

**Office of Enterprise Assessments
Assessment of the Waste Isolation Pilot Plant
Quality Assurance, Receipt Inspections,
Contractor Assurance System and
Engineering Processes**



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**Office of Nuclear Safety and Environmental Assessments
Office of Environment, Safety and Health Assessments
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Table of Contents

Acronyms	ii
Executive Summary	iii
1.0 Purpose	1
2.0 Scope	1
3.0 Background	1
4.0 Methodology	2
5.0 Results	3
5.1 Receipt Inspection and Control of Items	3
5.2 Contractor Assurance System	5
5.3 Follow-up Items from EA Review of Engineering Processes	7
6.0 Findings	8
7.0 Opportunities for Improvement	8
Appendix A: Supplemental Information	A-1
Appendix B: Key Documents Reviewed, Interviews, and Observations	B-1
Appendix C: Deficiencies	C-1

Acronyms

AL	Action Level
ASME	American Society of Mechanical Engineers
CAS	Contractor Assurance System
CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
CRAD	Criteria and Review Approach Document
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
EA	Office of Enterprise Assessments
HEPA	High-Efficiency Particulate Air
NQA	Nuclear Quality Assurance
NWP	Nuclear Waste Partnership, LLC
OFI	Opportunity for Improvement
PAM	Project Assurance Manager
QA	Quality Assurance
TRU	Transuranic
WIPP	Waste Isolation Pilot Plant
WP&C	Work Planning and Control

Office of Enterprise Assessments
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Quality Assurance, Receipt Inspections, Contractor Assurance System and Engineering Processes

EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) Office of Nuclear Safety and Environmental Assessments, within the independent Office of Enterprise Assessments (EA), conducted an independent assessment of quality assurance, receipt inspections, the contractor assurance system (CAS), and the status of previously identified engineering process weaknesses at the Waste Isolation Pilot Plant (WIPP). Nuclear Waste Partnership, LLC (NWP) operates WIPP, and the Carlsbad Field Office (CBFO) provides Federal oversight. EA conducted the onsite portions of this assessment September 12-16, October 17-21, and October 24-27, 2016.

NWP receives and inspects large amounts of supplies and materials at the site in support of ongoing operations. The onsite space is inadequate to support the spare parts and materials. The NWP processes and systems for quality assurance and receipt inspections generally comply with requirements and are adequate to support the stable operation of the facility. However, they are less than adequate for the large amount of project work under way at WIPP. Rented warehouse space may compensate for inadequate storage of some items, but WIPP has no suitable facilities for safety significant items that require temperature controlled storage.

In June and July 2016, the EA Office of Worker Safety and Health Assessments determined that the organizational structure and programmatic documentation supporting the NWP CAS had improved since a DOE accident investigation board found the CAS ineffective. The current EA assessment noted some areas for improvement, but in general, NWP's CAS has shown steady progress, particularly over the last year. Assessments are performed on a periodic basis, data is collected and trended, and issues are evaluated, corrected, and closed. Overall, NWP and CBFO should communicate better to preclude misunderstandings and improve the CAS. Areas for potential improvement include better self-assessments, raising the awareness and importance of this program with NWP managers, and better coordination with CBFO on WIPP form issue categorization and management. (WIPP form is NWP's issues management process.)

EA also followed-up with NWP Engineering on the status of the resolution of items identified in a summer 2015 EA report and an operational awareness visit in November 2015. The most significant progress in improving engineering processes in 2016 was the implementation of an Engineering Change Notice process. In combination with a related compensatory measure, the new Engineering Change Notice process provides a satisfactory means of protecting against inadvertent changes to systems credited in the documented safety analysis.

Office of Enterprise Assessments
Assessment of the Waste Isolation Pilot Plant
Quality Assurance, Receipt Inspections, and Contractor Assurance System

1.0 PURPOSE

The U.S. Department of Energy (DOE) Office of Nuclear Safety and Environmental Assessments, within the independent Office of Enterprise Assessments (EA), conducted an independent assessment of quality assurance (QA), receipt inspections, the contractor assurance system (CAS), and previously identified engineering issues at the Waste Isolation Pilot Plant (WIPP). Nuclear Waste Partnership, LLC (NWP) operates WIPP, and the Carlsbad Field Office (CBFO) provides Federal oversight. EA conducted the onsite portions of this assessment September 12-16, October 17-21, and October 24-27, 2016.

