Hanford Site had begun accepting LLMW from other Department facilities.

As of June 2003, NTS and the Hanford Site were still not accepting LLMW from other Department sites. Currently, the Department is working with the State of Nevada to obtain permission to dispose of LLMW at NTS. However, an official from the Department's Nevada Operations Office stated that NTS would not be available for disposal until January 2004 at the earliest, and that even that date was optimistic given the State of Nevada's ongoing concerns about waste disposal at Yucca Mountain. Therefore, the Department does not consider NTS a viable option for disposal of Rocky Flats' LLMW.

Based on the situation at NTS, the Hanford Site may be the Department's best option for receiving Rocky Flats' LLMW. Consistent with that assumption, Rocky Flats has been treating its LLMW to the Hanford Site's waste acceptance criteria. Also, the Hanford Site has already reviewed and approved some of Rocky Flats' waste streams for shipping and is willing to accept Rocky Flats' waste. Additionally, the Hanford Site has been disposing of its own LLMW, under interim disposal status, in an onsite trench that is suitable for disposal of Rocky Flats' waste. Officials from the Department's Richland Operations Office have stated that interim disposal status would also allow disposal of Rocky Flats' waste at the Hanford Site. However, because of the status of the regulatory process, the Hanford Site's ability to receive Rocky Flats' LLMW before August 2003 remains in question.

### **Obstacles to Disposal**

In this regard, the Department completed its complex-wide waste management impact statement, which included a discussion of the disposal of LLMW at Hanford, in February 2000. A second, more site-specific evaluation, called the *Hanford Site Solid Waste Program Environmental Impact Statement* (Hanford EIS), began in 1997 but is not yet complete. In December 2000, the Department entered into an agreement with the State of Washington (State) indicating that it would complete the Hanford EIS before accepting LLMW at the site.

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Department officials initially believed that timing would not present a problem because they expected the Hanford EIS to be completed well before the time Rocky Flats would need a disposal site. However, the Hanford EIS was taking longer than estimated, and Department officials no longer expected the accompanying record of decision to be issued before August 2003. Moreover, some officials we spoke to were concerned that even after completion of the Hanford EIS, the record of decision may not be implemented in the foreseeable future due to potential legal challenges.

During the audit, we noted that the December 2000 agreement included language that would allow the Department, in consultation with the State, to dispose of waste at Hanford prior to completion of the Hanford EIS, should circumstances require. At the time of our audit, the Department had not pursued this aspect of the agreement. Department officials stated that they were discussing a number of waste disposal issues with the State, but gave no indication that they had pressed for an agreement to allow disposal of Rocky Flats' LLMW at Hanford. To the contrary, the Department expressed concern that attempting to dispose of Rocky Flats' waste at Hanford might jeopardize the availability of the site for disposal of waste from other Department facilities because the State might decide to impose more stringent waste disposal requirements.

In response to our audit, the Department confirmed its intent to complete the Hanford EIS before pursuing other actions. While we agree that this path is acceptable for the near term, delays in implementation beyond the summer of 2003 could have long-term cost and schedule impacts on the accelerated closure of Rocky Flats.

## **Potential Actions**

Under the current planning scenario, Kaiser-Hill will dispose of its LLMW at the Hanford Site at a cost of \$24 million. If Hanford is not available to receive the waste by August 2003, the Department may have to pursue other, more costly alternatives for temporary storage or final disposal. In January 2003, the Department identified three potential actions to resolve this challenge: (1) return treated waste to Rocky Flats for onsite storage; (2) ship treated waste to an offsite storage facility; or, (3) blend the waste up to transuranic waste for final disposal at the Department's Waste Isolation Pilot Plant (WIPP). In addition, any delays in disposal of LLMW could delay the Department's plans for accelerated closure of Rocky Flats.

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### Return for Onsite Storage

Kaiser-Hill plans to treat its LLMW at several commercial facilities, including one near the Hanford Site in Washington. Kaiser-Hill is currently sending some LLMW to the Washington facility for treatment; however, storage capabilities are limited. Therefore, if Hanford does not begin receiving waste in the near future, the treated waste may have to be shipped from the commercial facility back to Rocky Flats for temporary storage, then shipped again to the final disposal site. According to a Department official, treated waste returned to Rocky Flats will be bulkier and require more storage space than before it was treated. Thus, while Rocky Flats has storage facilities available for mixed waste, the Department would have to retain them longer than currently planned for in the site closure schedule and at higher cost than in the current closure baseline. According to Kaiser-Hill and the Department's Rocky Flats Field Office, temporary onsite storage would cost the Department \$4 million per year, plus about \$900,000 in extra shipping costs above the baseline cost for direct disposal. In addition, Rocky Flats would have to obtain a long-term onsite storage permit from the State of Colorado. Furthermore, prolonged onsite storage could also raise stakeholder concerns about the timeliness and completeness of site closure.

### Temporary Offsite Storage

Rocky Flats also identified a commercial entity as a potential temporary offsite storage facility. However, storage at that facility was estimated to cost an additional \$36 million per year above the baseline cost for direct disposal, plus up to \$1.5 million for shipping the treated waste from the treatment facility in Washington to the temporary storage facility, then to the final disposal site.

### Blending Up

Also, the Department has considered blending the LLMW up to the level of transuranic waste and disposing of the waste at WIPP. However, this could be an extremely expensive alternative. Based on a recent analysis performed by Kaiser-Hill and the Rocky Flats Field Office, this alternative could cost the Department an additional \$320 million.

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### Accelerated Closure Delays

Finally, the lack of a disposal site could delay accelerated closure of the site. The Office of Environmental Management plans to accelerate the closure of Rocky Flats to significantly reduce the landlord costs associated with keeping the site open. For example, Kaiser-Hill estimates that closing the site one year early would save the Department over \$400 million. Therefore, any delay to Kaiser-Hill's accelerated cleanup schedule could result in the Department not realizing substantial cost savings from early closure.

