

AUDIT
REPORT

IDAHO OPERATIONS OFFICE MIXED
LOW-LEVEL WASTE DISPOSAL PLANS



SEPTEMBER 2001

U.S. DEPARTMENT OF ENERGY
OFFICE OF INSPECTOR GENERAL
OFFICE OF AUDIT SERVICES



DEPARTMENT OF ENERGY
Washington, DC 20585

September 28, 2001

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman (Signed)
Inspector General

SUBJECT: INFORMATION: Audit Report on "Idaho Operations Office Mixed Low-Level Waste Disposal Plans"

BACKGROUND

During the 1970s and 1980s, about 65,000 cubic meters of transuranic waste was sent to the Idaho National Engineering and Environmental Laboratory (INEEL) for temporary storage. In 1982, the definition of transuranic waste changed and, as a result, 25,400 cubic meters of this waste was reclassified as mixed low-level waste. At that time, mixed low-level waste was considered "orphan waste" since it had no identified path for disposal.

To address this situation, in 1995 the Idaho Operations Office (Idaho) decided to "blend-up" its mixed low-level waste with about 39,500 cubic meters of transuranic waste so that all 65,000 cubic meters of waste could be disposed of as transuranic waste at the Waste Isolation Pilot Plant (WIPP). Subsequent to Idaho's decision, the Department of Energy (Department) issued a Record of Decision in 2000, which designated the Hanford and Nevada Test Sites as disposal sites for mixed low-level waste. The objective of our audit was to determine whether Idaho should continue with plans to dispose of its mixed low-level waste at the WIPP.

RESULTS OF AUDIT

We found that Idaho's plans to dispose of its mixed low-level waste at WIPP were inconsistent with the Department's waste disposal strategy. Waste volumes would be needlessly added to the Department's repository for transuranic waste. Further, Idaho's planned actions would add about \$119 million to the cost of disposition when compared to other alternatives. Finally, should higher-end estimates of waste volumes planned for disposal at WIPP materialize, the current statutory limit of 175,600 cubic meters would be insufficient to meet the disposition needs of all Departmental sites.

Even though Hanford and Nevada Test Sites were established as designated sites for mixed low-level waste, Idaho continued with its plans and did not update and integrate its planned actions with the Office of Environmental Management's (EM) disposal strategy. To address this

situation, this report includes recommendations to EM to: (1) direct Idaho to discontinue its plans to "blend-up" mixed low-level waste with transuranic waste; and, (2) require agency field sites to update and integrate their disposition plans with the Department's 2000 Record of Decision.

MANAGEMENT REACTION

EM agreed to examine the suitability and availability of alternative treatment processes for the Idaho waste and agreed to integrate site disposal plans. However, during the course of the audit, EM personnel expressed concerns that officials in the states of Washington and Nevada may take steps to preclude the disposal of Idaho's mixed low-level waste in their jurisdictions. While we recognize that these issues complicate the Department's decision-making process, the primary finding emanating from this audit is that the Department needs to continue to develop and implement a coordinated and cost-effective waste disposition program.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment

IDAHO OPERATIONS OFFICE MIXED LOW-LEVEL WASTE DISPOSAL PLANS

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OVERVIEW

INTRODUCTION AND OBJECTIVE

During the 1970s and 1980s, about 65,000 cubic meters of waste was sent to the Idaho National Engineering and Environmental Laboratory (INEEL) for temporary storage. At the time, this waste was classified as transuranic waste. In 1982, the definition of transuranic waste changed resulting in 25,400 of the 65,000 cubic meters of waste being reclassified as mixed low-level waste. Since there was no disposal path for mixed low-level waste, the Department of Energy's (DOE) Idaho Operations Office (Idaho) decided in 1995 to "blend-up" the mixed low-level waste with transuranic waste so that all 65,000 cubic meters of waste would be categorized as transuranic waste. The entire 65,000 cubic meters could then be disposed of at the Waste Isolation Pilot Plant (WIPP). Idaho's mixed low-level waste constitutes about 11 percent of the waste volume identified for disposal at the WIPP in its National Transuranic Waste Management Plan (December 2000). Subsequently, the Hanford and Nevada Test Sites were designated as disposal sites for DOE's mixed low-level waste.

The objective of our audit was to determine whether Idaho should continue with plans to dispose of its mixed low-level waste at WIPP.

