



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

# Audit Report

## Audit of Fermi National Accelerator Laboratory's NOvA Project



OAS-RA-L-10-02

April 2010

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# memorandum

DATE: April 16, 2010

Audit Report OAS-RA-L-10-02

REPLY TO  
ATTN OF: IG-32 (A10RA004)

SUBJECT: Report on "Audit of Fermi National Accelerator Laboratory's NOvA Project"

TO: Acting Manager, Fermi Site Office  
Manager, Chicago Office

## INTRODUCTION AND OBJECTIVE

The NuMI Off-Axis electron neutrino ( $\nu_e$ ) Appearance (NOvA) experiment is a neutrino physics research project conducted by the Office of Science's Fermi National Accelerator Laboratory (Fermilab). The goal of the NOvA experiment is to advance the understanding of neutrino particles.

Fermilab, in coordination with the University of Minnesota (University), must complete an accelerator and detector system needed for the experiment. Fermilab is upgrading its accelerator complex to increase beam power and constructing a 220 ton "Near Detector" that will monitor the neutrino beam as it leaves Fermilab. The University is responsible for constructing a detector hall and fabricating components for the 14,000 ton "Far Detector," near Ash River, Minnesota, 503 miles away.

The expected completion date of the NOvA Project is November 2014 with a total project cost of \$278 million, of which \$55 million was funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act). The University originally received \$40 million in Recovery Act funding through a cooperative agreement administered by the Department of Energy's (Department) Chicago Office (Chicago Office) to accelerate construction of the Far Detector hall and detector fabrication by nine to twelve months. At the time of our review, the schedule showed three months of acceleration of the Far Detector hall and up to ten months acceleration in detector component procurements. Fermilab received \$15 million to advance the procurement of items for the detector and accelerator parts by as much as ten months. Because of favorable construction bids, the Department was able to de-obligate \$9.5 million of Recovery Act funds from the University and plans to re-obligate the funds to Fermilab to reduce risk in its procurement. As of February 2010, approximately \$8.4 million, or 15 percent, of the \$55 million in Recovery Act funding has been spent.

Due to the importance of the Office of Science's mission and the significant investment in this project, we initiated this audit to determine whether the Office of Science implemented controls over the NOvA Project and its use of Recovery Act funds.

## CONCLUSION AND OBSERVATIONS

At the time of our audit, we found that NOvA Project managers were generally employing sound project management practices, such as preparation of project execution plans, acquisition strategies, and risk analysis and mitigation plans required by Department Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*. Further, we found that Recovery Act funds were adequately segregated and were disbursed in a timely manner. Also, after site visits to Fermilab and the University, we found that both were generally in compliance with Recovery Act reporting guidelines, as well as Davis-Bacon Act requirements. We did, however, identify certain issues relating to the Chicago Office's administration of the cooperative agreement and the University's reporting on jobs funded under the Recovery Act.

### Recovery Act Administration

Although the Chicago Office had performed certain review activities, it had not implemented additional oversight controls specific to the University's use of Recovery Act funds at the time of our field work. The Chicago Office, for example, had not engaged in post Recovery Act on-site monitoring and oversight reviews of the funds control system, the allowability of costs claimed, the number of jobs created or retained, or flow-down requirements of the project. Rather, the Chicago Office relied on its past experience with the University and its use of rates approved by the Department of Health and Human Services, and other reviews such as those performed under Office of Management and Budget (OMB) Circular A-133 and of the University's quarterly reports to *FederalReporting.gov*. The Chicago Office, finalized a monitoring and oversight plan to review Recovery Act awards in March 2010, with the intention of conducting the reviews throughout the Spring of 2010.

Further, the Chicago Office had not incorporated revisions to the Special Terms and Conditions into the cooperative agreement in a timely manner. To ensure compliance with the Recovery Act requirements the Department developed Special Terms and Conditions that were to be included in all cooperative agreements funded by the Recovery Act. In May 2009, the Department provided revised Special Terms and Conditions to its program and field offices. The Chicago Office, however, did not send them to the University until November 2009 and did not incorporate them into cooperative agreement until February 2010 because of competing work priorities.

### Recovery Act Job Reporting

We were unable to confirm the number of jobs funded by the Recovery Act reported by the University on its first quarterly report and publicly available on *Recovery.gov*. We learned that the University reported the average number of workers at the Far Detector construction site; instead of indentifying the jobs created or retained using the full time equivalent method prescribed by the OMB. According to University officials, the OMB guidance was not specific on how to report workers at the vendor-level and, therefore, they used the estimates provided by the vendors. Subsequently, OMB simplified its

guidance to capture more fully the number of jobs created or retained. The revised OMB guidance, for example, clarified the requirement to include employees at the vendor-level, eliminated subjectivity in deciding which employees to count, and simplified the data used in the full time equivalent calculation. The Chicago Office stated that the University has revised their methodology to capture the number of jobs created or retained to meet the revised OMB guidance.

### SUGGESTED ACTIONS

To address the issues outlined above, we suggest that the Manager, Chicago Office ensure that the planned additional monitoring and oversight activities be performed over financial assistance recipients to ensure compliance with Recovery Act requirements.

### MANAGEMENT COMMENTS

Fermi Site Office and the Chicago Office officials commented that they had performed reviews before awarding the cooperative agreement to the University such as the previously mentioned reviews of the University's quarterly reports and Circular A-133 audits. We modified the report to reflect management's comments and actions taken since the performance of our field work.

Since no formal recommendations are being made in this report, a formal response is not required.

We appreciated the cooperation of the various Department elements and all the staff at the contractor and recipient sites during this effort.



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

Attachment

cc: Team Leader, Office of Risk Management, CF-1.2  
Dianne Williams, Office of Risk Management, CF-1.2  
Audit Liaison, Office of Science, SC-25  
Audit Liaison, Chicago Office

## SCOPE AND METHODOLOGY

This audit was performed between October 2009 and March 2010. Our audit included the activities of the Department of Energy's Chicago Office - Integrated Support Center in Argonne, Illinois; the Fermi Site Office and the Fermi National Accelerator Laboratory in Batavia, Illinois; and, the University of Minnesota in Minneapolis, Minnesota.

To accomplish the audit objective, we reviewed and evaluated documentation related to the NuMI Off-Axis electron neutrino ( $\nu_e$ ) Appearance (NOvA) Project as well as interviewed key personnel responsible for the project.

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. 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 considered the establishment of performance measures in accordance with the Government Performance and Results Act of 1993 as they related to the audit objective. There were no performance measures specific to the NOvA Project. We relied on computer processed data during our audit. We traced the data to supporting documents to validate the reliability of the information as necessary to accomplish our audit objectives.

Management waived an exit conference.

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