

DOE/IG-0426

AUDIT  
REPORT

DISPOSAL OF LOW-LEVEL  
AND  
LOW-LEVEL MIXED WASTE



SEPTEMBER 1998

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

September 3, 1998

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman  
Acting Inspector General

SUBJECT: INFORMATION: Audit Report on "Disposal of Low-Level and Low-Level  
Mixed Waste"

BACKGROUND

The Department of Energy (Department) is faced with the legacy of thousands of contaminated areas and buildings and large volumes of "backlog" waste requiring disposal. Waste management and environmental restoration activities have become central to the Department's mission. One of the Department's priorities is to clean up former nuclear weapons sites and find more effective and timely methods for disposing of nuclear waste. This audit focused on determining if the Department was disposing of low-level and low-level mixed waste in the most cost-effective manner.

RESULTS OF AUDIT

The Department generally did not dispose of low-level and low-level mixed waste as cost-effectively as possible. The Department's waste disposal strategy relied upon many factors, including the environmental impact, state equity, transportation routes, litigation involving disposal sites, public and regulator interaction, funding limitations, and long-term mission needs. Had cost been the only criterion in making decisions on disposing of waste, the Department could have saved \$5.3 million in disposal costs for low-level waste between Fiscal Years (FY) 1993 and 1996. In addition, the Department built low-level waste disposal facilities at Savannah River and Oak Ridge even though off-site disposal would have been more cost-effective. The Savannah River and Oak Ridge facilities were built at a cost of \$27.1 million.

We recommended that the Acting Assistant Secretary for Environmental Management (1) revise the Departmentwide strategy for disposal of low-level and low-level mixed waste, (2) require justification and a cost-benefit analysis before constructing any additional on-site disposal facilities, and (3) periodically evaluate sites' implementation of the Departmentwide strategy to ensure disposals are made in a cost-effective manner.

MANAGEMENT REACTION

Management concurred with the finding and recommendations stating that the Department will use the report as part of the structure it is developing to support the low-level and low-level mixed waste management program.

Attachment

cc: Deputy Secretary  
Under Secretary

# **DISPOSAL OF LOW-LEVEL AND LOW-LEVEL MIXED WASTE**

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## Overview

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### INTRODUCTION AND OBJECTIVE

Since the end of the Cold War, the Department has been faced with the legacy of thousands of contaminated areas and buildings and large volumes of "backlog" waste and special nuclear materials requiring disposal. Waste management and environmental restoration activities have become central to the Department's mission. One of the Department's priorities is to clean up former nuclear weapons sites and find more effective and timely methods for disposing of nuclear waste.

The Department will have to dispose of large volumes of low-level<sup>1</sup> and low-level mixed waste<sup>2</sup> to meet its goals. Throughout this report, low-level mixed waste will be referred to as mixed waste. The Department estimated that it will need to dispose of 3.4 million cubic meters of low-level waste and 419,000 cubic meters of mixed waste. To gain some perspective concerning the volume of waste, 100,000 cubic meters has about the same volume as a 7-story building the size of a football field. Some of the Department's waste is currently in storage, but most of the waste will be generated over the next 20 years as part of the Department's environmental restoration activities. The waste volume estimates are based on end uses of land that range from the Department maintaining institutional control over a site to complete cleanup of a site.

The Department established the Office of the Assistant Secretary for Environmental Management (EM), formerly the Office of the Assistant Secretary for Environmental Restoration and Waste Management, in 1989 to accelerate the cleanup of inactive production facilities and sites. The EM program had a FY 1997 budget of \$6 billion. The Department's estimate to complete the EM program was \$147 billion as of February 1998.

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<sup>1</sup> Low-level waste has a wide range of characteristics, but most of it contains small amounts of radioactivity in large volumes of material.

<sup>2</sup> Low-level mixed waste is low-level radioactive waste that also contains hazardous components.

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The Offices of Waste Management and Environmental Restoration have primary responsibility for cleaning up more than 150 sites in over 30 states. Waste Management is responsible for the safe treatment, storage, and disposal of waste. Environmental Restoration is responsible for the remediation of contaminated soil and water as well as the decommissioning of contaminated surplus facilities. This audit was limited to disposal options for waste that were managed by the Waste Management organization.

