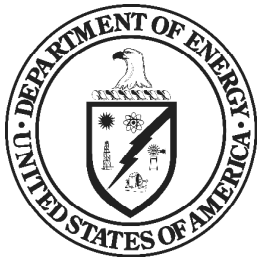

U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

National Nuclear Security Administration Nuclear Weapons Systems Configuration Management

DOE/IG-0902

March 2014

Department of Energy
Washington, DC 20585

March 26, 2014

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "National Nuclear Security Administration Nuclear Weapons Systems Configuration Management"

BACKGROUND

The National Nuclear Security Administration (NNSA) is responsible for maintaining a safe, secure and effective nuclear deterrent through the application of science, technology, engineering and manufacturing processes. To meet its mission, NNSA continuously assesses and evaluates each nuclear weapon system to certify its reliability and to detect and/or anticipate any potential problems that may occur as a result of aging. NNSA depends on information concerning how nuclear weapons were built to certify reliability. Given its importance, such information is controlled through a formal configuration management (CM) process.

Under the CM process, the exact "as-built" product definition[1] of a nuclear weapon is to be established and maintained throughout its life cycle. An as-built product definition is similar to an index, in that it contains an exact list, by version, of the drawings, specifications, engineering authorizations, manufacturing records, and any other essential documents used in the development and qualification of a nuclear weapon system or component.

The Office of Inspector General received multiple allegations regarding NNSA's management of CM information. The allegations related to incomplete product definitions for NNSA nuclear weapons, and ineffective management of classified nuclear weapons drawings, a situation that could lead to unauthorized changes to the drawings. In response, we initiated this audit to determine whether NNSA had maintained accurate and complete CM information for nuclear weapons and nuclear weapons components to support safe, sound and timely decisions related to these devices.

RESULTS OF AUDIT

Our review substantiated the allegations and identified instances in which NNSA had not maintained accurate and complete CM information for its nuclear weapons and components. We

[1] Also known as a product acceptance definition. As used in this report, the as-built definition should identify a serialized weapon to the specific revisions or issues of drawings that were used in the production of that weapon.

also identified additional concerns with the use of nuclear weapons parts and components that did not conform to specifications. In one instance, this resulted in a significant increase in costs. In particular:

- We were able to find the as-built product definitions and associated drawings for weapons (serialized) that had been newly refurbished by NNSA. However, we were not always able to find this information for the remaining weapons. Specifically, NNSA sites could not always locate as-built product definitions or associated drawings for nuclear weapons and components in its official records repositories. For example, Pantex Plant (Pantex) officials could not locate as-built product definitions for 14 of 36 (39 percent) nuclear weapons that we selected from the current stockpile for testing. In addition, of the 22 nuclear weapons with as-built product definitions, Pantex could not locate all the associated drawings for 13 weapons (59 percent). Pantex officials were concerned and surprised at the difficulty in finding as-built product definitions for the nuclear weapons and took action to determine how long it would take to develop the as-built product definition for three of the missing sample items. Pantex officials stated that it took an average of 40 hours for each serialized weapon, which means that it would take approximately 14 weeks to develop the as-built product definitions for all of the missing sample items. Further, because the original documented as-built product definition could not be located, we could not confirm that the product definitions developed by Pantex were precisely the same as the originals.

- Regarding nuclear weapons components, Sandia National Laboratories (SNL) officials responsible for neutron generator components could not locate 16 of the 36 (44 percent) neutron generator drawings identified in the as-built product definitions. We were not able to do so either as part of our audit. Additionally, SNL officials told us that they were uncertain whether the available information constituted a complete as-built product definition for the neutron generator, a key component of a nuclear weapons system. These drawings were for neutron generators that remained in the weapons stockpile but had been produced by a production site that had since closed. While most of the neutron generators are nearing the end of the useful life and will likely be redesigned for replacement, these items are still part of the current stockpile. As such, maintaining configuration management is still required for stockpile surveillance and other investigative needs.

- The Los Alamos National Laboratory (LANL) CM information system allowed changes to classified nuclear weapons drawings without using an approved change notice. This practice could permit unauthorized changes to weapons drawings. For example, we identified changes to an approved and ready for production weapon drawing that were not on the Final Change Order, a required document that identifies all approved changes to a nuclear weapon drawing. LANL officials were unable to explain why changes were made, but told us that they "assumed" the changes were needed. NNSA standards require that once a drawing has been approved and is ready for production, the drawing is "read only" and cannot be modified without a proper change order, in essence confirming that all changes to the drawings have been approved. Subsequently, NNSA officials told us that, in this particular case, the changes had been necessary to correct an error and that the final changed drawing had been approved prior to release to the production site.

Although the change may have been necessary, the lack of documentation reflected a breakdown in controls intended to prevent unauthorized changes to weapons drawings.

- Sites did not always ensure that parts that did not conform to specifications were actually fit for use in a nuclear weapon. For example, sites had not always:

  - Justified the use of parts that did not conform to design specifications nor ensured that needed corrective actions to such parts were taken and were effective. Our review of the authorizations to use parts that did not conform to design specifications associated with the W76-1 Life Extension Program (LEP) determined that 19 of 30 (63 percent) LANL authorizations we sampled did not have the required technical justification to provide the assurance that the component was suitable for use in a nuclear weapon. At SNL, 7 of 46 sampled authorizations (15 percent) did not have the required technical justification. Officials at SNL stated that they had identified problems with technical justifications in 2009, and implemented corrections. In fact, our limited test work did not identify technical justification problems at SNL after 2010. According to SNL, actions taken since 2009 may have contributed to better performance in documenting the technical justifications and corrective actions. LANL officials acknowledged the identified weaknesses and stated that the process in place at the time of our audit did not provide for adequate technical justification and closure for nonconforming parts issues. LANL and NNSA further stated that this was an NNSA-wide issue and needed to be addressed.

  - Tracked implementation of corrective actions that were identified as being needed to use nonconforming parts in weapons systems. According to an NNSA official, it is almost impossible to know if a corrective action was verified as implemented without a corrective action tracking system.

  - Effectively verified that externally supplied parts and components conformed to design specifications. For example, we identified two parts that did not meet specifications but were inappropriately qualified for use by SNL and/or Pantex in the development of the W76-1 LEP. In one case, this situation resulted in component production to be delayed by 1 year and additional costs of between $20 and $25 million to correct problems associated with the use of nonconforming parts.

