



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

AUDIT REPORT

The Department of Energy's Management of
Spare Parts at Selected Sites

DOE/IG-0936

May 2015



Department of Energy
Washington, DC 20585

May 21, 2015

MEMORANDUM FOR THE SECRETARY

A handwritten signature in cursive script, appearing to read "Greg Friedman".

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "The Department of Energy's
Management of Spare Parts at Selected Sites"

BACKGROUND

The Department of Energy is responsible for advancing the energy, environmental, and nuclear security of the United States. In fulfilling that role, it promotes scientific and technological innovation, sponsors basic research in the physical sciences, and pursues the environmental cleanup of the nation's nuclear weapons complex. The Department's nationwide system of 17 national laboratories provides world-class scientific, technological, and engineering capabilities in support of these missions. As such, it is critical that the Department's equipment and facilities be available and operational, when needed. Consequently, effective management of spare parts inventories is crucial to the Department's missions. Although the Department does not specifically define a spare part, industry defines a spare part as an interchangeable part that is kept in an inventory and used for the repair or replacement of failed components.

With regard to Hazard Category 1, 2, and 3 nuclear facilities, Department guidance states that a catalog of parts, materials, and equipment normally used at a facility should exist with an up-to-date indication of what is available for issue. Department Order 580.1A Administrative Change 1, *Department of Energy Personal Property Management Program*, dated October 22, 2012, governs the management of spare parts for nonnuclear facilities and requires that Department elements manage and conduct physical inventories of spare parts.

Because of their critical importance in ensuring continuity of operations, we initiated this audit to determine whether the Department effectively managed its spare parts at selected sites.

RESULTS OF AUDIT

Our audit disclosed that spare parts inventories at the three sites we reviewed were not always effectively managed. Spare parts often were not managed or tracked, and many organizations did not maintain accurate inventory records. Specifically, we found that:

- Despite having seven Hazard Category 2 and 3 nuclear facilities, Lawrence Livermore National Laboratory did not maintain a catalog of parts, materials, and equipment normally used at its facilities with an up-to-date indication of availability. It also had a decentralized approach to managing spare parts in its nonnuclear facilities, some of which did not track their spare parts.
- Although Oak Ridge National Laboratory appropriately managed spare parts in its nuclear facilities, it did not track all spare parts inventories for nonnuclear applications.
- Savannah River Nuclear Solutions, LLC, the management and operating contractor at the Savannah River Site, had a large inventory of spare parts, valued at more than \$26 million, which had not been used in more than 5 years. While the contractor had identified this portion of its approximately \$42 million inventory as "nonmoving," it had not yet determined what portion of these items were no longer needed.

These issues occurred because the Department had not ensured that sites were managing spare parts inventories for nuclear facilities in accordance with Department requirements. Also, unlike guidance for nuclear facility spare parts, contractors were not provided with consistent guidance for the management of spare parts inventories for nonnuclear facilities. Specifically, the Contractor Requirements Document accompanying the Department's directive on the subject did not incorporate requirements for inventory and other management activities for nonnuclear facility spare parts.

Without a complete inventory of spare parts, the Department is unable to account for millions of dollars of parts and property, thus putting valuable property at an increased risk of loss or theft. Furthermore, necessary and critical spare parts may not be readily available when needed to address not just mission needs, but also operational issues that may arise. In addition, without having an accurate record of what is on hand, organizations may be procuring unnecessary duplicates. Also, costs could be incurred for the unnecessary storage of spare parts that are either obsolete or no longer used.

To meet its varying missions, as well as address operational issues that may arise, it is critical that the Department's equipment and facilities be available and operational, when needed. Furthermore, in light of current budget constraints, resources need to be carefully managed. To address the issues outlined in this report, we made several recommendations designed to strengthen controls over availability and tracking of spare parts.

OTHER MATTERS

During the course of our review, we also found inconsistent and potentially inappropriate accounting for spare parts. Two of the three organizations reviewed expensed spare parts when they were purchased, while the third carried the value of the spare parts as an asset. Given the disparate treatment we observed, we suggested that the Department evaluate whether sites are properly accounting for spare parts.

MANAGEMENT RESPONSE

Management concurred with our findings and recommendations and proposed corrective actions to address the issues identified in this report. We consider management's comments and planned corrective actions to be responsive to our findings and recommendations.