During our audit, several legal issues involving the Department's agreement with a commercial facility, and, separately, with the State of Nevada over the use of the Nevada Test Site (NTS) were unresolved. The resolution of these legal issues could impact the effect of our recommendations.

The Office of Inspector General (OIG) has issued four reports dealing with shipments of contaminated waste to disposal facilities. In April 1992, the OIG issued Report DOE/IG-0308, *Packaging, Transporting, and Burying Low-Level Waste*. The audit concluded that the Department was not using cost-effective methods for disposing of low-level waste. In February 1993, the OIG issued Report DOE/IG-0320, *Disposal of Excess Capital Equipment at the Fernald Environmental Management Project, Fernald, Ohio*. The audit disclosed that Westinghouse Environmental Management Company of Ohio mixed contaminated equipment with uncontaminated equipment, destroyed the equipment without Departmental approval, and shipped the equipment to NTS for burial as contaminated waste. In June 1994, the OIG issued Report ER-B-94-07, *Audit of Shipment of Low-Level Waste from Fernald to the Nevada Test Site*. The audit concluded that Fluor Daniel Fernald shipped usable materials to NTS as contaminated waste, and that the contents of the shipments were not compacted to maximize the use of burial space. Finally, in December 1997, the OIG issued Report ER-B-98-05, *Audit of the Department of Energy's Contracts with Envirocare of Utah, Inc.* The audit disclosed that although volume discounts were available under Departmentwide contracts, two of the Department's contractors awarded subcontracts to Envirocare with rates that were higher than the Departmentwide rates. When the Department did dispose of its waste, it did not always choose the least costly alternative. Savannah River and Oak Ridge National

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**CONCLUSIONS AND  
OBSERVATIONS**

The objective of this audit was to determine whether the Department disposed of low-level and mixed waste in the most cost-effective manner.

The Department generally did not dispose of low-level and mixed waste as cost-effectively as possible. Most Department facilities stored large quantities of waste on-site, and when disposals of low-level waste were made, they were often not cost-effective. Many factors played a significant role in the Department's waste disposal strategy. These included environmental considerations, state equity<sup>3</sup>, transportation routes, litigation involving disposal sites, public and regulator interaction, funding limitations, and long-term mission needs. As a result of the impact that these and other factors had on the decision-making process, the Department incurred \$5.3 million in unnecessary disposal costs for low-level waste between FYs 1993 and 1996. Also, the Department 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.

The audit identified material internal control weaknesses that management should consider when preparing the yearend assurance memorandum on internal controls.

/s/  
Office of Inspector General  

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<sup>3</sup> State equity means that all states are treated equally and fairly when waste disposal options are considered.

## WASTE DISPOSAL

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### Department Did Not Dispose of Waste Cost-Effectively

The Department generally did not dispose of low-level and mixed waste in the most cost-effective manner. The Department stored large quantities of low-level waste at 5 sites and mixed waste at 11 sites, rather than dispose of the waste. Although NTS, Hanford, and Fernald disposed of their low-level waste economically, three other sites made low-level disposals that were not cost-effective.

### Five Sites Stored Large Quantities of Low-Level Waste On-Site

Five Departmental sites stored large quantities of low-level waste on-site even though some of the waste could have been disposed of for less than the cost to store it. The following table shows the inventory of low-level waste in storage at the beginning of FY 1993 and the end of FY 1996 and the amount of waste disposed of by the sites between FYs 1993 and 1996.

#### Cubic Meters of Low-Level Waste

<u>Site</u>	<u>FY 1993 Inventory</u>	<u>FY 1996 Inventory</u>	<u>Disposed</u>
East Tennessee Technology Park (ETTP)	4,435	8,715	1,568
Rocky Flats	3,094	6,626	900
Portsmouth	6,553	10,704	510
Paducah	3,957	5,198	21
Y-12	<u>2,282</u>	<u>6,972</u>	<u>0</u>
Totals	<u>20,321</u>	<u>38,215</u>	<u>2,999</u>

The table shows that the Department made little progress in disposing of low-level waste at the five sites. The volume of waste in storage at the sites almost doubled between 1993 and 1996, going from over 20,000 cubic meters to over 38,000 cubic meters. In this 4-year period, only 3,000 cubic meters of low-level waste had been disposed of. At this rate, it would take over 50 years to dispose of the existing waste.



