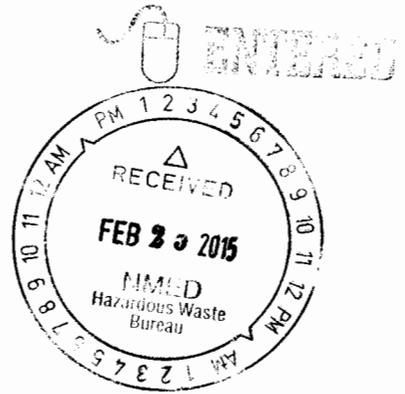




Department of Energy
 Carlsbad Field Office
 P. O. Box 3090
 Carlsbad, New Mexico 88221
FEB 25 2015



Mr. Jonathan D. Edwards, Director
 Radiation Protection Division
 U.S. Environmental Protection Agency
 1200 Pennsylvania Ave, NW – MC 6608T
 Washington, D.C. 20460

Subject: Additional Information in Response to the Environmental Protection Agency
 Regarding the 2014 Biennial Environmental Compliance Report

Reference: Department of Energy letter: CBFO:EPD:SM:MN:15-1410: UFC 5486.00, Dated
 January 28, 2015, Subject: Response to the Environmental Protection Agency
 Regarding the 2014 Biennial Environmental Compliance Report

Dear Mr. Edwards:

The Department of Energy, Carlsbad Field Office (DOE) and Nuclear Waste Partnership (NWP) LLC have secured approval of their respective formal Corrective Action Plans (CAPs) that were prepared in response to the March 2014 and April 2014 Waste Isolation Pilot Plant (WIPP) Accident Investigation Reports, titled Underground Salt Haul Truck Fire at the WIPP February 5, 2014, and Phase 1 Radiological Release Event at the WIPP on February 14, 2014. In keeping with our commitment contained in the reference letter regarding additional information, we are enclosing the final DOE and NWP CAPs to assist in your review of the WIPP 2014 Biennial Environmental Compliance Report.

If you have any questions, please contact Susan McCauslin at (575) 234-7349.

Sincerely,

Jose R. Franco
 Jose R. Franco, Manager
 Carlsbad Field Office

Enclosures 2

cc: w/enclosures

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N. Stone, EPA Region 6	ED		
W. Stenger, EPA Region 6	ED		
R. Flynn, NMED	ED		
J. Kieling, NMED	ED		





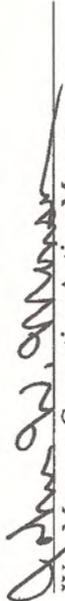
**U.S. Department of Energy
Carlsbad Field Office**

Corrective Action Plan

Addressing the Accident Investigation Reports of:

***the Underground Salt Haul Truck Fire at the Waste Isolation Pilot Plant, February 5, 2014,
and
the Phase 1, Radiological Release Event at the Waste Isolation Pilot Plant, on February 14, 2014
Revision 0***

February 6, 2015

Prepared by: 
Wes Mouser, Corrective Action Manager
Carlsbad Field Office

Approved by: 
Jose R. Franco, Manager
Carlsbad Field Office

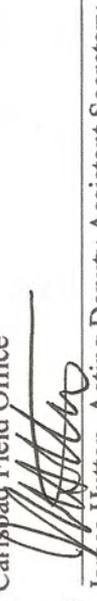
Approved by: 
James Hutton, Acting Deputy Assistant Secretary
Safety, Security, and Quality Programs Office of Environmental Management

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ACRONYMS

AIB	Accident Investigation Board
CAM	Continuous Air Monitor
CAP	Corrective Action Plan
CAS	Contractor Assurance System
CBFO	Carlsbad Field Office
CMR	Central Monitoring Room
CON	Conclusion of the Accident Investigation Board
CONOPS	Conduct of Operations
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
EM	Office of Environmental Management
EMCBC	Environmental Management Consolidated Business Center
FHA	Fire Hazards Analysis
HEPA	High Efficiency Particulate Air
HQ	Headquarters
ICS	Incident Command System
IEP	Integrated Evaluation Plan
JON	Judgment of Need
NFPA	National Fire Protection Association
NIMS	National Incident Management System
NMMP	Nuclear Maintenance Management Program
MP	Management Procedure
MSHA	Mine Safety and Health Administration
NWP	Nuclear Waste Partnership LLC
SSO	Safety Systems Oversight
TRU	Transuranic
TSR	Technical Safety Requirement
WIPP	Waste Isolation Pilot Plant

1 Purpose

The purpose of this Corrective Action Plan (CAP) is to specify U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) actions for addressing issues identified in the March 2014, accident investigation report for the *Underground Salt Haul Truck Fire at the Waste Isolation Pilot Plant (WIPP) February 5, 2014* (hereafter referred to as the Fire Report) and the April 2014, *Phase 1 Radiological Release Event at the Waste Isolation Pilot Plant on February 14, 2014* (hereafter referred to as the Phase 1 Radiological Report).