## **RECOMMENDATIONS**

We recommend that the Assistant Secretary for Environmental Management:

1. Aggressively pursue negotiations with the State of Washington to allow for timely disposal of Rocky Flats' LLMW at the Hanford Site if implementation of the Hanford EIS record of decision is delayed beyond August 2003; and,
2. If negotiations are unsuccessful, identify and pursue the most cost-effective LLMW storage and disposal alternatives to ensure timely closure of Rocky Flats.

## **MANAGEMENT REACTION**

The Office of Environmental Management stated that it is in general agreement with the report's finding and recommendations. In its written response, management stated that its path forward is to complete the Hanford EIS in the summer of 2003. Other storage and disposal alternatives will be pursued as needed, but only secondarily to the Hanford EIS. In subsequent discussions, management agreed to pursue other alternatives identified in this report if the Hanford EIS is not completed by August 2003. Management's verbatim comments can be found in Appendix 3 of this report.

## **AUDITOR COMMENTS**

We consider management's comments responsive to the intent of the report's recommendations.

### PRIOR AUDIT REPORTS

- *Progress Made at Rocky Flats, But Cleanup by 2006 Unlikely and Costs May Increase* (GAO-01-284, February 2001). This report concluded that the Department was working towards implementing a plan to identify such Government-furnished services as identifying receiver sites for orphan wastes. This includes identifying the regulatory requirements that need to be satisfied and the timeframes for completing these actions.
- *Low-Level Radioactive Wastes: Department of Energy Has Opportunity to Reduce Disposal Costs* (GAO/RCED-00-64, April 2000). The audit found that although the Department had adopted a new policy in February 2000 establishing the Nevada Test Site (NTS) and the Hanford Site as disposal facilities for mixed wastes, there were numerous roadblocks to fully implementing this policy. For example, the Department might need to obtain environmental permits from host states to dispose of out-of-state mixed wastes. Rocky Flats officials stated that a disposal facility was needed by 2003 to meet the closure schedule. However, Department and Rocky Flats officials did not anticipate that NTS or the Hanford Site would be available in time to meet Rocky Flats' 2006 closure schedule.
- *Disposal of Low-Level and Low-Level Mixed Waste* (DOE/IG-0426, September 1998). The audit revealed that the Department incurred \$5.3 million in unnecessary disposal costs for low-level waste between Fiscal Years 1993 and 1996 and incurred \$27.1 million to build low-level waste disposal facilities at the Savannah River Site and Oak Ridge Reservation, even though off-site disposal would have been more cost-effective. Also, the Hanford Site and NTS could dispose of their own mixed waste, but could not accept mixed waste generated at other sites. Therefore, the Department had not established a Departmentwide mixed waste disposal site.

## Appendix 2

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### OBJECTIVE

The objective of the audit was to determine whether the Department is prepared to dispose of the Rocky Flats LLMW greater than 10 nanocuries per gram.

### SCOPE

The audit was performed at Rocky Flats near Golden, Colorado, between November 2002 and June 2003. We also made a site visit to the Department's Richland Operations Office in Richland, Washington. The audit covered the Department's efforts to prepare for the disposal of Rocky Flats' LLMW greater than 10 nanocuries per gram between February 2000 and June 2003. The audit identified a material internal control weakness that Department management should consider when preparing its yearend assurance memorandum on internal controls.

### METHODOLOGY

To accomplish our objective, we:

- Interviewed Kaiser-Hill Company, LLC employees and Department officials located at Rocky Flats, the Hanford Site, and Department Headquarters;
- Reviewed pertinent environmental impact statements and regulatory agreements;
- Reviewed the Department's performance measures related to waste disposal in accordance with the *Government Performance and Results Act of 1993*; and,
- Evaluated the Rocky Flats Closure Contract, Kaiser-Hill Government Furnished Services and Items Request Reports, correspondence between Kaiser-Hill and the Department, and other Kaiser-Hill and Department documents related to treatment and disposal of Rocky Flats' LLMW.

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 did not rely on computer-processed data to accomplish our audit objective. Management waived an exit conference.

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United States Government

Department of Energy

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## memorandum

DATE: May 30, 2003

REPLY  
ATTN OF: EM-33 (Ned Larson, 301-903-9343)

SUBJECT: Office of Inspector General Memorandum on Draft Audit Report on "Disposal of the Rocky Flats Environmental Technology Site's Low-Level Mixed Waste"

TO: Frederick D. Doggett, Deputy Assistant Inspector General for Audit Services  
Office of Inspector General, IG-32

The purpose of this memorandum is to respond to your letter dated May 9, 2003, on the Draft Audit Report on "Disposal of the Rocky Flats Environmental Technology Site's Low-Level Mixed Waste." I am providing the Rocky Flats Field Office comments on the subject audit.

I am in general agreement with the Draft Report's observations. The path forward is to complete and issue the Hanford Site Solid Waste Program Environmental Impact Statement (Hanford EIS) later this summer. Completion of the Hanford EIS will ameliorate obstacles to disposal of the Rocky Flats Environmental Technology Site's low-level mixed waste without impacting the Rocky Flats closure. The other paths delineated in the Recommendations section of the Draft Report will also be pursued as needed, but only secondarily to the Hanford EIS.

If you have further questions, please call me at (202) 586-7709 or Mark W. Frei, Deputy Assistant Secretary for Site Closure, at (202) 586-6331.

  
Jessie Hill Roberson  
Assistant Secretary for  
Environmental Management

Attachment

cc: M. Mickelsen, IG-365, Denver

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