CONCLUSIONS AND OBSERVATIONS

Idaho should not continue with plans to dispose of its mixed low-level waste at WIPP because its disposal plan was not updated and integrated with the Office of Environmental Management's (EM) disposal strategy. If Idaho's mixed low-level waste is disposed of at WIPP, DOE may spend approximately \$119 million more than necessary and needlessly add additional waste volumes to the WIPP facility. Instead, Idaho should dispose of its 25,400 cubic meters of mixed low-level waste at either Hanford or Nevada Test Sites as decided in DOE's February 2000 Record of Decision.

During the course of the audit, personnel in EM and Idaho officials expressed concern about sending mixed low-level waste to either the Hanford or Nevada Test Sites. They were concerned that officials in Washington and Nevada may take steps to preclude the disposal of Idaho waste in their states. Further, DOE officials expressed concern about costs that may be incurred if disposal paths are changed. While we recognize that these problems may represent complicating factors, in our opinion DOE should pursue a coordinated, and cost-effective strategy for the disposal of mixed low-level waste in accordance with its waste disposition policy.

The audit identified issues that management should consider when preparing its year-end assurance memorandum on internal controls.

Signed _____
Office of Inspector General

IDAHO PLANS TO DISPOSE OF MIXED LOW-LEVEL WASTE AT THE WASTE ISOLATION PILOT PLANT

Idaho's Waste Disposal Plans

Idaho should not continue with plans to dispose of its mixed low-level waste at WIPP. Currently, Idaho plans to dispose of 25,400 cubic meters of mixed low-level waste at WIPP rather than at a disposal site selected by DOE to receive mixed low-level waste. Although WIPP is designated for disposal of only transuranic waste, Idaho plans to blend 25,400 cubic meters of mixed low-level waste with 39,500 cubic meters of transuranic waste¹. This blended waste would then constitute transuranic waste, which would require disposal at WIPP.

Idaho established its blending strategy in 1995, prior to DOE designating a disposal path for mixed low-level waste. At the time, there was some rationale for Idaho's decision because the mixed low-level waste in question was previously classified as transuranic waste, and mixed low-level waste had no designated path for disposal. Idaho sought to establish a disposal path for the entire 65,000 cubic meters of waste consistent with an agreement entered into with the State of Idaho, where DOE committed to remove all of this waste from the State by 2018.

Subsequent action taken by the Office of Environmental Management made it questionable for Idaho to continue with its plans. Specifically, DOE issued a Record of Decision that established a disposal path for mixed low-level waste at the Hanford and Nevada Test Sites. However, Idaho did not revise its disposal plans to be in accordance with this Decision.

DOE Guidance and Record of Decision

DOE Order 435.1, *Radioactive Waste Management*, requires mixed low-level waste to be managed and disposed of as mixed low-level waste. It also requires transuranic waste to be managed and disposed of as transuranic waste. Additionally, a February 2000 Record of Decision for the Final Waste Management Programmatic Environmental Impact Statement, established DOE's disposal path for mixed low-level waste to be the Hanford and Nevada Test Sites. The goal of the waste management programmatic environmental impact statement was to provide an integrated, systematic approach to addressing waste management issues throughout DOE. In accordance with this Record of Decision, Hanford and Nevada Test Sites are tentatively planning to receive mixed low-level waste beginning in 2002.

¹ Figures for cubic meters of waste have been rounded in this report.

Integration of Waste Disposal Decisions

Idaho's disposal plan was not integrated with the EM disposal strategy to dispose of mixed low-level waste at Hanford or Nevada. In fact, Idaho's disposal plans contradict DOE's larger disposal strategy. In May 1997, DOE was considering several sites as its preferred alternative for the disposal of mixed low-level waste (including Idaho's 25,400 cubic meters). Then in February 2000, DOE established its disposal path for mixed low-level waste at Hanford or Nevada Test Sites. However, Idaho continued to pursue a strategy that was not integrated with DOE's disposal strategy because there was no formal mechanism to ensure that DOE sites act in accordance with the Record of Decision. DOE's Office of Environmental Management informed us that the Record of Decision simply made the existing mixed low-level waste disposal grounds at the Hanford and Nevada sites available to other DOE waste generators. We were told that there is no requirement that such waste be disposed of in accordance with this Decision.

Additionally, Idaho's disposal plans also may have been influenced by the fact that it will cost Idaho more to ship the waste to a mixed low-level waste disposal site than it will to prepare it for shipment to WIPP. If the mixed low-level waste were blended into transuranic waste, much of the transportation and other costs would be paid for by the Carlsbad Field Office rather than by Idaho. These costs were calculated to be about \$33.5 million.