EA performed this independent assessment as part of a series of assessments to evaluate WIPP's readiness for sustained operations.

2.0 SCOPE

EA conducted this assessment in accordance with the *Plan for the Office of Enterprise Assessments Assessment of Quality Assurance, Receipt Inspections, Line Management Oversight, and Contractor Assurance System at the Waste Isolation Pilot Plant*, July 26, 2016. This report does not address line management oversight, which was part of an assessment of work planning and control (WP&C) that EA performed shortly before this assessment. The current assessment also streamlined the CAS line of inquiry to minimize overlap with the WP&C assessment, which also addressed this topic as well as followed-up on previously identified issues in engineering processes. EA also followed-up on previously identified engineering issues. Finally, at CBFO's request, EA performed a review of management of WIPP forms, which is the NWP issues management process.

3.0 BACKGROUND

The WIPP site is located approximately 30 miles southeast of Carlsbad, New Mexico, within a remote, 16-square-mile tract. Project facilities include excavated rooms 2,150 feet underground in an ancient, stable salt formation, as well as various surface structures designed for unloading transporters and transferring drums to the underground rooms. WIPP activities include transport container unloading, drum movement, mining, and facility maintenance. These activities involve various potential hazards that need to be effectively controlled, including exposure to external radiation, radiological contamination, and various physical hazards associated with mining activities and facility operations, such as subsurface hazards, toxic gases, confined space, machine operations, high-voltage electrical equipment, pressurized systems, and noise.

On February 5, 2014, an underground mine fire involving a salt haul truck occurred at WIPP. All 86 workers who were in the mine (underground) when the fire occurred were evacuated safely. On February 14, 2014, an incident in the underground repository resulted in the release of americium and plutonium from one or more transuranic (TRU) waste containers into the mine and the environment. The release was detected by an underground continuous air monitor and then directed through high-efficiency particulate air (HEPA) filter banks located in the surface exhaust building. WIPP has been shut down since February 14, 2014, and is now estimated to reopen in December 2016 or January 2017.

NWP is the prime management and operating contractor at WIPP. CBFO provides Federal oversight of WIPP and is responsible for WIPP and the national TRU waste program. The CBFO mission is to provide safe, compliant, and efficient characterization, transportation, and disposal of defense-related TRU waste. NWP provides day-to-day operation and maintenance services for WIPP.

4.0 METHODOLOGY

The DOE independent oversight program is described in and governed by DOE Order 227.1A, *Independent Oversight Program*. EA implements the independent oversight program through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. Organizations and programs within DOE use varying terms to document specific assessment results. In this report, EA uses the terms “deficiencies, findings, and opportunities for improvement (OFIs)” as defined in DOE Order 227.1A. In accordance with DOE Order 227.1A, DOE line management and/or contractor organizations must develop and implement corrective action plans for the deficiencies identified as findings. Other important deficiencies not meeting the criteria for a finding are also highlighted in the report and summarized in Appendix C. These deficiencies should be addressed consistent with site-specific issues management procedures.

As identified in the assessment plan, this assessment considered requirements related to QA receipt inspection of safety significant components, and the CAS, including the classification of WIPP forms, which is NWP’s issues management process.

EA used sections of the following criteria and review approach documents (CRADs):

- EA CRAD 31-31, Rev. 0, *Receipt Inspection and Control of Items – Criteria and Review Approach Document*
- EA CRAD 30-01, Rev. 0, *Contractor Assurance System – Criteria Review and Approach Document*.

EA examined key documents, such as system descriptions, work packages, procedures, manuals, analyses, policies, training and qualification records, and numerous other documents. EA also interviewed key personnel responsible for developing and executing the associated programs; discussed storage, receipt and inspection activities; walked down significant portions of selected storage facilities; and focused on CAS activities that did not overlap with the WP&C assessment. The members of the EA assessment team, the Quality Review Board, and EA management responsible for this assessment are listed in Appendix A. A detailed list of the documents reviewed, personnel interviewed, and observations made during this assessment, relevant to the findings and conclusions of this report, is provided in Appendix B.