  - Obtained required approvals from design agency[2] officials before using nonconforming parts in nuclear weapons. Specifically, some nonconforming parts require the approval of the design agency's Nuclear Explosive Safety Representatives when the part is essential to preventing the inadvertent detonation of a nuclear weapon. However, in our sample of 27 authorizations to use such parts, we found that 4 (14 percent) did not have the required Nuclear Explosive Safety Representative approvals.

[2] The design agency is the NNSA site responsible for the design of a weapon part.

Maintenance Priority Over Nuclear Weapons Design Information

Problems occurred in the control of nuclear weapons CM because, over the decades of nuclear weapons development, neither NNSA nor its sites treated the maintenance of original nuclear weapons CM information as a priority. Such information is needed to ensure that a specific serialized weapon could be associated with its as-built product definition from cradle to grave. Instead, NNSA focused on collecting CM information as needed, resulting in a project management approach that was more reactive than proactive. However, during our review, an NNSA official stated that NNSA had determined an approach to addressing the deficiencies with the decades-old nuclear weapons CM information. Specifically, the official told us that NNSA is now prioritizing the original as-built product definition information to ensure that the most needed nuclear weapons data is digitized and accessible for future needs. While NNSA had determined an approach to prioritizing and digitizing the needed CM information to be stored in NNSA's official record repository system, the Image Management System, it had yet to determine how it will be associated with an actual weapon or component serial number. NNSA stated that it is developing plans to establish a system capable of associating the CM information with a specific weapon or component serial number, but it had not yet determined exactly how this will be accomplished.

Nuclear Weapons Design Changes

We also found that the risk of unauthorized changes to classified nuclear weapons drawings existed because LANL had not limited access to the drawings as required and had circumvented a control over changes to post-release drawings. Department of Energy Order 452.8, Control of Nuclear Weapons Data, prohibits granting need-to-know access to nuclear weapons drawings to entire organizations or functional groups. However, we noted that LANL had given system access to approximately 30 nuclear weapons designers regardless of whether they were assigned to a nuclear weapon project. LANL officials told us that they chose not to limit designer access to nuclear weapons drawings because they believed that their internal processes were more efficient, without raising risk issues.

In addition, NNSA requirements state that changes to released drawings can only be made with an approved and documented change notice. However, LANL inappropriately gave all designers system access that allowed changes to any post-release drawing without a change notice. LANL told us that, subsequent to our review, it had begun making changes to limit designer's access to specific projects and was evaluating additional controls to help mitigate the risk of unauthorized changes to released drawings.

Nonconforming Nuclear Weapons Parts

NNSA had not ensured that the process being used for acceptance of nonconforming parts in nuclear weapons was effective. Although NNSA procedures required formal justification for using nonconforming parts, we found that both LANL and SNL had not always actually included justifications on nonconformance reports. Instead, NNSA and LANL officials noted that NNSA contractors sometimes relied on undocumented expert engineering opinions in lieu of a formally documented technical justification for approving the use of nonconforming parts in nuclear weapons.

NNSA also lacked a system to track closeout of corrective actions for nonconforming parts. As previously noted, an NNSA official acknowledged that it was almost impossible to know if a corrective action was verified as being implemented without a tracking system. However, NNSA policies and procedures did not require such a tracking system. The lack of a system to document engineering opinions regarding nonconforming parts reduced the confidence that these parts would function as intended. Further, there was no assurance that the nonconformance was subjected to subsequent independent review and approval.

NNSA contractors had not always ensured that externally supplied parts and components met the proper specifications in the product definition. Contrary to established requirements, NNSA contractors had not always adequately evaluated products procured from suppliers for use in a nuclear weapon. Notably, SNL and Pantex performed inadequate quality inspections on vendor supplied parts to ensure that unqualified parts were not introduced into the U.S. nuclear weapons inventory, commonly referred to as the weapons stockpile. For example, we found that SNL had not verified that externally supplied parts and components met specifications. Pantex subsequently determined that some of these parts and components had unacceptable deviations and had been used or made for use in or on weapons in the stockpile.

SNL had also not taken effective action to address weaknesses in supplier management controls. For example, our review of SNL Performance Evaluation Reports determined that while NNSA had identified supplier quality management as an opportunity for improvement since 2005, corrective actions were not fully effective. In particular, NNSA officials told us that SNL's corrective actions focused on specific instances of quality issues, rather than systemic or institutional issues. Subsequent to our fieldwork, NNSA commented that the focus of corrective actions had improved and that this issue may be resolved. However, in Fiscal Year 2012, the Sandia Field Office identified continuing issues with external supplier management. In addition, corrective actions developed for external supplier management issues were not always completed. Specifically, our review identified that one critical corrective action was not taken until we brought it to management's attention 2 years later. NNSA also acknowledged the supplier management deficiency in its 2012 Performance Evaluation Report for SNL and identified the issue as an opportunity for improvement.

Impact on the Stockpile

CM information is the foundation upon which the NNSA surveillance program assesses the current stockpile. Without it, NNSA loses confidence in its nuclear weapons stockpile assessments and spends more resources on investigations of problematic components and LEPs. In addition, recapturing the Department's original nuclear weapons data in a configurable format can potentially save tens of millions of dollars. For example, LANL officials told us that they saved between $17 and $50 million during the W76-1 pit recertification by recapturing original pit data into a configurable format for recertification and reuse for the W76-1 LEP. In addition, an October 2009 joint report issued by LANL and Lawrence Livermore National Laboratory stated that not having NNSA original nuclear weapons data available is the primary impediment to the stockpile surveillance transformation project. Further, unauthorized system access and changes to weapons drawings, incomplete engineering authorizations and inadequate assessments of vendor-supplied parts may ultimately increase costs and could negatively impact the reliability and safety of U.S. nuclear weapons.

Finally, the acceptance of nuclear weapons parts and components that do not meet specifications has potential readiness, reliability, cost and timeliness implications. For example, in one case, this situation resulted in a 1-year delay in component production and additional costs of approximately $20 to $25 million. Further, inadequate reviews of commercial-off-the-shelf parts led to NNSA having to recall several refurbished W76-1 weapons due to significant safety and reliability concerns.

Because of the significance of these issues and the potential impact on stockpile reliability, we made recommendations designed to improve NNSA's configuration management and its efforts to prioritize planned weapons initiatives.

MANAGEMENT REACTION AND AUDITOR COMMENTS

Management concurred with the report's recommendations and stated that NNSA remains vigilant in configuration management information for its nuclear weapons and components as well as in supply chain management issues.