In contrast to Idaho's disposal plan, the Oak Ridge National Laboratory, in a recently issued Record of Decision, plans to separate transuranic waste from low-level waste and dispose of the transuranic waste at WIPP and the low-level waste at the Nevada Test Site. According to documentation supporting the Record of Decision, Oak Ridge decided to minimize the amount of transuranic waste that comes out of its treatment process because of the high cost to dispose of this waste at WIPP.

The issues relating to the coordination of environmental management activities were highlighted in a General Accounting Office (GAO) report issued in April 2000. In its report, GAO said that DOE's decentralized management approach encourages site-level decisions that could result in higher costs for other sites or for DOE as a whole. That is the same problem surfaced by this report.

Cost To Dispose Of Waste

If Idaho disposes of mixed low-level waste as transuranic waste, it would cost DOE millions more to execute this strategy and needlessly add additional waste volumes to the WIPP facility. A cost comparison of disposing mixed low-level waste at Hanford versus transuranic waste at WIPP is shown in the table below. The total cost differential between the two options is about \$119 million.

Comparison of Costs²
(Constant Year 2000 Dollars)

	<u>WIPP</u>	<u>Hanford</u>	<u>Difference</u>
Characterize & Treat	\$ 118,694,462	\$119,862,134	\$ (1,167,672)
Transport	24,250,454	3,940,174	20,310,280
Disposal Cost	<u>128,143,390</u>	<u>28,361,155</u>	<u>99,782,235</u>
Total Cost	\$271,088,306	\$152,163,463	\$ 118,924,843

The largest differential is the category labeled 'disposal cost.' Management questioned the cost comparison for this category; however, the disposal cost data used in this analysis was obtained from Carlsbad Field Office officials. Further, had we used comparable figures used in the National Transuranic Waste Management Plan and a methodology suggested by GAO the cost difference would have been substantially larger. Regardless of the cost calculations, the Record of Decision established the disposed path for mixed low-level waste and DOE Order 435.1 established the management protocol for mixed low-level waste and transuranic waste.

If DOE disposes of mixed low-level waste as transuranic waste, DOE may needlessly add additional waste volumes to the WIPP facility. The National Transuranic Waste Management Plan identified 108,000 cubic meters of waste that will be sent to WIPP. Another DOE report estimated that as much as 126,000 cubic meters of additional transuranic waste could require disposal, but no final decision has yet been made on this waste. If the higher-end estimates of transuranic waste materialize, the WIPP's statutory disposal volume limits of 175,600 cubic meters of waste would be insufficient. Thus, DOE may be faced with the task of asking the Congress and the State of New Mexico to increase the amount of transuranic waste that can be disposed of at WIPP.

²Since Nevada does not have the capacity to accept all of the 25,400 cubic meters of Idaho's mixed low-level waste, a cost comparison was not done for Nevada.

RECOMMENDATIONS

We recommend that the Assistant Secretary, Office of Environmental Management:

1. Direct the Manager, Idaho Operations Office, to
 - a) Discontinue its plans to blend-up Idaho's mixed low-level waste with transuranic waste; and,
 - b) Update and integrate Idaho's disposal plans with the disposal path established by DOE's Record of Decision for mixed low-level waste.
2. Develop and implement DOE policy and procedures that require field site disposal plans to be updated and integrated with DOE's Record of Decision.
3. Require field sites to provide a written justification and cost comparison if plans to dispose of mixed low-level waste deviate from DOE's disposal strategy.

**MANAGEMENT
COMMENTS**

DOE's Office of Environmental Management (EM) concurred with the intent of recommendation 1 and agreed to implement recommendations 2 and 3 in conjunction with plans to address a prior Office of Inspector General report on the management of low-level waste. EM stated that it would undertake a review of the suitability and availability of alternative treatment processes. Management pointed out that the disposal of the Idaho waste at a mixed low-level waste facility will require the Department to treat this waste, and officials anticipate that a commercial facility will be available to perform this activity in the near future. Management committed to exploring the use of this facility as an alternative to its current plans to blend-up Idaho's waste for disposal at WIPP. EM, however, emphasized that it was committed to meeting the milestones in the Settlement Agreement with the State of Idaho. EM officials also expressed concerns that the states of Washington and Nevada may take steps to preclude the disposal of Idaho's mixed low-level waste in their jurisdictions. Accordingly, until the Department completes its technical and economic assessments of the suitability and availability of an alternative treatment process, the Department will proceed with its current treatment and disposal plans. EM further indicated that the potential cost savings identified by the Office of Inspector General might prove to be high.