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**Eleven Sites Stored  
Large Quantities of  
Mixed Waste On-Site**

The Department could have disposed of some of the waste for less than the cost to store it. For example, the Department's budget for FY 1997 was about \$4 million annually to store low-level waste at Rocky Flats; however, the waste could have been disposed of at NTS for a one-time cost of about \$5 million. Similarly, the Department currently spends about \$1.3 million annually to store 3,000 cubic meters at ETTP which could be disposed of at a commercial facility for \$2 million.

In addition to low-level waste, the Department also stored large quantities of mixed waste at 11 sites. (These sites are identified on page 14 of this report.) The inventory of mixed waste in storage at the beginning of FY 1993 was 76,092 cubic meters. The inventory grew to 104,145 cubic meters by the end of FY 1996. The amount of waste disposed of between FYs 1993 and 1996 was 13,611 cubic meters. Two Departmental sites, Hanford and NTS, can dispose of their own mixed waste, but cannot accept mixed waste generated at other sites. There was only one commercial alternative for disposal of mixed waste.

Some of the sites incurred significant recurring storage costs, even though the mixed waste could have been disposed of at a much lower one-time cost. For example, ETTP had 19,500 cubic meters of mixed waste ready for shipment in FY 1992. However, the waste remained in storage through FY 1997. The FY 1997 storage budget for the waste was \$4.9 million. Therefore, based on the FY 1997 storage budget, the Department incurred about \$29.4 million to store the mixed waste through FY 1997; however, it could have disposed of the waste at the commercial facility for only \$27.8 million using calendar year 1997 disposal rates. Approximately 940 cubic meters of the waste were disposed of in FY 1998.

Sites were storing mixed waste even though they recognized and acknowledged that disposal at a commercial facility was more cost-effective. In August 1995, the Westinghouse Savannah River Company issued a report identifying about 2,800 cubic meters of mixed waste which could have been treated on-site and then disposed of at a commercial facility for \$1.5 million. Despite the conclusion of the Westinghouse report, Savannah River has chosen not to dispose of the waste and spent \$4.1 million in FY 1996 storing the 2,800 cubic meters of mixed waste.

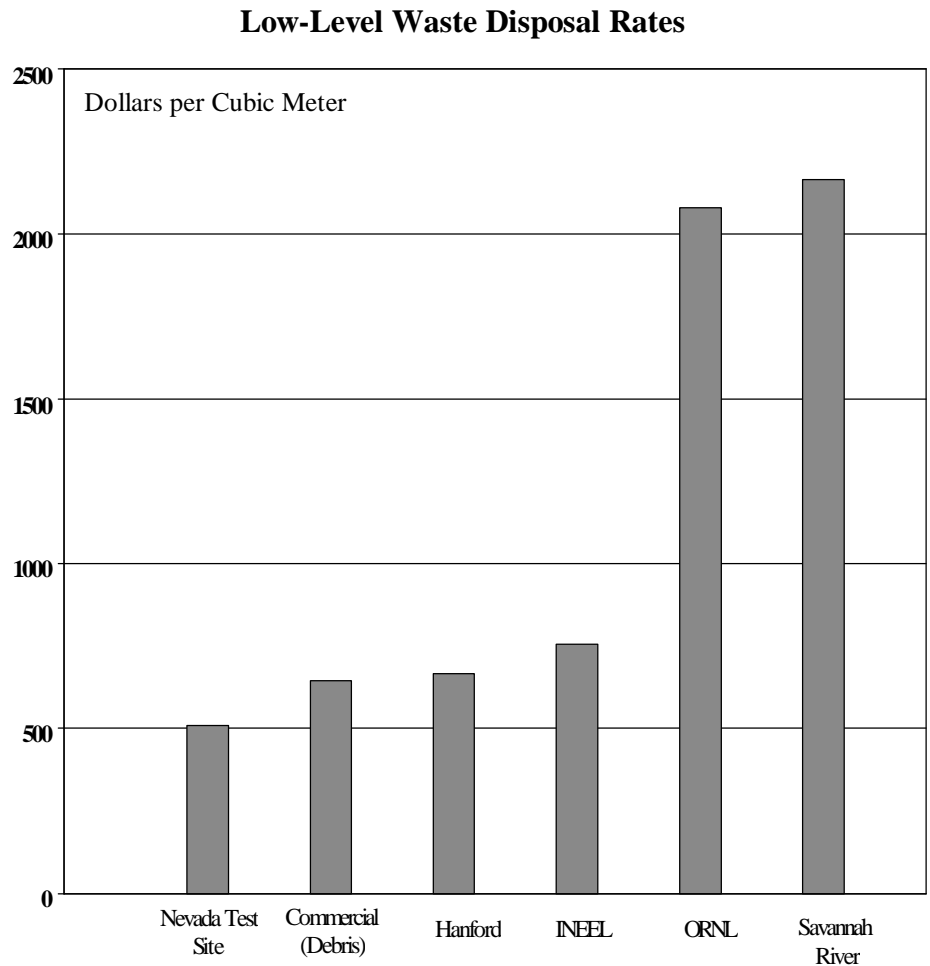
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**Prior Disposals of Low-Level Waste Were Not Always Cost-Effective**