Management's proposed and initiated corrective actions are responsive to our findings and recommendations. We appreciate management's commitment to effective configuration management of nuclear weapons systems.

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

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Configuration Management for NNSA's Nuclear Weapons Systems

In order for the National Nuclear Security Administration (NNSA) to accept a nuclear weapon or component into the stockpile, officials must ensure that the weapon is "qualified." A major component of that process is ensuring that the exact product definition version to which the weapon was built has been developed and maintained. NNSA requires that this information be maintained throughout the life of the weapon. Once a weapon or component is qualified, its product definition is referred to as the "as-built" definition.[1] The as-built definition contains an exact list, by version, of drawings, specifications, test data and other applicable documents used in the acceptance of a weapon or component. This information is essential for the: (1) recertification of aging weapons through Life Extension Programs (LEPs); (2) timely closure of investigations on problematic components; and (3) the identification of aging defects of components. In addition, NNSA's Technical Business Practices require that changes to weapon designs be properly controlled, that any use of nonconforming weapon components be properly authorized and documented, and verification reviews be performed to ensure weapon components have achieved the respective performance and physical requirements. Inadequate verification reviews could have significant consequences on the safety and reliability of nuclear weapons.

As-Built Product Definitions and Drawings

We were able to find the as-built product definitions and associated drawings for weapons (serialized) that had been newly refurbished by NNSA. However, we were not always able to find this information for the remaining weapons. Specifically, NNSA sites could not always locate as-built product definitions or associated drawings for nuclear weapons in its records repositories. Our testing of 36 judgmentally selected nuclear weapons in the current stockpile determined that 14 (about 39 percent) of the as-built definitions could not be found in the Pantex Plant's (Pantex) information management systems. The 36 serialized nuclear weapons we reviewed represented different alterations to each of the 13 weapon systems in the current stockpile, and as such, different as-built definitions (Appendix 1).

When we presented Pantex and Sandia National Laboratories (SNL) officials with the results of our testing at Pantex, they proposed an alternate method for identifying the as-built definitions using a combination of the NNSA's official record repository system, the Image Management System and the Record of Assembly. This was not acceptable because it identified drawings that were different than the original actual as-built product definition. In particular, our testing and discussion with SNL and Sandia Field Office officials determined that the Image Management System/Record of Assembly combination could not always be used to determine, with certainty, which version of a drawing is the correct as-built drawing, and therefore, did not provide a definitive as-built product definition.

[1] Also known as a product acceptance definition. As used in this report, the as-built definition should identify a serialized weapon to the specific revisions or issues of drawings that were used in the production of that weapon.

Although Pantex was able to locate as-built definitions for the remaining 22 sampled weapons, subsequent testing to determine whether NNSA had records of the drawings disclosed that 13 of the 22 (59 percent) remaining weapons had one or more missing drawings. Specifically, our review, performed with the help of Pantex officials, could not always locate the drawings in the multiple repository systems including the Image Management System. Many of the drawings that could not be located were specifications, such as specifications for using detonator cable assemblies in the weapon system. Pantex officials were concerned and surprised at the difficulty in finding as-built product definitions for the nuclear weapons and took action to determine how long it would take to develop the as-built product definition for three of the missing sample items. Pantex reviewed three of the missing sample items and determined that it would take an average of 40 hours to develop the product definition for each serialized weapon, which means that it would take approximately 14 weeks to develop the as-built product definitions for all of the missing sample items. However, because the original documented as-built product definition could not be located, we could not confirm that the product definitions newly developed by Pantex for three sampled items were the definitive as-built product definitions.

Similarly, NNSA could not always locate drawings for neutron generators, a key component of nuclear weapons. Our test work at SNL, which is responsible for the neutron generators, revealed that 16 (44 percent) of the neutron generators used in the 36 stockpile weapons that we tested could not be located by searching the official NNSA records management repository systems. According to SNL officials, the missing records could exist in other records management information systems. However the ultimate retrieval of such drawings could be a very time consuming process because the drawings were not located in the official repository systems. Further, SNL officials were uncertain as to what the as-built definitions should be for the neutron generators serialized parts used in the 36 stockpile weapons we tested. SNL officials explained that they were uncertain about the completeness of the as-built definition because the neutron generators were produced at a location which has since been closed. While most of the neutron generators are nearing the end of the useful life and will likely be redesigned for replacement, these items are part of the current stockpile. As such, configuration management is required to be maintained for stockpile surveillance and other investigative needs.

Conversely, we performed similar testing at Los Alamos National Laboratory (LANL) and determined that as-built definitions were easily identified using LANL's configuration management (CM) system. Specifically, our testing of plutonium pits determined that 100 percent of the 24 sampled pits' as-built definitions could be located, along with all of the drawings called out on the as-built definition. According to LANL officials, had we tried to perform this test work prior to 2012, it would have taken approximately 2 years to locate this information for the same 24 pits. In 2004, NNSA saw the importance of having CM information available in a timely manner and identified an urgent need to pursue the electronic capture of information to assure that legacy surveillance data will not be lost and can be effectively accessed for stockpile assessment. As a result, NNSA developed the Surveillance Data Delivery project to collect, digitize and associate all nuclear weapons CM information in a configurable format. The project was funded under NNSA's Product Realization Integrated Digital Enterprise (PRIDE) initiative. The purpose of PRIDE was to develop the methods of capturing the deteriorating archive CM information before it degrades. While some initial digitization has been funded

under PRIDE (such as the pits at LANL), the work of capturing the substantial amount of remaining CM information has not been fully funded. Senior NNSA management officials were not aware of the deteriorating CM information identified in a Fiscal Year (FY) 2012 Surveillance Data Delivery project report. When we brought it to their attention, they told us that they would address the issue. Subsequently, a senior NNSA management official told us that all needed CM information would be digitized within 3 years.

Although our testing at LANL identified as-built definitions in its CM system, we could not locate the drawings in the official NNSA nuclear weapons record repositories indicating a disjointed approach to management of nuclear weapons configuration information. NNSA Stockpile Surveillance officials were not aware of the problems with the deteriorating CM information.

NNSA and Contractor Management: As-Built Product Definition and Drawings

Over the decades of nuclear weapons development, NNSA had not prioritized the maintenance of original CM information for its nuclear weapons and components to ensure that a specific serialized weapon or component could be associated with its as-built product definition from cradle to grave. Specifically, NNSA had not scheduled the collection of CM information in advance of weapons projects so that it could be available when needed. Instead, CM information was collected as needed, resulting in a project management approach that was more reactive than proactive, a practice that led to weapons project delays and increased costs.

