

DOE/IG-0501

AUDIT
REPORT

REMEDICATION AND CLOSURE
OF THE MIAMISBURG
ENVIRONMENTAL
MANAGEMENT PROJECT



MAY 2001

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



DEPARTMENT OF ENERGY
Washington, DC 20585

May 2, 2001

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman (Signed)
Inspector General

SUBJECT: INFORMATION: Audit Report on "Remediation and Closure of the
Miamisburg Environmental Management Project"

BACKGROUND

With the end of the cold war, the Miamisburg Environmental Management Project (MEMP), formerly known as the Mound Plant, was transferred by the Department of Energy (Department), from Defense Programs to Environmental Management. The emphasis at MEMP is now accelerated cleanup and transition of facilities and property to the local community. Congress requires the Department to request adequate funding to keep the project on schedule for closure by 2006 or earlier. Under these provisions, any savings resulting from the accelerated closure of the MEMP can be retained and used for cleanup activities at other Department closure sites.

In August 1997, the Department awarded a cost-plus-award-fee contract to BWXT of Ohio, Inc. (BWXTO) for remediation and closure of the MEMP. BWXTO was awarded the contract based on its technical superiority over other bidders. The contract required BWXTO to complete remediation, transfer the site to the community, and exit the site no later than September 30, 2005, at an estimated cost of \$427 million. As of January 31, 2001, BWXTO had incurred \$306.9 million for the project.

The objective of the audit was to determine whether BWXTO is on schedule to complete remediation and exit the site no later than September 30, 2005.

RESULTS OF AUDIT

We found that under BWXTO's current schedule, it will not meet the cost and schedule provisions of its contract with the Department. In fact, the latest estimate for project completion is December 2009. MEMP will not be closed on schedule because the Department and BWXTO 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, BWXTO did not develop a valid baseline to effectively manage the project. Consequently, the estimated cost to complete the closure of MEMP has 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 will not be made available for commercial use in October 2005 as planned.

MANAGEMENT REACTION

Management concurred with the finding and recommendations and initiated corrective action. Management stated that despite schedule growth due to scope changes, and changes in funding assumptions, the site is still expected to close several years ahead of the original timeframe (2025) under original cost estimates (\$3.1 billion). We acknowledge that scope modifications and the limited knowledge of contamination levels have contributed to the changes in schedule and cost. Although Management stated that funding assumptions changed, it provided no evidence that funding received was significantly less than was anticipated in the contract.

Attachment

cc: Acting Assistant Secretary for Environmental Management

REMEDIATION AND CLOSURE OF THE MIAMISBURG ENVIRONMENTAL MANAGEMENT PROJECT

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OVERVIEW

INTRODUCTION AND OBJECTIVE

The Miamisburg Environmental Management Project (MEMP), formerly known as the Mound Plant, is a Government-owned, contractor-operated facility located on about 306 acres in Miamisburg, Ohio. With the end of the Cold War, the facility was transferred from Defense Programs to Environmental Management, with emphasis on accelerated cleanup and transition of facilities and property to the local community. The Department of Energy (Department) plans to redirect the site's advanced manufacturing capabilities and facilities to the private sector for commercial use.

Congress has provided funding to the Department for the accelerated cleanup and closure of the MEMP. Specifically, Congress requires that the Department request adequate funding to keep the project on schedule for closure by 2006 or earlier. Congress intended for any savings resulting from early closure of the MEMP to be retained and used for cleanup activities at other closure sites.

In August 1997, the Department's Ohio Field Office awarded a cost-plus-award-fee contract to BWXT of Ohio, Inc. (BWXTO) for the remediation and closure of the MEMP. BWXTO was awarded the contract based on its technical superiority over other bidders. The request for proposals encouraged bidders to complete the project in the shortest achievable timeframe, and required that the site be remediated and transferred to the Miamisburg Mound Community Improvement Corporation no later than September 30, 2005. The contract required completion and exit no later than September 30, 2005, at an estimated cost of \$427 million.

The objective of the audit was to determine whether BWXTO was on schedule to complete remediation and exit the site no later than September 30, 2005, as required by the contract.

CONCLUSIONS AND OBSERVATIONS

BWXTO was not on schedule to complete remediation and exit the site by September 30, 2005. In fact, BWXTO's latest estimate to complete the project was December 2009. The September 2005 deadline will not be met because the Department and BWXTO committed to a project completion date without knowing whether the date was achievable. Additionally, BWXTO did not develop a valid baseline to effectively manage the project. As a result, the estimated cost to complete the project has grown from \$427 million to over \$1 billion, including \$148 million in infrastructure costs to keep the site open through 2009,

and the facilities will not be made available for commercial use in October 2005 as planned.

