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

Audit Report

The Department's Progress in Meeting Los Alamos National Laboratory Consent Order Milestones

DOE/IG-0793 April 2008

31639

Department of Energy
Washington, DC 20585

April 11, 2008

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "The Department's Progress in Meeting Los Alamos National Laboratory Consent Order Milestones."

INTRODUCTION AND OBJECTIVE

As early as 1943, Los Alamos National Laboratory began disposing of its hazardous waste in pits, trenches, shafts, and landfills. In March 2005, the Laboratory, the New Mexico Environment Department, and the Department of Energy signed a Consent Order to address the potential release of contamination from this waste. The Consent Order provides requirements and a timetable for environmental cleanup. The Department's Office of Environmental Management funds the work necessary to meet Consent Order requirements. The National Nuclear Security Administration is responsible, through its laboratory contractor, Los Alamos National Security, LLC, for managing and performing the work.

The Consent Order contains specific milestones designed to ensure that the characterization and remediation process is completed by 2015. Included in the Order are milestones for Areas L and G, which are located in Technical Area 54. The Department is required to complete and demonstrate the effectiveness of remediation actions for these sites by July 2011 and December 2015, respectively. Area G is the largest of Los Alamos' waste disposal areas and contains a significant amount of hazardous waste.

Although the Department met 54 of 56 milestone requirements that were to have been completed by September 30, 2007, it has acknowledged that it is behind schedule in completing work to meet several Fiscal Year 2008 milestones. Given this acknowledgement, we focused our review on evaluating the Department's progress toward completing long-term remediation actions.

RESULTS OF AUDIT

The audit disclosed that, absent a dramatic change in approach, it is unlikely that the Department will complete certain long-term remediation activities at Los Alamos in accord with existing requirements. Specifically, the Department has experienced delays in removing waste and facilities in Areas L and G, making it unlikely that remediation milestones established in the Consent Order for these areas will be met. Our finding at Los Alamos is consistent with a broader observation made recently by Department

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management that the agency would not meet some milestones and obligations contained in environmental agreements that have been negotiated over many years.

For Areas L and G at Los Alamos, we noted that the Department:

- Did not begin decontamination and decommissioning of 58 structures in Area G and six structures in Area L in 2007, as planned, and does not anticipate funding such work until FY 2011; and,

- Has experienced delays in removing high-activity transuranic waste from Area G, and, it may be forced to extend the removal schedule for all transuranic waste from 2012 to 2014 due to funding constraints.

Los Alamos officials indicated that it would take three years after removal of the transuranic waste to complete remediation work at Area G, making it unlikely that the Department will be able to meet the 2015 Consent Order milestone. Additionally, extending the schedule for the removal of all transuranic waste to 2014, gives the Department only one year to meet the Consent Order's 2015 milestone for Area G. The completion of the necessary work in one year is highly problematic.

The Department's ability to meet Consent Order milestones was adversely impacted because it had not:

- Ensured that the funding priority for decontamination and decommissioning work was consistent with priorities established for meeting Consent Order milestones; and,

- Fully identified the funding needed to carry out all the work necessary to meet the milestones until November 2007.

We noted that facility decontamination and decommissioning was ranked significantly lower in funding priorities than remediation at Los Alamos, despite the fact that remediation work cannot be completed until the decontamination and decommissioning of facilities is finished. Additionally, funding has not been sufficient, according to Department officials, to carry out all the work necessary to meet the requirements of the Order. Funding has been a major concern since 2005 when the Department signed the agreement. In fact, in 2005 the Los Alamos Site Office Manager wrote, that he had strong reservations that the appropriate resources had not been identified to fully execute the environmental restoration program needed to meet the requirements of the Consent Order.

