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Infrastructure Series

Audit Report

Planning for National Nuclear Security Administration Infrastructure

OAS-B-03-02

May 2003

Department of Energy

Washington, DC 20585

May 6, 2003

MEMORANDUM FOR THE ADMINISTRATOR

FROM: William S. Maharay
Assistant Inspector General for Audit Services

SUBJECT: INFORMATION: Audit Report on "Planning for National Nuclear Security Administration Infrastructure"

BACKGROUND

The mission of the National Nuclear Security Administration (NNSA) is to strengthen the security of the United States by applying nuclear science and technology to military purposes, and by reducing the global threat from weapons of mass destruction. To carry out its mission, NNSA must ensure the vitality and readiness of the nuclear weapons complex. However, as highlighted in numerous studies by NNSA, the Office of Inspector General, and other outside organizations, the key infrastructure in the nuclear weapons program has deteriorated significantly following the end of the Cold War.

To address this problem, NNSA established the Facility and Infrastructure Recapitalization Program (FIRP). The mission of the FIRP is to restore, rebuild, and revitalize the physical infrastructure of the nuclear weapons complex by applying new, increased, direct appropriations to address an integrated prioritized list of infrastructure and repair projects.

A key planning tool for allocating NNSA infrastructure funding is the Ten-Year Comprehensive Site Plan. The site plans are the foundation for NNSA complex-wide facilities and infrastructure strategic planning, focusing management attention on current and future facilities and infrastructure needs at NNSA sites. We conducted the audit to determine whether NNSA's site plans provided accurate and useful data to aid in the prioritization of mission essential facility renovation and repair projects.

RESULTS OF AUDIT

NNSA site plans did not contain accurate assessments of the structural and mechanical condition of the site's facilities nor did they identify and prioritize the mission critical facilities in need of repair or refurbishment. We found that facility condition assessments used to support site plans were prepared using out-of-date information and that sites did not have a standard methodology for assigning a mission criticality level to their facilities. Without reliable site plans, NNSA has less assurance that the $1.5 billion it

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We recommended a series of specific actions intended to help NNSA improve the quality of its condition assessments and site plans.

Following the end of fieldwork, NNSA officials stated that they had established complex-wide commitments that will demonstrate progress and quantifiable results in reducing NNSA's deferred maintenance and on improving the condition of facilities and infrastructure throughout the nuclear weapons complex.

MANAGEMENT REACTION

NNSA agreed with the recommendations and stated that many of the necessary actions to address the overarching issues noted in the report have been taken. Specifically, NNSA sites are updating or improving their condition assessment processes and conducting additional baseline condition assessment surveys. NNSA has also required all sites to include an accurate deferred maintenance baseline and replacement plant value of the site's total NNSA assets, as well as the subset of mission essential facilities and infrastructure.

Attachment

cc: Director, Policy and Internal Controls Management

PLANNING FOR NATIONAL NUCLEAR SECURITY ADMINISTRATION INFRASTRUCTURE

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INFRASTRUCTURE STRATEGIC PLANNING

Background

In its Fiscal Year 2003 Congressional budget submittal, the National Nuclear Security Administration (NNSA) requested almost $250 million for its Facilities and Infrastructure Recapitalization Program (FIRP) and indicated that a total of $1.5 billion was needed through 2007. FIRP's focus is on deferred maintenance reduction, while separate programs within NNSA are responsible for ensuring that facilities necessary for immediate programmatic activities are maintained sufficiently to support the required workload. The FY 2003 budget request for the other programs totaled $950 million.

NNSA Ten-Year Comprehensive Site Plans, developed and updated annually in accordance with NNSA headquarters guidance, are a key planning tool for allocating infrastructure funding and provide a foundation for NNSA complex-wide facilities and infrastructure strategic planning. In 2001, Congress requested that the plans specifically address mission-critical infrastructure requirements through "…an appropriate mix of renovations and new construction." Moreover, the site plans were to assess the condition of facilities and identify and prioritize mission critical facilities. The plans were then to be integrated into NNSA's budget submission. Our audit was conducted to determine whether NNSA's site plans provided accurate and useful data to aid in the prioritization of mission essential facility renovation and repair projects.