In particular, NNSA did not collect information such as original test data until recertification of a component was needed or surveillance activities required the information for analysis. According to a 2010 Surveillance Enterprise Study completed by NNSA, stockpile surveillance was predicated on having historical baseline data (CM information) to help develop Component and Material Evaluation sampling requirements for trend analysis. However, the Study noted that historical data was often found to be inadequate for this purpose due to configuration control problems. According to the Study, the lack of relevant historical CM information that could be compared against new Component and Material Evaluation test data could delay the determination of whether an issue is age related. The Study further noted that many Component and Material Evaluation results are based on limited data and test conditions, and hence have significant caveats associated with these results.

However, during our review an NNSA official stated that they had determined an approach to addressing the deficiencies with the decades-old nuclear weapons CM information. Specifically, NNSA is prioritizing the original as-built product definition information and placing it into its Image Management System to ensure that the most needed nuclear weapons data is digitized and accessible for future needs. In its response to our draft report, NNSA stated that it plans to upgrade the Image Management System to incorporate the association of product definition with the serialized weapons systems and components that make up the nuclear weapons stockpile. The Image Management System upgrade requirements and acquisition strategy will be determined in FY 2015.

Weapons Design Changes

The LANL CM system allowed changes to classified nuclear weapons drawings without an approved change notice, a practice that could lead to unauthorized changes to the drawings. According to NNSA requirements for the CM system in question, once a drawing is approved and put into the "released" status, the drawing should be read-only and changes should only be made with an approved change notice. A drawing in the released status means it has been subjected to an extensive five-person documented review process and approved for nuclear weapon production, making control of changes to the released drawings critical. Contrary to this requirement, our review of the LANL CM system found that changes could be made to drawings while in the released status without an approved change notice that authorized the changes. In addition, the person responsible for ensuring that changes were not made before issuing the drawing for nuclear weapon production was the same person that was capable of making the changes without the change notice.

While LANL stated that changes to the released drawings are expressly prohibited, we identified a drawing where changes were made that were not identified on the approved change notice. Specifically, the CM system identified a released drawing (version J) for the W76-l Canned Sub-Assembly was released three times without documenting the changes found in releases two and three. In addition, because the changes were not documented on an approved change notice, LANL officials could not explain why the changes occurred and could only assume that the changes were needed. However, by making changes to released drawings after the drawings have been extensively reviewed and approved, NNSA is at increased risk of unauthorized and inappropriate changes to nuclear weapons design information.

NNSA and Contractor Management: Changes to Weapons Drawings

Changes were made to design drawings without required review, approval and notice because, contrary to Nuclear Security Enterprise Product Realization Standard, *PDMLink Standard Installation and Configuration*, LANL gave nuclear weapons Computer Aided Design (CAD) designers system access that allowed changes to any post-release drawing without a change notice. Specifically, LANL granted approximately 30 CAD designers the ability to make changes to drawings whether they were assigned to the project or not. For example, a W78 designer could access and change drawings to a W76-1 design, even when the designer was not assigned to work on any W76-l weapon designs. This is also contrary to Department of Energy Order 452.8, *Control of Nuclear Weapons Data*, which prohibits granting need-to-know access to nuclear weapons drawings to organizations or functional groups. LANL told us, subsequent to our review, that it had begun making changes to limit designers' access to specific projects and is evaluating additional controls to mitigate the risk of unauthorized changes to released documents.

In contrast to LANL, our review of SNL's CM system disclosed that when SNL sends a drawing through the approval process, the drawing is "read only" and changes cannot be made after release. SNL CAD designers were not granted the same access LANL provided to make changes to post release drawings. In addition, SNL assigned individuals, rather than groups, to products in the CM system. This practice effectively decreased the risk of unauthorized changes to nuclear weapons drawings.

When we presented this issue to a responsible Los Alamos Field Office official, the official stated the Los Alamos Field Office was not aware of the issue and would have to investigate. After investigating the issue, the Los Alamos Field Office official believed that LANL was meeting the intent of the requirements. However, the official could not produce any evidence to support this opinion. Not issuing a change notice when making changes to nuclear weapons drawings and giving group need-to-know access to all weapons CAD designers could lead to inadvertent or inappropriate changes. Subsequently, NNSA officials told us that, in this particular case, the changes had been necessary to correct an error and that the final changed drawing had been approved prior to release to the production site. Although the change may have been necessary, its occurrence highlighted a breakdown in controls intended to prevent unauthorized changes to weapons drawings.

Nonconforming Weapon Parts

SNL and LANL did not always justify the use of nonconforming parts in nuclear weapons. NNSA uses Specification Exception Releases (SXRs) to authorize the use of a product that does not completely meet its specification. An SXR can only be used after an engineering evaluation determines the product is suitable for use. The engineering evaluation is documented on the SXR and provides the necessary technical justification for use of the part in a nuclear weapon. *DOE/NNSA Weapon Quality Policy* (QC-1), superseded by *NNSA Weapon Quality Policy* (NAP-24) requires that the technical justification is documented to ensure that all nonconforming parts to be used in a nuclear weapon are appropriately justified.

Our review of the SXRs associated with the W76-l LEP determined that 19 of 30 (63 percent) LANL SXRs we judgmentally sampled did not have the required technical justification. As such, officials lacked assurance that the component was suitable for use in a nuclear weapon. At SNL, 7 of 46 (15 percent) judgmentally sampled SXRs did not have the required technical justification.

In addition, sites had not documented and we could not determine whether corrective actions for nonconforming parts were planned and completed. Contractor sites are required to develop corrective action plans to ensure that component deviations are addressed and do not become repetitive. However, we found that LANL and SNL had not always developed and documented corrective actions with completion dates and assigned individuals as required. NNSA's Technical Business Practice 702, *Nonconforming Parts*, requires SXRs to have a corrective action for the deviation, if needed. Further, the corrective action should state the expected or actual completion date and the individual responsible for completing the corrective action. If no corrective action is needed, the SXR should state the reason. Our review of the corrective actions on the sampled SXRs at LANL determined that 9 of 11 SXRs (82 percent) for which no corrective action was required, did not provide justification for why a corrective action was not needed. Of the 13 SXRs that did have corrective actions, 5 (38 percent) did not have a person assigned to close out the action, nor did 8 (62 percent) of the actions have an actual or estimated closure date. In contrast, all of the SNL SXRs had corrective actions or stated a reason why no corrective action was needed. However, SNL did not always identify a person to close out the corrective action or provide an expected or actual completion date for 14 of 38 (37 percent) sampled SXRs. Officials at SNL stated that they had identified problems with technical justifications in 2009 and implemented corrections. In fact, our limited test work did not identify

technical justification problems at SNL after 2010. According to SNL, actions taken since 2009 may have contributed to better performance in documenting the technical justifications and corrective actions. Specifically, SNL clarified the requirements for technical justification and corrective action, modified the engineering authorization tool to make technical justification and corrective action a required field, and developed training on what constitutes a good SXR.

