



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

Audit Report

Follow-up Audit Report on the
Department of Energy's
Performance of the Miamisburg
Closure Project

DOE/IG-0721

March 2006




Department of Energy

Washington, DC 20585

March 14, 2006

MEMORANDUM FOR THE SECRETARY

FROM:


Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: "Follow-up Audit Report on the Department of Energy's Performance of the Miamisburg Closure Project"

BACKGROUND

In May 2001, the Office of Inspector General reported that the Department of Energy's Miamisburg Closure Project contractor, BWXT of Ohio, Inc., would not complete the closure of the site under the cost and schedule requirements stipulated in the contract. In fact, the Department spent about \$497 million under that contract, about \$70 million more than the cost target, and site remediation was not completed. The Department decided to recompete the contract and in December 2002, it awarded a cost-plus-incentive fee contract for \$314 million to CH2M Hill Mound, Inc., with the intent of closing the site by March 31, 2006. According to the contract, all facilities were to be demolished or decontaminated and transferred to the Miamisburg Mound Community Improvement Corporation for industrial reuse. To date, the Department has transferred several parcels of land to the Miamisburg Mound Community Improvement Corporation.

The objective of this audit was to determine whether the Department will meet the revised schedule, cost and closure goals for the Miamisburg Closure Project. However, we were also interested in determining whether the Miamisburg experience provided any lessons learned for application to other Departmental closure efforts.

RESULTS OF AUDIT

As is described in detail in the body of the attached report, the Miamisburg Project is unlikely to achieve the Department's closure goals. Yet, we concluded that Project execution provided valuable information which has application to the success of other Department closure projects. Although additional work scope was the primary driver of cost increases and schedule delays at Miamisburg, we found that the Department had not adequately planned for work scope uncertainties that it was aware of before and after awarding the current contract. Specifically, the Department had not sufficiently quantified the risk posed by, or reserved contingency funds to cover, uncertainties such as increased:

- Employee pension costs; and,
- Soil volumes requiring remediation.



The audit disclosed that a February 2002 external review found that the Department should recognize the risk that employee benefit costs for the Miamisburg Project would be greater than estimated. The review included a recommendation that the Department be prepared to cover the costs with contingency funding. However, the Department did not establish a reserve to cover employee benefit costs, including increased pension costs, or other contingencies. As a result, in 2004 the Department was forced to redirect operating funds to pay for increased pension costs. These funds had been intended to finance the shipment of low-level waste from the site, part of a critical closure milestone. Because of the need to redirect the funds, project completion was further delayed.

We made several recommendations designed to mitigate the potential impact of pension costs and various other uncertainties on the cost and schedule success of closure projects. We have also provided recommendations specifically related to the management of the Miamisburg Closure Project.

MANAGEMENT REACTION

Management stated that it accepted all of the recommendations and agreed with certain findings of the report. Management's comments were generally responsive to the recommendations.

Management expressed its disagreement with the report's conclusion that the Department is unlikely to meet the established closure goals for the Miamisburg Closure Project.

We evaluated management's position on this matter, including a review of all related materials. We were not persuaded by management's argument based on the following factors. In its December 2005 estimate of the remaining work to be performed, the current contractor conceded that project completion was not anticipated until May 2007, a year past the contract target goal. During the exit conference, Department officials contended that they had not accepted the contractor's revised cost and schedule estimate. Nonetheless, the Department approved a baseline change that extended the schedule to September 30, 2006. However, even this change did not include the total work scope necessary to close the site. Thus, we continue to believe that an on-time completion of the closure effort is unlikely. It was our observation, however, that Department officials were making a concerted effort to achieve the Miamisburg Closure objectives.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment
Chief of Staff
Assistant Secretary for Environmental Management
Administrator, National Nuclear Security Administration

REPORT ON FOLLOW-UP AUDIT REPORT ON THE DEPARTMENT OF ENERGY'S PERFORMANCE OF THE MIAMISBURG CLOSURE PROJECT

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Site Closure

Schedule, Cost, and Closure Goals

The Department of Energy (Department) is unlikely to meet the established target schedule, cost, and closure goals for the Miamisburg Closure Project. Specifically, the contractor has indicated that it will not be able to meet its contract target to close the site by March 31, 2006, at a cost of \$314 million. Further, all remediation, regulatory, and transfer actions may not be completed by September 30, 2006, as intended by Congress in providing funding for accelerated closure.

