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Office of Inspector General
Office of Audits and Inspections

Audit Report

The National Nuclear Security
Administration's Weapons Dismantlement
and Disposition Program

OAS-L-13-06

January 2013



Department of Energy
Washington, DC 20585

January 29, 2013

MEMORANDUM FOR THE ACTING CHIEF AND ASSOCIATE ADMINISTRATOR,
OFFICE OF DEFENSE NUCLEAR SECURITY
MANAGER, NNSA PRODUCTION OFFICE
FEDERAL PROGRAM MANAGER, WEAPONS
DISMANTLEMENT AND DISPOSITION PROGRAM

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 "The National Nuclear Security
Administration's Weapons Dismantlement and Disposition Program"

BACKGROUND

The Department of Energy's (Department) National Nuclear Security Administration (NNSA) is responsible for the safe and secure dismantlement of retired nuclear weapons. Weapons and components no longer needed for the stockpile are dismantled and disposed of at various NNSA sites. NNSA's Pantex Plant (Pantex), managed and operated by Babcock & Wilcox Technical Services Pantex, LLC, is responsible for dismantling retired weapons by separating the high explosive from the special nuclear material, which is in the form of a pit. Pantex also provides temporary storage (staging) onsite for pits from dismantlement operations, and either processes other components onsite or ships them to other NNSA sites for further processing. For example, Pantex ships the canned subassembly, a nuclear component, to the Y-12 National Security Complex (Y-12) for further disassembly.

Pantex also stages nuclear weapons and nuclear weapon components to support other Directed Stockpile Work programs such as surveillance or repairing/replacing components of nuclear weapons. In addition, Pantex stages nuclear components identified as strategic reserve and national security assets as well as surplus nuclear components for which the Department has not identified a disposal path. Finally, Pantex characterizes and sanitizes surplus components with determined disposal paths and disposes them onsite or transfers them offsite for disposal.

In a 2008 Report to Congress, NNSA set a goal to dismantle all nuclear weapons retired prior to Fiscal Year (FY) 2009 by the end of FY 2022. In April 2011, NNSA reiterated the goal. To help guide this mission activity, NNSA prepares a Production and Planning Directive that identifies the current and projected dismantlement rates for Pantex and Y-12. In addition, Pantex

and Y-12 established internal goals for disposing of components from dismantlement operations. We initiated this audit to determine whether NNSA is effectively managing its weapons dismantlement and disposition program.

CONCLUSIONS AND OBERVATIONS

Our review disclosed that NNSA met or exceeded its nuclear weapons dismantlement and disposition program goals for FYs 2010 and 2011. However, we noted potential issues related to the infrastructure for staging nuclear weapons, nuclear weapon components, and other weapon components at Pantex that could impact future dismantlement efforts and other Directed Stockpile Work programs.

Program Accomplishments

Pantex exceeded its FY 2010 and FY 2011 goals for nuclear weapon dismantlements by 26 percent and 10 percent, respectively. In addition, Pantex met its FY 2010 performance targets for component disposition by reducing the volume of components, identifying and sorting an additional 20 percent of scrap components, and increasing storage capacity through component disposition. Pantex also met its FY 2011 performance targets for component disposition. Y-12 surpassed its scheduled canned subassembly dismantlement goals in FY 2010 by more than 11 percent and met scheduled dismantlement quantities in FY 2011. Y-12 also met its goal of dispositioning dismantled components that were no longer needed by shipping them to a disposal site.

Infrastructure for Staging Nuclear Materials

According to Pantex officials, as the infrastructure for staging nuclear materials at Pantex continues to age without needed improvements, Pantex may not be able to provide the level of protection required for safe and secure staging operations of nuclear materials. Pantex has two separate and distinct Material Access Areas for staging Category I and II Special Nuclear Materials¹; Zone 4W and Zone 12. Staging of weapons and other nuclear explosive assemblies only occurs in Zone 4W, which is protected by a dedicated security system. According to an NNSA Production Office official, the Zone 4W security system was installed in the 1990s with an expected useful life of 20 years and has been due for refurbishment. Until the Zone 4W security system is upgraded, there is a potential security concern that elements of the system may no longer function as intended. According to NNSA and Pantex officials, in the event of a security system failure, compensatory measures will be needed to provide adequate protection.