Laboratory (ORNL) disposed of waste on-site when disposal off-site would have been more cost-effective. Rocky Flats disposed of low-level waste at Hanford when disposal at NTS or a commercial facility would have been more cost-effective.

Six of the Department's sites—Hanford, NTS, Idaho National Engineering and Environmental Laboratory (INEEL), ORNL, Savannah River, and Los Alamos National Laboratory (LANL)—maintained low-level waste disposal facilities. Hanford and NTS were Departmentwide disposal alternatives, and the other four sites could only dispose of waste that was generated on-site.

The following graph shows a comparison of the cost of disposal of low-level waste at a commercial facility and Departmental Waste Management disposal sites:



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As the graph illustrates, the disposal rate per cubic meter differs significantly for the five Departmental sites<sup>4</sup> and a commercial facility. The comparative disposal costs per cubic meter include only costs directly related to operating the disposal facility at each site. Excluded are overhead or support costs for operating the overall facilities. The commercial facility's rates are based on a contract available to all Federal agencies for the disposal of low-level waste.

After considering disposal rates, packaging, and transportation, we determined that three sites made uneconomic disposals. Between FYs 1993 and 1996, two sites disposed of low-level waste on-site when disposal at Hanford or a commercial facility would have been more cost-effective. ORNL disposed of 2,825 cubic meters in its Interim Waste Management Facility when disposal at Hanford would have resulted in a savings of \$3 million. Also, Savannah River disposed of 2,031 cubic meters in its Low Activity Waste Vaults when disposal at Hanford would have been more cost-effective, and could have resulted in a savings of \$2.2 million. ORNL and Savannah River could not dispose of the waste at NTS pending settlement of a lawsuit involving the State of Nevada. The third site, Rocky Flats, sent some of its waste to Hanford when disposal at NTS would have been slightly more cost-effective, resulting in a savings of \$39,000.

In the future, four sites have opportunities for more cost-effective disposals if NTS is used as a disposal destination instead of on-site disposal or disposal at Hanford. Savannah River, ORNL, Portsmouth, and Rocky Flats could save \$12.5 million in disposal costs over the next 5 years if NTS is used. In addition, these four sites could dispose of their waste at a commercial facility which would also result in significant savings.

Moreover, one of the Department's waste disposal facilities may not result in permanent disposal. The State of Tennessee Department of Environment and Conservation stated that ORNL's Interim Waste Management Facility, used to dispose of low-level waste, failed to meet the specified performance objectives for safety, and, as a consequence, some containers of waste had to be removed from the facility. As a

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<sup>4</sup>LANL was not included in the analysis because LANL performed a study in 1996 which concluded that off-site disposal was considerably more expensive than on-site disposal. We did not verify the conclusions of the LANL report.

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result, the Interim Waste Management Facility could not be categorized as a permanent disposal facility. The Defense Nuclear Facilities Safety Board (Defense Board) was also concerned about this subject. In Recommendation 94-2, the Defense Board stated that the Department's burial of low-level waste in some locations actually constitutes "nuclear waste storage" since inadequate emplacement may require later retrieval of the waste.