We further noted that although Los Alamos had prepared cost estimates as early as 2005 for meeting the Consent Order milestones, the Department did not have a certified performance cost baseline to support its funding requests until November 2007. A certified baseline establishes the cost, schedule and contingency needed to meet the milestones requirements. Based on the November 2007 baseline, a projected funding shortfall exists each year through 2012. Additionally, the projected funding for Consent Order activities does not cover $947 million in "unfunded" contingencies.

Delays in completing the substantial remediation work associated with the Consent Order milestones may increase the risk of employee and public exposure to contaminants. Furthermore, such delays are likely to increase the cost of the overall environmental cleanup. To address this situation, we made recommendations to improve management of available funds and the schedule for meeting Consent Order milestones.

MANAGEMENT REACTION

Management officials from the National Nuclear Security Administration and the Office of Environmental Management concurred with the audit recommendations. Environmental Management acknowledged that its FY 2009 budget would not allow it to meet certain milestones contained in environmental agreements that have been negotiated with regulators, and some milestones will be missed regardless of funding. Management noted that some of the agreements were negotiated with incomplete knowledge of the technical complexity and magnitude of costs that would be involved.

Management further indicated that it has reason for optimism regarding the environmental clean-up effort at Los Alamos. It asserted that contractor and project performance have improved. As a result, two 'formerly at risk' milestones under the Consent Order have been met, and the rate of offsite shipment of the highest-activity mixed transuranic waste has increased. Management expressed the view that it now possesses the tools to work with the regulator to re-order work packages and set priorities to accomplish the clean-up objectives for the site. Management's comments are included in their entirety in Appendix 3.

cc: Acting Deputy Secretary
Under Secretary for Energy
Administrator for National Nuclear Security Administration
Assistant Secretary for Environmental Management
Chief of Staff
Manager, Los Alamos Site Office
Director, Policy and Internal Controls Management, NA-66

REPORT ON THE DEPARTMENT'S PROGRESS IN MEETING LOS ALAMOS NATIONAL LABORATORY CONSENT ORDER MILESTONES

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Consent Order Milestones

The Department of Energy (Department) is in jeopardy of not completing remediation activities in Areas L and G of Los Alamos National Laboratory's (Los Alamos) Technical Area 54, by 2011 and 2015, respectively, as required by the Consent Order. Specifically, the National Nuclear Security Administration (NNSA) has experienced delays in performing work that must be conducted in these areas before remediation activities can be completed.

NNSA did not begin the decontamination and decommissioning of 58 structures in Area G and 6 structures in Area L in Fiscal Year (FY) 2007 as scheduled. Until these structures are removed, the Department cannot fully perform remediation activities of the soil beneath them. The Office of Environmental Management (EM), which provides funding to meet Consent Order requirements, does not plan to fund the decontamination and decommissioning work until FY 2011. Since decontamination and decommissioning work is being delayed, the schedule for completing both prerequisite and Consent Order work for Area L may be compressed from five years to one year; and, the Area G schedule may be compressed from nine years to five years. NNSA has not revised the schedule baseline for meeting the Consent Order milestones to recognize the impact of the four-year delay in beginning the prerequisite decontamination and decommissioning work to meet the 2011 and 2015 milestones for Areas L and G remediation.

Additionally, NNSA experienced delays in removing high-activity transuranic waste located in Technical Area 54, Area G. In order to meet the 2015 Consent Order milestone, NNSA had planned to remove all transuranic waste from Area G by 2012. However, NNSA has prepared a draft schedule baseline change that would extend completing transuranic waste removal by two years until 2014 due to funding constraints. A two-year delay in removing all transuranic waste will further compress the schedule for completing remediation activities in Area G, since all transuranic waste would not be removed until only one year before the 2015 milestone. Further, Los Alamos officials indicated that it would take three years after removal of the transuranic waste to complete decontamination and decommissioning and construction of the engineered cap at Area G, making it unlikely that the Department will be able to meet the 2015 milestone for completing remediation of the site.

