



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

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# AUDIT REPORT

Management of Infrastructure at the  
Pantex Plant

OAI-M-16-12

June 2016

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**Department of Energy**  
Washington, DC 20585

June 23, 2016

MEMORANDUM FOR THE MANAGER, NATIONAL NUCLEAR SECURITY  
ADMINISTRATION PRODUCTION OFFICE

*Michelle Anderson*

FROM: Michelle Anderson  
Assistant Inspector General  
for Audits and Inspections  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Management of Infrastructure at  
the Pantex Plant"

BACKGROUND

The National Nuclear Security Administration's (NNSA) Pantex Plant mission includes the manufacture of specialty explosives, fabrication, and testing of high explosive components, pit requalification and surveillance, and other activities. The NNSA Production Office has the oversight responsibility for the work performed by Consolidated Nuclear Security LLC (CNS), the management and operating contractor at Pantex and NNSA's Y-12 National Security Complex.

Pantex maintains 608 facilities, including 53 mission-critical facilities, which are primarily used to perform scientific, production, environmental restoration, or stockpile stewardship, and without which, operations would be disrupted or placed at risk. According to Pantex officials, reduced maintenance budgets have created a large backlog of repairs needed to sustain the facilities and infrastructure. In addition, fiscal year 2015 and out-year budgets continue to underfund Pantex requirements for infrastructure management. For example, Pantex required \$228.9 million to fund infrastructure in fiscal year 2015, but NNSA funded only \$133.3 million. According to the July 2013 Ten-Year Site Plan, these funding constraints have caused Pantex to focus resources on maintaining mission-critical facilities at the expense of the balance of plant facilities.

Given the importance of infrastructure to the achievement of the Department of Energy mission, we initiated this audit to determine whether NNSA had effectively managed infrastructure at Pantex.

RESULTS OF AUDIT

Although Pantex identified and determined the condition of its infrastructure, systems, and structures that were in need of repair, replacement, or demolition/disposal, its maintenance backlog reporting was inconsistent with Department Guide 433.1-1A, *Nuclear Facility*

*Maintenance Management Program Guide for Use with DOE O 433.1B.* This resulted in a significant underreporting of its maintenance backlog. Department Guide 433.1-1A defines backlogged maintenance as “work that is requested, but not complete (including periodic maintenance past its due date).” However, we determined that the majority of the requested maintenance tasks at Pantex, although captured in the maintenance system, were not reported to NNSA management via performance metric reporting. In the absence of complete backlog information, NNSA management does not have a true indicator of the site infrastructure’s overall condition.

## **Maintenance Backlog**

We found that Pantex had not reported its maintenance backlog consistent with Department Guide 433.1-1A, which resulted in a significant underreporting of its maintenance backlog. As of January 19, 2015, Pantex reported 4,002 backlogged tasks. However, our review of maintenance tasks in the Enterprise Supply Management System (ESMS) for the same timeframe determined that Pantex did not include 8,714 other maintenance tasks that had been identified and maintenance requested. Pantex uses ESMS to manage maintenance work requests/work orders for all process equipment and real property assets. A work order may consist of one or more tasks and is assigned a priority code to identify the urgency. Pantex establishes priorities to its tasks ranging from 1 to 6M, with priority 1 tasks defined as those tasks that pose the highest risk to human safety or the environment. According to Pantex officials, nuclear safety work is identified for immediate planning, and work requests are also evaluated for impact on personnel safety when entered into ESMS. Per management, priority 1 tasks are scheduled and completed promptly. While we did not identify any concerns with priority 1 tasks, we did identify 169 priority 2 tasks, defined as tasks that may reasonably be expected to cause harm if individuals are in normal working mode, that were not included in the maintenance backlog. For example, the following priority 2 tasks that were categorized by the site as critical or important to safety were not reported in the maintenance backlog as of January 19, 2015:

- Two tasks that required a special mechanical inspector to inspect and replace, as necessary, deluge valves in two mission-critical facilities for deteriorated gaskets/piping. The deluge systems are required for extinguishing a fire and had been classified as critical to safety. In July 2015, a CNS senior manager stated the gaskets were obsolete and Pantex was waiting for a modification to be completed in another facility to test the new gaskets made by Pantex’s plastic shop. The gaskets were eventually tested and were ready for installation. Although the tasks had planned start dates of August 31 and September 4, 2012, they had not been completed and were not reported in the maintenance backlog. The senior manager acknowledged that the tasks should have been reported in the maintenance backlog.
- Tasks to repair roof ladders and install lockable gates for a mission-critical facility to prevent roof access during radiography work. The tasks, designated as critical to safety, had a scheduled start date of September 8, 2014, but had not yet been started and were not reported in the maintenance backlog. According to a CNS senior manager,

administrative controls were being used to restrict and gain access to the roof. One ladder had a physical barrier, and the other ladder had signage posted. However, no permanent repair had been made.

- A task that required a special mechanical inspector to troubleshoot and repair wire for a tamper switch on a panel that did not receive signals. The panel sends signals to fire dispatch when there is an issue in a particular mission-critical facility. Despite a scheduled start date of May 7, 2014, the task was not started and had not been reported in the maintenance backlog. According to a Pantex senior manager, the task was important to safety and involved a modification to the system.
- Tasks to repair a high pressure fire loop sectional valve for a mission-critical facility. According to a CNS manager, the craftworkers had locked and tagged the sectional valve to allow for installation of a new fire protection water line lead-in to the facility. The CNS manager stated that the task was important to safety and that the sectional valve would be repaired after the water line was installed. The CNS manager explained that the valve is part of the hazardous energy (high water pressure) control isolation and should not be reported as backlogged because completing repairs before installation of a new fire protection water line lead-in would expose workers to hazardous energy. However, the fact that the separate tasks must be integrated and done simultaneously should not preclude their inclusion in the maintenance backlog.

We determined that Pantex only reported corrective and preventive maintenance tasks in its backlog if (1) the task was in “Ready” or “Working” status,<sup>1</sup> and (2) the estimated hours, less the actual hours expended, were greater than zero.<sup>2</sup> This accounting practice resulted in Pantex not reporting 8,714 maintenance tasks, or 69 percent of its backlog, including tasks that were safety related. Specifically, contrary to Department Guide 433.1-1A, Pantex did not report any of the 5,463 maintenance tasks that had been requested but were in a status other than Ready or Working. Specifically, Pantex had not included work orders that had not been planned or assigned tasks by management or were on hold. In addition, 3,251 requested but incomplete tasks were not captured in the backlog because Pantex’s accounting practices for maintenance tasks included, for example, incomplete tasks where the hours expended equaled or exceeded the estimated hours not reported as backlogged (see Attachment 1).

Furthermore, we determined that as of January 19, 2015, 61 percent of the 5,463 maintenance tasks that had been requested and not captured in the backlog were more than 1 year old (see Attachment 2). Of the 5,463 maintenance tasks, 169 were priority 2 tasks. Some unreported maintenance tasks date back to 2011, the year when Pantex migrated from a prior maintenance management system to ESMS. Thus, the tasks could be older than 2011 because the initial

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<sup>1</sup> Work Order Status includes the following: Initial - Work order is created; Plan - Management is reviewing, prioritizing, and assigning tasks; Ready - Planning is completed, task approved, and material is available; Working - Task has begun; and Hold - Task is interrupted and must be rescheduled.

<sup>2</sup> For example, an incomplete task would be included in the backlog if it was estimated the task could be completed in 10 hours and only 9 hours or less were expended. However, if it was estimated the task could be completed in 10 hours and 10 or more hours had been expended, then this task would not be reported in the backlog even though the task was incomplete.

request dates were not captured in the current ESMS, only the conversion date. According to a CNS senior manager, some open tasks are duplicated, completed, or no longer needed; however, Pantex could not quantify these tasks.