The Fire Report identified a total of 22 Conclusions (CONs) and 35 Judgments of Need (JONs). The Accident Investigation Board identified the responsible organization(s) for the CONs and JONs as follows:

- 6 CONs and 11 JONs were directed to Nuclear Waste Partnership LLC (NWP) only
- 2 CONs and 4 JONs were directed to CBFO only
- 10 CONs and 13 JONs were directed to CBFO and NWP
- 1 CON and 1 JON was directed to CBFO and Environmental Management Consolidated Business Center (EMCBC)
- 2 CONs and 5 JONs were directed to DOE Headquarters (HQ) only
- 1 CON and 1 JON was directed to CBFO, NWP, and DOE HQ

The Phase 1 Radiological Report identified a total of 31 CONs and 47 JONs. The Accident Investigation Board identified the responsible organization(s) for the CONs and JONs as follows:

- 15 CONs and 23 JONs were directed to NWP only
- 4 CONs and 11 JONs were directed to CBFO only
- 3 CONs and 2 JONs were directed to CBFO and NWP
- 4 CONs and 7 JONs were directed to DOE HQ only
- 2 CONs and 3 JONs were directed to CBFO and DOE HQ
- 3 CONs were directed to CBFO, NWP, and DOE HQ
- 1 JON was directed to the Accident Review Board only

This consolidated CAP specifies the CBFO corrective actions responsive to the two Accident Investigation Boards' reports. Each corrective action includes the associated JON, the resulting approach, the applicable actions to be taken, the deliverables, the action owner (responsible CBFO Program or Division Office, responsible individual by job title), and due dates for completing the actions.

The approving officials for this CAP are the Manager, Carlsbad Field Office and the acting Deputy Assistant Secretary, Safety, Security, and Quality Program, Office of Environmental Management.

2 Summary of the Events

2.1 Fire Event

On Wednesday, February 5, 2014, at approximately 10:45 Mountain Standard Time, an underground mine fire involving an EIMCO Haul Truck, 74-U-006B, (salt haul truck) occurred at the DOE WIPP near Carlsbad, New Mexico. There were 86 workers in the mine (underground) when the fire occurred. All workers were safely evacuated. Six workers were transported to the Carlsbad Medical Center for treatment for smoke inhalation and an additional seven workers were treated on-site.

On February 7, 2014, the Deputy Assistant Secretary for Safety, Security, and Quality Programs, DOE, Office of Environmental Management (EM) formally appointed an Accident Investigation Board (AIB) to investigate the underground salt haul truck fire in accordance with DOE Order (O) 225.1B, based on this accident meeting Accident Investigation Criteria 2.d.1 of DOE O 225.1B, Accident Investigations, Appendix A.

The Salt Haul Truck Fire AIB began the investigation on February 10, 2014, and completed the investigation on March 8, 2014. They submitted findings to the Deputy Assistant Secretary for Safety, Security, and Quality Programs Environmental Management on March 11, 2014. On March 14, 2014, the Salt Haul Truck Fire AIB's Report was approved.

2.1.1 Salt Haul Truck Fire AIB Conclusions

The Salt Haul Truck Fire AIB concluded the following causes of the accident:

Direct Cause – the immediate events or conditions that caused the accident.

The Salt Haul Truck Fire AIB identified the direct cause of this accident to be contact between flammable fluids (either hydraulic fluid or diesel fuel) and hot surfaces (most likely the catalytic converter) on the salt haul truck, which resulted in a fire that consumed the engine compartment and two front tires.

Root Cause – causal factors that, if corrected, would prevent recurrence of the same or similar accidents.

The Salt Haul Truck Fire AIB identified the root cause of this accident to be the failure of NWP and the previous management and operations contractor to adequately recognize and mitigate the hazard regarding a fire in the underground. This includes recognition and removal of the buildup of combustibles through inspections and periodic preventative maintenance (e.g., cleaning), and the decision to deactivate the automatic onboard fire suppression system.

