



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

Sandia National Laboratories' Readiness in Technical Base and Facilities Program

OAS-L-13-13

September 2013



Department of Energy
Washington, DC 20585

September 5, 2013

MEMORANDUM FOR THE MANAGER, SANDIA FIELD OFFICE

A handwritten signature in black ink, appearing to read "David Sedillo".

FROM: David Sedillo, Director
Western Audits Division
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Sandia National Laboratories'
Readiness in Technical Base and Facilities Program"

BACKGROUND

The Department of Energy's (Department) Sandia National Laboratories (Sandia) is a Government-owned, contractor operated Laboratory that is part of the National Nuclear Security Administration's (NNSA) nuclear weapons complex. One of Sandia's key missions is to ensure the safety, reliability and performance of the Nation's nuclear weapons stockpile. To accomplish this mission, Sandia provides research, development, and testing services, and manufactures specialized non-nuclear products and components. Through NNSA's Readiness in Technical Base and Facilities (RTBF) Program, Sandia maintains facilities and infrastructure equipped with advanced scientific and technical tools to support NNSA's operational and mission requirements. NNSA's Sandia Field Office is responsible for overseeing Sandia's operations.

A key aspect of Sandia's RTBF is the Operations of Facilities Subprogram (Subprogram), which provides support to 31 of Sandia's 41 mission critical facilities. Funding for the Subprogram, which totaled \$139.3 million of Sandia's \$165.5 million Fiscal Year 2013 RTBF budget, is intended to sustain specific nuclear weapons' Mission Critical Capabilities (Capabilities) essential to performing national security missions in a readiness state to execute missions, such as the nuclear weapons Life Extension Programs (LEPs). The Subprogram budget also supports nuclear weapons programmatic infrastructure requirements such as general plant projects and capital equipment.

Given the importance of Sandia's mission critical facilities and infrastructure to nuclear weapons work, we initiated this audit to determine whether Sandia's RTBF Subprogram was effectively supporting LEP mission needs.

RESULTS OF AUDIT

Nothing came to our attention to indicate that Sandia's RTBF Subprogram was not effectively supporting LEP mission needs. Specifically, our review disclosed that Sandia met or exceeded its RTBF program goals for FY 2012. In addition, we noted that Subprogram officials

implemented performance monitoring controls. For example, Subprogram officials held weekly meetings with Capabilities officials and performed quarterly management reviews to monitor performance, allowing Subprogram management to remain current on emerging issues and manage upcoming risks. Subprogram and Capabilities management also prioritized capital investments and management plans to mitigate risks, such as the needed recapitalization of aging and unsupported tools.

The Subprogram is facing challenges as it strives to meet the production and testing needs required for LEPs. For example, according to Sandia officials, budget constraints have impacted the Subprogram's ability to maintain staffing levels, equipment needs, and major recapitalization projects for the Capabilities. According to Subprogram officials, current funding levels will likely not be sufficient to sustain the present operations level in the future. The Subprogram and NNSA are aware of these challenges and are considering how best to address them.

Performance Measures and Monitoring Controls

The Field Office provides feedback to Sandia on its development of an annual RTBF execution plan and monitors the accomplishment of proposed goals and milestones identified in the plan. According to NNSA, Sandia met or exceeded its RTBF Subprogram performance goals. Specifically, according to the Field Office's FY 2012 Performance Evaluation Report, Sandia met or exceeded expectations, resulting in an "excellent" rating for one Performance Based Incentive. For example, NNSA reported that Sandia was successful in replacing certain high risk equipment needed to support the LEPs. In addition, NNSA reported that the Subprogram provided essential support to the Capabilities and the facilities and infrastructure work that directly supported the mission needs. The Field Office noted that Sandia carried out an unprecedented amount of activity, especially in light of a large number of experienced employee retirements that occurred during calendar year 2011.