Management Issues

The Department is in jeopardy of not meeting Consent Order milestones because it had not ensured that the funding priorities for prerequisite work were consistent with priorities established for Consent Order milestones. Additionally, the Department had not fully identified the funding needed to carry out all the work necessary to meet the milestones until November 2007.

Funding Priorities

Funding priorities for prerequisite work such as decontamination and decommissioning were not consistent with the funding priority given to Consent Order remediation activities. EM uses a budget ranking process that is based largely on environmental risk to prioritize cleanup work within constrained funding limits. However, EM ranked Los Alamos' decontamination and decommissioning work at 96, while assigning a higher ranking of 56 to remediation activities. The facility decontamination and decommissioning was ranked significantly lower than remediation activities despite the fact that remediation activities cannot be completed until the decontamination and decommissioning work is performed. As a result of its relatively lower ranking, EM does not plan to fund decontamination and decommissioning work at Los Alamos until FY 2011. According to EM officials, facility decontamination and decommissioning represents a lower risk than other cleanup activities and, therefore, was ranked low in its funding priorities. As previously noted, the higher priority remediation activities work necessary to meet the 2011 and 2015 Consent Order milestones for Areas L and G cannot be completed until the existing structures are removed.

Funding

Funding to meet requirements has been a major concern since the Department signed the Consent Order in 2005. In February 2005, for example, NNSA's Los Alamos Site Office Manager stated that he had strong reservations that the appropriate resources had not been identified to fully execute the environmental management program needed to meet the requirements of the Consent Order.

According to EM officials, budget requests are based on balancing risk reduction and regulatory requirements within the fiscally constrained funding realities across the Federal government. This level of spending allows compliance with many high-priority obligations, as well as other high priority environmental management activities needed to avoid risk to human health or

national security. However, EM indicated that they do not have enough money to address all the milestones and obligations contained in environmental agreements that have been negotiated with regulators over many decades.

Despite these concerns, EM did not have a certified performance cost baseline necessary to support Los Alamos' funding requests until November 2007. The certified baseline establishes the cost, schedule, and contingency needed to meet the Consent Order milestones. Although Los Alamos had been working on a cost baseline as early as 2005, the Department's Office of Engineering and Construction Management (OECM) did not certify a cost baseline until November 2007 because of concerns about deficiencies in cost and schedule estimates, and contingency.

Further, the recently certified performance baseline identifies a projected funding shortfall each year through 2012 that peaks at a cumulative $236 million in 2010. We noted that this shortfall does not include an additional $947 million in unfunded contingency. According to the Department, the certified baseline means that the identified scope of work can be accomplished within the stated cost and completion date. However, OECM stated that this would occur only if the work projects are funded consistent with their respective cost profiles and contingency funds are provided as and when required. Furthermore, OECM pointed out that discrepancies between the current funding profiles and the stated project cost profiles must be resolved.

Risk and Cost

Delays in completing the prerequisite work and the subsequent impact on meeting Consent Order milestones may not only increase the cost of the overall environmental cleanup but may also increase the risk to employees and the public to exposure to contaminants. We noted that efforts in the past to recover the schedule have resulted in increased costs. For example, in 2007, EM experienced delays in performing the environmental characterization necessary to meet a 2008 Consent Order milestone. EM assigned additional resources to recover the schedule for completing the environmental characterization that could eventually increase costs by as much as $3 million. More importantly, delays in completing the environmental cleanup may increase the risk to public health and safety. Delays in meeting milestones may also adversely impact the Department's ability to work cooperatively with the New Mexico Environment Department toward achieving its environmental cleanup objectives.

RECOMMENDATIONS

We recommend that the Assistant Secretary for Environmental Management ensure that:

1. Funding priorities for prerequisite work and Consent Order milestones are consistent; and,

2. Discrepancies between the current funding profiles, the stated project cost profiles, and related contingency are resolved.

We also recommend that the Associate Administrator for Infrastructure and Environment, NNSA, ensure that schedules are updated for meeting Consent Order milestones that have been impacted by delays in removing all transuranic waste and performing the decontamination and decommissioning of facilities.