### **Identification and Disclosure of Infrastructure Condition**

To Pantex's credit, it properly identified and disclosed the overall condition of its infrastructure. We found that Pantex performed Condition Assessment Surveys for all real property assets at least once during any 5-year period, as required. In addition, Pantex identified and reported systems and equipment that were reaching end-of-life or were no longer supported by the manufacturer in its July 2013 10-Year Site Plan and 2014 Safeguards & Security Master Plan. The importance of maintaining the aging infrastructure was identified in an August 2013 report prepared by the former management and operating contractor that identified items that needed repair. The report identified 281 infrastructure improvement projects with a total estimated cost of \$1.8 billion to maintain facilities and end-of-life equipment replacement projects. Items of concern in the report focused on systems reaching end-of-life or equipment that was no longer supported by the manufacturers.

Pantex had also established infrastructure priorities to sustain mission capability and recapitalize the aging and failing facilities, systems, or equipment. For example, according to a Pantex official, the High Explosives Science and Engineering Facility project will replace World War II laboratories and offices and disposition 15 facilities and 6 ramp structures, with an average age of 60 years. Additionally, recapitalization projects were underway for replacements of end-of-life or failing flame detection systems, radiation alarm monitoring systems, and the high pressure fire loop lead-ins in buildings. Finally, Pantex was executing projects for vacuum chamber facility modification, and general workplace improvements such as emergency light replacement; heating, ventilation, and air conditioning replacement; and roof replacement.

### **Federal Oversight**

The underreporting of the maintenance backlog occurred because the NNSA Production Office did not ensure that Pantex used an acceptable method of accounting for the backlog, as prescribed in Department Guide 433.1-1A. Pantex's contract requirements include Department Order 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, which references Department Guide 433.1-1A. As previously discussed, the Guide defines a backlogged maintenance task as "work that is requested, but not complete (including periodic maintenance past its due date)." In contrast, Pantex only reported corrective and preventive maintenance tasks in its backlog if the task was in a Ready or Working status and if incomplete tasks did not exceed estimated hours to complete. According to Pantex officials, Department Guide 433.1-1A provides acceptable, but not mandatory, approaches for meeting the requirements of the Order and alternative methods that satisfy the requirements are acceptable. Further, Pantex officials asserted that Department Guide 433.1-1A specifically relates to nuclear safety maintenance and the overall Pantex process results in nuclear safety work being reported. However, Pantex officials acknowledged that mistakes can be made in prolonged work orders.

Pantex's Nuclear Maintenance Management Program (NMMP) Description Document describes maintenance backlog as work order tasks (in hours) that are planned or ready to work but not completed. According to a CNS senior manager, this practice of accounting for backlog is consistent with industry standards. The industry standard used by Pantex specifically refers to a "ready backlog" metric, which measures the quantity of work that has been fully prepared for execution but has not been completed. The NNSA Production Office approved Pantex's NMMP Description Document even though the CNS definition for reporting backlogged maintenance, in effect, is not in agreement with Department Guide 433.1-1A.

The NNSA Production Office Contracting Officer acknowledged the value of Department Guide 433.1-1A in developing acceptable approaches and stated the intent is to work with the management and operating contractor to adopt the guidance or propose a technically defensible alternate approach. According to the Contracting Officer, the decision on backlog definition was made several years ago when Babcock & Wilcox Technical Services Pantex LLC was the management and operating contractor at Pantex. An NNSA Production Office official further stated that when Pantex initially identifies maintenance activities, it assesses the priority of each work request and begins planned activities in a prioritized manner. Pantex does not include work requests that are initially prioritized at a lower level in the maintenance backlog because the task had not yet been planned by Pantex and the extent of work and number of hours to complete cannot be quantified.

However, we noted that the ready backlog metric does not ensure that all requested maintenance is reported as backlogged and thus does not provide NNSA management with a complete picture of outstanding maintenance tasks. NNSA Production Office officials stated they were unaware of the significant number of work requests that were awaiting planning by Pantex and thus the significant underreporting of Pantex's maintenance backlog. The NNSA Production Office Contracting Officer told us that the reported backlog was a desired performance measure to monitor, and the site's definition should parallel the definition provided in the Guide. In its November 2015 assessment report, the NNSA Production Office reported that CNS discovered that Pantex was not using the standard industry definition of maintenance backlog, which resulted in underreporting of backlog data. To NNSA's credit, the Contracting Officer stated that in recent discussions with CNS, they agreed to change the definition and measuring of maintenance backlog at Pantex to be consistent with the definition used in the Guide. The Contracting Officer also noted that the CNS Y-12 National Security Complex procedures include unplanned work in its backlog and did so before CNS became the management and operating contractor at Pantex.