Sandia implemented performance monitoring controls for the Subprogram. Specifically, Subprogram officials utilized performance monitoring controls that included multiple levels of review that allowed them to remain up-to-date on issues and manage emerging risks. The reviews also allowed the various Capabilities managers to interact and collaborate on issues with Subprogram officials. For example, Subprogram management met weekly with the Field Office, Sandia's Nuclear Weapon Strategic Management Unit, and the various Capabilities. Subprogram officials also participated in monthly senior manager team meetings and quarterly management reviews that included the Field Office to discuss and review project, strategic area, and program integration deliverables.

Prioritization of Investments and Management Plans

According to Sandia officials, the Subprogram works with Capabilities to establish funding priorities based on risk. For example, the Subprogram has made funding the Microsystems and Engineering Sciences Applications Silicon Fabrication Facility (SiFab) recapitalization project its foremost priority. The project aims to upgrade the SiFab, a facility for manufacturing integrated circuits that dates back to the late 1980s. Many of the critical tools are well past the

design lifetime and are no longer supported by manufacturers, which presents a risk to the current LEP efforts. To mitigate this risk and minimize the project's impact, the management plan is designed to maintain the LEP production schedules with minimum disruptions. For example, in FY 2010, the Subprogram identified a risk that the sole supplier of silicon wafers used at SiFab, would discontinue the production of the wafers. In April 2013, the supplier notified Sandia that it planned to discontinue production at the end of 2013. To address this issue, the Subprogram collaborated with other nuclear weapon programs at Sandia to identify funding sources to purchase enough wafers to meet LEP requirements until the recapitalization project is completed in FY 2018. According to the Field Office, NNSA has reviewed and approved the purchase request for the wafers and the first delivery is scheduled for September 2013.

Subprogram Challenges

The Subprogram support of production and testing for the LEPs is facing significant challenges. For example, according to Subprogram officials, budget constraints are impacting Sandia's ability to begin the Micro Fabrication facility (MicroFab) tooling recapitalization project in FY 2013. The project will update the MicroFab from a primarily research and development facility to a production facility able to support the LEPs. The Field Office is working with Sandia to meet this challenge by looking for additional funds in the FY 2014 budget for the recapitalization project. In addition, Sandia has identified that the simultaneous execution of the B61 LEP and W88 Alteration at the outset of multi-system stockpile modernization efforts will impact production and testing schedules for the RTBF Capabilities.

PATH FORWARD

Because we did not identify concerns with NNSA's and Sandia's management of the Subprogram, we are not proposing any recommendations. However, we encourage NNSA to continue monitoring the Subprogram as LEP work progresses to ensure success in completing LEP objectives.

Attachment

cc: Deputy Secretary
Acting Administrator, National Nuclear Security Administration
Chief of Staff

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The audit objective was to determine whether Sandia National Laboratories' (Sandia) Readiness in Technical Base and Facilities Operations of Facilities Subprogram (Subprogram) was effectively supporting Life Extension Programs mission needs.

SCOPE

The audit was performed between November 2012 and August 2013. We conducted the audit at Sandia and the National Nuclear Security Administration's Sandia Field Office, located in Albuquerque, New Mexico.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable laws, regulations, policies and procedures relevant to the Subprogram at Sandia;
- Held discussions with Field Office and Sandia officials;
- Reviewed related reports on Sandia's Operations of Facilities and associated performance measures;
- Assessed the Mission Critical Capabilities, including staffing, maintenance and capital equipment purchases of four programmatic areas with mission critical facilities; and
- Reviewed general plant projects funded by the Subprogram.

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 objective. We believe that the evidence obtained provides a reasonable basis for our conclusions based on our audit objective. The audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. In particular, we assessed the Department's implementation of the *GPRA Modernization Act of 2010* and concluded that the Department had established performance measures for managing the Operations of Facilities Subprogram. 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. We did not rely on computer-processed data to satisfy our objective. Management waived an exit conference.

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