**Cost Was Only One of Many Factors the Department Had to Consider**

Departmental low-level and mixed waste disposal activities were generally not cost-effective because factors other than cost played an integral role in the Department's waste disposal strategy. According to Environmental Management officials, the process utilized by the Department to determine how and where to dispose of its low-level and mixed wastes generally was part of a decision on what action will be performed at a site, facility, or building that is either contaminated or contains legacy waste. Departmental officials informed us that from the outset of this process, the Department works closely with the local citizens and elected officials, as well as the regulators, disposal facility operators, and others in the commercial sector. We were told that this process requires the Department to: (i) analyze reasonable alternatives for the proposed action in concert with the stakeholders, including the related risks in health, technology, and schedule; and (ii) review reasonable alternatives for treatment, for storage and on-site disposal, or for transportation to a permitted off-site disposal facility, whether it is a Departmental facility or a permitted commercial disposal facility. Each alternative was influenced by additional factors related to specific sensitivities associated with the site and the waste. Environmental Management further stated that there are instances where these factors outweigh the simple cost comparison and when the Department may select an alternative which is not the cheapest, but is programmatically the most effective.

The Department reacted to these factors by placing less emphasis on cost and more emphasis on disposal at Departmental facilities. Specifically, the Department (1) developed a preference for on-site or Departmental disposal rather than off-site or commercial disposal, (2) did not establish a Departmentwide disposal site for mixed waste, (3) restricted shipments to NTS pending settlement of a lawsuit

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involving the State of Nevada, and (4) did not fully evaluate commercial disposal capabilities.

## Preference for Disposal at Departmental Facilities

Prior to 1979, the Department used commercial facilities for the disposal of its low-level and mixed waste. However, the Department then changed its policy and decided to rely primarily on its own facilities for disposal of waste, with only limited use of commercial facilities. According to Environmental Management officials, the Department made this change because operational and environmental problems were surfacing at some commercial disposal sites, and others were being closed to out-of-state wastes. Due to these events and to ensure an outlet for disposal, the Department made this change in policy.

In September 1988, Departmental Order 5820.2A, *Radioactive Waste Management*, was issued, stating that it was the Department's policy to dispose of low-level waste on the site at which the waste is generated, or at another Departmental facility. In the early 1990s, the Department granted exemptions to its policy on a case-by-case basis for small quantities of waste. However, site personnel believed that the exemption process was cumbersome, stating that it sometimes took a year to get approval to ship a small quantity of waste to a commercial facility. In an attempt to improve the process, the delegation of authority to grant exemptions from Order 5820.2A was passed to the field level in October 1996. However, the delegation of authority stated that it continued to be the Department's preference to dispose of waste at the Department's disposal facilities. Also, an update to Order 5820.2A (Draft Order 435.1), issued in March 1997, did not change the Department's preference for disposal at Departmental facilities. However, it did allow for disposal at commercial facilities when it is more cost-effective and in compliance with regulations and the waste-acceptance criteria for the facility.

Recent policy documents published by the Department reinforce the requirement to dispose of low-level waste at Departmental facilities. The Department's *Final Waste Management Programmatic Environmental Impact Statement*, issued in May 1997, did not consider commercial disposal to be an alternative. This document will serve as the basis for the Record of Decision concerning the disposal destination of low-level and mixed waste. Further, the Department's *Low-Level Waste Disposal Cost Comparison Report*, dated July 15, 1997, did not include commercial disposal costs in the analysis.

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In March 1998, the Department took an important step to change its disposal policy by publishing a Notice of Intent to Conduct Policy Analysis (Notice of Intent) in the *Federal Register*. The Notice of Intent encouraged the private sector to compete for the Department's low-level and mixed waste disposal business. According to Environmental Management officials, while the Department still primarily relies on its own facilities for disposal of low-level and mixed waste, the use of commercial disposal facilities has increased in recent years. The future use of commercial disposal facilities may occur as the Department proceeds with the cleanup of its sites and the volume of waste requiring disposal increases. These developments have generated increased interest in the commercial sector to compete for disposal of the Department's waste. The Department is interested in encouraging competition of this business, and determined that an analysis of its current policy which favors the use of its own facilities would be the proper course of action. The goal of the policy analysis is to assist the Department in determining whether it should change its policies or practices relating to the use of commercial facilities for the disposal of low-level and mixed waste. The Notice of Intent and a solicitation of public input for the policy analysis was published in the *Federal Register*, Volume 63, Number 53, Thursday, March 19, 1998.