Comprehensive Site Plans

At the three locations we visited, we noted a number of instances in which NNSA Ten-Year Comprehensive Site Plans did not contain accurate assessments of the structural and mechanical condition of the site's facilities. Additionally, the plans did not consistently identify and prioritize the mission critical facilities in need of repair or refurbishment. For example:

<u>Los Alamos</u>

NNSA officials, laboratory managers, and an independent contractor have acknowledged that the Los Alamos site plan is deficient. In June 2002, NNSA officials at Los Alamos concluded that the site plan's condition assessments were unreliable and informed Headquarters that the Los Alamos assessments could not be relied upon for decision-making purposes. Additionally, Los Alamos officials responsible for conducting the condition assessments stated that only about 15 of the 1500 condition assessments used to create the site plan were accurate. We found that:

- The Los Alamos site plan contained many examples of incorrect condition assessments. In one instance, the Los Alamos site plan listed the condition of the Radioactive Liquid Waste

Treatment Facility as "good." However, during a tour of the facility, the facility manager stated that the maintenance needs of the facility were understated by about $8 million and, therefore, should have been rated as being in "poor" condition. According to the Los Alamos facility manager, this is a critical facility.

- Los Alamos assigned the highest mission-critical priority ranking to its Neutron Science Center, a facility used primarily by academicians and others to conduct experiments to determine the atomic and molecular structure of matter. According to Los Alamos' facility maintenance manager, the center was ranked as a high priority because it was a major recruitment tool for attracting scientists to the laboratory. At the same time, the laboratory assigned lower priorities to weapons engineering and tritium facilities essential to the Stockpile Stewardship Program. In this regard, an internal independent review team issued a report in July 2001 that stated Los Alamos did not prioritize its facilities based on long-term mission needs or laboratory-wide strategic direction.

An independent Los Alamos subcontractor reached a similar conclusion in June 2001 when it reported that Los Alamos did not have an effective condition assessment program.

During the course of the audit, Los Alamos initiated actions to address some of the problems with its condition assessments. Specifically, in June 2002, Los Alamos awarded a contract to an engineering firm to conduct condition assessments of all its facilities. This action is scheduled to be completed in FY 2003.

Sandia

Sandia also did not have accurate condition assessments. Many of Sandia's condition assessments were inaccurate and the Site Plan did not include all of Sandia's locations.

- At Sandia, we observed a sample of 37 facilities which Sandia managers identified as critical, and concluded that, for eight facilities, the actual condition of the facilities was not reflected in the Sandia site plan. For example, Sandia's Weapons System Laboratory was designated in the site plan and being in "poor" condition, while the facility managers responsible for overseeing the building's maintenance told us that the facility was "adequate."

- A Sandia subcontractor, hired to perform a detailed assessment of physics facilities, reached different conclusions than those in the site plan for nine of the 18 facilities examined. For example, the site plan stated that the Radiant Heat facility and the Sled Track instrumentation facility needed major renovation. The subcontractor, however, concluded that only minor to moderate renovations were needed for these two facilities.

- Sandia prioritized its facilities based upon building occupancy rather than mission criticality. For example, administrative offices that were continuously staffed were rated as mission critical. At the same time, a Centrifuge Facility needed for mission critical work, but fully staffed only when needed, was rated lower. In another example, a salvage yard was given a higher priority than a Light Initiated High Explosive Facility (LIHE), which is critical to the Stockpile Stewardship Program.

It should be noted that after we raised these issues with Sandia, the facility program manager and other laboratory officials revised the listing of mission critical facilities, including both the Centrifuge and LIHE facilities. The administrative facilities and salvage yard were excluded from the revised list. Additionally, Sandia refined its definition of critical facilities to better consider how they related to the overall NNSA mission.

Nevada Test Site

The Nevada Test Site likewise did not have accurate condition assessments. Specifically:

- At the Nevada Test Site, with the assistance of Nevada personnel, we examined 38 separate facilities and concluded that condition assessments for 22 facilities were inaccurate. For example, a conference facility was assessed as being in "fair" condition and described as being actively used. In contrast, we noted that the facility was actually vacant, the ceiling was falling in, and the building was scheduled for disposal. Further, a warehouse was assessed as being in "adequate" condition, yet the facility manager stated that it was rat infested and the roof was in need of repair.

- We also examined Nevada's methodology for determining mission criticality and determined that it was ineffective. For

example, Nevada gave the same mission critical rating to a trailer as it did to the Big Explosives Experimental Facility, a major testing center. According to Nevada personnel, the trailer should have been classified as personal property and not included in the Site Plan. Further, the same mission priority was assigned to lunchrooms as to a complex used for subcritical tests.