Contributing Causes – events or conditions that collectively with other causes increased the likelihood or severity of an accident but that individually did not cause the accident. For the purposes of this investigation, contributing causes include those related to the cause of the fire, as well as those related to the subsequent response.

The Salt Haul Truck Fire AIB identified ten contributing causes to this accident or resultant response:

1. The preventative and corrective maintenance program did not prevent or correct the buildup of combustible fluids on the salt truck. There is a distinct difference between the way waste-handling and non-waste-handling vehicles are maintained.
2. The fire protection program was less than adequate in regard to flowing down upper-tier requirements relative to vehicle fire suppression system actuation from the Baseline Needs Assessment into implementing procedures. There was also an accumulation of combustible materials in the underground in quantities that exceeded the limits specified in the Fire Hazard Analysis (FHA) and implementing procedures. Additionally, the FHA does not provide a comprehensive analysis that addresses all credible underground fire scenarios including a fire located near the Air Intake Shaft.
3. The training and qualification of the operator was inadequate to ensure proper response to a vehicle fire. He did not initially notify the Central Monitoring Room (CMR) that there was a fire or describe the fire's location.
4. The CMR Operations response to the fire, including evaluation and protective actions, was less than adequate.
5. Elements of the emergency preparedness and response program were ineffective.
6. A nuclear versus mine culture exists where there are significant differences in the maintenance of waste-handling versus non-waste-handling equipment.
7. The NWP Contractor Assurance System (CAS) was ineffective in identifying the conditions and maintenance program inadequacies associated with the root cause of this event.
8. The DOE Carlsbad Field Office was ineffective in implementing line management oversight programs and processes that would have identified NWP CAS weaknesses and the conditions associated with the root cause of this event.
9. Repeat deficiencies were identified in DOE and external agencies assessments, e.g., Defense Nuclear Facility Safety Board emergency management, fire protection, maintenance, CBFO oversight, and work planning and control, but were allowed to remain unresolved for extended periods of time without ensuring effective site response.
10. There are elements of the Conduct of Operations (CONOPS) program that demonstrate a lack of rigor and discipline commensurate with the operation of a Hazard Category 2 Facility.

2.2 Radiation Release Event

On Friday, February 14, 2014, there was an incident in the underground repository at the DOE WIPP near Carlsbad, New Mexico, which 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 (CAM) and then directed through high-efficiency particulate air (HEPA) filter banks located in the surface exhaust building. However, a measurable portion bypassed the HEPA filters through leaks in two ventilation system dampers and was discharged directly to the environment from an exhaust duct. No personnel were determined to have received external contamination; however, 21 individuals were identified through bioassay to have initially tested positive for low level amounts of internal contamination as of March 28, 2014. Trace amounts of americium and plutonium were detected off-site.

On February 27, 2014, the Deputy Assistant Secretary for Safety, Security, and Quality Programs, DOE, EM, formally appointed an AIB to investigate the radiological release in accordance with DOE O 225.1B, *Accident Investigations*.

The Radiological Event AIB began the investigation on March 3, 2014, completed Phase 1 of the investigation on March 28, 2014, and submitted the report to the Acting Deputy Assistant Secretary for Safety, Security, and Quality Programs, DOE, EM on April 1, 2014. The Phase 1 Radiological Report covers the Radiological Event AIB's conclusions for the release of TRU from the underground to the environment. The Phase 1 Radiological Release Event Report was released on April 22, 2014.

2.2.1 Radiological Event AIB Conclusions

The Radiological Event AIB concluded the following causes of the accident.

Direct Cause– the immediate events or conditions that caused the accident.

The Radiological Event AIB identified the direct cause of this accident to be the breach of at least one TRU waste container in the underground which resulted in airborne radioactivity escaping to the environment downstream of the HEPA filters. Due to restrictions on access to the underground following the event, the exact mechanism of container failure, e.g., back or rib fall, puncture by a failed roof bolt, off-gassing, etc., was unknown at the time the Phase 1 Radiological Report was issued.

Root Cause– causal factors that, if corrected, would prevent recurrence of the same or similar accidents.