Additionally, NNSA had not tracked implementation of corrective actions needed prior to using nonconforming parts in weapons systems. QC-1 required that corrective actions be verified to ensure there is no recurrence of the deficiencies that led to the nonconformance. According to an NNSA official, it is almost impossible to know if a corrective action was verified as implemented without a corrective action tracking system.

However, NNSA policies and procedures did not include a policy or procedure for closing out SXRs to ensure the use of nonconforming parts are adequately addressed and do not recur. We also found that, while not specifically required, NNSA sites had not been proactive in always developing corrective action tracking systems for tracking and closing out SXRs. As a result, we could not determine if a verification review was performed on the SXRs that required corrective action and that the action was effective in precluding recurrence. When we discussed these issues with LANL officials, they acknowledged the identified weaknesses and stated that the current process does not provide for adequate technical justification and closure for SXR issues. Further, LANL and NNSA also told us that this is an NNSA-wide issue and needs to be addressed.

Finally, SNL had not always obtained required approvals from Nuclear Explosive Safety Representatives before using nonconforming parts in nuclear weapons. Specifically, some nuclear weapons parts are labeled Pentagon /S/, which signifies that the part is essential to the nuclear explosive safety of the weapon system. A Pentagon /S/ part that has an SXR associated with it requires the approval of the design agency Nuclear Explosive Safety Representative before it can be used in a nuclear weapon. In a separate judgmental sample of 27 SXRs, we found that 4 (14 percent) SXRs ranging from 2007 to 2012 did not have the required Nuclear Explosive Safety Representative approvals. Although our Pentagon /S/ SXR sample was not a statistical sample, the results indicate that there may be problems with the use of nonconforming parts in nuclear weapons. Subsequent to our fieldwork, SNL stated it was aware of the issue with the Pentagon /S/ SXR approvals and that it had plans to address this issue. However, similar to other non-Pentagon /S/ SXRs, SNL had not documented and we could not determine whether corrective actions had been taken and if such actions were effective in precluding recurrence.

NNSA and Contractor Management: Specification Exception Releases

NNSA had not ensured that sites formally provide a technical justification and closure of nonconforming parts. For example, LANL officials noted that they sometimes rely on undocumented expert opinions in lieu of a formally documented technical justification. In addition, many of the SXRs we reviewed noted only that an engineer from a specific organization had stated the nonconformance did not affect form, fit and function and that the product was approved for use in the weapon system, but did not provide the technical justification for such a conclusion. The LANL officials further noted that the SXRs were likely approved without technical justification because the LANL quality reviewers knew the engineers and relied on their

professional opinion. However, this method of doing business poses a risk for NNSA and its contractors, as the engineer will not always be available to answer technical justification questions if future problems are identified for the product. In addition, there is increased risk that a nonconforming part would not function as intended because the engineering opinion was not documented and there is no assurance that the nonconformance was subject to subsequent independent review and approval. NNSA officials were unaware that LANL had not always provided the technical justifications.

As previously discussed, NNSA does not have a formal process for tracking and closing out an SXR. Our review of the NNSA Technical Business Practices identified that there is no policy or procedure for closing out SXRs to ensure the use of nonconforming parts are adequately addressed and do not recur. Finally, we found that NNSA sites do not always have a corrective action tracking system for tracking and closing out SXRs.

External Supplier Nonconforming Parts

Certain externally supplied parts and components were not adequately verified to the proper specifications in the product definition. Ultimately, these parts and components were found to have unacceptable deviations and were subsequently used or made available for use in the production of nuclear weapons. These part and component deviations had a negative impact on the form, fit or function of the weapon systems. Specifically, our review identified multiple parts and components that did not conform to specifications but were qualified for use by SNL and/or Pantex in the development of the W76-l LEP. Technical Business Practice - CM requires that physical requirements of a component be verified to the specifications (e.g., size, shape, density). In addition, NNSA's QC-1 also requires that items and materials be evaluated to determine conformance to applicable specifications, including when a product is procured from external vendors.

Contrary to these requirements, NNSA contractors have not always adequately evaluated products procured from suppliers for use in a nuclear weapon. Specifically, according to causal analyses performed by SNL and Pantex, these two sites performed inadequate quality inspections on vendor supplied parts to ensure that unqualified parts are not used in the production of nuclear weapons. For example, in 2007, SNL was assigned as the integrated contractor for the development of a tool for Pantex in support of the W76-l LEP. SNL manufactured several copies of the tool to support six identical production lines at Pantex. Included in the tool were commercial-off-the-shelf (COTS) pneumatic cylinders. Upon receipt of the cylinders from the COTS vendor, SNL did not inspect them as required by its internal tooling qualification plan to ensure they met the physical configuration requirements found in the product specification. As a result, the fully produced tools were subsequently sent to Pantex with cylinders that did not meet specifications. Likewise, Pantex did not adequately inspect all of the tools provided by SNL. While Pantex had actually discovered the discrepant cylinders on three of the tool copies and repaired the tools by installing the correct cylinders, it did not perform an extent of condition evaluation, as required by QC-1. Had the extent of condition evaluation been performed, three additional discrepant tools would have been identified and corrected prior to use.

Similarly, SNL qualified a vendor supplied part for use in a nuclear weapon that did not meet its full specification. Specifically, SNL qualified production lot 4 of the MC4682 capacitor, a

component with nuclear safety features, for use in the W76-1 LEP. However, SNL found that a subsequent lot 5 failed its performance specifications and was disqualified for use. SNL determined that the cause of the failures was due to the parts not meeting manufacturing specifications during the production of the capacitors. SNL physically re-examined the lot 4 capacitors and determined that many of the previously qualified capacitors did not meet its manufacturing specifications and that these capacitors needed to be scrapped. If it had not been for the failure of the lot 5 capacitors, all of the defective lot 4 capacitors likely would have been used in the W76-l, resulting in a reliability concern for a component with nuclear safety features. According to a subsequent internal review, Sandia had not sufficiently developed testing methods to understand potential failures, and had not ensured that manufacturing processes were completely understood and controlled to minimize potential assembly errors. Although none of the scrapped capacitors were actually used in the production of the W76-1, this situation resulted in component production to be delayed by 1 year and increased costs by approximately $20 to $25 million.