We discussed the accuracy of the three site plans and the different prioritization methodologies with key personnel from NNSA's Office of Nuclear Weapons Complex Strategic Integration. They acknowledged that many of the condition assessments were unreliable and that the sites had not always prioritized facilities based on NNSA mission needs. Separately, we discussed our findings with NNSA's Office of Infrastructure and Facilities Management, who stated that NNSA is implementing a plan to ensure the quality and accuracy of condition assessments in the future.

Availability of Accurate Data and Program Guidance

The usefulness of site plans was diminished, in our judgment, because facility condition assessments were prepared using out-of-date information, and because NNSA had not developed a standard methodology for assigning a mission criticality level to their facilities.

The majority of the facility condition assessments were completed between 1992 and 1997. Los Alamos' last detailed evaluations, for example, were performed in 1992, well before the May 2000 Cerro Grande wildfire which caused damage to much of the Laboratory. Despite that event, Los Alamos extrapolated the 1992 evaluations, without the benefit of current observations, to arrive at its 2002 condition assessments rather than physically reevaluating the condition of its facilities. Similarly, Sandia and the Nevada Test Site used outdated data to arrive at their condition assessments.

NNSA had also not established guidance to help sites identify and prioritize their mission critical facilities. If missions were prioritized and defined, it would have been possible for the sites to consistently determine which facilities were mission critical, instead of using their own unique prioritization methodologies.

Recently, NNSA officials informed us that the FY 2004 Ten-Year Comprehensive Site Plan Guidance provides instruction for defining and reporting mission essential facilities and infrastructure.

Ensuring the Vitality and Readiness of the Nuclear Weapons Complex

Without reliable site plans, NNSA has less than adequate assurance that the $1.5 billion it plans to spend on facilities and infrastructure recapitalization over the next 5 years will be spent on the most urgent needs. Given the deteriorating state of its physical infrastructure, NNSA managers must have accurate, standardized site plans to make critical facility decisions to stem the negative trend in the condition of the complex. In addition, unless NNSA executes a robust corrective action plan, it may not meet one of its major performance objectives, namely, ensuring the vitality and readiness of the national security enterprise.

RECOMMENDATIONS

We recommend that the Associate Administrator for Facilities and Operations:

1. Develop and implement guidance establishing standard criteria for identifying mission critical facilities and define the types of facilities to be included.

2. Require NNSA sites to:

    a. Conduct new condition assessments on all mission critical facilities; and

    b. Update their Ten Year Comprehensive Site Plans using the revised condition assessments.

MANAGEMENT REACTION

NNSA concurred with the recommendations and stated that it has instituted guidance for mission essential facilities and that many of the necessary actions to address the overarching issues noted in the report have been taken. Specifically, NNSA sites are updating or improving their condition assessment processes and conducting additional baseline condition assessment surveys. NNSA has also required all sites to include an accurate deferred maintenance baseline and replacement plant value of the site's total NNSA assets, as well as the subset of mission essential facilities and infrastructure. NNSA management did not believe that it risked being unable to ensure the vitality and readiness of the nuclear weapons complex as indicated in the report. NNSA also provided technical comments which were discussed at length with our office. As appropriated, this report was revised to reflect those discussions. Management's response is included in Appendix 3.

PRIOR REPORTS

OFFICE OF INSPECTOR GENERAL AUDITS

- *Disposition of the Department's Excess Facilities* (DOE/IG-0550, April 2002). The report found that the Department's program for disposition of excess facilities was not fully satisfactory because the activities were not prioritized to balance mission requirements, reduce risks, or minimize life-cycle costs.

- *Management Challenges at the Department of Energy* (DOE/IG-0538, December 2001). The report identified the Department's major challenge areas, including Infrastructure and Asset Management. The report reiterated findings from prior reviews that determined that the Department's infrastructure is deteriorating at "an alarming pace" and may not be able to meet mission requirements.

- *Facility Management at the Idaho National Engineering and Environmental Laboratory* (WR-B-01-04, March 2001). The report stated that the Idaho National Engineering and Environmental Laboratory had not maintained its facilities in a safe and economical manner. Facility-related problems occurred, in part, because management did not ensure that a site maintenance plan was developed. As a result, Idaho's facility maintenance program threatened mission accomplishment and personnel safety.

- *Management of the Nuclear Weapons Production Infrastructure* (DOE/IG-0484, September 2000). The report stated that deteriorating infrastructure resulted in delays in weapons modification, remanufacture, dismantlement, and surveillance testing of nuclear weapons components. The budgeted amounts for infrastructure needs to be increased $5-8 billion over ten years in order to offset the effects of delayed or neglected infrastructure activities.