In the summer of 2015, EA conducted an assessment of engineering and procurement processes at WIPP. The current assessment followed up on that review by examining the completion and effectiveness of the NWP issues management and corrective action system in addressing findings from the 2015 report, specifically in the area of engineering processes.

5.0 RESULTS

5.1 Receipt Inspection and Control of Items

This section addresses NWP's programs and processes for defining acceptance and storage requirements for items credited by the documented safety analysis (DSA) for protection of the public, the workers, and the environment from facility hazards. The first set of criteria address the adequacy of the procurement documents. The second set of criteria address the adequacy of the receipt inspection process. The third and final set of criteria address storage and maintenance of items.

Procurement Documents

Criteria:

Procurement activities that may affect the safety of DOE nuclear facilities are conducted in accordance with a DOE-approved quality assurance program meeting the quality assurance criteria specified in 10 Code of Federal Regulations (CFR) 830.122. (10 CFR 830.121)

Appropriate consensus standards, such as American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) 1, Quality Assurance Requirements for Nuclear Facility Applications, and other applicable quality or management system requirements are clearly identified, integrated, and implemented for nuclear-related work activities. (10 CFR 830.121 and DOE Order 414.1D, Quality Assurance).

Requirements are established for procurement and verification of items and services. (10 CFR 830.122 Criterion 7)

Processes are established and implemented that ensure that approved suppliers continue to provide acceptable items and services. (10 CFR 830.122 Criterion 7)

CBFO has approved NWP's QA program, as indicated by CBFO's approval of WP 13-1, *Quality Assurance Program Description*. WP 13-1 describes how NWP implements various requirements from ASME NQA-1-1989, *Quality Assurance Program Requirements for Nuclear Facilities*. Although ASME NQA-1 has been updated several times since 1989, WIPP is obligated by 40 CFR 194.22 to "adhere to a quality assurance program that implements the requirements of ASME NQA-1-1989 edition." EA verified that NWP's program satisfactorily incorporates the NQA-1 requirements for procurement document control and control of non-conforming items.

WP 09-8, *WIPP Specification Preparation*, includes requirements for preparing both design specifications and equipment specifications. The requirements identify appropriate consensus codes and standards and include a table of required document submittals for safety significant items. EA examined selected specifications for safety significant equipment and found that they adequately incorporate applicable consensus codes and standards, including ASME NQA-1. However, contrary to the requirements of WP 13-1, Section 2.1.6.c, WP 09-8 does not require the identification of protective environments, such as temperature controlled environments to prevent equipment degradation in shipping and storage (see **Deficiency and OFI-NWP-001**).

MP 1.34, *NWP Contracts and Procurement Program*, establishes the organizational responsibilities for procurement activities and adequately incorporates responsibility to flow down quality requirements through the procurement process to the supplier. WP 15-PC3609, *Preparation of Purchase Requisitions*, controls the creation, review, and approval of purchase requisitions. WP 15-PC3609 appropriately

requires purchasers to have completed training on the procurement process, and adequately incorporates provisions to ensure that the identified QA provisions are included in the requisition. WP 15-PM3518, *Material Receiving*, appropriately includes provisions for receipt inspection by trained personnel, in accordance with WP 13-QA1003, *Quality Assurance Receipt/Source Inspections*. EA identified no concerns in any of these processes for the establishment of requirements for procurement and verification of items and services.

MC 10.1, *Quality Assurance Department*, tasks the QA department with responsibility for maintaining the qualified suppliers list and performing audits of suppliers providing quality-related products and services. WP 13-QA.04, *Quality Assurance Department Administrative Program*, establishes training and qualification requirements for inspection personnel. WP 13-QA3012, *Supplier Evaluation/Qualification*, satisfactorily establishes requirements for evaluation of suppliers for the qualified supplier list. These processes adequately ensure that approved suppliers continue to provide acceptable items and services.