Externally Supplied Parts Evaluations

NNSA contractors had not taken effective action to address weaknesses in supplier management controls. Specifically, our review disclosed that SNL had not performed an internal quality control assessment as required on its machine shops that produced the tools used in the production of the W76-1 LEP until February 2007, nearly three months after the previously discrepant tools had been delivered to Pantex. Although the assessment identified problems, especially in regard to procurements from external suppliers, we could not determine whether SNL took corrective actions for issues identified because the actions were not found in SNL's Corrective Action Tracking System. In addition, we found that SNL did not complete a corrective action identified during the tooling issue root cause analysis. Specifically, SNL had developed a corrective action to revise procedures for its supplier quality management system as a result of the W76-1 tooling issue. However, our review identified that the corrective action was not taken until we brought it to management's attention 2 years later. NNSA acknowledged this deficiency in its 2012 Performance Evaluation Report for SNL and identified the issue as an opportunity for improvement.

Finally, we found that SNL had not taken effective action to address weaknesses in supplier management controls. Specifically, our review of SNL's Performance Evaluation Reports determined that while the Sandia Field Office had identified supplier quality management as an opportunity for improvement since 2005, the actions taken by SNL were not fully effective in making the needed improvements. In particular, NNSA officials told us that SNL corrective actions focused on specific quality issues, rather than systemic or institutional issues.

Additionally, NNSA had not taken effective action to correct weaknesses in Pantex's supplier management controls. Specifically, the Pantex Site Office had not identified a performance measure regarding supplier management in the Pantex Performance Evaluation Reports despite the contractor's failure to perform an extent of condition review of the nonconforming tools supplied by SNL that were used in the W-76 LEP.

Impact on the Stockpile

Not having complete and accurate CM information can have significant effects on surveillance and safety, and can lead to time-consuming and expensive recovery efforts. CM information is the foundation upon which surveillance assesses the current stockpile because it is the baseline against which NNSA measures change during testing. Without it, NNSA loses confidence in its assessments and spends more resources on LEPs and significant finding investigations, which are performed to determine whether a nonconformance has an impact on the safety or reliability of a weapon system. For example, a 2012 Surveillance Data Delivery report stated that a significant finding investigation "was opened by LANL and remained open for 12 years because of lack of data. If the data had been available in digital form on a searchable system, the effort would have been less than three years." The report also stated, "The LEP process requires NNSA to go through a study to determine which components to redesign and which to reuse or remanufacture. Many of those decisions require original baseline data to make informed decisions on the probability of being able to extend component lifetimes for additional decades."

Of additional importance is the fact that irreplaceable nuclear weapons CM information is degrading. Specifically, film media and microfiche are being lost due to degradation, and radiographs are beginning to stick together causing extensive damage and making the data unrecoverable.

In addition, having complete and accurate CM information in a single authoritative source could potentially save significant resources. For example, a LANL official stated that the Laboratory was able to save an estimated $17 to $50 million during the W76-l pit recertification by using the data that had been scanned and associated with serialized pits in PDMLink. The official also noted that with this information, LANL was able to screen 50 pits per day, but without this information it would have taken approximately 1.5 years to screen the 50 pits.

Regarding unauthorized changes, there is increased risk that weapons components may not fully meet product specification, which ultimately could cause delays in production and increased costs. In addition, bypassing individual access controls increases the risk that classified weapons design information could be provided to those without a need-to-know. This practice allows for the potential to make inadvertent or even inappropriate changes to nuclear weapons CAD drawings without going through the review and approval process.

Due to the weaknesses with the SXRs, it will be difficult for engineers to determine why a nonconforming product was released for use in a nuclear weapon during future surveillance activities or LEPs. As such, they will have to spend more time closing out problem components (such as resolving significant finding investigations) or recertifying components for LEPs.

Finally, the acceptance of nuclear weapons parts and components that do not meet specifications has potential readiness, reliability, cost and timeliness implications. For example, in one case, this situation resulted in a 1-year delay in component production and $20 to $25 million of additional costs related to the W76-1 LEP due to the capacitor failures. In addition, not having a fully implemented supplier quality management program can have devastating impacts on the reliability and safety of our nuclear weapons. For example, due to problems during production of the tool with the discrepant COTS cylinders, in 2010, 11 of 23 W76-l weapons that had been

delivered to the U.S. Department of the Navy were returned to NNSA. The W76-l weapons were returned due to the discovery of dielectric material missing from a detonator cable assembly. Dielectric material acts as a nonconductor to a direct electric current and is used to help ensure that an electro-static discharge does not accidentally set off the main charge of the weapon. Upon review of the returned weapons, it was discovered that the dielectric material had been damaged during production due to the faulty tool.

RECOMMENDATIONS

To address the critical CM issues identified in our report, we recommend that the Administrator, National Nuclear Security Administration ensure that Defense Programs:

1. Completes initiated actions to prioritize, collect and digitize the original as-built nuclear weapons product definition information and continue to identify and implement options for associating this information with the serialized weapons systems and components;

2. Ensure LANL implements existing requirements so that changes to CAD drawings are reviewed and approved prior to release and that need-to-know access is granted on an individual basis;

3. Ensure SXRs contain fully documented technical justification and corrective actions before releasing components for use in a nuclear weapon;

4. Establish a process for ensuring that SXR corrective actions are taken and are effective;

5. Ensure that all components procured through external suppliers, including those procured through integrated contractor orders meet weapons quality requirements; and

6. Ensure contractors are held accountable for correcting supplier quality issues.

MANAGEMENT REACTION

Management concurred with the report's recommendations and stated that it remains vigilant in configuration management information for its nuclear weapons and components as well as in supply chain management. Management recognized the need to upgrade Image Management System and stated that the Image Management System upgrade will incorporate the association of product definition with the serialized weapons and components that make up the nuclear weapon stockpile. The Image Management System upgrade requirements continue to be identified and an acquisition strategy will be determined in FY 2015. Management also stated that NNSA will prepare a cross-complex data digitization plan by January 2015, to migrate all non-electronic product definition into Image Management System. In addition, management stated that an effectiveness evaluation will be performed by September 30, 2014, to ensure that LANL has made the appropriate changes to its drawing release and need-to-know processes to address our findings.