While we recognize that properly approved compensatory measures are an accepted security measure, we have noted problems in the past at another nuclear weapons site with over reliance on compensatory measures to address equipment failures. In particular, our 2012 report, *Inquiry into the Security Breach at the National Nuclear Security Administration's Y-12 National Security Complex* (DOE/IG-0868, August 2012), identified a Y-12 security incident that

¹Category I and II Special Nuclear Materials are those materials that would be most attractive to an adversary intent on theft or diversion and generally include weapon components such as pits, as well as other pure products and high grade materials containing significant quantities of plutonium and uranium.

represented multiple system failures on several levels, including failures to maintain critical security equipment, and over reliance on compensatory measures. According to NNSA and Pantex officials, NNSA has communicated the need for Pantex to develop a proposal to upgrade or replace the Zone 4W security system.

Additionally, according to Pantex documents, magazines² containing pits and nuclear explosives are deteriorating. The Zone 4W Material Access Area consists of 60 staging and storage magazines, which range from 45 to 65 years old. Of the 60 magazines, some are fully occupied with staged pits and others are currently dedicated to nuclear explosives staging. A Pantex official stated that B&W Pantex conducts Condition Assessment Survey (CAS) inspections of the magazines every five years. The inspections include the structural, mechanical, and electrical condition of the magazines, and the results of the inspections are reported in the Department's Condition Assessment Information System (CAIS). The CAS inspections performed between 2007 and 2012, and the June 2012 CAIS report disclosed that the magazines needed varying degrees of repair such as improvements required due to the erosion of the earth overburden, roofing maintenance, repairs on the foundation, and repairs associated with the heating, ventilation and air conditioning systems.

According to the CAIS, as of June 2012, the total deferred maintenance for the 60 magazines in the Zone 4W Material Access Area was \$3.4 million. A Pantex official told us that erosion will be a perpetual issue for the magazines until corrective actions are taken. Another Pantex official told us that most of the deferred maintenance was due to the aging and degradation of the magazines, and did not result in safety or security concerns. The same official also stated that safety and security concerns are fixed immediately and that there was no backlog of safety and security related preventive maintenance. However, the total deferred maintenance will continue to increase and the magazines will continue to deteriorate until additional funding is provided or the deferred maintenance is elevated to a higher priority.

NNSA recognizes the potential security concern posed by the aging security system. We noted during our review that NNSA chartered an Integrated Project Team (Team) to study options for Material Staging and Storage at Pantex. In September 2011, the Team issued a pre-decisional *Pantex Material Staging and Storage Study* that identified several options for staging and storing nuclear weapons and nuclear weapons components at Pantex. These options also identified how the aging security system could be addressed. The Team recommended that Pantex prepare a Mission Need (Critical Decision-0) package in accordance with the requirements set forth in Department Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*. Per the Order, Pantex had to identify a mission-related need that could not be met through other than material means. In August 2012, Pantex submitted a Mission Need Statement and Program Requirements Document for a Material Staging Facility to NNSA Headquarters, seeking approval for mission need. As of November 2012, NNSA Headquarters had not yet approved the Critical Decision-0 package.

² A magazine is a warehouse used to stage nuclear weapons and nuclear weapon components, such as pits.