Management's comments are included in Appendix 3.

Attachment

cc: Deputy Secretary
Under Secretary for Nuclear Security
Under Secretary for Science and Energy
Deputy Under Secretary for Management and Performance
Chief Financial Officer
Chief of Staff

AUDIT REPORT ON THE DEPARTMENT OF ENERGY'S MANAGEMENT OF SPARE PARTS AT SELECTED SITES

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THE DEPARTMENT OF ENERGY'S MANAGEMENT OF SPARE PARTS AT SELECTED SITES

MANAGEMENT OF SPARE PARTS

The Department of Energy (Department) did not always manage its inventories of spare parts in an effective manner. Effective management of spare parts is necessary to avoid disruption to the Department's mission, as well as to ensure their availability to address critical operational issues that may occur. However, our review of spare parts management practices at Lawrence Livermore National Laboratory (LLNL) and Oak Ridge National Laboratory (ORNL) identified instances where adequate systems had not been established to properly catalog and account for spare parts. We also found that the Savannah River Site (SRS) was keeping what appeared to be unnecessary spare parts on hand.

Management of Spare Parts Inventories in Nuclear Facilities

LLNL did not have official inventory systems in place to properly track spare parts used at its nuclear facilities and did not maintain an up-to-date listing of parts available for issuance. LLNL manages seven Hazard Category 2 or 3 nuclear facilities¹ and, as such, is required to follow Department Order 433.1B Administrative Change 1, *Maintenance Management Program for DOE Nuclear Facilities*, dated March 12, 2013, which defines the safety management program required by Title 10 Code of Federal Regulations (CFR) 830, *Nuclear Safety Management*. Title 10 CFR 830.122, *Quality Assurance Criteria*, states that contractors must identify and control items to ensure their proper use and maintain items to prevent their damage, loss, or deterioration. Department Guide 433.1-1A Administrative Change 1, *Nuclear Facility Maintenance Management Program Guide for Use with DOE O 433.1B*, dated June 14, 2013, provides acceptable, but not mandatory, approaches to meeting the requirements of the Order and the CFR. Among other things, the guide states that a catalog of parts, materials, and equipment normally used at a facility should exist with an up-to-date indication of what is available for issue. Usage data should be kept and reviewed to identify unnecessary materials in stock, and updates should occur when facility modifications add, remove, or change equipment, or periodic maintenance activities are changed.

Despite these requirements and suggested methods, we found that the LLNL Nuclear Materials Technology Program (Program), which manages all special nuclear material operations at the laboratory, was not managing spare parts in this manner. For example, while the Program maintained certain spare parts on hand, such as gloves, bags, and O-rings for glove boxes, there was no formal inventory system in place to identify and control items or track or monitor usage of any of the spares. Further, LLNL officials stated there was no inventory list or minimum and maximum required quantities and that they visually monitor the stock of gloves, "have a feeling for what they need," and order more, if necessary. The Program also kept spare high-efficiency

¹A Hazard Category 2 facility is defined as a facility in which, based on the inventory of hazardous materials at the facility, a Hazard Analysis shows the potential for significant on-site consequences. A Hazard Category 3 facility is defined as a facility in which a Hazard Analysis shows the potential for significant but localized consequences based on the inventory of hazardous materials at the facility.

particulate air filters on hand. While the quantities were not tracked in an official inventory system, officials kept a handwritten, hardcopy inventory and stated that they conducted periodic physical counts of the filters and ordered replacements, as needed.

In another example, LLNL engineers working in the defense plutonium research and development facility known as "Superblock" ordered spare parts but did not catalog or account for them in an inventory system when they arrived. Instead, Program officials stated that engineers kept the spare parts in their individual offices or work areas for their own use. The *Superblock Maintenance Program Manual* stated that personnel are to track the use of spare parts and replenish inventory, as needed, including those spare parts critical to facility operations or that are unique and not readily available. However, this process was done informally and without official inventory records being maintained and updated.

Furthermore, although the Superblock maintenance manual at LLNL referenced a spare parts list, we found that personnel did not maintain such a list. In response to our inquiry, Superblock officials created the Equipment Important to Safety with Known Spare Parts list that identified spare parts needed for such facility components as the criticality alarm system, continuous air monitoring system, and tritium room monitors. However, while the list catalogued critical spare parts, such as relays, switches, and batteries, it did not specify any other characteristics, such as type, size, quantities on hand, location, usage data, or any other information about the spare parts.