Receipt Inspection

Criteria:

Receipt inspection and acceptance of procured items is performed by trained, qualified personnel. (10 CFR 830.122 Criterion 2)

Suspect and counterfeit materials are identified and controlled. (DOE Order 4.14.1D, Admin Chg 1)

WP 13-QA.04 establishes the appropriate NQA-1 training and qualification requirements for inspection personnel. For receipt inspection, these requirements are documented on QAI-01-1, *Quality Assurance Receipt Inspector Qualification Card*. In the event dimensional inspection is required, a separate authorization is documented on QA-03, *WIPP Quality Assurance Dimensional Inspection Authorization Card*. For certain items, such as HEPA filters, the items must be tested at qualified facilities before receipt at WIPP. These requirements are appropriately included in (for example) the specification E-B-227, *HEPA Filters*, and in accordance with MP 1.34, flowed down through the purchase requisition, as demonstrated on Req. 0000507578, *Filters, HEPA, Flanders*. No concerns were identified in the NWP process for inspection and acceptance of procured items by trained, qualified personnel.

Suspect and counterfeit materials are adequately identified and controlled in accordance with WP 13-QA.05, *Suspect/Counterfeit Items Program*. During an interview, the Oversight Programs manager stated that suspect bolts had been identified on an installed piece of equipment. When the equipment was overhauled by an offsite vendor, the suspect bolts were removed and replaced with controlled bolts with certified material test reports. The manager provided EA with documentation supporting the replacement of the suspect bolts. The identification and control of suspect and counterfeit materials is adequate.

Storage and Maintenance of Items

Criteria:

Items are identified and controlled and stored to ensure their proper use. (10 CFR 830.122 Criterion 5)

Stored items are maintained to prevent their damage, loss or deterioration. (10 CFR 830.122 Criterion 5)

NWP controls routine stores items using WP 15-PM3517, *Stores Inventory Control*. However, NWP does not have sufficient warehouse space for materials associated with new projects or equipment replacement as part of the WIPP recovery operations. NWP has documented this issue on numerous WIPP forms, and EA observed that some materials were stored in uncontrolled office areas. CBFO used the Performance Evaluation and Measurement Plan Annual Fee Plan to highlight the need for improvements, which led to the creation of the *NWP Warehousing Management Improvement Plan*. The plan also details NWP's failure to control, store, and maintain items to ensure their proper use and prevent their damage or deterioration. The Property Management manager stated that additional warehouse space had been rented in Carlsbad as a compensatory action. A *Project Execution Plan for Warehouse Improvement Execution and Compliance* is currently in draft form, and the Property Management and Operations Performance Assurance managers cited it as the next step in implementing the improvement plan.

As noted, WP 09-8 does not require specification authors to define storage requirements or any periodic maintenance to ensure that items do not deteriorate. WP 09-8 addresses packing and shipping requirements "to ensure that the item is not damaged or contaminated in transit or during storage" but does not sufficiently address environmental conditions during storage. WP 09-8 is silent on the need for maintenance during storage.

One category of large-volume items needing storage for the foreseeable future is HEPA filters for various ventilation systems credited in the DSA. EA examined both the specification and the purchase requisition for certain HEPA filters. Although these documents correctly identified a number of QA requirements, including testing by an independent testing facility, they did not identify the manufacturer's temperature limits on storage (0-120 °F) as required by NQA-1, 1989, Supplement 13S-1, Section 3.1. The Property Management manager stated that the rented warehouse space did not have temperature control and that the onsite warehouse had unreliable temperature control (see **Finding F-NWP-001**).

WIPP has also experienced difficulties in ensuring that stored items are maintained in accordance with manufacturers' recommendations. An example is documented on WIPP form WF15-383, which addresses the lack of required maintenance on the Supplemental Ventilation System fan equipment, as well as storage issues with magnesium oxide sacks, the mine de-dust equipment, and uninterruptible power supply equipment. In response to this issue, NWP revised WP 15-PC3609 to require preventive maintenance information from the supplier. Additionally, WP 15-PM3517 was revised to include storage preventive maintenance information for stocked items in stores. EA did not observe any safety significant items with neglected preventive maintenance.

Conclusions

NWP's processes and systems generally comply with the 10 CFR 830.122 and ASME-NQA-1, 1989 requirements for receipt inspection and control of items. The processes and systems are adequate to support the stable operation of the facility, but are less than adequate for the amount of large project work under way at WIPP. Compensatory actions, such as rented warehouse space, may provide adequate storage for some items; however, WIPP has no suitable facilities for safety significant items that require temperature controlled storage.

5.2 Contractor Assurance System

This section discusses EA's assessment of the status of the CAS, trending data, the assessment program, and the issues management process.