In June 2005, the contractor advised the Department that the closure work would take an additional six months to complete (to September 30, 2006), at a revised cost of about \$373 million, which is an increase of over \$59 million. Also, the Department has requested \$32.8 million for cost increases outside of the contract for such items as pensions, medical, contract termination, litigation from previous contractors, and other costs.

In addition, the Department may not complete all of the remediation, regulatory, and transfer actions that are necessary by September 30, 2006. The contractor requested a reduction in its contract requirements for work which it believes are outside of its control. It is important to note that these items were originally included in the contract as deliverables that were expected as part of the \$314 million award. While the Department has not formally accepted the changes and they are subject to negotiation, the contractor has proposed that:

- Instead of nine facilities being transferred to the Miamisburg Mound Community Improvement Corporation for reuse they would be "prepared for transfer." The facilities were going to be transferred as part of the closure of the site. Instead, if the Department accepts the contractor's proposed change, it would be responsible for completing the transfer.
- Instead of a draft final site-wide Record of Decision (ROD) document submitted and formally accepted by the Department, the "last parcel Proposed Plan" would be submitted and accepted. The contractor seeks to use the last parcel transfer plan as the site summary document rather than the comprehensive final site-wide ROD required by the contract.

Ultimately, these two proposed actions may contribute to the delayed closure of the site.

Uncertainties Above Contract Limits

Although additional work scope resulted in increased costs and schedule delays, the Department did not sufficiently plan for uncertainties above contract limits that the Department was aware of prior to and after awarding the contract. Despite recommendations made by reviewers tasked by the Department to review the baseline, the Department did not require a sufficient quantitative risk analysis to help mitigate risk factors identified in the Request for Proposal and contract, including the risk of employee pension costs and soil volumes being greater than what it estimated in the baseline. Specifically:

- In February 2002, prior to the issuance of the Request for Proposal, an external review recommended that the Department recognize the potential risk of employee benefit costs being greater than what was estimated in the baseline and be prepared to cover the costs with a Department contingency. It further recommended that the Department separate employee benefit costs from the incentive fee basis, and treat them as flow through costs with a fixed fee.
- In the Request for Proposal and contract, the Department identified programmatic uncertainties within the statement of work, including the possibility that additional sites of potential contamination may be encountered during the site closure project, the uncertainty of pension liability funding increases, and estimated quantities of low-level waste to be removed impacting cleanup. However, the Department accepted the contractor's qualitative, rather than quantitative risk assessment for the uncertainties described. Therefore, the cost and schedule baseline did not include the impact of these risks and the impact would only be assessed as the uncertainties arose.
- Based on an external independent review of the contractor's baseline after the contract was awarded, it was recommended that the Department consider the potential for additional soil disposal volumes in its risk analysis and reserve funds to cover the risk.

Despite the uncertainties identified, the Department did not issue its Risk Reduction Plan to address the risks until September 2003, nine months into the contract. The Department quantified the cost of these risks at \$87 million with an increase of about two years to the schedule. However, the Department did not establish a risk reserve in order to address the uncertainties that subsequently arose. For example, due to increased pension payments, low-level

waste could not be shipped for disposal during 2004, but was instead accumulated at the site until additional funding was obtained. To further exacerbate the problem, as of June 2005, the estimate of soil volume had increased from 4.3 to 6.6 million cubic feet. Thus, rather than having contingency funding available as needed, the Department continues to ask Congress for additional funding in order to meet uncertainties as the work progresses.

Impact on Site Closure

Overall, the Department may spend at least \$476 million more for the total cleanup of the site than was estimated when remediation and closure efforts began in 1997. At that time, it was estimated that remediation and closure could be completed for \$427 million. Based on latest contractor estimates, the Department may spend at least \$903 million for this effort. Under the current contractor, the Department may spend at least \$59 million more and take longer than it planned to complete the Miamisburg Closure Project thus delaying its availability for full commercial use in March 2006.