Three prior Office of Inspector General audits have identified similar concerns. Report DOE/IG-0489, *Americium/Curium Vitrification Project at the Savannah River Site*, determined that the Department committed to stabilizing its Americium/Curium solution by September 2002, without knowing whether the date was achievable. Also, Report DOE/IG-0456, *Management of Tank Waste at the Department's Hanford Site*, concluded that the Department did not have a valid baseline for managing the project. In addition, Report DOE/IG-0476, *Best Practices for Environmental Management Baseline Development*, highlighted instances of baselines that were incomplete, contained duplicate costs, were not properly updated, or contained outyear costs that were not supported.

This audit identifies significant issues that management should consider when preparing its yearend assurance memorandum on internal controls.

Signed
Office of Inspector General

REMEDIATION IS BEHIND SCHEDULE

BWXTO Was Not on Schedule to Close the Site

BWXTO was not on schedule to complete remediation and exit the site by the September 30, 2005, date, as required in its contract with the Department. In fact, as of the date of completion of our field work, BWXTO had a target completion date of December 2009, four years beyond the completion and exit dates in the contract and almost seven years beyond BWXTO's commitment in its final bid proposal. Further, under the current BWXTO target schedule, total costs will increase to an estimated \$1.1 billion.

In addition to its target schedule, BWXTO has developed other scenarios with possible project closure dates, depending on the level of funding and various site operating assumptions. For example, one scenario would yield a December 2006 completion date, assuming unconstrained funding and changed practices across the site. Specifically, tritium release limits would be increased ten-fold. This scenario increases the estimated total costs to \$958 million. Another example would assume level funding at around \$90 million with no change in site operating procedures. This scenario would result in a December 2018 completion date and increase total project costs to over \$2 billion.

Congress Expects the Site to be Closed By 2006

Congress provides funding to the Department for the accelerated cleanup and closure of the MEMP. Specifically, Public Law requires the Department to request adequate funding to keep the project on schedule for closure by 2006 or earlier. Congress intended for any savings resulting from early closure of the MEMP to be retained and used for cleanup activities at other closure sites.

In accordance with the Government Performance and Results Act of 1993, the Department's *Annual Performance Plan for Fiscal Year (FY) 2001* states that the project will be completed by 2006, and BWXTO's contract requires completion by September 30, 2005, based on funding of \$92 million per fiscal year.

Commitment Was Made Without Sufficient Planning

The September 2005 deadline will not be met because (1) the Department and BWXTO committed to a project completion date without knowing whether the date was achievable, and (2) BWXTO did not develop a valid baseline to effectively manage the project.

Insufficient Knowledge

In August 1997, the Department committed to the September 2005 deadline without knowing whether the deadline was achievable. The Department established the deadline with limited knowledge of soil and

building contamination at the site. The Department is not using the traditional Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) approach to characterize the nature and extent of contamination at its closure sites. Under the CERCLA approach, the Department would perform samples, tests, and investigations to identify the nature and extent of contamination at the site and recommend a preferred course of action for regulatory agencies' approval before any remedial work would begin. At the MEMP, the Department relies on a team of representatives from the Department and Federal and state environmental protection agencies to evaluate potential site contamination and recommend the appropriate course of remedial action as the remediation of facilities progresses. While this new approach may allow cleanup to begin sooner than it would have using the traditional approach, it limits the Department's ability to plan and anticipate problems during the actual site cleanup. At the time the contract was awarded, 407 potential contamination sources had been identified. However, as of February 2001, BWXTO had identified 31 additional potential contamination sources. Had the traditional CERCLA approach been used, the Department might have identified the 31 additional contamination sources before cleanup began.

Also, an independent consultant reported in 1999 that the existing characterization information for contaminated buildings primarily consisted of a historical compendium of information derived from documentation and interviews with current and past personnel with limited physical sampling and analysis. The report stated that practically no subsurface sampling data existed for soils beneath the buildings considered highly contaminated. The report warned that considerable uncertainty existed regarding the nature and extent of soil contamination, and that the volume of soil requiring removal or treatment could be significantly higher than anticipated.

Inadequate Baseline

BWXTO's original baseline submittal could not be validated because it was based on outdated and inaccurate information. The U. S. Army Corps of Engineers' review team observed that the original baseline document, submitted for validation 105 days after contract award, essentially represented the information contained in the contractor's best and final offer, and was not updated to reflect site conditions the contractor was aware of after the award. In fact, BWXTO project managers considered the original baseline submittal

out-of-date, inaccurate, and of little or no value as a management tool.

BWXTO resubmitted its baseline for validation in July 1998. Once again, the baseline could not be validated, in part, because numerous findings previously identified by the U.S. Army Corps of Engineers were only partially addressed or not addressed at all. Further, the baseline lacked backup and support for cost estimates.