Objective:

The site contractor management has established a CAS that includes assignment of management responsibilities and accountabilities and provides evidence to assure both DOE and the contractor's management that work is being performed safely, securely, and in compliance with all requirements; risks are being identified and managed; and that the systems of control are effective and efficient in accordance with the policy and key elements outline in DOE Order 226.1B, Implementation of Department of Energy Oversight Policy, Attachment 1 Contractor Requirements Document; quality assurance requirements (as stated in 10 CFR 830, Subpart A, DOE Order 414.1D, Quality Assurance, or other applicable regulations); other applicable DOE directives; and contract terms and conditions. (EA CRAD 30-01)

Criteria:

Criterion #1 - A CAS is established.

Criterion #2 - Assessments are planned and conducted.

Criterion #3 - A structured issues management and corrective action system is established.

Criterion #4 - Results of the CAS are effectively used to improve performance.

In June and July 2016, the EA Office of Worker Safety and Health Assessments assessed NWP's CAS. EA determined that the organizational structure and programmatic documentation supporting the NWP CAS had improved since the DOE accident investigation of the 2014 radiological release accident. Though there are still areas for improvement, NWP's CAS has shown steady improvement, particularly over the last year.

NWP has a 15-month self-assessment plan. For 2016 and 3 months of 2017, NWP had 99 self-assessments scheduled. In a sample of these self-assessments, some were very thorough and in-depth reviews, but some were surveillances (less in-depth than self-assessments), one was a review plan, and another was an employee survey. These examples do not meet the expectations of WP 15-CA1002, *Self-Assessments*. Project Assurance Managers (PAMs) coordinate with assessors after the assessment is complete to ensure the adequacy of the assessment, but they do not coordinate in advance. Additionally, WP 15-CA1002 has no requirement for a review plan in advance of performance of a self-assessment (see **OFI-NWP-002**). Conducting 99 assessments in 15 months taxes resources and produces assessments that sometimes do not meet either WP 15-CA1002 requirements or NWP management's needs (see **OFI-NWP-003**). Furthermore, NWP management does not review the corrective actions developed to address the self-assessment findings to ensure their adequacy (see **OFI-NWP-004**).

WP 15-CA1002 requires the CAS Manager to periodically report the status of self-assessment performance to the NWP President and Project Manager's office. As of the date of this assessment, this reporting had been performed in only one email and, intermittently, verbally (see **OFI-NWP-005**).

Performance data collection and trending at WIPP have generally improved over the last year. Data is now collected and reported on a regular basis, including WIPP form trend codes, which are now collected and reported semi-annually. EA's 2016 WP&C report noted that this data is collected, trended, analyzed, and reported manually. Trending of issues is therefore limited to what CAS organization employees can manually accomplish. Data sets have changed to meet management's needs, and the ongoing evaluation and refinement of data analysis and trending will help support NWP management's needs. The EA WP&C report also noted that "performance metrics for roof bolting and other ground control

rehabilitation activities underground are not adequate or appropriate to provide a measure for safe, effective ground control.” Currently, roof bolting metrics is an example of an ineffective trend report. NWP tracks total bolts and bolts installed per shift, but this metric does not ensure that bolting resources are applied to the highest risk areas, nor does it allow NWP management to ensure that ground control resources are applied strategically (see **OFI-NWP-006**).

WP 15-GM1002, *Issues Management Processing of WIPP Forms*, defines the issues management process at WIPP. NWP and CBFO have had some disagreement about the classification of issues, as evidenced by ten WIPP forms that CBFO believes NWP misclassified as Action Level (AL)-3 instead of AL-1 or -2. NWP explained the reasons for each classification, and CBFO rejected them. Additionally, CBFO believes that NWP does not appropriately raise recurring AL-3 issues to AL-1 or -2 per WP 15-GM1002 because NWP does not appropriately track recurrence of issues. NWP has recently begun to track and trend a WIPP form issue codes report, issued semi-annually, which has ambiguous definitions and may be causing these disagreements between NWP and CBFO. Examples include: AL-1 includes a significant non-adherence of requirements – “significant” is not defined; AL-1 includes an unacceptable situation that the facility will need to dedicate resources to ensure is resolved – “unacceptable” is not defined, and no threshold is defined regarding resources to resolve the situation; AL-2 is defined as consequences of the condition are or could have been serious – “serious” is not defined. In discussions with NWP and CBFO managers, NWP believes the issues of concern are not serious or significant, while CBFO believes these issues are obviously serious and significant. Therefore, clarifying these words may resolve the WIPP form conflict between CBFO and NWP (see **OFI-NWP-007**).