The Radiological Event AIB identified the root cause of Phase 1 of the investigation of the release of radioactive material from

underground to the environment to be NWP's and CBFO's management failure to fully understand, characterize, and control the radiological hazard. The cumulative effect of inadequacies in ventilation system design and operability compounded by degradation of key safety management programs and safety culture resulted in the release of radioactive material from the underground to the environment, and the delayed/ineffective recognition and response to the release.

Contributing Causes— events or conditions that collectively with other causes increased the likelihood or severity of an accident but that individually did not cause the accident. For the purposes of this investigation, contributing causes include those related to the cause of the fire, as well as those related to the subsequent response.

The Radiological Event AIB identified eight contributing causes to the radiological release to the environment investigated in Phase 1, or resultant response:

1. Implementation of the NWP Conduct of Operations Program is not fully compliant with DOE O 422.1, *Conduct of Operations*, and impacted the identification of abnormal conditions and timely response.
2. NWP does not have an effective Radiation Protection Program in accordance with 10 Code of Federal Regulations (CFR) 835, *Occupational Radiation Protection*, including, but not limited to radiological control technician training, qualification, and requalification, equipment and instrumentation, and audits.
3. NWP does not have an effective maintenance program. The condition of critical equipment and components, including continuous air monitors, ventilation dampers, fans, sensors, and the primary system status display were degraded to the point where the cumulative impact on overall operational readiness and safety was not recognized or understood.
4. NWP does not have an effective Nuclear Safety Program in accordance with 10 CFR 830 Subpart B, Safety Basis Requirements. There has been a reduction in the conservatism in the Documented Safety Analysis (DSA) hazard/accident analysis and corresponding Technical Safety Requirement (TSR) controls over time. In addition, the DSA and TSRs contain errors, there is a lack of DSA linkage to supporting hazard analysis information, and there is confusion over the back fall accident description in a closed versus open panel.
5. NWP implementation of DOE O 151.1C, *Comprehensive Emergency Management System*, was ineffective. Personnel did not adequately recognize, categorize, or classify the emergency and did not implement adequate protective actions in a timely manner.
6. The current site safety culture does not fully embrace and implement the principles of DOE Guide (G) 450.4-1C, *Integrated Safety Management Guide*. There is a lack of a questioning attitude, reluctance to bring up and document issues, and an acceptance and normalization of degraded equipment and conditions.

7. Execution of the NWP Contractor Assurance System (CAS) in accordance with DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, was ineffective. Execution of the CAS did not identify precursors to this event or the unacceptable conditions and behaviors documented in this Phase 1 Radiological Report.
8. DOE HQ line management oversight was ineffective. DOE HQ failed to ensure that CBFO was held accountable for correcting repeated identified issues involving radiological protection, nuclear safety, Integrated Safety Management (ISM), maintenance, emergency management, work planning, and control and oversight.

3 Corrective Action Plan

The designated Action Owners are responsible for coordinating that action, providing status updates to the CBFO Corrective Actions Manager for inclusion in the CBFO Corrective Action Plan Primavera P6 schedule, and for providing objective evidence documenting completion of the actions to the CBFO Corrective Actions Manager.

The CBFO Corrective Action Manager will monitor and report the status of corrective actions through completion to the CBFO Manager. Proposed changes to the corrective actions in this CAP, including due dates, will be made in writing to the CBFO Manager for review and approval. The CBFO Manager will forward the proposed changes to the acting Deputy Assistant Secretary, Safety, Security, and Quality Programs, Office of Environmental Management for review and approval.

Corrective actions requiring training will be considered complete when 80% of the target audience has completed the training. Those who have not completed the training will not independently perform the associated function until the training is complete for that individual.

The CBFO Corrective Actions Manager will determine that the provided objective evidence for each corrective action is responsive to the associated JONs identified in this CAP. The CBFO Manager will then forward the objective evidence to the AIB appointing official (acting Deputy Assistant Secretary, Safety, Security, and Quality Program, Office of Environmental Management) for closure. The CBFO Corrective Action Manager will coordinate with the CBFO Manager and AIB appointing official to assign reviewers and to establish corrective action implementation assessment teams. The assessment teams will determine that the corrective actions are completed and implemented to satisfy the JONs identified in the two AIB reports. Assessment teams will provide assessment reports to the CBFO Manager and the AIB appointing official documenting the effective implementation of the corrective actions.

4 Summary

The actions described in this CAP address the JONs directed to CBFO from the Fire Report and the Phase 1 Radiological Report. The CAP is consistent with the CBFO's commitment to safety and protection of the environment.