The Notice of Intent was prompted by the receipt of two proposals from private entities that would have involved a departure from the standard requirement for private entities to have their own licenses to operate radioactive disposal facilities. The goal of the policy analysis was to determine whether to continue the use of existing disposal facilities with commercial licenses, pursue disposal options represented by either or both of the proposals, or change in other respects the Department's policies or practices relating to the use of commercial facilities for disposal of low-level and mixed waste.

The Department did not establish a Departmentwide site for the disposal of mixed waste. Hanford and NTS could only accept mixed waste generated on-site. Therefore, the other sites had no Departmental disposal option. Savannah River stated that it had no firm plans for future disposal and was waiting for the Department's decision on where disposal facilities will be located. However, as of March 1994, Departmental sites had the option to use a commercial facility because the Oak Ridge Operations Office awarded a Departmentwide contract to a commercial facility for the disposal of mixed waste from all sites. The Department restricted the use of NTS pending settlement of a

## **Mixed Waste Disposal Site**

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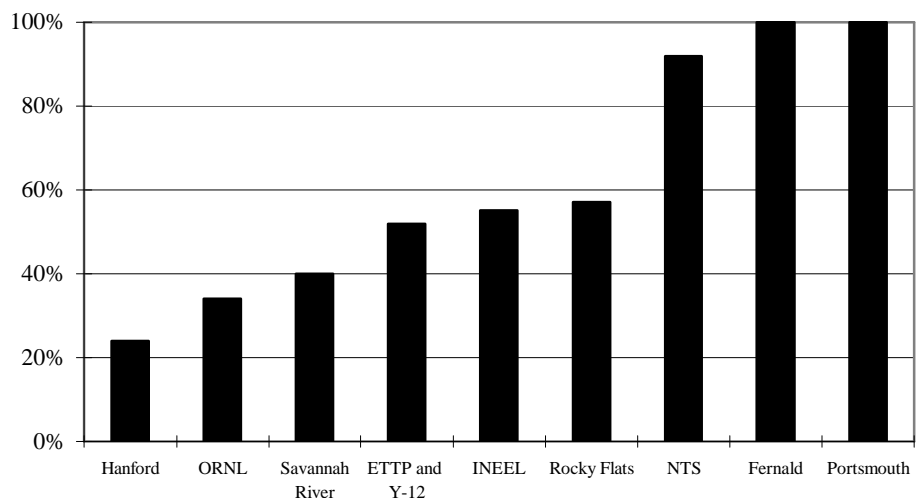
**Restricted Use of Nevada Test Site**

lawsuit. The State of Nevada (State) filed a lawsuit against the Department in June 1994. To address the State's concerns, the Department performed a Sitewide Environmental Impact Statement for NTS and issued the resulting Record of Decision in December 1996. The Record of Decision stated that the Department would restrict the disposal of low-level waste to those sites which had previously disposed of waste at NTS, pending decisions under the Department's Waste Management Programmatic Environmental Impact Statement (PEIS) and resulting Record of Decision. The Department settled the lawsuit in April 1997. The final PEIS on Waste Management was issued in May 1997. The Record of Decision is expected in December 1998.

**Sites Not Aware of Commercial Disposal Acceptance Criteria**

Some sites were not fully aware that they could dispose of significant portions of local low-level waste at commercial facilities. For example, ORNL officials believed that their waste could not be disposed of at a commercial facility because it contained special isotopes that would not be acceptable. However, we compared waste characterization information for past disposals and waste currently in storage at 10 Departmental sites with the waste acceptance criteria at the commercial facility, and determined that 25,920 cubic meters out of 57,002 cubic meters (45 percent) of the Department's low-level waste met the commercial facility's waste acceptance criteria. The Department's INEEL and Hanford sites performed their own analyses, on which we relied. The following graph shows the results of the comparison for each of the sites reviewed:

**Percent of Low-Level Waste Suitable for Disposal at a Commercial Facility**



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**Department Has  
Incurred Unnecessary  
Costs**

As a result of these conditions, the Department has not chosen the most cost-effective alternative for the disposal of much of its low-level and mixed waste. The Department could have avoided \$5.3 million on disposals of low-level waste at 3 sites between FYs 1993 and 1996. Also, the Department could avoid an additional \$12.5 million over the next 5 years by using NTS for future disposals of low-level waste.