RECOMMENDATIONS

We recommend that for any future site closure contracts, the Assistant Secretary for Environmental Management:

1. Ensure that future cost-plus-incentive fee closure contracts include all work scope and funding, including sufficient contingency to achieve site closure;
2. Ensure that proper risk analysis techniques are performed and implemented expeditiously to eliminate, avoid, or mitigate potential risks to achieving site closure according to set cost and schedule goals; and,
3. Separate employee benefit costs from the incentive fee basis.

We recommend that the Manager, Ohio Field Office:

1. Ensure that sufficient measures have or will be taken to mitigate cost and schedule increases as a result of additional increases in soil volumes beyond current estimates;
2. Ensure that all work scope and funding to achieve site closure is contained in the upcoming baseline change proposal;

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3. Ensure that risk mitigation strategies have been implemented to manage cost and schedule risk to achieve site closure by September 2006; and,
 4. Notify the Assistant Secretary for Environmental Management and Congress if the Fiscal Year 2006 closure deadline cannot be achieved.

**MANAGEMENT
REACTION**

The Office of Environmental Management (EM) stated that it accepted all of the recommendations and agreed with certain findings of the report. Management provided planned corrective actions on the recommendations. However, management disagreed with the report's conclusion that the Department is unlikely to meet the established closure goals for the Miamisburg Closure Project. Specifically, management stated that it would not delay commercial use of the site and would complete remediation of the site by February 1, 2008, as required by the sales agreement with the Miamisburg Mound Community Improvement Corporation. In addition, management stated that it could not replicate the Office of Inspector General's conclusion that the Department may spend at least \$903 million, a \$476 million increase above the previous contract estimate.

**AUDITOR
COMMENTS**

Management's comments are generally responsive to the recommendations. However, regarding management's disagreement with the report's conclusion, we noted that based on the contractor's December 2005 estimate of the remaining work to be performed, project completion is not anticipated until May 2007, more than seven months past the Congressional goal and a year past the contract target goal. During the exit conference, Department officials noted that they had not accepted the contractor's revised cost and schedule estimate and they were working toward negotiating a revised cost and schedule estimate within the coming months. Although management asserts that it will meet the February 2008 sales agreement date, we are concerned that management did not sufficiently plan to address uncertainties that the Department was aware of prior to and after awarding the contract. As a result, the Department will not meet either the March 2006 contract target closure date or the September 2006 goal for closure established by Congress in providing funding for accelerated closure. We believe that the need to plan for uncertainties, especially in establishing risk reserves, is an important lessons learned for future closure contracts. Finally, management provided the data which comprised the \$903 million

total project cost presented in the report. Specifically, the total project cost is comprised of \$497 million in previous contract costs, the current contractor's revised estimate of \$373 million, and \$32.8 million of other costs outside of the contract. Subsequent to the issuance of our Draft Report, the current contractor revised its estimate to \$403 million which increases the estimated total project cost to \$933 million.

Appendix 1

OBJECTIVE The objective of this audit was to determine whether the Department will meet established schedule, cost, and closure goals at the Miamisburg Closure Project.

SCOPE The audit was performed from July 2004 to October 2005 at the Ohio Field Office and Miamisburg Closure Project in Miamisburg, Ohio. The scope of the audit covered the Miamisburg Closure Project.

METHODOLOGY To accomplish the audit objective, we:

- Obtained and reviewed project documents for the Miamisburg Closure Project;
- Researched Federal and Departmental regulations;
- Reviewed findings from prior audit reports regarding closure sites;
- Reviewed the CH2M Hill Mound, Inc. contract with the Ohio Field Office;
- Reviewed the external independent reviews conducted by Burns and Roe Enterprises, Inc. on the Miamisburg Closure Project; and,
- Interviewed key personnel in the Ohio Field Office, the Miamisburg Site Office and CH2M Hill Mound, Inc.

The audit was conducted 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. We assessed compliance with the Government Performance and Results Act of 1993 related to the Miamisburg Closure Project and found that the Department had established and reported on performance measures associated with the project. 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 conduct a reliability assessment of computer-processed data because we did not rely on any computer processed information to achieve our audit objective.