## **Impact**

The maintenance backlog is a key indicator for understanding the overall condition of the infrastructure at Pantex. Limiting backlog reporting to the ready backlog of maintenance prevents NNSA management from having a comprehensive understanding of outstanding maintenance and could impair its ability to properly allocate scarce resources. Furthermore, this limitation results in performance metrics that provide CNS senior managers with incomplete information to evaluate the overall condition of the infrastructure and has the potential to obscure key information from CNS maintenance managers in the daily operation of site maintenance.

This could potentially result in unmonitored degradation of Pantex's facilities and infrastructure and increases the risk of degrading Pantex's ability to accomplish its mission in a safe, secure, and compliant manner.

## RECOMMENDATIONS

Considering significant funding constraints facing the Department's programs, a complete accounting of maintenance requirements facilitates the efficient use of limited funds. Accordingly, we recommend that the Manager, National Nuclear Security Administration Production Office:

1. Ensure that CNS modifies the definition and measuring of maintenance backlog at Pantex to include requested maintenance, both planned and unplanned tasks, consistent with the definition used in Department Guide 433.1-1A; and
2. Provide adequate oversight to ensure that Pantex accurately reports its current and future maintenance backlogs.

## MANAGEMENT RESPONSE

Management concurred with the report recommendations and stated that corrective actions have been taken to ensure that the reporting of backlog metrics is consistent with Department Guide 433.1-1A and that revisions have been made to the oversight process. Management has since revised the definition of backlog used in calculating the metric, noting that the adoption was not mandatory. However, management asserted that the maintenance backlog was not underreported and that, while certain maintenance-related data was not a part of the primary metrics at the time of the audit, NNSA was fully aware of the additional data, and it was available for consideration as appropriate in all planning and funding decisions.

According to management, discussions were initiated regarding metrics, including backlog, immediately upon award of the contract to CNS. At that time, a decision was made to provide the new management team some initial "run time" before instituting a new suite of performance metrics. Management also stated that CNS recently reviewed metrics at the Y-12 National Security Complex and Pantex locations and developed metrics that each site will report. The new metrics suite includes the maintenance backlog, and the data set feeding the metric at Pantex was revised to include all maintenance requested, regardless of planning status. According to management, CNS began reporting backlog data consistent with Department Guide 433.1-1A beginning with the February 2016 reporting period. Management considers Recommendation 1 closed based on actions already taken.

Management further stated that recent revisions to the NNSA Production Office oversight processes will ensure formal reporting of periodic reviews of CNS metrics, including backlog. Management also noted that CNS backlog metric reporting is performed on a monthly basis, and results are published internally for transparency and accessibility. Management considers Recommendation 2 closed based on actions already taken.

Per management, backlogged maintenance is different from deferred maintenance for real property assets, which is an asset-level monetary metric traditionally used to convey information on a building's condition. Management asserted that prior definitional differences stated in the report primarily relate to internal management and did not significantly affect NNSA's external reporting on the Secretary's goal to hold deferred maintenance at the fiscal year 2015 end-of-year levels.

According to management, to enhance maintenance and tracking capabilities, NNSA is currently implementing BUILDER—a new, cutting edge, Government-owned system that will provide greater consistency and transparency on infrastructure management to Departmental leadership and external stakeholders. Upon the full implementation of BUILDER in 2018, NNSA will have the ability to calculate infrastructure management metrics in a single, consistent method.

### AUDITOR COMMENTS

Management's comments and planned corrective actions were generally responsive to our recommendations. Management concurs with both recommendations, and management reported that actions have already been taken to address the recommendations, including ensuring that CNS modify the definition and measuring of maintenance backlog at Pantex. We recognize that the overall condition of Pantex's infrastructure was identified and disclosed through Condition Assessment Surveys of the facilities. However, the overall condition of the facility does not directly reflect the needed maintenance required for each facility functioning as intended. Hence, Pantex's omission of 8,714 maintenance tasks which represented a 69 percent understatement of its backlog highlighted the importance of reporting comprehensive maintenance backlog data.