In contrast to LLNL, the Research Reactors Division (RRD) at ORNL had policies and procedures in place to procure, maintain, and track spare parts for its nuclear facilities. Specifically, RRD used an inventory management system that was custom created to specifically manage its inventory. All procurement requests for spare parts were routed through the system and approved by a manager or designee. Upon receipt, spare parts were logged into the system, and the location, usage, and custodian information was tracked. Task leaders were responsible for ordering only the materials needed to complete a project, and processes were in place to return unused items to inventory. RRD officials indicated that this process not only allowed for better controls over inventory, but it also helped ensure that the pedigree of a part was maintained through the chain of custody. Officials noted that the implementation of this system eliminated the problem of untracked "bench stock" accumulated by individuals throughout RRD. Finally, all spare parts were stored in a central location with a robust tagging and indexing system to ensure that different quality and safety levels of parts were not comingled, and the spare parts warehouse was access controlled with procedures in place to track inventory as it was issued.

We also found that ORNL's Nonreactor Nuclear Facilities Division managed its spare parts through a Web-based tracking system. One person ordered all safety-related spare parts for the Division, and the system tracked the safety-related spare parts from the time they were ordered until they were issued for use. An official stated that the main purpose of the system was to allow engineers to see what was already in stock, so they did not have to order parts they already had. The system was a simple Web-based database that was not as sophisticated as the RRD's system, yet met the requirements of the Department's guide and adequately tracked all spare parts.

Management of Spare Parts Inventories in Nonnuclear Facilities

Similar to the issues we found at LLNL's nuclear facilities, we identified instances at some of its nonnuclear facilities where systems were not in place to properly manage spare parts inventories. LLNL did not have an institutional approach for tracking its spare parts; instead, each organization managed its own spare parts inventory. However, many organizations did not track spare parts, and as a result, we were unable to obtain complete data on items maintained by LLNL's five directorates. While touring one nonnuclear facility, we observed a stock room full of assorted spare parts and other materials, including filters, nuts, bolts, large connectors, and other parts. However, the organization's manager stated that the parts were not on any inventory listing and no official records were maintained on them.

Notably, we did identify two nonnuclear programs at LLNL with large volumes of spare parts: the National Ignition Facility and the Maintenance Utilities and Services Division, which had inventory systems in place to track spare parts inventory. The stand-alone systems collected data about the spare parts, including the quantity and location of the spare parts. The system used by the Maintenance Utilities and Services Division contained the cost of the parts and valued its inventory at approximately \$1,125,000. However, while the National Ignition Facility maintained a large warehouse of spare parts and materials, LLNL was unable to place a value on the inventory at this location.

Although ORNL had a system to manage spare parts in its nuclear facilities, a similar comprehensive system did not exist in the nonnuclear facilities we visited. ORNL officials stated that a centralized inventory system known as "Stores" had been used in the past to manage the inventories in its nonnuclear facilities; however, in the 1980s, ORNL instituted a "just-in-time" ordering system to eliminate maintaining large inventories on site. ORNL officials told us, and we confirmed, that the Stores system still existed and was used primarily to manage operating supplies and materials and a minimal amount of spare parts inventory. One ORNL engineer explained that when the laboratory transitioned to just-in-time ordering, the lack of spare parts kept in stock started to impede ORNL's mission, so personnel began building their own bench stock to keep within their work areas and not officially track in the Stores system. To illustrate, one ORNL group budgeted approximately \$1.4 million for spare parts in fiscal year (FY) 2014. The group leader estimated that only about 10 percent of the group's spare parts were managed by the Stores system, while the remaining spare parts were kept at the shop as bench stock. During walk-throughs of one nonnuclear facility, we observed hundreds of items stored in this manner. Although we were unable to verify the value of this bench stock inventory because ORNL did not track the parts in any system, the ORNL official estimated that the bench stock for that group alone was valued between \$1–2 million.