Regarding technical justification and corrective actions for SXRs, management stated that documentation requirements already exist, but that NNSA and its contractors must increase

oversight of the SXR process to ensure the requirements are being accomplished. In addition, NNSA will review the current SXR corrective action processes used by various sites to determine the most effective process and direct implementation across the enterprise. Quality assurance surveys and inspections procedures will incorporate checks to ensure updated processes are effective and followed at each site. A target completion date for verification is March 2015.

Regarding components procured through external suppliers, management noted that full implementation of NNSA's Weapon Quality Policy Letter is expected to be completed by July 31, 2014, and that NNSA will be looking for improved effectiveness for the external suppliers through the Contractor Assurance and Federal oversight processes. Additional NNSA review and validation actions may extend into FY 2016. Finally, management stated that NNSA will place additional emphasis on oversight of contractors' supplier management programs in order to hold them accountable for meeting requirements and correcting implementation issues.

AUDITOR COMMENTS

Management's proposed and initiated corrective actions are responsive to our findings and recommendations. We appreciate management's commitment to effective configuration management of nuclear weapons systems.

Management's comments are included in Appendix 4.

Appendix 1

WEAPON SYSTEM AS-BUILT PRODUCT DEFINITION TESTING RESULTS

	Weapons System	Serial Number	As-Built Definition Found?	All Support Drawings Found?
1	B61-3	536778	NO	
2	B61-3	901659	YES	YES
3	B61-3	466760	YES	YES
4	B61-4	999165	NO	
5	B61-4	411546	NO	
6	B61-4	735690	NO	
7	B61-7	84811	NO	
8	B61-7	70141	NO	
9	B61-7	64124	YES	YES
10	B61-10	150646	NO	
11	B61-10	848372	NO	
12	B61-10	933680	NO	
13	B61-l l	99140	YES	YES
14	B61-ll	21723	YES	YES
15	B61-ll	64114	YES	YES
16	B83-0	712808	YES	NO
17	B83-0	755591	YES	NO
18	B83-0	601152	YES	NO
19	B83-1	940690	NO	
20	B83-l	793465	NO	
21	B83-1	106116	YES	YES
22	W76-0	106964	YES	NO
23	W76-0	345073	YES	NO
24	W76-0	976692	YES	NO
25	W76-1	157870	YES	YES
26	W78	214701	YES	NO
27	W78	666274	YES	NO
28	W78	205822	YES	NO
29	W80-1	519075	NO	
30	W80-1	127181	YES	NO
31	W80-1	177623	YES	NO
32	W87	965544	NO	
33	W87	149397	NO	
34	W87	280423	YES	YES
35	W88	104072	YES	NO
36	W88	141637	YES	NO
	Total Not Found		14 (39%)	13 (59%)

Note: We tested three alterations (each represented by a different serial number) for each weapon system with the exception of the W76-1 and W88, as each only had one and two alterations respectively. Upon altering a weapon system, its "as-built" definition will change.

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The objective of our audit was to determine whether the National Nuclear Security Administration (NNSA) has maintained accurate and complete configuration management information for nuclear weapons to support safe, sound and timely decisions.

SCOPE

The audit was conducted between April 2012 and March 2014, at Sandia National Laboratories (SNL) and the NNSA Albuquerque Complex in Albuquerque, New Mexico; Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico; the Pantex Plant (Pantex) in Amarillo, Texas; and NNSA Headquarters in Washington, DC. The audit was conducted under Office of Inspector General Project Number A12AL024.

METHODOLOGY

To accomplish our audit objective, we:

- Reviewed all applicable Public Laws, Department of Energy (Department) Orders, and other Department guidance and contracts.

- Examined prior Office of Inspector General and U.S. Government Accountability Office reports.

- Identified and reviewed configuration management information for current stockpile nuclear weapons and components.

- Interviewed key NNSA personnel at SNL, LANL, Pantex and NNSA Headquarters.

- Selected a judgmental sample based on 3 weapon configurations from each of the 13 weapons system in the current stockpile, using the NNSA Weapons Information System to determine whether the weapons' product definitions were complete. Because the W76-1 had only 1 configuration and the W88 had only two configurations, our sample included 36 of a classified number of serialized nuclear weapons in the current stockpile. A non-statistical sample was chosen to ensure that all selected items had different product definitions. Because selection was based on a judgmental or non-statistical sample, results and overall conclusions are limited to the items tested and cannot be projected to the entire population of universe of weapons subject to audit.

- Selected a judgmental sample of 77 of 2,703 SNL and LANL Specification Exception Releases (SXRs) for the W76-1 weapon to determine whether the SXRs included technical justification, corrective actions and verification reviews. Although the sample was selected using a random number generator, the extensive number of duplicates in the sample universe resulted in a non-statistical sample. Because selection was based on a

judgmental or non-statistical sample, results and overall conclusions are limited to the items tested and cannot be projected to the entire population of the universe of weapons subject to audit.

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 audit findings and conclusions based on our audit objective. The audit included tests of internal controls and compliance with laws and requirements 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. Also, we reviewed the GPRA Modernization Act of 2010 as they relate to configuration management. Our review did not identity performance measures specifically related to configuration management. Finally, we did not rely on computer-processed data to satisfy our objectives.

NNSA waived an exit conference.

PRIOR REPORTS

- Summary on *Issues Relating to the Production of Components for the W76 Weapon System at Sandia National Laboratory - New Mexico* (S06IS038, November 2008). The Office of Inspector General received an anonymous letter alleging serious problems with regard to the sourcing, fabrication and qualification of certain W76 components. We determined that in April 2001, after disagreements between Sandia National Laboratories (SNL) and the existing supplier over production costs, SNL competed the production contracts for these components. The 2001 contract transition by SNL shifted the production from a supplier that had successfully produced the components to a new supplier that had no experience producing these particular War Reserve components. This action was taken even though there was only one production build left, resulting in substantial additional costs. In addition, we found that there were problems with the execution of established policies and procedures in the procurement, contract management and quality assurance processes associated with SNL and the new supplier. Taken together, these issues raised questions about the overall effectiveness of SNL's quality management system for nuclear weapons products.