The CBFO employees will assert control of the plan and its actions from initiation to closure and verification of effectiveness. The CBFO believes these actions are responsive and appropriate for implementing the overall intent of the issues in the two accident investigation reports.

5 Organization and Management

The CBFO Manager is responsible for the execution of this CAP. The CBFO Corrective Actions Manager will provide a quarterly update of the status of the associated actions to the CBFO Manager via a verbal briefing. The Action Owners will coordinate the actions identified in this report and track their status and closure on an ongoing basis via a P6 schedule.

6 CBFO Corrective Actions to Address the Judgments of Need from the Fire Report

The corrective actions are addressed in the order they were presented in the Fire Report;

- Emergency Response (JON 4-7, & 9-11)
- Maintenance Program (JON 14 & 17)
- Fire Protection Program (JON 20-22)
- DOE Programs and Oversight (JON 24-26, & 32)
- Safety Program (JON 33-35)

6.1 Emergency Response

6.1.1 Judgment of Need: JON 4

JON 4: *NWP and CBFO need to evaluate their corrective action plans for findings and opportunities for improvement identified in previous external reviews, and take action to bring their emergency management program into compliance with requirements.*

Approach

The CBFO will develop a new procedure for responding to reviews, surveillances, and audits conducted by parties outside of the CBFO to ensure issues are tracked to completion. CBFO and EM-40 personnel will review prior assessments received between July 2008 and June 2013 to ensure issues have been address.

Corrective Actions for JON 4

Number	Action	Deliverable	Action Owner	Due Date
1	CBFO Assistant Manager for the Office of Operations Oversight's designated staff will read DOE O 151.1C, <i>Comprehensive Emergency Management System</i> to re-familiarize themselves with the requirements of the order.	Required reading documentation with signatures showing at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight's designated staff have read and understood DOE O 151.1C, and 30 CFR Part 57.	CBFO Assistant Manager for the Office of Operations Oversight	01/16/2015

Corrective Action Plan Addressing the Accident Investigation Report
of the February 5, 2014 Fire Event and the February 14, 2014 Radiological Release Event

Number	Action	Deliverable	Action Owner	Due Date
2	Develop and implement a new CBFO procedure for responding to external reviews, surveillances, and audits conducted by parties outside of the CBFO. This procedure will cover obtaining written reports for the CBFO Records Center, issue assignment and tracking; issue trending, issue closure, issue closure documentation, and record keeping requirements.	External Reviews, Surveillances, and Audits Response Procedure	CBFO Quality Assurance Director	04/01/2015
3	Formally train CBFO Manager's designated staff on the new CBFO External Reviews, Surveillances, and Audits Response Procedure.	Training records providing objective evidence that at least 80% of the CBFO Manager's designated staff have successfully completed training to the new CBFO External Reviews, Surveillances, and Audits Response Procedure.	CBFO Manager	05/01/2015
4	CBFO and EM-40 personnel will conduct a joint evaluation of outstanding issues and opportunities for improvement identified in assessments received between July 2008 and June 2013 to ensure they have been addressed.	Report documenting the results of the joint evaluation.	CBFO Assistant Manager for the Office of Operations Oversight	9/30/2015

6.1.2 Judgment of Need: JON 5

JON 5: *NWP and CBFO need to correct their activation, notification, classification, and categorization protocols to be in full compliance with DOE O 151.1C and then provide training for all applicable personnel.*

Approach

The CBFO has directed NWP to develop an integrated WIPP Emergency Management Program that is fully compliant with DOE O 151.1C, *Comprehensive Emergency Management System* and other pertinent requirements. The CBFO Safety Programs Division Director and staff will oversee and participate in the development of a new, fully compliant WIPP Emergency Management Program. A fully compliant and integrated WIPP Emergency Management Program will ensure that NWP and the CBFO can respond effectively and efficiently to operational emergencies; ensure emergencies are recognized, categorized, and as necessary classified promptly to ensure appropriate response measures are taken to protect workers, the public, and the environment. CBFO and NWP will integrate their emergency response programs into a single, NWP administered WIPP Emergency Response and Operations procedure, which defines roles for CBFO, NWP and TRANSCOM, responsibilities, training and operational guidelines; also providing implementation planning and operational tools, to comply with DOE O 151.1C, *Comprehensive Emergency Management System*.