Conclusions

NWP’s CAS has improved since the February 2014 events at WIPP. Self-assessments are being performed on a periodic basis, data is being collected and trended, and issues are being evaluated, corrected, and closed. However, some self-assessments do not meet the requirements of WP 15-0CA1002. The definitions for AL are ambiguous and lead to misunderstandings between CBFO and NWP, and some performance data that could improve NWP management’s understanding of operational performance is lacking. Overall, NWP’s CAS is still improving.

5.3 Follow-up Items from EA Review of Engineering Processes

Criterion:

A structured issues management and corrective action system is established. (DOE Order 226.1B, Contractor Requirements Document, 2b(3))

EA’s assessment of engineering and procurement processes at WIPP in the summer of 2015 identified a number of findings. EA has continued to follow up with the NWP Engineering Department (Engineering) on the status of the resolution of the identified items, most recently documented in an EA operational awareness report, OAR-EA-WIPP-2016-07-12, *Follow-up on Engineering Process Issues from the November 2015 Assessment Report*. As part of the current assessment, EA discussed the status of the resolution efforts with the Engineering PAM, who provided EA with an updated spreadsheet of the resolution status.

The most significant progress in improving the engineering processes since the EA operational awareness visit was the implementation of the Engineering Change Notice process to replace the Engineering Change Order process. The primary improvement with the Engineering Change Notice process is the incorporation of the information that impacts implementation of the change from a paper design to a physical change in the plant configuration. Engineering also developed a turnover package for safety

significant work requiring approval by the Operations Department as a compensatory measure to improve change control for work initiated under the previous Engineering Change Order system. EA found the new Engineering Change Notice process and the compensatory measure to be satisfactory for protecting against inadvertent changes to systems credited in the DSA.

6.0 FINDINGS

Findings are deficiencies that warrant a high level of attention from management. If left uncorrected, findings could adversely affect the DOE mission, the environment, the safety or health of workers and the public, or national security. DOE line management and/or contractor organizations must develop and implement corrective action plans for EA appraisal findings. Cognizant DOE managers must use site- and program-specific issues management processes and systems developed in accordance with DOE Order 227.1A to manage these corrective action plans and track them to completion. In addition to the findings, deficiencies that did not meet the criteria for a finding are listed in Appendix C, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

- **Finding F-NWP-001:** Contrary to the requirements of NQA-1, 1989, Basic Requirement 13, NWP does not have facilities to preserve items in storage to minimize deterioration. Additionally, contrary to NQA-1, 1989, Supplement 13S-1, Section 3.1, NWP QA procedures do not specify meeting the HEPA filter manufacturer's requirements to minimize degradation of items in storage.

7.0 OPPORTUNITIES FOR IMPROVEMENT

EA identified some OFIs to assist cognizant managers in improving programs and operations. While OFIs may identify potential solutions to findings and deficiencies identified in appraisal reports, they may also address other conditions observed during the appraisal process. EA offers these OFIs only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions that may assist site management in implementing best practices or provide potential solutions to issues identified during the assessment.

OFI-NWP-001: Consider defining standardized levels of storage, such as those in Subpart 2.2 of ASME NQA-1, 2015 edition, to communicate to procurement and warehouse personnel the environmental conditions under which specific items may be stored.

OFI-NWP-002: Consider promoting better coordination between PAMs and assessors before assessments to ensure that assessments meet WP 15-CA1002 requirements. Additionally, consider requiring short review plans developed by the assessor to document the expectations for upcoming assessments.

OFI-NWP-003: Consider reducing the number of annual self-assessments, tasking PAMs and assessors to improve self-assessment depth and scope, and promoting coordination between NWP and CBFO to develop a three-year rolling self-assessment schedule so all key subject areas are adequately addressed on a cyclical basis. Leave placeholders (e.g., "TBD") in the schedule so emerging/critical issues can be addressed.