Management's formal comments are included in Attachment 5.

Attachments

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



**SUMMARY OF OPEN WORK ORDER MAINTENANCE TASKS**

Work Order Task	Number of Tasks by Status Group		Total
	Ready or Working	Initial, Plan, or Hold	
Corrective Maintenance	1,437	5,442	6,879
Preventive Maintenance	5,816	21	5,837
<b>Total</b>	<b>7,253</b>	<b>5,463</b>	<b>12,716</b>
Reported as Backlogged	4,002	0	4,002
Not Reported as Backlogged	3,251 <sup>3</sup>	5,463	8,714
Percentage Not Reported as Backlogged	45 percent	100 percent	69 percent
<u>Legend</u> Work Order Status: Initial - Work order is created Plan - Management is reviewing, prioritizing, and assigning tasks Ready - Planning is completed, task approved, and material is available Working - Task has begun Hold - Task is interrupted and must be rescheduled			

<sup>3</sup> Although incomplete, these tasks were not captured in the backlog.

**AGING SUMMARY OF UNREPORTED MAINTENANCE BACKLOG IN INITIAL,  
PLAN, OR HOLD STATUS AS OF JANUARY 19, 2015**

Maintenance Type & Priority Code	Age in Days						Total
	0 to 90	91 to 180	181 to 365	366 to 730	731 to 1,095	1,096 to 1,460	
<b>Corrective</b>	<b>693</b>	<b>496</b>	<b>960</b>	<b>1,160</b>	<b>1,018</b>	<b>1,115</b>	<b>5,442</b>
2	53	33	19	34	20	7	166
3	596	391	827	994	815	664	4,287
4	40	70	112	127	180	428	957
6M	4	2	2	5	3	16	32
<b>Preventive</b>		<b>1</b>	<b>1</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>21<sup>4</sup></b>
2	0	0	0	3	0	0	3
3	0	0	0	1	5	5	11
4	0	1	1	2	1	2	7
<b>Total</b>	<b>693</b>	<b>497</b>	<b>961</b>	<b>1,166</b>	<b>1,024</b>	<b>1,122</b>	<b>5,463</b>
Number of tasks more than 1 year old							3,312
Percentage of tasks more than 1 year old							61 percent

Legend

Corrective Maintenance - Work to repair a deficient item to its normal function. Corrective maintenance also includes blanket or standing work orders to capture repetitive corrective maintenance or recurring activities.

Preventive Maintenance - Scheduled, recurring activities designed to replace limited life components, and/or confirm operability of plant equipment, and includes routine maintenance of non-production equipment.

Priority Code:

Priority 2 - Work related to safety or security and surveillance or preventive maintenance of critical systems, or maintenance of security structures, systems, and components. Failure to perform this maintenance may reasonably be expected to cause harm if individuals are in normal working mode.

Priority 3 - Typically legacy items, requests submitted by non-safety/fire professional, unconfirmed code issues, comfort/convenience items requiring professional site inspection, and numerical priority for action by Maintenance Work Management.

Priority 4 - Tasks not required for safety or facility mission (e.g., general routine maintenance or improvements).

Priority 6M - Allows management to expedite fieldwork normally assigned a lower priority.

<sup>4</sup> According to a CNS senior manager, the data on preventive maintenance is most likely in error (i.e., assigned an incorrect status) because when preventive maintenance tasks were generated, they were automatically classified as “ready to work” in ESMS. CNS was recoding the preventive maintenance tasks to report actual status.

## OBJECTIVE, SCOPE, AND METHODOLOGY

### OBJECTIVE

The objective of this audit was to determine whether the National Nuclear Security Administration had effectively managed the infrastructure at the Pantex Plant.

### SCOPE

We performed this audit between October 2014 and June 2016 at the Pantex Plant in Amarillo, Texas. The audit was conducted under Office of Inspector General project number A15LV001.