Appendix 1 (continued)

An exit conference was held with Department officials from the Office of Environmental Management and the Environmental Management Consolidated Business Center on February 9, 2006.

RELATED AUDIT REPORTS

- *Closure of the Fernald Environmental Management Project (FEMP) (DOE/IG-0555, June 2002).* This report concluded that as of December 2001, only about 35 percent of cleanup activities required to achieve site closure had been completed, and the contractor's newest baseline estimate was that site closure would not be achieved until December 2009. The audit disclosed that the Department did not seek an adequate funding level to ensure closure in 2006, nor had the Department and the contractor inserted necessary requirements in the relevant contractual instrument to effectuate a 2006 closure. Any delays in site closure would have an obvious impact on the safety and health risks at FEMP. Further, the Department could incur about \$152 million in additional infrastructure support costs at the site if closure is completed in 2009 rather than 2006 as planned. The audit recommended that the Department align its funding requests and seek to modify the contract, as appropriate, to achieve closure in 2006.
- *Remediation and Closure of the Ashtabula Environmental Management Project (AEMP) (DOE/IG-0541, January 2002).* This report concluded that the remediation of the AEMP is not on schedule to be completed by March 31, 2003. In fact, RMI's (the contractor-RMI Titanium Company's Earthline Technologies Division) latest estimate for project completion was Fiscal Year (FY) 2012. The project was behind schedule because (1) the Department did not fully fund the project; (2) RMI did not follow the approved decommissioning plan; (3) the Department did not hold RMI accountable for the lack of progress in site remediation; and, (4) the Department did not require compliance with the terms of the contract. As a result, site workers and the public would be exposed to additional health and safety risks, and the Department could incur up to \$67 million in unnecessary costs and fees to keep the site open until FY 2012. Additionally, auditors identified about \$4.9 million in questionable contract costs billed by RMI and reimbursed by the Department.
- *Remediation and Closure of the Miamisburg Environmental Management Project (MEMP) (DOE/IG-0501, May 2001).* This report found that under the contractor's (BWXT of Ohio, Inc.) current schedule, it would not meet the cost and schedule provisions of its contract with the Department. In fact, the latest estimate for project completion was December 2009. MEMP would not be closed on schedule because the Department and the contractor committed to a project completion date without knowing whether the date was achievable. The date was established with limited knowledge of soil and building contamination at the site. In addition, the contractor did not develop a valid baseline to effectively manage the project. Consequently, the estimated cost to complete the closure of MEMP had grown from \$427 million to over \$1 billion, including \$148 million in infrastructure costs to keep the site open through 2009. As a direct consequence of the overall delay in completion of remediation activities, the MEMP facilities would not be available for commercial use in October 2005 as planned.

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United States Government

Department of Energy

memorandum

DATE: January 11, 2006

REPLY
TO
ATTN OF EM-43 (Sunil Patel, 301-903-7964)

SUBJECT: Draft Audit Report on "Follow-up on the Department of Energy's Performance of the Miamisburg Closure Project"

TO: George W. Collard, Assistant Inspector General for Performance Audits, U.S. Department of Energy Office of Inspector General

We appreciate the opportunity to review the draft Office of Inspector General (IG) audit report on "Follow-up on the Department of Energy's Performance of the Miamisburg Closure Project." Your report provides two sets of recommendations, a total of seven recommendations in all to improve meeting the performance objectives and goals. Three recommendations are provided to the Office of Environmental Management (EM) for site closure contracts. Four recommendations are provided to the Manager, Department of Energy's Ohio Field Office, for Miamisburg Closure Project. We accept all recommendations and agree with certain findings of your report. Our planned corrective actions on your recommendations are attached. We have also included specific comments where we disagree on the specific language of your draft Memorandum for the Secretary and of findings in your draft report (Attachment). EM requests the attached comments not be released at this time since some of the information is procurement sensitive. This information will be used in negotiations with the contractor by the Department. The information can be released after the settlement with the contractor.

If you have any further questions, please call me at (202) 586-7709 or James Fiore, Acting Deputy Assistant Secretary, Office of Performance Intelligence and Improvement, at (202) 586-1665.



Charles E. Anderson (Acting)
Assistant Secretary for
Environmental Management

Attachment

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