OFI-NWP-004: Consider reviewing a sample of corrective actions resulting from self-assessments to ensure that they adequately address the findings.

OFI-NWP-005: Consider tasking the CAS Manager to report the status of self-assessments, including results, trends, corrective actions, and other pertinent data, approximately monthly at the managers' plan-of-the-week meeting to increase the visibility of the self-assessment program.

OFI-NWP-006: Consider periodically reviewing all collected and trended data to ensure that it supports NWP management's needs, and modifying the process as necessary. As an example, instead of the current metric "total bolts and bolts per shift installed", consider breaking up the mine into specific areas, prioritizing them by risk, determining ground control needs in each of the defined mine areas, and then collecting and reporting ground control data in each prioritized mine area.

OFI-NWP-007: Consider reviewing and modifying the AL definitions in WP 15-GM1002.

Appendix A Supplemental Information

Dates of Assessment

Onsite Assessment: September 12-16, October 17-21, and October 24-27, 2016

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Appendix B

Key Documents Reviewed, Interviews, and Observations

Documents Reviewed

- *Exemption from Implementing NQA-1-2004/2007 Quality Assurance Programs at Carlsbad Field Office and Waste Isolation Pilot Plant*, October 5, 2012
- *NWP Warehousing Management Improvement Plan*, March, 2016
- *Project Execution Plan for Warehouse Improvement Execution and Compliance*, DRAFT
- 40 CFR 194, *Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR 191 Disposal Regulations*
- ASME NQA-1-1989, *Quality Assurance Program Requirements for Nuclear Facilities*, September 15, 1989
- D-0112, *Specification for the Design and Procurement of the UVS Interim Ventilation System Functional & Operational Requirements*, Revision 2, May 3, 2016
- D-0113, *Specification for the Design and Procurement of the Interim Ventilation System Control Strategy*, Revision 0, December 10, 2014
- D-0114, *Specification for the Design and Procurement of an Underground Fan System for the Supplemental Ventilation System*, Revision 3, June 30, 2015
- DOE/CBFO-94-1012, *Quality Assurance Program Document*, Revision 12, August 3, 2015
- DOE/WIPP-06-3335, *Waste Isolation Pilot Plant Nuclear Maintenance Management Plan*, Revision 4, December 3, 2015
- DOE/WIPP 07-3372, *Waste Isolation Pilot Plant Documented Safety Analysis*, Revision 5b, April 2016
- DOE/WIPP 07-3373, *Waste Isolation Pilot Plant Technical Safety Requirements*, Revision 5b, April, 2016
- DOE/WIPP 16-3565, *Safety Evaluation Report for Approval of DOE/WIPP 07-3372, Waste Isolation Pilot Plant Documented Safety Analysis, Revision 5 and DOE/WIPP 07-3373, Waste Isolation Pilot Plant Technical Safety Requirements, Revision 5*, Revision 0, April 29, 2016
- EA13QA04-5-0, *Quality Assurance Screen*, Revision 5, January 17, 2013
- EA13QA1003-1, *Source/Receipt Inspection Verification Sheet for S/CI Bolt Replacement*, Revision 17, August 10, 2016
- E-B-227, *HEPA Filters*, Revision 1, May 13, 1988
- E-H-011, *Equipment Specification Underground CH-TRU Transporter 52-H-008*, Revision 3, July 14, 2015
- MC 10.1, *Quality Assurance Department*, Revision 9, March 12, 2015
- MP 1.34, *NWP Contracts and Procurement Program*, Revision 5, December 4, 2012
- Req. 0000507578, *Filters, HEPA, Flanders*, September 28, 2016
- OAR-EA-WIPP-2016-07-12, *Follow-up on Engineering Process Issues from the November 2015 Assessment Report*, September, 2016
- PB-2016-0907, *Flanders/FFI Nuclear Grade HEPA Filters*, 2007
- QA-03, *WIPP Quality Assurance Dimensional Inspection Authorization Card*, Revision 1, February 11, 2015
- QAI-01-1, *Quality Assurance Receipt Inspector Qualification Card*, Revision 4, February 18, 2015
- QAM-7, *Flanders Quality Assurance Manual*, Revision 7, January 4, 2016
- WF14-266, August 11, 2014
- WF15-383, August 17, 2015
- WF15-397, August 13, 2015
- WF15-473, October 7, 2015
- WF15-474, October 7, 2015

