DOE F 1325.8
(8-89)
EFG (07-90)

United States Government — Department of Energy

Office of Inspector General

Memorandum

DATE: MAR 30 2005

Audit Report No.: OAS-L-05-05

REPLY TO ATTN OF: IG-34 (A05SC023)

SUBJECT: Audit of the Spallation Neutron Source Project

TO: Director, Office of Science, SC-1

The purpose of this report is to inform you of the results of our audit of the Spallation Neutron Source (SNS) Project. The audit was initiated in November 2004. Fieldwork was conducted through February 2005 at Department of Energy (Department) Headquarters, Oak Ridge National Laboratory (Oak Ridge), and Brookhaven National Laboratory (Brookhaven). The audit methodology is described in an attachment to this report.

INTRODUCTION AND OBJECTIVE

The SNS Project is a multi-laboratory partnership with six laboratories involved in various aspects of the project's design and construction. The project is considered to be the next generation source for neutron scattering and related research in the physical, chemical, materials, biological, and medical sciences. At $1.4 billion, SNS is the largest construction project currently undertaken by the Department's Office of Science (Science). While the SNS project is scheduled for completion in Fiscal Year (FY) 2006, full power to the beam lines and full utilization of SNS is not expected until FY 2008. The objective of our audit was to determine whether the Department is properly managing the SNS Project, including construction completion and transition to a fully operational facility.

CONCLUSIONS AND OBSERVATIONS

We observed that significant progress has been made toward finishing the SNS Project, with over 80 percent of the work complete at the time of our review. While nothing came to our attention to indicate that the Department was not properly managing the SNS Project, the project has experienced difficulties in coordinating deliverables with the partner laboratories and the use of contingency funds.

Laboratory Deliverables

In two instances, deliverables from SNS partner laboratories were not adequately coordinated. In one example, cryomodule vessels provided by the Thomas Jefferson

National Accelerator Laboratory were not welded using American Society of Mechanical Engineers standards that the SNS Project was required to follow. The Federal SNS Project Director did not ensure that the welding standards were included in the memorandum of agreement to provide the cryomodule vessels. The Project Director told us that he was aware of the problem with vessels and has initiated a safety analysis prior to making a formal decision to accept the cryomodules. In another instance, Brookhaven was not notified by the Federal SNS Project Director that the schedule for delivery of SNS diagnostics equipment was shortened by up to six months. To meet the accelerated delivery dates, Brookhaven was forced to rework the equipment production plan to shift priorities and to ensure on-time commissioning of the accumulator ring.

Contingency Management

SNS Project contingency was not always used in accordance with Departmental policy guidance and utilization rates have been on-going concerns. In particular, items were procured with contingency funds that were not in the original scope of the project, such as $16 million to upgrade the facility with a superconducting linear accelerator. Additionally, even though not permitted by Departmental policy, $848,000 in contingency funding was also used to cover travel and relocation costs for partner laboratory.

Various Science reviews have also expressed concern with the level of contingency and advised the SNS Project officials to find ways to minimize its use. A November 2004 review, for example, reported that the remaining cost risk exceeded estimate-at-completion contingency by approximately $400,000. Of an initial contingency of around $255 million, approximately $18 million remains. While a May 2004 review challenged the project to increase contingency to $20 million, the project fell short of this amount by $2 million. In light of this shortfall, the spending patterns we observed increases the risk that remaining contingency may be insufficient to complete the project within the approved baseline.

SUGGESTED ACTIONS

Several major components of the SNS Project still need to be installed and tested before June 2006, such as the superconducting linac, accumulator ring, and mercury target system. Given the challenges still ahead, we suggest that the Director, Office of Science, require the Federal SNS Project Director to:

1. Evaluate specifications and schedules for all remaining deliverables and confirm that partner laboratories understand what is expected of them; and,

2. Discontinue the use of contingency to modify the scope of the project and evaluate whether the remaining contingency is adequate to address remaining cost and completion risks.

The concerns and suggestions noted above were discussed with officials from the Office of Science on March 11, 2005. With regard to the suggested actions, officials stated that they would increase their attention in these areas. Since this letter report does not contain formal recommendations, a formal response is not required.

We appreciate the cooperation of your staff during our review. If you have any questions regarding our audit, please contact Brian Boos at (301) 903-3858 or Bill Lubecke at (720) 962-7546.

Rickey R. Hass, Director
Science, Energy, Technology
and Financial Audits
Office of Audit Services
Office of Inspector General

Attachment

cc: Director, Office of Engineering and Construction Management, ME-90
Team Leader, Audit Liaison, ME-100
Audit Liaison, SC-67

METHODOLOGY

To accomplish the audit objective, we:

- Held discussions with Headquarters officials from the Office of Science to gain an understanding of the SNS Project;
- Held discussions with SNS Project personnel at Oak Ridge and Brookhaven National Laboratories, reviewed pertinent Project documentation, toured the SNS facilities, and attended a November 2004 Office of Science review;
- Evaluated contingency usage, milestone completion, earned value reporting, quality assurance, and procurements for the Project;
- Evaluated plans for transitioning into operations and outreach efforts to attract potential users of SNS; and,
- Reviewed performance related information to determine compliance with the *Government Performance and Results Act of 1993*.

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. 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. Since computer processed data was not the primary support used to meet our audit objective, we performed a limited assessment of data reliability. We identified and evaluated SNS performance measures and found that they were being used to measure Project performance.

An exit conference was held on March 11, 2005.