MANAGEMENT and AUDITOR COMMENTS

Management officials from NNSA and EM concurred with the audit recommendations. NNSA agreed to ensure that schedules are updated for meeting the Consent Order milestones. Similarly, EM agreed to ensure that funding priorities for prerequisite work and Consent Order milestones are consistent and that discrepancies between the current funding profiles, the stated project cost profiles and related contingency are resolved. However, EM recognized that their FY 2009 budget would not meet some of the milestones contained in all the environmental agreements negotiated over the many years. According to EM, incomplete knowledge of the technical complexity and costs involved, coupled with contractor performance issues impeded meeting the milestones and obligations contained in the environmental compliance agreements. Nonetheless, EM did indicate that it is now in a better position to have reason for optimism in the legacy cleanup at Los Alamos. Contractor and project performance has improved, which resulted in meeting two at risk Consent Order milestones. Further, there has been progress with the offsite shipment rate of the high activity transuranic waste and the baseline was recently certified for the integrated cleanup projects. Finally, EM believes it now possesses the tools to work with the regulator to re-order work packages and set priorities to accomplish the cleanup objectives for the site.

Management's comments are included in their entirety in Appendix 3.

OBJECTIVE

The objective of this audit was to evaluate the Department of Energy's progress in meeting Los Alamos National Laboratory Consent Order milestones.

SCOPE

The audit was performed between January 2007 and January 2008. We conducted work at Los Alamos National Laboratory, the Los Alamos Site Office, and the National Nuclear Security Administration (NNSA)/Office of Environmental Management (EM)/Department Headquarters in Washington, DC.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed the Consent Order, Project Execution Plan, Risk Management Plan, Fiscal Year 2007 Work Plan, Congressional Budget Requests, laws, regulations, contractual requirements, and policies and procedures relevant to the management of the environmental cleanup;
- Analyzed and compared Los Alamos baseline cost estimates to the Department funding targets;
- Reviewed the Office of Engineering and Construction Management baseline certification memorandum;
- Determined if baseline schedules, cost estimates, and contingency had been validated;
- Reviewed the draft transuranic waste baseline schedule;
- Reviewed transuranic waste removal status reports;
- Interviewed key personnel at Los Alamos National Laboratory, the Los Alamos Site Office, and NNSA/EM/Department Headquarters in Washington, DC; and,
- Reviewed results of prior audits and reviews.

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 findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and

conclusions based on our audit objectives. The audit 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. Also, we evaluated the Department's implementation of the Government Performance and Results Act of 1993 as they related to the audit objective. Our review did identify performance measures directly relating to Los Alamos' Environmental Management Program. Since we did not rely upon automated data processing information to accomplish our audit objective, we did not conduct an assessment of the reliability of computer processed data.

An exit conference was held with NNSA and EM officials on April 10, 2008.

RELATED AUDIT REPORTS

- *Transuranic Waste Management at Los Alamos National* Laboratory (DOE/IG-0673, February 2005). The Department of Energy (Department) was not meeting its commitments for removing transuranic waste from Los Alamos. Based on projections, the Department would complete removal of all high-risk waste in October 2005. However, the Department estimated that it was unlikely to complete removal of the legacy transuranic waste before 2014. The Department was not meeting the accelerated waste disposal goals because Los Alamos had not consistently followed approved waste processing procedures. Further, to meet the accelerated schedule, Los Alamos planned to use mobile waste processing equipment provided by the Department; however, the Department did not supply the equipment because of its' concern about Los Alamos' ability to use the equipment in a timely manner. We concluded that unless the Department accelerated the processing rates, the total cost of completing the waste disposition project would be increased by over $70 million.