- WF15-479, October 8, 2015
- WF15-486, October 8, 2015
- WF15-490, October 8, 2015
- WF15-491, October 8, 2015
- WF15-492, October 8, 2015
- WF15-675, November 17, 2015
- WF15-729, December 4, 2015
- WF16-073, January 21, 2016
- WP 08-PT.03, *NWP 10 CFR Part 71, Subpart H, Quality Assurance Program Plan*, Revision 12, April 19, 2016
- WP 08-PT3006, *Quality Lists and Quality Category Assessments*, Revision 4, March 17, 2016
- WP 09-8, *WIPP Specification Preparation*, Revision 9, August 13, 2016
- WP 09-CN3005, *Graded Approach to Application of QA Controls*, Revision 8, July 19, 2016
- WP 09-CN3007, *Engineering Change Notice*, Revision 47, October 3, 2016
- WP 09-CN3018, *Design Verification*, Revision 16, August 13, 2016
- WP 09-CN3031, *Engineering Calculations*, Revision 5, August 6, 2015
- WP 09-CN3040, *Commercial Grade Item Dedication*, Revision 3, January 29, 2015
- WP 13-1, *Quality Assurance Program Description*, Revision 36, December 22, 2015
- WP 13-QA.03, *Quality Assurance Independent Assessment Program*, Revision 26, July 8, 2016
- WP 13-QA.04, *Quality Assurance Department Administrative Program*, Revision 22, July 20, 2016
- WP 13-QA.05, *Suspect/Counterfeit Items Program*, Revision 12, September 20, 2016
- WP 13-QA1003, *Quality Assurance Receipt/Source Inspections*, Revision 26, July 29, 2013
- WP 13-QA1007, *Dimensional Inspection*, Revision 4, December 1, 2014
- WP 13-QA3004, *Nonconformance Report*, Revision 15, May 17, 2016
- WP 13-QA3012, *Supplier Evaluation/Qualification*, Revision 22, February 26, 2015
- WP 15-PC3041, *Approval/Variation Request Processing*, Revision 11, June 16, 2016
- WP 15-PC3044, *Quality Credit Card Purchases*, Revision 10, March 20, 2014
- WP 15-PC3609, *Preparation of Purchase Requisitions*, Revision 30, March 17, 2016
- WP 15-PM.01, *Property Management Program*, Revision 12, April 23, 2014
- WP 15-PM3500, *Equipment Held for Future Projects*, Revision 7, January 7, 2013
- WP 15-PM3517, *Stores Inventory Control*, Revision 28, June 1, 2016
- WP 15-PM3518, *Material Receiving*, Revision 5, October 22, 2015
- WP 15-GM1002, *Issues Management Processing of WIPP Forms*
- WP 10-WC3011, Rev. 37, *Work Control Process*
- WP 15-CA1002, *Self-Assessment*
- WP 15-CA.01, *Contractor Assurance System Program Description*
- WP 15-CA.02, *Line Management Assessment Implementation Plan*
- NWP Assessment Schedule – FY/CY 2016 (Rev. 3)
- NWP Self-Assessments (10)
- NWP WIPP Forms (20)
- WIPP Form Trend Analysis: 1/1/16 to 6/30/16
- Office of Enterprise Assessments Assessment of Work Planning and Control at the Waste Isolation Pilot Plant

Interviews

- NWP Quality Assurance Manager
- NWP Assurance Programs Manager
- NWP Oversight Programs Manager

- NWP Site Procurement Manager
- NWP Property Management Manager
- WIPP Warehouse Manager (Skylia Company)
- Operations Performance Assurance Manager
- Engineering Performance Assurance Manager
- NWP Inspection Services Point of Contact
- NWP Regulatory Requirements Manager
- NWP Operations Manager
- CAS Manager (twice)
- WIPP Form Manager (twice)
- NWP Assessments Manager
- Performance Assurance Managers (2)

Observations

None

Appendix C Deficiencies

Deficiencies that did not meet the criteria for a finding are listed below, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

- Contrary to WP 13-1, Section 2.1.6.c, WP 09-8 does not require the identification of temperature controlled environments when required to prevent equipment degradation in shipping and storage.