Further, the audit disclosed that the Department incurred \$27.1 million to build low-level waste disposal facilities at Savannah River (Exhibit A) and Oak Ridge National Laboratory (Exhibit B) even though off-site disposal would have been more cost-effective. For example, if Savannah River's Low Activity Waste Vaults were used to capacity, the Department would spend \$73.4 million on low-level waste disposal. In comparison, the same amount of waste could be disposed of at a cost of \$29.5 million had Hanford been used for past disposals and NTS used for future disposals. Our analysis showed that the cost-effectiveness of operating the Interim Waste Management Facility at the Oak Ridge National Laboratory was similar. In the case of both Savannah River and Oak Ridge, we excluded the \$27.1 million in "sunk" construction costs from our analysis.



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**RECOMMENDATIONS**

We recommend that the Acting Assistant Secretary for Environmental Management:

1. Revise the Departmentwide strategy for disposal of low-level and mixed waste to include:
  - a. distribution of a list of Departmental and commercial disposal rates with a requirement for field offices to use the most favorable rates available as an integral factor in determining the best disposal path;
  - b. a Departmentwide policy for the disposal of mixed waste;
  - c. identification of low-level waste that can be disposed at commercial facilities;
2. Require justification and a cost-benefit analysis before constructing any additional on-site disposal facilities; and
3. Periodically evaluate sites' implementation of the Departmentwide strategy to ensure disposals are made in a cost-effective manner.

**MANAGEMENT REACTION**

Management concurred with the finding and recommendations stating that the Department will use the report as part of the structure it is developing to support the low-level and low-level mixed waste program. Also, management stated that they fully intend to utilize the report to increase the efficiency of the waste management program.

**AUDITOR COMMENTS**

We consider management's reaction to be responsive to the audit recommendations.

## Appendix

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### SCOPE

The audit was performed from September 10, 1996, to December 24, 1997, at Headquarters and the following 11 sites: Y-12 Plant, ETTP, and ORNL in Oak Ridge, Tennessee; Paducah Gaseous Diffusion Plant in Paducah, Kentucky; Portsmouth Gaseous Diffusion Plant in Piketon, Ohio; Fernald Environmental Management Project near Ross, Ohio; NTS near Las Vegas, Nevada; Hanford Site near Richland, Washington; INEEL in Idaho Falls, Idaho; Rocky Flats Environmental Technology Site in Golden, Colorado; and Savannah River Site near Aiken, South Carolina. The scope of the audit included inventories and disposals of low-level and mixed waste from FY 1993 through FY 1996. The scope was limited to "contact-handled" low-level waste and did not include "remote-handled" low-level waste. Costs of waste characterization varied significantly from site to site and were not included in our analyses. Also, the audit scope included some actual and budget cost data from FY 1997.

### METHODOLOGY

To accomplish the audit objective, we:

- Evaluated Departmental guidance for the storage and disposal of low-level and mixed waste;
- Determined the amount and destination of past disposals and current inventories at each site;
- Determined the cost of disposing of low-level waste at Departmental and commercial facilities;
- Compared waste characterization information for low-level waste from selected sites with waste acceptance criteria for Departmental and commercial disposal facilities;
- Toured five of the Department's six low-level waste disposal facilities; and
- Held discussions with Departmental, contractor, and commercial disposal personnel.

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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. Accordingly, we assessed significant internal controls related to the disposal of low-level and mixed waste. 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 relied on computer-generated data in waste management information systems to accomplish the audit objective. We reviewed the general and application controls and found them to be adequate. However, we did not test the implementation of the controls. Rather, we relied on reliability tests performed by site personnel and state regulators. Based on these assessments, we concluded that the data were sufficiently reliable to be used in meeting the audit objective. However, the Paducah Gaseous Diffusion Plant was excluded from the automated analysis because its database did not contain characterization information that was needed to perform the analysis.

We held an exit conference with the Acting Assistant Secretary for Environmental Management on July 30, 1998.

## Exhibit A

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### Savannah River Site Low Activity Waste Vaults



These low-level waste concrete disposal vaults were constructed in 1994 at a cost of \$24 million. The vaults hold 33,927 cubic meters of waste and were only at 8-percent capacity as of March 1997.

## Exhibit B

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### Oak Ridge National Laboratory Interim Waste Management Facility



This low-level tumulus facility was constructed between 1992 and 1995 at a cost of \$3.1 million. The facility holds 5,370 cubic meters of waste and was at 53-percent capacity as of October 1996.

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