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

March 14, 2008

MEMORANDUM FOR George W. Collard
Assistant Inspector General
for NNSA and Energy Audits

FROM: Michael C. Kane
Associate Administrator
for Management and Administration

SUBJECT: Comments to Draft Report on LANL Consent Order Milestones; A07LA007; 2006-31379

The National Nuclear Security Administration (NNSA) appreciates the opportunity to review the Inspector General's (IG) draft report, "The Department's Progress in Meeting Los Alamos National Laboratory Consent Order Milestones." We understand that since the Department recognized that it was in jeopardy of not meeting several Fiscal Year 2008 milestones, the IG focused their audit on the progress towards completing long-term remediation actions for major waste disposal sites by the July 2011 and December 2015 dates, as required by the Consent Order.

This report is directed towards the Office of Environmental Management and NNSA. The recommendation for NNSA is to ensure that schedules are updated for meeting Consent Order milestones that have been impacted by delays in removing all transuranic waste and performing the decontamination and decommissioning of facilities. NNSA agrees with the report and that recommendation. We will update schedules as appropriate as they relate to meeting Consent Order milestones.

Should you have any questions, please contact Richard Speidel, Director, Policy and Internal Controls Management.

cc: Alice Williams, Acting Associate Administrator
for Infrastructure and Environment
Frank Russo, Senior Advisor for Environment, Safety and Health
David Boyd, Senior Procurement Executive
Karen Boardman, Director, Service Center
Donald Winchell, Revitalization Manager, Los Alamos Site Office

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Department of Energy
Washington, DC 20585

MAR 2 8 2008

MEMORANDUM FOR GEORGE W. COLLARD
ASSISTANT INSPECTOR GENERAL FOR NNSA
AND ENERGY AUDITS
OFFICE OF THE INSPECTOR GENERAL

FROM: JAMES M. OWENDOFF
CHIEF OPERATIONS OFFICER
FOR ENVIRONMENTAL MANAGEMENT

SUBJECT: Draft Report on "The Department's Progress in Meeting Los Alamos National Laboratory Consent Order Milestones"

EM has reviewed the draft report "The Department's Progress in Meeting Los Alamos National Laboratory Consent Order Milestones" and EM agrees with the two recommendations outlined in the report based on the following comment:

The Administration recognizes that EM's FY 2009 budget request of $5.528 billion is based on, and would implement, an environmental management approach under which the Department would not meet some of the milestones and obligations contained in all of the environmental agreements that have been negotiated over many years with regulators. It is also important to recognize that some upcoming milestones will be missed regardless of the approach that is chosen and its associated level of funding. Moreover, some of the relevant agreements were negotiated many years ago, with incomplete knowledge by any of the parties of the technical complexity and magnitude of costs that would be involved in attempting to meet requirements. This incomplete knowledge, coupled with other issues including contractor performance, overly optimistic planning assumptions, and emerging technical barriers, also have impeded the Department in meeting all milestones and obligations contained in the environmental compliance agreements.

We are now in a better position to have reason for optimism in the legacy cleanup at LANL. Contractor and project performance at the site has improved through: the filling of key managerial positions in the cleanup program office; emphasis on project execution producing schedule recovery; and increased attention on safety and conduct of operations. This has resulted in meeting two formerly at risk milestones under the Consent Order and notable improvements in the rate of offsite shipment of the highest activity mixed transuranic waste stored above grade at the site. In addition, we have recently been able to certify the contractor's baseline for the integrated cleanup projects at the site. We are in the process of using this baseline to develop analytical building blocks (ABBs) that will allow us to analyze planned work modules that can tie to a compliant site cleanup program and budget.

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With this recent improved, sustainable performance in the legacy cleanup at LANL, an approved cleanup project baseline for the site, and the ABBs, I believe that we now possess the tools to work with our regulator to re-order work packages and set priorities to accomplish the cleanup objectives for the site.

If you have any questions or require additional information, please contact Mr. Mark Frei, Deputy Assistant Secretary for Program Planning and Budget, at 202-586-8754.

IG Report No. DOE/IG-0793

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