### METHODOLOGY

To accomplish the objective, we:

- Reviewed and analyzed Department of Energy and contractor criteria including policies, procedures, functions, and responsibilities for infrastructure management.
- Interviewed Federal and contractor personnel associated with the management of infrastructure.
- Reviewed performance measures, prior assessments and reports, and other documents pertinent to the audit objective.
- Analyzed reports from the Department's Condition Assessment Information System and the Facilities Information Management System.
- Judgmentally selected 27 of 169 priority 2 tasks to review based on the task description and if the task was for a mission-critical facility. A nonstatistical sample design was chosen because not all tasks are the same. For example, a task to repair a steam/condensate leak would not require the same resources as the task to repair a sectional valve. Because selection was based on a judgmental or nonstatistical sample, results and overall conclusions were limited to the items tested and were not projected to the entire population or universe of incomplete work orders tasks.
- Reviewed and analyzed maintenance work requests/work orders in Pantex's Enterprise Supply Management System.

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. The audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Additionally, we assessed the implementation of the *GPRA Modernization Act of*

2010 as necessary to accomplish the objective and determined that performance measures related to infrastructure management were established as required. 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 relied on computerized data to perform fieldwork. We assessed the reliability of the computer-processed data by comparing it to source documents and other supporting information and found the data to be reliable for the purposes of this audit. An exit conference was held with National Nuclear Security Administration officials on June 13, 2016.

## RELATED REPORTS

### Office of Inspector General

- Audit Report on [\*Argonne National Laboratory Infrastructure Projects\*](#) (OAS-M-15-02, February 2015). The review found that Argonne National Laboratory may have inappropriately used, or planned to use, indirect funding to complete 4 of 10 minor construction projects as Institutional General Plant Projects (IGPPs). Department of Energy Order 430.1B Change 2, *Real Property Asset Management*, requires that projects funded indirectly as IGPPs should benefit the site as a whole and be of a general institutional nature, and cannot include projects whose benefit can be directly attributed to a specific or single program. The review identified four projects that were not of a general institutional nature but instead related to specific program needs.
- Audit Report on [\*The National Nuclear Security Administration's Weapons Dismantlement and Disposition Program\*](#) (OAS-L-13-06, January 2013). The review identified potential issues related to aging infrastructure for staging nuclear weapons, nuclear weapon components, and other weapon components at Pantex that could affect future dismantlement efforts and other Directed Stockpile Work Programs. For example, a security system in place to protect the plant's Zone 4 Material Access Area was installed in the 1990s with an expected useful life of 20 years and was due for refurbishment. In addition, Condition Assessment Survey inspections performed during 2007 and 2012, and the June 2012 Condition Assessment Information System report disclosed warehouses (magazines) containing pits and nuclear explosives were deteriorating and required repairs. Finally, the warehouses that Pantex used to stage weapon components were nearing capacity levels, and Pantex was not able to demonstrate sufficient storage capacity for future dismantlement.

### Government Accountability Office

- Report on [\*Modernizing the Nuclear Security Enterprise\*](#) (GAO-15-499, August 2015). This report found that the National Nuclear Security Administration's (NNSA) budget estimates were not adequate to address its \$3.6 billion deferred maintenance backlog and that the backlog will continue to grow. NNSA's budget estimates for maintaining and recapitalizing its aging nuclear infrastructure fall below the Department planning benchmarks. For example, maintenance budget estimates contained in the 2015 budget average \$772 million annually over the next 5 years, which is an average annual shortfall of \$224 million compared with the Department maintenance benchmark. In addition, annual recapitalization estimates in the 2015 budget were approximately \$360 million annually over the next 5 years, which is an average annual shortfall of \$140 million as compared with the Department recapitalization benchmark.