In contrast to the issues we found at LLNL and ORNL, the SRS management and operating contractor, Savannah River Nuclear Solutions, LLC (SRNS), had an inventory system to manage and track spare parts for both its nuclear and nonnuclear facilities. SRNS used a centralized Stores system to manage its inventory of materials, items, and spare parts that supported different production processes in various operating facilities throughout the site's 310-square-mile campus. This centralized system maintained such pertinent information as quantities on hand, location, and minimum and maximum quantities.

Spare Parts Stocking Levels

We identified instances at SRS where the site may be maintaining unnecessary or excessive levels of inventory on hand. A Savannah River Site Office official expressed concerns, and we confirmed, that SRNS was maintaining large quantities of spare parts on hand for inordinate periods with no use. For example, as of January 2014, the SRNS Stores system contained 33,533 items valued at approximately \$42 million. SRNS had defined more than \$26 million (62 percent) of the inventory as "nonmoving," meaning that a request for that item had not been made in more than 5 years. Although we recognize that it may be necessary to keep certain spare parts on hand for longer periods, especially those that are unique, critical, or for legacy systems, SRNS had not determined which items in the \$26 million nonmoving inventory met this requirement. Subsequent to our January 2014 site visit, SRNS developed the *SRS Nonmoving Inventory Plan*, an action plan aimed at ensuring that only minimum necessary quantities of spare parts were held on site. As of October 2014, SRNS had reviewed 3,754 items with a total value of \$2,564,722 and determined that 3,233 items, valued at \$1,700,144, were no longer needed by the owning organization. While this is a positive step, we noted that the evaluations for determining whether nonmoving inventory should be retained will not be completed until the end of FY 2019.

Program Implementation and Guidance

The ineffective management of spare parts inventories at nuclear facilities occurred in part because the Department had not ensured the provisions outlined in the Department's Order and Guide had been fully implemented. We also found that there was a lack of specific Department guidance to its sites for managing spare parts for nonnuclear facilities. Additionally, the sites reviewed did not have adequate procedures to address spare parts management.

Nuclear Facility Program Implementation

The Department had not ensured that sites were managing spare parts inventory for nuclear facilities in accordance with the Department's Order and its implementing Guide. Department Order 433.1B Administrative Change 1, which defines the safety management program required by 10 CFR 830, requires that all Hazard Category 1, 2, or 3 nuclear facilities conduct all maintenance of structures, systems, and components that are part of the safety basis in compliance with an approved nuclear maintenance management program (NMMP). The Order requires that the procurement process is appropriately integrated with the NMMP to ensure the availability of parts, materials, and services for maintenance activities. Furthermore, 10 CFR 830.122 states that contractors must identify and control items to ensure their proper use and maintain items to prevent their damage, loss, or deterioration. Department Guide 433.1-1A Administrative Change 1, provides acceptable approaches for developing an NMMP in accordance with the Order, including specific guidance for the management of spare parts in the Department's nuclear facilities. The guide states that a catalog of parts, materials, and equipment normally used at a nuclear facility should exist with an up-to-date indicator of what is available for issue. The guide specifically states that spare parts and stocking levels should be reviewed over the life of the facility and that usage data should be kept and reviewed to identify unnecessary materials kept in stock.

The Livermore Field Office approved LLNL's NMMP; however, the NMMP did not contain any procedures for the management of spare parts. The management of spare parts is a part of the procurement process referred to in the Department Order, which is assessed by the contractor every 6 months, with the results being reported to the Livermore Field Office. However, according to an LLNL official, spare parts management was not specifically addressed in these assessments. A Field Office official indicated that it is up to the contractor to identify and control spare parts to ensure their availability. The Field Office official was aware that LLNL had spare parts that were not tracked in an inventory system but stated that the spare parts inventory was managed by the contractor, not the Government.

Nonnuclear Facility Spare Parts Guidance

Additionally, the Department did not have consistent guidance for the management and accounting of spare parts inventory for nonnuclear facilities. Department Order 580.1A Administrative Change 1, *Department of Energy Personal Property Management Program*, dated October 22, 2012, contained only vague guidance about the physical inventory of spare parts for nonnuclear facilities. The Order states that Department elements are required to conduct a physical inventory of spare parts, using a frequency and method approved by the Organizational Property Management Officer. However, the Contractor Requirements Document for Department Order 580.1A Administrative Change 1 did not incorporate the requirements of the Order for Department contractors. Consequently, SRNS was the only contractor to conduct all-inclusive inventories of spare parts at the sites that we reviewed, and the Organizational Property Management Officers that we spoke to stated that Department contractors were not required to conduct physical inventory of spare parts. As noted above, we observed millions of dollars of inventory that are not currently inventoried and tracked at the sites reviewed. The Officers indicated that they would welcome additional guidance for contractors to manage spare parts inventory.

