

memorandum

DATE: August 16, 2006 Audit Report Number: OAS-L-06-17

REPLY TO
ATTN OF: IG-36 (A06ET010)

SUBJECT: Audit of the "Molten Salt Reactor Experiment Cleanup Project"

TO: Manager, Oak Ridge Office

INTRODUCTION AND OBJECTIVE

In July 1998, the Department signed a Record of Decision with the Tennessee Department of Environment and Conservation, and the U.S. Environmental Protection Agency for the Molten Salt Reactor Experiment Facility. The objective of the Record of Decision was to select the action for removing fuel and flush salts from the reactor in order to reduce the potential risk from the highly radioactive salt. The removal process encompassed melting the salt mixture, separating the uranium from the salts, and transferring the uranium oxide to the national Uranium-233 repository at the Oak Ridge National Laboratory for interim storage. The Record of Decision required completion of the remedial action by February 2003 and the submittal of a Remedial Action Report to the regulators by May 2003.

From Fiscal Years 1999 through 2003, the Department spent about \$67.7 million on the remediation of the facility under a contract with Bechtel Jacobs Company, LLC (Bechtel Jacobs). Bechtel Jacobs' October 2003 accelerated environmental cleanup contract included a baseline value of \$29.7 million for the remaining remedial action work scope. However, Bechtel Jacobs internally re-baselined the project in May 2004 to complete the remedial action by December 2005 at a cost of \$22 million. In November 2005, Bechtel Jacobs submitted a comprehensive baseline change proposal which adjusted the baseline to \$32.7 million to make it more indicative of the true scope and schedule. This baseline change proposal was conditionally approved in December 2005. The date for submitting the Remedial Action Report, a Federal Facility Agreement milestone, was subsequently delayed to September 2006 per agreement with the regulators.

We conducted this review to determine whether the Molten Salt Reactor Experiment Cleanup Project is on schedule and within budget.

CONCLUSIONS AND OBSERVATIONS

We found that the Molten Salt Reactor Experiment Cleanup Project is not on schedule and within budget. Specifically, as of the May 2006 performance summary report, the contractor estimates that:

- Submittal of the Remedial Action Report will not be until January 2007, more than three months after the current agreed upon date with the regulators; and
- Project costs have increased to \$37 million, or \$15 million more than the May 2004 re-baselined project estimate.

While we recognize that the cleanup of the Molten Salt Reactor Experiment Project presents unique cleanup challenges, we believe a significant portion of the schedule delays and cost increases were attributable to equipment failures that were not adequately addressed by the contractor earlier in the project or when the project was re-baselined in May 2004. For example, according to the contractor, the need to develop an alternative salt transfer design was not recognized until the summer of 2005 after it was determined that the transfer line for the initial fuel flush tank was plugged and that an alternate flow pathway was required. However, as early as November 1996 during early remediation actions of the project, blockages were confirmed in other areas of the piping system. Despite this information, the Department did not formally evaluate installing new salt transfer lines during the design evaluation of salt transfer alternatives or sufficiently plan for the possibility that plugs in the existing transfer lines could not be cleared.

The weaknesses noted in this report are not unique to this project. In our recent follow-up report on the *Department's Performance of the Miamisburg Closure Project* (DOE/IG-0721, March 2006), we noted that the Department did not sufficiently plan for work scope activities that it was aware of early in the project or quantify the risk posed by the work scope uncertainties. We recommended that for future projects, the Office of Environmental Management perform and implement proper risk analysis techniques to eliminate, avoid, or mitigate potential risks to achieving site closure according to set cost and schedule goals. The Acting Assistant Secretary for Environmental Management concurred with the recommendation and proposed acceptable corrective action. As such, no additional recommendations are being made in association with this report. However, we believe that this report reaffirms the importance of ensuring that the corrective actions agreed to by management are carried out.

SCOPE AND METHODOLOGY

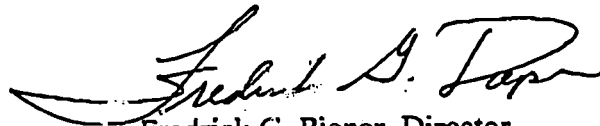
The audit was performed from November 2005 through July 2006, at the Department's Oak Ridge National Laboratory and Oak Ridge Office in Oak Ridge, Tennessee. The audit scope was limited to the Molten Salt Reactor Experiment Cleanup Project conducted by Bechtel Jacobs from 1999 to 2006. To accomplish the audit, we obtained and reviewed documents relating to the remedial action, including the Record of Decision and monthly project status reports; reviewed cost data; and, interviewed key Bechtel Jacobs and Department personnel.

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 evaluated the Department's implementation of the *Government Performance and Results Act of 1993* and determined that although the Molten Salt Reactor Experiment Project did not have specific performance measures, it was part of a larger program that had performance measures. 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, 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 officials from the the Oak Ridge Office on August 8, 2006.

We appreciate the cooperation of your staff during our review. Because no formal recommendations are being made in this letter report, a formal response is not required.



Fredrick G. Pieper, Director
Energy, Science, and Environmental
Audits Division
Office of Inspector General

cc: Assistant Secretary, Office of Environmental Management, EM-1
Team Leader, Audit Liaison Team, CF-1.2
Audit Liaison, Office of Environmental Management, EM-33
Audit Liaison, Oak Ridge Office, FM-733