## MANAGEMENT COMMENTS



Department of Energy  
Under Secretary for Nuclear Security  
Administrator, National Nuclear Security Administration  
Washington, DC 20585



May 9, 2016

MEMORANDUM FOR RICKEY R. HASS  
ACTING INSPECTOR GENERAL

FROM: FRANK G. KLOTZ *F. Klotz 5/9/2016*

SUBJECT: Comments on the Office of Inspection General Draft Report  
Titled "*Management of Infrastructure at the Pantex Plant*"  
(A15LV001)

Thank you for the opportunity to review and comment on the subject draft report. The National Nuclear Security Administration concurs with, and has already taken actions to address, the two recommendations in the report. We would, however, like to clarify that maintenance backlog data was not underreported. While certain maintenance related data was not a part of the primary metrics at the time of the audit, NNSA was fully aware of the additional data and it was available for consideration as appropriate in all planning and funding decisions. We have since adopted the Nuclear Facility Maintenance Management Program Guide (the Guide) definition of backlog in calculating the metric, while not mandatory.

*Maintenance backlog*, as referenced in the draft report and in the Guide, is a work-order execution tool used to ensure day-to-day maintenance tasks are scheduled within all facilities. This is distinctly different from *deferred maintenance* for real property assets, which is an asset-level monetary metric traditionally used to convey information on a building's condition. The prior definitional differences stated in the draft report primarily relate to internal management and did not significantly impact our external reporting on the Secretary's goal to hold deferred maintenance at the FY 2015 end-of-year levels.

To enhance our maintenance management and tracking capabilities, NNSA is currently implementing BUILDER -- a new, cutting-edge, government-owned system that will provide greater consistency and transparency on infrastructure management to Departmental leadership and external stakeholders. Upon full implementation of BUILDER in 2018, NNSA will have the ability to calculate infrastructure management metrics in a single, consistent method.

The attachment to this memorandum details the specific corrective actions taken to address the auditors' recommendations. We have also provided comments under separate cover for your consideration to enhance the accuracy and clarity of the report. If you have any questions regarding this response, please contact Mr. Dean Childs, Director, Audit Coordination and Internal Affairs, at (301) 903-1341.

Attachment



**NATIONAL NUCLEAR SECURITY ADMINISTRATION**  
**Response to Report Recommendations**  
**Management of Infrastructure at the Pantex Plant (A15LV001)**

The Inspector General recommended the National Nuclear Security Administration Production Office (NPO):

**Recommendation 1:** Ensure Consolidated Nuclear Security (CNS) modifies the definition and measuring of maintenance backlog at Pantex to include requested maintenance, both planned and unplanned tasks, consistent with the definition used in [non-mandatory] Department Guide 433.1-1A.

**Management Response: Concur**

NPO has taken action to ensure the Pantex Plant reporting of backlog metrics is consistent with the non-mandatory Department Guide 433.1-1A (Guide). NPO initiated discussions regarding metrics, including backlog, immediately upon award of the new contract to CNS. At that time, a decision was made to provide the new management team some initial “run time” before instituting a new suite of performance metrics. Initial practices during this transition period led to the auditors’ findings.

CNS recently completed a total review of metrics at both the Y-12 and Pantex locations and developed a new suite of metrics that each site will report. The new metrics suite includes maintenance backlog, and the data set feeding the metric at Pantex was revised to include all maintenance requested regardless of planning status. This change brought reporting in line with both Y-12 practices and the Guide. CNS began reporting backlog data consistent with the Guide beginning with the February 2016 reporting period. NNSA considers this recommendation closed based on actions already taken.

**Recommendation 2:** Provide adequate oversight to ensure that Pantex accurately reports its current and future maintenance backlogs.

**Management Response: Concur**

As noted above, NPO has already taken action to modify CNS’ reporting consistent with the Guide. NPO conducted a formal assessment covering performance measures during the 4<sup>th</sup> quarter of Fiscal Year 2015. The assessment report was issued in November of 2015 and addressed the issue regarding the Pantex backlog metric data.

NPO oversight processes require both a periodic (at least 3 years) formal assessment on performance measures and frequent operational awareness reviews of metrics. Recent revisions to the NPO oversight processes will ensure formal reporting of periodic reviews of CNS metrics, including backlog. It is also important to note that CNS backlog metric reporting is performed on a monthly basis, and results are published on the internal web for transparency

and ease of access. NPO Senior Management also routinely performs periodic metric reviews with CNS. NNSA considers this recommendation closed based on actions already taken.



## **FEEDBACK**

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Department of Energy  
Washington, DC 20585

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