AUDITOR COMMENTS

Management did not agree to discontinue plans to blend-up Idaho's mixed low-level waste. However, EM's proposed actions should resolve the issues discussed if it proceeds as expeditiously as possible to conduct a thorough review of alternative waste disposal options and proceed with the most cost-effective alternative that meets regulatory requirements. In this regard, the Office of Environmental Management needs to develop a detailed action plan to facilitate implementation of the audit recommendations. This plan should delineate the specific steps and timeframes for evaluating alternate treatment processes and updating policies and procedures requiring workplan integration with the Department's Record of Decision.

Appendix 1

SCOPE

The audit was performed from August 24, 2000 to June 22 2001, at Idaho Operation Office in Idaho Falls, Idaho; Richland Operations Office in Richland, Washington; Nevada Operations Office in Las Vegas, Nevada; Carlsbad Field Office in Carlsbad, New Mexico; and, Environmental Management Offices in Washington, D.C. The audit scope covered decisions and planning documentation from 1982 through Fiscal Year (FY) 2000, as well as estimated life-cycle cost data through the year 2035.

METHODOLOGY

To accomplish the audit objective, we:

- Obtained and reviewed Idaho's and Office of Environmental Management's disposal plans for the mixed low-level waste in storage at INEEL;
- Reviewed applicable National Environmental Policy Act documentation concerning DOE's mixed low-level waste;
- Reviewed Idaho's waste inventory records;
- Reviewed applicable Federal and DOE regulations;
- Reviewed prior OIG and GAO reports;
- Reviewed contract data and cost data relevant to our cost comparison; and,
- Interviewed key personnel from DOE offices in Idaho, Richland, Nevada, Carlsbad, and Washington, D.C.

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. Specifically, we tested controls with respect to Idaho's planning process for disposing of radioactive waste. Additionally, we assessed the *Government Performance and Results Act of 1993* and determined that there were no specific performance goals or standards that pertained to this audit. 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 information processed on automated data processing equipment to accomplish our audit objective. We had various discussions about this audit with the Office of Environmental Management from June to August 2001. The exit conference was waived.

Appendix 2

RELATED OFFICE OF INSPECTOR GENERAL AND GENERAL ACCOUNTING OFFICE REPORTS

This report concerned DOE's management of waste disposal activities at the INEEL. Prior OIG and GAO reports related to this area are listed below.

- *Utilization of the Department's Low-Level Waste Disposal Facilities*, (DOE/IG-0505, May 2001). DOE did not adequately utilize existing low-level waste disposal capacity at the Hanford Site or Nevada Test Site. Instead, DOE stored large amounts of waste at generator sites or disposed of the waste at commercial disposal sites. This occurred because DOE did not have a comprehensive approach to maximize waste disposal. As a result, DOE did not realize the maximum benefit from its \$30 million investment for low-level waste disposal operations at Hanford and Nevada and storage operations at generator sites.
- *Waste Treatment Plans at the Idaho National Engineering and Environmental Laboratory*, (DOE/IG-0440, February 1999). The audit analysis concluded that waiting until the Advanced Mixed Waste Treatment Facility is operational to process the 3,100 cubic meters of waste would be more economical and reduce the environmental risks to Laboratory employees.
- *Planned Waste Shipments to the Waste Isolation Pilot Plant*, (WR-B-99-06, August 1999). The National Transuranic Waste Management Plan was not consistent with the data at the generator sites and could not be used to measure target dates for shipping waste to WIPP.
- *Disposal of Low-Level and Low-Level Mixed Waste*, (DOE/IG-0426, September 1998). DOE incurred \$5.3 million in unnecessary disposal costs for low-level waste between FYs 1993 and 1996. Also, DOE incurred \$27.1 million to build low-level waste disposal facilities at Savannah River and Oak Ridge even though off-site disposal would have been more cost-effective.
- *DOE's Advanced Mixed Waste Treatment Project-Uncertainties May Affect Performance, Schedule, and Price*, (GAO/RCED-00-106, April 2000). This report expressed concern over successful treatment of 25 percent of Idaho's waste that needs to be incinerated, however, incineration is not an option at this time. Also, the report expressed concern that the project is beginning to fall behind the pace needed to meet certain interim milestones. Also, despite some opportunities to reduce the contract price, other uncertainties make it likely that the contract price will increase in the future.
- *Low-Level Radioactive Waste: Department of Energy has Opportunities to Reduce Disposal Costs*, (GAO/RCED-00-64, April 2000). DOE has not developed full life-cycle costs for its six waste disposal facilities or established guidance to ensure that its managers base their disposal decisions on considerations of cost-effectiveness for DOE's entire program rather than on each site's annual budgetary interests.

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