



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

# Audit Report

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## Decommissioning and Demolition Activities at Office of Science Sites



OAS-RA-L-10-05

August 2010

# Memorandum

DATE: August 12, 2010

Audit Report Number: OAS-RA-L-10-05

REPLY TO

ATTN OF: IG-32 (A10RA005)

SUBJECT: Audit Report on "Decommissioning and Demolition Activities at Office of Science Sites"

TO: Deputy Director for Field Operations, SC-3  
Manager, Brookhaven Site Office  
Manager, Argonne Site Office

## INTRODUCTION AND OBJECTIVE

In February 2009, the President signed the American Recovery and Reinvestment Act of 2009 (Recovery Act) into law. The Department of Energy's (Department) Office of Environmental Management (EM) allocated \$140 million of Recovery Act funds to decommission and demolish (D&D) Office of Science facilities at Argonne National Laboratory (Argonne) and to accelerate ongoing D&D activities at Brookhaven National Laboratory (Brookhaven). D&D activities funded at Argonne included the demolition of Buildings 330 and 310, the removal of wastes and nuclear material from another building, and the removal of the majority of the remote-handled and contact handled transuranic waste from the Argonne site. Brookhaven's D&D activities included decontamination of the High Flux Beam Reactor (HFBR) and demolition of its related buildings and waste lines, and the removal and disposal of the graphite and biological shield from the Brookhaven Graphite Research Reactor (BGRR).

Due to the significant investment in these projects and the emphasis placed on Recovery Act funding, we initiated this audit to determine whether the Office of Science (Science) had established effective controls over the use of Recovery Act funds used for D&D activities at Argonne and Brookhaven and had achieved its objectives for the D&D projects.

## CONCLUSION AND OBSERVATIONS

Nothing came to our attention which indicated that Science had not substantially complied with Recovery Act requirements in expending funds for the Argonne and Brookhaven D&D projects. For example, we found that the laboratories were generally in compliance with reporting guidelines, had segregated costs, and had ensured that Recovery Act requirements were included in subcontracts. While we noted some concerns with the BGRR project at Brookhaven and the Building 310 project at Argonne, we also determined that the Department had taken actions to mitigate the concerns.

### BGRR Project at Brookhaven

Estimated project completion costs for Brookhaven's BGRR Project have increased and the estimated completion dates for many critical path milestones have slipped from the original project baselines. Specifically, estimated project completion costs have risen from \$108 million in February 2008 to \$120 million as of March 2010. Additionally, Brookhaven officials estimate that the scheduled completion date for the project has slipped 17 months, from April 2010 to September 2011.

The cost increases and schedule slippages were largely attributable to problems encountered by the subcontractor Brookhaven hired to perform the work at the BGRR. The subcontractor experienced significant delays due to design issues with the equipment needed to remove and dispose of the graphite and biological shield at the BGRR, problems that eventually led to a Request for Equitable Adjustment. Brookhaven paid the subcontractor \$4.3 million to settle the claim in an effort to mitigate further cost and schedule consequences. Subsequently, Brookhaven paid the subcontractor another \$1.7 million related to the initial work. Brookhaven officials told us they considered the BGRR project a turnkey operation, since they awarded a fixed-price subcontract that included a performance specification for the work to be performed. Laboratory officials also stated that there was poor communication between them and the subcontractor, a fact that was reinforced by the fact that Brookhaven was unaware of the extent of the cost and schedule issues until the subcontractor submitted its Request for Equitable Adjustment. The lack of knowledge of the extent of the problems encountered by its subcontractor meant that Brookhaven was unable to mitigate cost and schedule consequences at an early point.

### Building 310 D&D Project at Argonne

Our review of the Building 310 project at Argonne found that the scope of the project had changed from what was originally proposed. The original Building 310 D&D plan called for the entire building, including the foundation and footers, to be removed and disposed of. However, initial soil samples around the building found trace amounts of radioactive materials. Since the original plan required disposal of the soil around the foundation, which would have been costly, the revised plan is to leave the basement, foundation, and footers in place. We noted that EM approved the revised scope in the Building 310 Project Execution Plan in May 2010. A detailed soil characterization had not been performed at the time of our review; therefore, Argonne was unsure what the source of the contamination was, how far it extended from the building, or how far underground it went. Without a complete soil characterization, Science cannot make informed decisions regarding the need, extent and timing of any future project to remove the contamination.

### MITIGATING ACTIONS

The Department has initiated actions intended to help mitigate the issues at Brookhaven and Argonne. To address the past oversight and communication issues with its subcontractor, EM required Brookhaven to perform onsite reviews of the work and

conduct an independent assessment of the design approach at certain decision points throughout the performance period. The additional level of monitoring led to Brookhaven discontinuing the use of the subcontractor for a re-design effort. Brookhaven identified an alternative approach to the planned re-design, which it believes will result in less cost and schedule risk for the project. In the near future, Brookhaven plans to procure the design, construction, and installation of the equipment needed for the alternate approach to remove and dispose of the biological shield at the BGRR.

Similarly, the Argonne Site Office addressed the need for additional soil characterization around Building 310 by revising the Recovery Act Project Operating Plan for the D&D Projects at Argonne. The revised Project Operating Plan includes the proposed soil characterization of Building 310, estimated at \$1.8 million, as an option that could be added to the Recovery Act D&D scope, should sufficient unused contingency and management reserve remain at the end of the ongoing D&D activities at Argonne.

The above actions, if successfully implemented, should mitigate the concerns discussed in this report. Accordingly, we are not making formal recommendations and a formal response is not required. We appreciated the cooperation of the various Department elements and all the staff at the contractors during this effort.



David Sedillo, Director  
NNSA & Science Audits Division  
Office of Inspector General

Attachment

cc: Director, Office of Risk Management, CF-80  
Team Leader, Office of Risk Management, CF-80  
Audit Resolution Specialist, Office of Risk Management, CF-80  
Audit Liaison, Office of Science, SC-41  
Audit Liaison, Chicago Office

## SCOPE AND METHODOLOGY

This audit was performed between February 2010 and August 2010 at the Department of Energy's (Department) Brookhaven Site Office and Brookhaven National Laboratory (Brookhaven) in Upton, New York; and, the Argonne Site Office and Argonne National Laboratory (Argonne) in Argonne, Illinois. To accomplish the audit objective, we:

- Reviewed and evaluated documentation, such as monthly project management reports and Project Execution Plans, related to the decommission and demolish (D&D) work at Argonne and Brookhaven;
- Judgmentally selected American Recovery and Reinvestment Act of 2009 (Recovery Act) transactions recorded by Brookhaven and Argonne and traced them to supporting vendor invoices;
- Judgmentally selected subcontracts awarded for the D&D work at Brookhaven and Argonne, and reviewed them for the presence of required contract clauses;
- Reviewed totals reported by Brookhaven and Argonne to the FederalReporting.Gov website; and,
- Held discussions with personnel from the Brookhaven Site Office, Brookhaven National Laboratory, Argonne Site Office and Argonne National Laboratory.

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 objective. The audit included tests of controls and compliance with laws and regulations 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. During the audit, we assessed the Department's compliance with the *Government Performance and Results Act of 1993* and found that no specific performance measures related to the D&D projects were established. We did, however, note that there are performance measures relevant to the projects, such as effective waste management. We utilized computer-processed data to identify the population of costs spent using Recovery Act funding in order to accomplish our audit objective. Based on our comparisons of computer-processed data to supporting documentation, we determined that the data were sufficiently reliable for the purposes of our report.

Management waived an exit conference.

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