Warehouses for Weapon Components

We also noted that warehouses that Pantex uses to stage weapon components are nearing capacity levels. Specifically, Pantex stages a significant quantity of other weapon components. According to a Pantex report, the warehouses used for such storage are about 86 percent full. As of February 2012, Pantex had about 3.7 million weapon components. Of the total components, about 3.5 million are active components and the remaining are legacy components. In addition, Pantex generates approximately 50,000 components each year as part of its dismantlement activities. In a 2009 report, *Storage Capacity at the Pantex Plant* (OAS-L-09-03, January 2009), we reported that Pantex could not demonstrate and we could not determine if Pantex had sufficient storage capacity to meet future mission requirements. According to a Pantex official, Pantex does not anticipate problems with maintaining warehouse space for components from future dismantlement operations based on an annual average disposal of 160,000 components. However, the Pantex official could not provide documentation showing the estimated volume of space needed to store weapon components from future dismantlements and volume of space created through the disposition of components.

Capacity Challenges

Pantex faces challenges in managing its limited warehouse capacity. In an effort to not add components to the legacy workload, Pantex prioritizes the characterization, sanitization and disposition of surplus components generated from the active dismantlement programs over the legacy components. Further, according to a Pantex official, Pantex realizes that there are components that are designated as active and ready for use that may not be needed by the current stockpile. The official also stated that Pantex has been making progress in the last 3 years in disposing of scrap components. There is now more emphasis being placed on looking at components designated as other than scrap to see if other NNSA sites have requirements for keeping them at Pantex. For example, the official stated that Pantex had identified components that are slow moving (no transactions in 5 years), and by February 2013 Pantex plans to develop a process for looking at components with no future usage and a process for acquiring approval for disposition of components. However, until an evaluation is performed to determine if a component is still needed to support the stockpile, Pantex will continue to maintain the component in the inventory. Additionally, there are no performance metrics to ensure that Pantex is only storing components that are needed to support the stockpile.

SUGGESTED ACTIONS

The NNSA Production Office is aware of the current condition of the Zone 4W infrastructure and the magnitude of the weapon components being stored at Pantex, and actions are being taken to address these two areas. Thus, we are not making any formal recommendations. However, because no final decision has been made whether to upgrade the Zone 4W infrastructure or to construct a replacement facility, we suggest that the Office of Defense Nuclear Security in coordination with the Manager, NNSA Production Office, ensure that Pantex continues to provide the level of protection required for safe and secure staging operations.

In addition, to ensure sufficient storage capacity for components, we suggest that the Federal Program Manager, Weapons Dismantlement and Disposition Program, in coordination with the Manager, NNSA Production Office, consider actions to:

- Expedite the disposition of scrap and legacy components and work with Pantex on component storage solutions associated with further stockpile reductions; and,
- Establish performance metrics for the identification and disposition of active and ready-for-use components no longer needed to support the stockpile.

Because we are not making recommendations, a formal response is not required. We appreciated the cooperation of Department and Pantex officials during the audit.

Attachment

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

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The audit objective was to determine whether the National Nuclear Security Administration (NNSA) is effectively managing its weapons dismantlement and disposition program.

SCOPE

The audit was performed between November 2011 and November 2012. We conducted the audit at the NNSA Albuquerque Complex in Albuquerque, New Mexico; the Pantex Plant (Pantex) in Amarillo, Texas; and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee.

METHODOLOGY

To accomplish the objective of this audit, we:

- Toured Pantex and Y-12 facilities used for weapon dismantlement and disposition of components;
- Interviewed Federal and contractor personnel at the NNSA Albuquerque Complex, Pantex, and Y-12;
- Reviewed the Nuclear Weapons Stockpile Plan, NNSA's Production and Planning Directives, and other planning documents pertinent to the subject audit; and
- Reviewed the 2010 Nuclear Posture Review report, New Strategic Arms Reduction Treaty, Department of Energy (Department) guidance, and policies and procedures.

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 conclusions based on our audit objectives. The audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the audit objectives. In particular, we assessed the implementation of the *GPRA Modernization Act of 2010* and found that the Department had established performance measures related to weapon dismantlement and disposition of weapon components. However, there are no performance metrics to ensure that Pantex is only storing components that are needed to support the stockpile. 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 audit objective.

Management waived an exit conference.

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