Also, the sites reviewed did not have adequate site-wide procedures to address spare parts management. ORNL and LLNL did not have procedures in place to manage and account for all spare parts maintained throughout the laboratories. It was an accepted practice to procure and expense parts that were kept in individual work areas at both laboratories without tracking them. Additionally, SRNS accounting policies did not discourage programs from ordering spare parts that had a low probability of use. For instance, the costs for operating the Stores warehouses at SRS were paid for by a centralized funding account, not by the individual programs that ordered the parts. Furthermore, programs at SRS were required to expense excess, obsolete, or unused items before they could be removed from Stores inventory, causing an adverse impact on current year funding. Therefore, given the costs of dispositioning unneeded items, combined with the fact that the programs did not directly pay holding costs for Stores inventory, programs had no incentive to remove obsolete items from Stores. Notably, during the course of our audit, the Department approved a change to SRNS' accounting practices that established program specific inventory accounts for FY 2015 and beyond.

Opportunities for Improvement

Without a complete inventory of spare parts, the Department is unable to account for millions of dollars of parts and property, thus creating an increased risk for loss, damage, theft, and misappropriation of parts. In addition, without having an accurate record of what is on hand, organizations may be procuring unnecessary duplicates. For example, correspondence from LLNL personnel indicated that they were unsure whether tubing was in stock and stated "if I can't find the PO [purchase order], I will order another 20 feet of 8-inch tubing." Even a basic inventory management system would eliminate the need to search for purchase orders and eliminate the risk of inadvertently ordering an item that was already in stock.

Furthermore, without an accurate inventory of spare parts on hand, the Department cannot ensure on-site availability of critical spare parts needed to help avoid disruption to its mission or address operational issues that may arise. This is especially true of one-of-a-kind, special legacy parts. For example, in the case of LLNL's Superblock, spare parts were kept in offices or work areas, with no central or official inventory system. Consequently, LLNL had no way to readily identify what parts the laboratory had on hand and available for issue or the locations of any parts; therefore, they may not be able to provide necessary and critical spare parts in a timely and effective manner. Notably, after reviewing a draft of this report, LLNL officials indicated that a more centralized area to store spare parts was being constructed.

Moreover, as a result of maintaining potentially unneeded inventory, Department sites are also incurring unnecessary storage costs for spare parts. SRNS estimated the cost directly related to storing inventory at \$846,000 annually. However, without an accurate analysis of nonmoving and excess inventory to determine which parts were unnecessary, it was impossible for the site to calculate the storage costs directly attributed to unnecessary parts. In addition, by maintaining unnecessary inventory, Department sites are consuming funds that could be put to better use. For example, when inventory items were initially procured in Stores at SRNS, they were funded with a centralized funding account that also funded the Department's waste management projects at the sites. Consequently, as more funds were devoted to inventory, fewer funds were available to execute the Department's waste management projects.

Other Matters

In addition to inventory management issues, we found that LLNL and ORNL had expensed spare parts when they were purchased instead of carrying the value of the spare parts as an asset until the parts were used. The third site reviewed, SRS, in accordance with the Department's policies, accounted for the inventory as an asset and valued the inventory on hand at approximately \$42 million.

The Department's *Financial Management Accounting Handbook* states that inventory and related property under financial control shall be recorded as assets in standard general ledger accounts from the time of acquisition until issued for use, sold, consumed, or disposed of in the normal course of operations. Furthermore, the Handbook states that operating materials and supplies consist of tangible personal property to be consumed in normal operations and should be valued using the consumption method. However, the Handbook does allow for the purchasing method

of valuation to be used if the operating materials and supplies are not significant dollar amounts, they are in the hand of the end user for use in normal operations, or it is not beneficial to apply the consumption method of accounting.

Spare parts at LLNL were accounted for using the purchasing method of accounting. LLNL officials stated that all spare parts were expensed when they were purchased and were not carried in any type of inventory account. These included large inventories maintained in warehouses at the National Ignition Facility and the Maintenance Utilities and Services Division, as well as other parts and materials purchased by organizations without inventory management systems. LLNL officials stated that property was only valued as an asset if it met the capital asset threshold of \$500,000.