Corrective Actions for JON 5

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Assistant Manager for the Office of Operations Oversight will oversee the development of fully compliant integrated WIPP emergency management program. The WIPP emergency management program will include both NWP and CBFO roles and responsibilities. Oversight will include review of WIPP emergency management program plans, to ensure compliance with DOE O 151.1C, <i>Comprehensive Emergency Management System</i> , the National Incident Management System (NIMS) Incident Command System (ICS) requirements, and Mine Safety and Health Administration	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of NWP WIPP emergency management program by the CBFO Assistant Manager for the Office of Operations Oversight’s designated staff ensuring the flow-down of requirements to new WIPP emergency management plans from DOE O 151.1C, NIMS ICS, and MSHA requirements.	CBFO Assistant Manager for the Office of Operations Oversight	05/30/2015

Number	Action	Deliverable	Action Owner	Due Date
	(MSHA) requirements.			
2	Oversee the development of a NWP administered WIPP Emergency Response and Operations procedure, which defines roles for CBFO, NWP and TRANSCOM, responsibilities, training and operational guidelines; also providing implementation planning and operational tools, to comply with DOE O 151.1C, <i>Comprehensive Emergency Management System</i> .	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the WIPP Emergency Response and Operations procedure.	CBFO Assistant Manager for the Office of Operations Oversight	05/30/2015
3	NWP Procedures implementing the new WIPP emergency management program plans will be reviewed to ensure adequate flow-down of program requirements including activation, notification, classification, and categorization protocols.	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of NWP procedures implementing the new WIPP emergency management plans.	CBFO Assistant Manager for the Office of Operations Oversight	06/15/2015
4	CBFO Manager's designated staff will complete NWP administered training for the WIPP Emergency Response and Operations procedure.	Training records for CBFO staff.	CBFO Manager	06/30/2015

6.1.3 Judgment of Need: JON 6

JON 6: *NWP and CBFO need to improve the content of site-specific EALs to expand on the information provided in the standard EALs contained in DOE O 151.1C.*

Approach

Actions for development of EALs are identified in NWP Fire Report JON 6. These actions will be overseen by CBFO oversight staff as described in CBFO Fire Report JON 5.

Corrective Actions for JON 6

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 5, action 1.			

6.1.4 Judgment of Need: JON 7

JON 7: *NWP and CBFO need to develop and implement an Incident Command System (ICS) for the EOC/CMR that is compliant with DOE O 151.1C and is capable of assuming command and control for all anticipated emergencies.*

Approach

The CBFO Emergency Response Manager will oversee and participate in the development of a new Comprehensive WIPP Emergency Management Program that is fully compliant with DOE O 151.1C, Comprehensive Emergency Management System. As required by the Order, the NIMS “flexible” ICS will be incorporated to ensure that individuals with primary responsibility positions are identified by ICS standardized position titles and the responsibilities of each position are defined. CBFO and NWP will integrate their emergency response programs into a single, NWP administered WIPP Emergency Response and Operations procedure, which defines roles for CBFO, NWP and TRANSCOM, responsibilities, training and operational guidelines; also providing implementation planning and operational tools, to comply with DOE O 151.1C, *Comprehensive Emergency Management System*.

Corrective Actions for JON 7

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 4, action 1.			
1	<p>CBFO Assistant Manager for the Office of Operations Oversight’s designated staff will successfully complete the following National Incident Management System (NIMS) Incident Command System (ICS) Training Courses.</p> <ul style="list-style-type: none"> • IS-700.a: National Incident Management System, (NIMS) An Introduction • ICS 100 <ul style="list-style-type: none"> ○ IS-100.b: Introduction to Incident Command System, or ○ IS-100.FWA: Intro to 	Documentation demonstrating successful completion of ICS Training Courses IS-700.a, IS-100.b or IS-100.FWA, and IS-200.b.	CBFO Assistant Manager for the Office of Operations Oversight	01/30/2015

Corrective Action Plan Addressing the Accident Investigation Report
of the February 5, 2014 Fire Event and the February 14, 2014 Radiological Release Event

Number	Action	Deliverable	Action Owner	Due Date
	<p style="text-align: center;">Incident Command System (IS-100) for Federal Workers</p> <ul style="list-style-type: none"> • IS-200.b: ICS for Single Resources and Initial Action Incidents <p>Completion of these courses is necessary to obtain and demonstrate core competency for providing oversight of the WIPP Emergency Management Program.</p>			
	<p>See CBFO Fire Report JON 5, action 1 and 2.</p>			