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United States Government **Department of Energy**

Memorandum

DATE: APR 04 2005

REPLY TO: IG-34 (A05SC023)

SUBJECT: Final Report Package for "Audit of the Spallation Neutron Source Project"
Audit Report No.: OAS-L-05-05

TO: George Collard, Assistant Inspector General for Audit Operations

Attached is the required final report package on the subject audit. The pertinent details are:

1. Actual Staff days: 144.8

   Actual Elapsed days: 148

2. Names of OIG and/or contractor audit staff:

Assistant Director:	Kevin Majane
Team Leader:	Bill Lubecke
Auditor-in-Charge:	Brian Boos
Audit Staff:	Dick Marvin

To S Urban
Fm: Sue
9 pages

3. Coordination with Investigations and Inspections:

   Investigations

   Reggie France (10/22/04; 2/28/05)
   Walter Warren (10/22/04; 2/28/05)
   Brenda Froberg (2/28/05)

   Inspections

   Fatima Pashaei (10/22/04; 2/28/05)

Rickey R. Hass, Director
Science, Energy, Technology, and Financial Audits
Office of Audit Services
Office of Inspector General

Attachments:
1. Final Report
2. Monetary Impact Report
3. Audit Project Summary Report
4. Audit Database Information Sheet

MONETARY IMPACT OF REPORT NO.: OAS-L-05-05

1. Title of Audit: Audit of the Spallation Neutron Source Project

2. Region/Office: Science, Energy, Technology, and Financial Audits

3. Project No.: A04SC023

4. Type of Audit:

Financial:		Performance:	X
Financial Statement		Economy and Efficiency	X
Financial Related		Program Results	
Other (specify type):			

5.

FINDING		BETTER USED				QUESTIONED COSTS			MGT. POSITION	POTENTIAL BUDGET IMPACT
			Recurring							
(A)	(B) Title	(C) One Time	(D) Amount Per Year	(E) No. Yrs.	(F) Total Amount	(G) Questioned Portion	(H) Unsupported Portion	(I) Total	(J) C=Concur N=Noncon U=Undec	(K) Y=Yes N=No
	n/a				n/a			n/a		
TOTALS--ALL FINDINGS							$0			

6. Remarks: There is no current monetary impact or potential future savings.

7. Contractor: N/A

8. Contract No.: N/A

9. Task Order No.: N/A

10. Approvals:

Division Director & Date: 4/4/05

Technical Advisor & Date:

Office of the Inspector General (OIG)

Audit Project Office Summary (APS)

Report run on: March 30, 2005 2:04 PM

Audit#: A05SC023 Ofc: FOA Title: SPALLATION NEUTRON SOURCE PROJECT

****** Milestones ******

	Planned	End of Survey	Revised	Actual	
Entrance Conference:.....	01-OCT-04		02-NOV-04	02-NOV-04	
Survey:.....			18-FEB-05	18-FEB-05	
Draft Report:.....				11-MAR-05	
Completed (With Report):.	30-SEP-05	18-FEB-05	18-FEB-05	30-MAR-05	(R.)
----------Elapsed Days:	364	108		148	

Elap. Less Susp:

Date Suspended: Date Terminated:
Date Reactivated: Date Cancelled:
DaysSuspended(Cur/Tot): ( ) Report Number: OAS-L-05-05
Rpt Title: Report Type: LTR LETTER REPORT
AUDIT OF THE SPALLATION NEUTRON SOURCE PROJECT

****** Audit Codes and Personnel ******

Class:	PER	PERFORMANCE			
Function:	013	PROJECT MANAGEMENT			
MgtChall:	103	PERFORMANCE/PROJECT	AD:	530	MAJANE
Site:	MSA	MULTI-SITE AUDIT	AIC:	670	BOOS
SecMiss:	SCI	SCIENCE	Team Ldr:	232	LUBECKE
PresInit:	IFP	IMPROVED FINANCIAL P	Tech Adv:	544	ACTON

****** Task Information ******

Task No:
Task Order Dt: CO Tech. Rep:
Orig Auth Hrs: Orig Auth Costs:
Current Auth: Current Auth Cost:
Tot Actl IPR Hr: Tot Actl Cost:

****** Time Charges ******

Emp/Cont Name	Numdays	Last Date
LUBECKE, W	7.0	05-FEB-05
MARVIN, R	59.4	19-MAR-05
BOOS, B	78.4	19-MAR-05
Total:	144.8	

****** Keywords ******

BROOKHAVEN NATIONAL LABORATORY

AUDIT DATABASE INFORMATION SHEET

1. Project No.: A05SC023

2. Title of Audit: Audit of the Spallation Neutron Source Project

3. Report No./Date OAS-L-05-05/March 30, 2005

4. Management Challenge Area: Performance/Project Management

5. Presidential Mgmt Initiative: Improved Financial Performance

6. Secretary Priority/Initiative: Science

7. Program Code: SC

8. Location/Sites: Multi-Site Audit – Headquarters; Oak Ridge National Laboratory; Brookhaven National Laboratory

9. Finding Summary:

We observed that significant progress has been made toward finishing the SNS Project, with over 80 percent of the work complete at the time of our review. While nothing came to our attention to indicate that the Department was not properly managing the SNS Project, the project has experienced difficulties in coordinating deliverables with the partner laboratories and the use of contingency funds.

8. Keywords: SNS
Spallation Neutron Source
Project Management
Oak Ridge National Laboratory
Brookhaven National Laboratory