Additionally, ORNL expensed all spare parts when they were procured, rather than carrying spare parts as inventory assets and then expensing the items when they were issued for use. With the exception of a few spare parts inventory items in Stores, all ORNL divisions we reviewed expensed all spare parts at the time of procurement. RRD and the Spallation Neutron Source maintained their own spare parts inventories, from which end users could obtain spare parts; however, all the spare parts in these areas were expensed when purchased, regardless of whether they were purchased for immediate use or to be held in inventory for later use. An inventory listing provided revealed that inventory spares had been marked as critical, and materials management personnel confirmed that critical spares were stocked. Furthermore, more than 5 percent of the RRD's spare parts had not been issued to an end user in more than 10 years but had already been expensed, contrary to the Department's *Financial Management Accounting Handbook*.

ORNL officials stated that they accounted for spare parts by expensing them because they received guidance from Oak Ridge Office (ORO) officials instructing ORNL to do so. However, ORNL was unable to provide written instruction from ORO. An ORO budget official indicated that ORO had instructed ORNL to simplify the budgeting structure at the Spallation Neutron Source by reducing the number of Budget and Reporting classification codes used and eliminating a Budget and Reporting classification code specifically for inventory. He indicated that ORNL may have interpreted this to mean that they did not have to account for spare parts inventory. The official stated that the change in budgeting mechanism was never meant to change the accounting for spare parts and that ORNL should not have expensed the spare parts inventory. Furthermore, two ORO accounting managers stated that spare parts should be expensed when they were used, not when they were purchased and held in inventory. After reviewing a draft of this report, ORO budget officials indicated they were creating clarifying guidance for ORNL to properly account for spare parts.

Given the disparate treatment we observed, we suggest that the Department evaluate whether sites are properly accounting for spare parts.

In commenting on our report, the National Nuclear Security Administration (NNSA) stated that administrative controls are placed on all LLNL property and additional inventory requirements would not be cost effective. We agree that any inventory controls should be cost effective, but we noted a lack of controls over much of LLNL's spare parts, as well as nonnuclear spare parts at ORNL.

RECOMMENDATIONS

To meet its varying missions, as well as address unforeseen operational issues that may arise, it is critical that the Department's equipment and facilities be available and operational, when needed. Furthermore, in light of current budget constraints, resources need to be carefully managed. Accordingly, the goal of an effective spare parts management strategy is to optimize spare parts availability to meet demand, while minimizing excess inventories. To strengthen controls over spare parts management and ensure that the Department is accurately tracking spare parts, we recommend that the Deputy Under Secretary for Management and Performance, in conjunction with the Under Secretary for Nuclear Security:

1. Ensure that sites manage spare parts inventory for nuclear facilities in accordance with Department Order 433.1B Administrative Change 1 and the underlying Title 10 Code of Federal Regulations 830; and

We also recommend that the Deputy Under Secretary for Management and Performance, in coordination with the Under Secretary for Nuclear Security, and the Under Secretary for Science and Energy:

2. Develop and implement a policy for the effective management of spare parts at the Department's facilities, to include procurement, management, usage tracking, and disposal of spare parts.

MANAGEMENT RESPONSE

Management concurred with each of the report's recommendations and indicated that corrective actions were planned to address the issues identified. Specifically, NNSA and the Department will clarify existing requirements as they may relate to spare parts and ensure consistent interpretation and application. In addition, the Livermore Field Office and LLNL will conduct a review of procurement for management of critical spare parts for all LLNL nuclear facilities. The Department will also clarify existing policy regarding management of spare parts through its life cycle, and the Department and NNSA will request that the respective internal audit organizations review and validate the appropriateness of accounting for spare parts at Department sites.

AUDITOR COMMENTS

Management's comments and planned corrective actions were responsive to our recommendations. Management's comments are included in Appendix 3.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The objective of the audit was to determine whether the Department of Energy (Department) effectively managed its spare parts at selected sites.

Scope

This audit was conducted between December 2013 and May 2015, at the Savannah River Site in Aiken, South Carolina; Lawrence Livermore National Laboratory in Livermore, California; and Oak Ridge National Laboratory in Oak Ridge, Tennessee. The audit scope included a review of spare parts management practices at those locations. This audit was conducted under Office of Inspector General Project Number A14GT015.