6.1.5 Judgment of Need: JON 9

Conclusions of the Accident Investigation Board

JON 9: *NWP, CBFO and DOE HQ need to clearly define expectations for responding to fires in the U/G, including incipient and beyond incipient stage fires.*

Approach

The CBFO has directed NWP to develop a new WIPP Fire Protection Program that is fully compliant with DOE O 420.1C, *Facility Safety*, DOE-STD-1066-2012, *Fire Protection*, 30 CFR Part 57, *Safety and Health Standards Underground Metal and Nonmetal Mines*, and applicable National Fire Protection Association (NFPA) codes and standards. The CBFO Facility Engineering Division Director and staff will oversee and participate in the development of the new, fully compliant WIPP Fire Protection Program, which will include a clear definition of expectations for responding to fires in the underground, including incipient and beyond incipient stage fires.

Corrective Actions for JON 9

Number	Action	Deliverable	Action Owner	Due Date
1	<p>The CBFO Assistant Manager for the Office of Operations Oversight’s designated staff will read DOE O 420.1C, <i>Facility Safety</i>, DOE-STD-1066-2012, <i>Fire Protection</i>, and 30 CFR Part 57, <i>Safety and Health Standards Underground Metal and Nonmetal Mines</i>, to re-familiarize themselves with the requirements of the orders.</p> <p>In addition, a required briefing will be held by CBFO Subject Matter Experts that explain the requirements of the documents and how they apply to WIPP.</p>	<p>Required reading documentation with signatures showing at least 80% of the Assistant Manager for the Office of Operations Oversight’s designated staff have read and understood DOE O 420.1C, DOE-STD-1066-2021, and 30 CFR Part 57, and attended the required briefing.</p>	<p>CBFO Assistant Manager for the Office of Operations Oversight</p>	<p>01/16/2015</p>

Number	Action	Deliverable	Action Owner	Due Date
2	The CBFO Fire Protection SSO will oversee the development of the new WIPP Fire Protection Program to ensure that applicable regulations, codes, DOE O 420.1C, <i>Facility Safety</i> , DOE-STD-1066-2012, <i>Fire Protection</i> , and 30 CFR Part 57, <i>Safety and Health Standards Underground Metal and Nonmetal Mines</i> are addressed to the extent applicable to WIPP surface structures and the underground. Oversight will include documented reviews of the new WIPP Fire Protection Program and plans to ensure flow down of requirements from DOE O 420.1C, DOE-STD-1066-2012 and 30 CFR Part 57.	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the WIPP Fire Protection Program and plans by the CBFO Fire Protection SSO to ensure flow down of requirements from DOE O 420.1C, DOE-STD-1066-2012 and 30 CFR Part 57.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP submittal of the Fire Protection Program and Plan revisions for approval
3	The CBFO Fire Protection SSO will review the NWP Fire Hazard Analysis (FHA) document to ensure it is written in compliance with Section 7.1 and Appendix B of DOE-STD-1066-2012.	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the NWP FHA.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP submittal of a final Fire Hazards Analysis
4	The CBFO Fire Protection SSO will work with NWP and DOE HQ to ensure that NWP develop/revise and implement training and procedures that clearly define expectations for responding to fires in the underground, including incipient and beyond incipient stage fires.	CBFO Document Review Record of NWP procedures and training plans for defining expectations for responding to fires in the underground, including incipient and beyond incipient stage fires.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP final approval of associated procedures and training plans.

6.1.6 Judgment of Need: JON 10

JON 10: *NWP and CBFO need to develop and implement a training program that includes hands-on training in the use of personal safety equipment, e.g., self-rescuers, SCSRs, portable fire extinguishers, etc.*

Approach

The CBFO has directed NWP to develop and implement a training program that includes hands-on training in the use of personal safety equipment for personnel with unescorted access to the underground. The CBFO oversight staff will oversee development of this training program.