- *Facilities Information Management System* (DOE/IG-0468, April 2000). The audit disclosed that FIMS did not contain accurate and complete information resulting in the Department not having reliable real property information.

- *Audit of the Radioactive Liquid Waste Treatment Facility Operations at the Los Alamos National Laboratory* (WR-B-98-01, November 1997). The report stated that liquid waste was treated in the Radioactive Liquid Waste Treatment Facility, which was over 30 years old and in need of repair or replacement.

OTHER REPORTS

- *Defense Programs Facilities and Infrastructure Assessment Phase I Report 2000*. The assessment found that the nuclear weapons complex except for the newest experimental facilities consisted of production, testing and laboratory facilities which were very old and in need of intensive and ever escalating maintenance.

- *FY 2000 Report to Congress of the Panel to Assess the Reliability, Safety and Security of the United States Nuclear Stockpile* (February 2001) expressed concern that the deterioration was accelerating in the nuclear weapons complex facilities. The Panel called upon NNSA to restore the capabilities that will be needed to perform stockpile work.

SCOPE

The audit was performed from March 2002 to December 2002 at the NNSA Headquarters; the Albuquerque Operations Office; Sandia National Laboratories; Los Alamos National Laboratory; and the Nevada Test Site. The audit examined the FY 2001 to FY 2010 Ten-Year Comprehensive Site Plans at these locations.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable Public Laws, Department orders, other Departmental guidance, and related correspondence;
- Reviewed prior Office Inspector General and General Accounting Office reports;
- Toured selected facilities at Sandia, Los Alamos, and the Nevada Test Site;
- Interviewed managers at NNSA Headquarters, Albuquerque, Sandia, Los Alamos, and the Nevada Test Site;
- Reviewed compliance with the *Government Performance and Results Act of 1993;* and,
- Reviewed infrastructure related plans.

The audit was conducted 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 objective of the audit. Accordingly, we assessed the significant internal controls and performance measures established under *The Government Performance and Results Act of 1993* related to planning for infrastructure and concluded that they did not address the need for complete and accurate site plans. Sandia performance standards, for example, called for the development of a Site Plan, but did not state that it should include all facilities or that it be based on accurate recent evaluations. A review of Los Alamos performance measures showed that they did not specifically mention the Site Plan. 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. Computer processed data was not relied upon extensively in the conduct of this audit. We discussed the findings with NNSA officials on February 3, 2003.

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

MAR 27 2003

MEMORANDUM FOR Frederick D. Doggett
Deputy Assistant Inspector General
for Audit Services

FROM: Anthony R. Lane
Associate Administrator
for Management and Administration

SUBJECT: Comments to IG Draft Report Planning for NNSA Infrastructure

The Office of Inspector General (IG) conducted an audit to determine whether NNSA's site plans provided accurate and useful data to aid in the prioritization of mission essential facility renovation and repair projects. Based on the audit, the IG recommended that NNSA (1) develop and implement guidance establishing standard criteria for identifying mission essential facilities, and (2) to conduct new condition assessments on all mission critical facilities and update the Ten Year Comprehensive Site Plans using the revised condition assessments.

NNSA agrees with the recommendations. We have already instituted guidance for mission essential facilities and note that many of the necessary actions to address the overarching issues noted in the report have been taken. Specifically, NNSA sites are updating or improving their condition assessment processes and conducting additional baseline condition assessment surveys. NNSA has also required all sites to include an accurate deferred maintenance baseline and replacement plant value of the site's total NNSA assets, as well as the subset of mission essential facilities and infrastructure. As described in the attachment, we do not believe that NNSA may be at risk of being able to ensure the vitality and readiness of the nuclear weapons complex as indicated in the draft report.

Additionally, we are providing an attachment that focuses on possible corrections, clarifications, and/or context settings to some of the findings and conclusions presented in the draft report. The attachment is part of the NNSA management reaction in the final report.

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Should you have any questions related to our comments, please contact Richard Speidel, Director, Policy and Internal Controls Management at 586-5009.

Attachment

cc: Greg Rudy, Associate Administrator for Facilities and Operations, NA-50
Robert C. Braden, Senior Procurement Executive, NA-63
David L. Marks, Director, Field Financial Management

IG Report No.: OAS-B-03-02

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