- Audit Report on *The Department's Configuration Management of Non-Financial Systems* (OAS-M-12-02, February 2012). We found that the Department of Energy (Department) had not implemented sufficient controls over its configuration management processes for non-financial systems. Organizations and sites reviews had not always followed effective procedures to ensure that changes to systems and applications were properly tested and approved prior to implementation. Specifically, changes to non-financial information systems and applications at six organizations and sites reviewed were not always properly approved, tested or evaluated for security risks prior to their implementation. An effective change control process is necessary to ensure that only authorized changes are made to the system and that the integrity and security of the system remains intact. The change control weaknesses we identified occurred because procedures were not always adequate for addressing approval, testing or evaluation for security risk prior to implementation. While the change control procedures at certain Department organizations addressed the development and execution of testing plans, others did not.

- Audit Report on *Follow-up Audit of the Stockpile Surveillance Program* (OAS-L-12-10, September 2012). We noted that although the National Nuclear Security Administration (NNSA) mitigated transition challenges related to the Surveillance Transformation Project, it had not established an effective system of performance measurement over the Enhanced Surveillance subprogram. Specifically, NNSA measured performance according to the percentage of budget spent rather than on actual program accomplishments. After discussing our performance measurement concerns with NNSA officials, NNSA replaced the measure with one that more accurately reflects performance.

MANAGEMENT COMMENTS

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

March 11, 2014

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

FROM: DONALD L. COOK
DEPUTY ADMINISTRATOR
FOR DEFENSE PROGRAMS

SUBJECT: Comments on the Office of Inspector General Draft Report Titled *"National Nuclear Security Administration Nuclear Weapons Systems Configuration Management"* (A12LA024 / 2012-00635)

Thank you for the opportunity to review and comment on the subject draft Inspector General (IG) report. I understand this audit was initiated to determine whether the National Nuclear Security Administration (NNSA) had maintained accurate and complete configuration management information for nuclear weapons and nuclear weapons components to support safe, sound, and timely decisions related to these devices. The report provides two recommendations for further enhancing configuration management activities, two recommendations related to Specification Exception Releases (SXRs), and two recommendations related to supplier management.

NNSA concurs with the recommendations and continues to remain vigilant in configuration management information for its nuclear weapons and components as well as in supply chain management issues.

The attachment to this document provides our detailed response to each recommendation including clarifications, planned actions, and timelines for implementation as appropriate. We appreciate the efforts of the auditors in evaluating our current processes and will continue to aggressively pursue ongoing enhancements. Should you have any questions regarding this response, please contact Dean Childs, Director, Audit Coordination and Internal Affairs, at (301) 903-1341.

Attachment

Attachment

Response to the Inspector General Draft Inspection Report Titled
"*National Nuclear Security Administration Nuclear Weapons Systems Configuration Management*" (A1AL024 / 2012-00635)

Response to Report Recommendations

The Inspector General (IG) recommended the National Nuclear Security Administration (NNSA):

Recommendations 1: Completes initiated actions to prioritize, collect and digitize the original as-built nuclear weapons product definition information and continue to identify and implement options for associating this information with the serialized weapons systems and components.

Management Response: Concur

All NNSA Management and Operations (M&Os) contractors will continue their ongoing prioritization and digitization actions to capture as-built product definition records for both legacy and "at-risk" data captured on sunset technology platforms.

The NNSA's Image Management System (IMS) will continue to be NNSA's electronic repository and authoritative source for retrieval of weapon product definition. Ongoing efforts within NNSA's Directed Stockpile Work program have identified the need to upgrade the IMS. The IMS upgrade will incorporate the association of product definition with the serialized weapon systems and components that make up the nuclear weapon stockpile. The IMS upgrade requirements continue to be identified and an acquisition strategy will be determined in fiscal year (FY) 2015.

NNSA will prepare a cross-complex data digitization plan by January 15, 2015 to identify resources and schedule to migrate all non-electronic product definition into IMS.

Recommendations 2: Ensure LANL implements existing requirements so that changes to CAD drawings are reviewed and approved prior to release and that need-to-know access is granted on an individual basis.

Management Response: Concur

An effectiveness evaluation will be performed by LANL by September 30, 2014 to ensure that LANL has made the appropriate changes to its drawing release and Need-to-Know processes to address the OIG findings. Within 60 days of notification by LANL that corrective actions have been implemented, NNSA's Weapon Quality Division and Weapon Quality Los Alamos Field Office will perform independent reviews for completeness and make closure recommendations.

Recommendation 3: Ensure Specification Exception Releases (SXRs) contain fully documented technical justification and corrective actions before releasing components for use in a nuclear weapon.

Attachment

Management Response: Concur

This requirement has always existed but NNSA and its M&O Contractors must increase oversight of the SXR process to ensure this requirement is being accomplished. A target completion date for verification is March 2015.

Recommendation 4: Establish a process for ensuring that SXR corrective actions are taken and are effective.

Management Response: Concur

The requirement for ensuring SXR corrective actions are developed, implemented, and tracked to closure has existed for many years. NNSA will review the current processes used by various sites to determine the most effective process and direct implementation across the enterprise. Quality Assurance Surveys and Quality Assurance Inspections Procedures will incorporate checks to ensure updated processes are effective and followed at each site. A target completion date for verification is March 2015.

Recommendation 5: Ensure that all components procured through external suppliers, including those procured through integrated contractor orders, meet weapons quality requirements.

Management Response: Concur

NNSA's Weapon Quality Policy Letter (issued on June 20, 2013) updated the requirements related to improving supplier management processes. Full implementation of this change is estimated to be completed by July 31, 2014. NNSA Headquarters Weapon Quality Division and field office weapon quality organizations will be looking for improved effectiveness for the external suppliers through Contractor Assurance and Federal oversight processes. While implementation will generally be completed within six months to address the recommendation, NNSA will take additional action to review and validate the ongoing effectiveness of these changes which may extend into FY 2016.

Recommendation 6: Ensure Contractors are held accountable for correcting supplier quality issues.

Management Response: Concur

Requirements are currently in place to manage and oversee M&O Contractors and their suppliers. NNSA Quality Assurance Surveys, Performance Evaluation Plan assessments, and the M&O assessments of suppliers are some of the tools used to ensure compliance with requirements. NNSA will place additional emphasis on oversight of contractors' supplier management programs in order to hold them accountable for meeting requirements and correcting implementation issues. In May 2014, NNSA and its M&O Contractors will focus a large portion of the Weapon Quality Assurance Workshop on Supplier Management practices and prevention of product issues.

IG Report No. DOE/IG-0902

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