Methodology

To accomplish our audit objective, we judgmentally selected a sample of 3 Department sites from a universe of 20 sites with nuclear facilities. This selection was based on the number of nuclear facilities, the type of work performed, and previously identified issues at each site. Because a judgmental sample of Department sites was used, the results were limited to the sites or locations selected. Additionally, we

- Researched Federal and Department regulations, policies, and procedures related to the management of spare parts;
- Reviewed prior reports issued by the Office of Inspector General;
- Reviewed contractor policies, procedures, and practices for managing spare parts inventory at the sites visited;
- Interviewed key Department and contractor personnel;
- Performed a book-to-floor review of selected inventory items; and
- Analyzed various spare parts records, including procurement data, inventory listings, and usage data.

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 findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and the Department's implementation of the *GPR Modernization Act of 2010* and determined that it had not established performance measures specifically related

to the management of spare parts. 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 assessed the reliability of computer-generated data by comparing it to physically sampled inventory items from provided listings and found the data to be reliable for the purposes of this audit.

We held an exit conference with Department officials on May 14, 2015.

PRIOR REPORT

- Audit Report on [*Stocked Inventory at the Savannah River Site*](#) (DOE/IG-0508, July 2001). This audit found that as of March 2001, Westinghouse Savannah River Company's (Westinghouse) Asset Management Division maintained about 4.1 million items in its stocked inventory, acquired at a cost of about \$64 million and incurred an estimated annual cost of about \$700,000 to store these items. The audit noted that Westinghouse was not identifying and disposing of items that exceeded "maximum" inventory levels or had no usage during the last 10 years. This resulted in Westinghouse incurring about \$116,000 annually to store about \$9 million in stocked inventory that did not appear to be needed. The audit also noted that Westinghouse did not have procedures in place to determine how many items of stocked inventory were necessary to meet the site's mission and accounting procedures discouraged users from reporting stocked inventory as excess.

MANAGEMENT COMMENTS



Department of Energy
Washington, DC 20585

March 27, 2015

MEMORANDUM FOR RICKEY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDITS AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: INGRID KOLB
DIRECTOR
OFFICE OF MANAGEMENT *Ingrid Kolb*

SUBJECT: Management comments on Draft Audit Report on "The Department of Energy's Management of Spare Parts at Selected Sites".

Thank you for the opportunity to comment on the subject draft report. Below please find the consolidated audit responses from the Office Environmental Management, Office Science, Oak Ridge National Laboratory, National Nuclear Security Administration, and the Office of Management.

MANAGEMENT COMMENTS and ANALYSIS

The Office of Inspector General had the following recommendations in its Draft Audit Report:

Recommendation 1:

- (1) Ensure that sites manage spare parts inventory for nuclear facilities in accordance with Department Order 433.1B Administrative Change 1 and the underlying 10 Code of Federal Regulation 830.

Management Decision

Concur

Response: Concur – NNSA and the Department will clarify existing requirements for complying with 433.1B, Administrative Change 1, and 10 CFR 830 as they may relate to "Spare Parts." We will also consider DOE Order 580.1A and any clarifications provided in response to recommendation 2 to ensure consistent interpretation and application as appropriate. LFO and LLNL will also conduct a DOE O 433.1B review of the element "Procurement" for management of critical spare parts for all LLNL nuclear facilities. The estimated completion date for all activities is December 31, 2015.

Recommendation 2:

Develop and implement a policy for the effective management of spare parts at the Department's facilities, to include procurement, management and usage tracking, and disposal of spare parts.

Management Decision

Concur

Response: Concur - DOE will clarify existing policy regarding management of spare parts through its life cycle. The Department of Energy will notify all stakeholders by written documentation. The estimated completion date for all activities is December 31, 2015.

Other Matters

The Department, including NNSA, will request that the respective Internal Audit Organizations review and validate the appropriateness of accounting for spare parts at our sites.

Attachment

FEEDBACK

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Office of Inspector General (IG-12)
Department of Energy
Washington, DC 20585

If you want to discuss this report or your comments with a member of the Office of Inspector General staff, please contact our office at (202) 253-2162.