BWXTO's final baseline submittal was not validated until December 1998, about 15 months after the contract was awarded. Then, about six months after the baseline was validated, BWXTO and MEMP acknowledged that three segments of the critical path were already behind the baseline schedules.

In June 1999, BWXTO submitted a recovery schedule for the critical path to the Department. In July 1999, the Department evaluated this recovery schedule and determined it to be inadequate. The Department noted that the recovery plan was not resource loaded, cost data was not sufficient to conclusively determine the feasibility of the plan, and it was based on aggressive assumptions. As of February 2001, the Department and BWXTO were still in the process of negotiating the terms of a baseline change proposal to address these critical issues. The proposal was estimated to increase the cost of the project to over \$1 billion dollars and extend the scheduled date of completion to December 2009 or beyond.

Additional Funding Needed for Site Closure

As a result of not meeting its September 2005 commitment for site closure, the estimated cost to complete the project has grown from \$427 million to over \$1 billion, including \$148 million in infrastructure costs to keep the site open through 2009, and the facilities will not be made available for commercial use in October 2005 as planned.

RECOMMENDATIONS

We recommend that the Deputy Assistant Secretary, Office of Site Closure:

1. Determine the most realistic completion date and level of funding necessary to complete remediation, and notify Congress; and,
2. Ensure that projected completion dates and funding requests for future projects are based on a current, accurate, and complete baseline.

We recommend that the Manager, Ohio Field Office:

1. Require BWXTO to prepare a complete and accurate baseline that reflects current site conditions and assumptions, and submit it for Departmental review as soon as possible;
2. Ensure that baseline change proposals are submitted, evaluated, and approved in a timely manner; and,
3. Use cost and schedule baselines to establish performance measures for evaluating contractors' performance.

MANAGEMENT REACTION

Management concurred with the finding and recommendations and agreed to initiate corrective actions. Management stated that BWXTO is developing a revised baseline to reflect current site conditions, project scope, and assumptions. The revised baseline is due to the Department for review and validation by June 2001. The revised baseline will be evaluated and acted upon in a timely manner. Once the baseline is properly reviewed and validated, the Department will notify Congress of the new completion date and the reasons therefor.

Management stated that the report does not accurately summarize the current status of cleanup nor some of the major root causes that lead to the current baseline status. In 1995, the MEMP contract was selected to be prototypical of Department contracts in relation to closure sites. As such, the Department's policy was to challenge conventional plans, despite major areas of uncertainty, in order to streamline the cleanup so that land and buildings could be returned to productive use. Despite schedule growth due to scope changes, and changes in funding assumptions, the site is still expected to close several years ahead of the original timeframe (2025) under original cost estimates (\$3.1 billion). Significant visible progress has been achieved that includes demolishing, removing, or transferring over 40 percent of the buildings to the Miamisburg Mound Community Improvement Corporation (MMCIC). Within a few months, 43 percent of the land will have been transferred to MMCIC. The Department has learned valuable lessons from the MEMP contract experience.

AUDITOR COMMENTS

Overall, management's comments were responsive to the finding and recommendations. Although management stated that funding assumptions changed, they provided no evidence that funding received was significantly less than what was anticipated in the

contract. While we acknowledge that changes in scope have increased the project's schedule and cost, the limited knowledge of contamination levels contributed to the increases.

We agree that progress has been made in areas with minimal contamination and easily removed legacy waste. However, the buildings and land that have been, or will shortly be, transferred do not include any of the contaminated buildings and soils on the project's critical path.

Appendix

SCOPE

The audit was performed from August 7, 2000, to February 20, 2001, at the Ohio Field Office and Miamisburg Environmental Management Project (MEMP) in Miamisburg, Ohio, and Department headquarters in Washington, D.C. The scope of the audit included costs incurred at the MEMP between August 1997 and February 2001.

METHODOLOGY

To accomplish the audit objective, we:

- Examined the terms and conditions in the Department's contract with BWXT of Ohio, Inc. (BWXTO);
- Reviewed funding for the Defense Facility Closure Projects;
- Reviewed baseline validation reports prepared by the U.S. Army Corps of Engineers regarding the MEMP baseline;
- Evaluated compliance with the Government Performance and Results Act of 1993;
- Reviewed *Independent Review and Assessment of the Miamisburg Environmental Management Project*, prepared by Hill International;
- Analyzed infrastructure costs projected for the project from FYs 2006 through 2010; and,
- Interviewed Departmental and contractor personnel regarding the status of the MEMP remediation project.

The audit was performed in accordance with generally accepted government auditing standards for performance audits and included test of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Accordingly, the assessment included reviews of costs incurred on the project from August 1997 through February 2001. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of the audit. Computer processed data was not used, and therefore, we did not perform any tests on the data.

Management waived an exit conference.

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