Corrective Actions for JON 10

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Fire Protection SSO will ensure NWP has procedures and training in place for the proper use of use of personal safety equipment, (e.g. self-rescuers, SCSRs, portable fire extinguishers, etc.).	Documentation of oversight activities.	CBFO Assistant Manager for the Office of Operations Oversight	12/12/2014

6.1.7 Judgment of Need: JON 11

JON 11: *NWP and CBFO need to improve and implement an integrated drill and exercise program that includes all elements of the ICS, including the Mine Rescue Team (MRT), First Line Initial Response Team (FLIRT) and mutual aid; unannounced drills and exercises; donning of self- rescuers/SCSRs; and full evacuation of the U/G.*

Approach

The CBFO has directed NWP to develop and implement a comprehensive drill and exercise program that includes all elements of the National Incident Management System and Incident Command System. The CBFO oversight staff will oversee development of this drill and exercise program.

Corrective Actions for JON 11

Number	Action	Deliverable	Action Owner	Due Date
1	Oversee the NWP development of an integrated drill and exercise program that includes all elements of the National Incident Management System and Incident Command System, and implementation of these activities in accordance with DOE orders and regulatory requirements.	Documented oversight activities.	CBFO Assistant Manager for the Office of Operations Oversight	04/30/2015

6.2 Maintenance Program

6.2.1 Judgment of Need: JON 14

JON 14: *NWP and CBFO need to develop and implement a rigorous process that effectively evaluates:*

- *changes to facilities, equipment, and operations for their impact on safety, e.g., plant operations review process;*
- *impairment and corresponding compensatory measures on safety-related equipment; and*
- *the impact of different approaches in maintaining waste-handling and non-waste-handling equipment.*

Approach

The CBFO will develop a new CBFO Contractor Oversight Plan to ensure the flow down of DOE O 226.1B, *Implementation of the Department of Energy Oversight Policy*. The Plan will address evaluations of changes to WIPP facilities, equipment, and operations and their impact on safety, and the evaluation and the timely correction of impaired or out-of-service equipment. DOE oversight staff will be trained to the requirements of DOE O 430.1B, *Life Cycle Asset Management*, and DOE O 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, in preparation for performing oversight activities associated with maintenance and configuration control activities. CBFO staff previously completed training of DOE G 424.1-1, *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*.

Corrective Actions for JON 14

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will read DOE O 430.1B, <i>Life Cycle Asset Management</i> , and DOE O 433.1B, <i>Maintenance Management Program for DOE Nuclear Facilities</i> to re-familiarize themselves with the requirements of the orders.	Required reading documentation with signatures showing at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight designated staff have read and understood DOE O 430.1B and 433.1B.	CBFO Assistant Manager for the Office of Operations Oversight	01/16/2015
2	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will successfully complete the DOE Self-Study Program for DOE O 433.1, <i>Maintenance Management Program for</i>	Documentation demonstrating successful completion of the training course.	CBFO Assistant Manager for the Office of Operations	01/30/2015

Number	Action	Deliverable	Action Owner	Due Date
	<i>DOE Nuclear Facilities</i> , to obtain and demonstrate core competency for providing oversight of the WIPP Maintenance Program activities.		Oversight	
3	Utilizing benchmark examples of contractor assessment and oversight programs at other DOE facilities as a basis, develop a new CBFO Contractor Oversight Plan to: <ol style="list-style-type: none"> 1. ensure the flow down of DOE O 226.1B requirements; 2. establish requirements for oversight and evaluation of changes to WIPP facilities, equipment and operations, and evaluation of their impact on safety and safety-related systems; 3. require comprehensive and timely evaluation and correction of impaired or out-of-service equipment; 4. establish criteria and process for prioritizing planned oversight activities and determining the appropriate level of oversight rigor (operational awareness, assessment); 5. specify the process for planning, conducting, and documenting oversight evaluations; 6. identify an issues management system capable of categorizing issues, communicating issues effectively to management and 	<i>CBFO Contractor Oversight Plan.</i>	CBFO Assistant Manager for the Office of Operations Oversight	03/16/2015

Number	Action	Deliverable	Action Owner	Due Date
	<p>contractors, ensuring that issues are evaluated and corrected in a timely manner to prevent recurrence, and a mechanism for tracking and trending for feedback and improvement; and</p> <p>7. provide guides and checklists with specific lines of inquiry for each system and functional area for CBFO contractor oversight personnel to use for conducting oversight activities (e.g., OA, assessments, surveillances, etc.).</p>			
4	Formally train CBFO Manager’s designated staff on the new <i>CBFO Contractor Oversight Plan</i> to obtain and demonstrate core competency for providing oversight.	Training records providing objective evidence that at least 80% of the CBFO Manager’s designated staff have successfully completed training to the new <i>CBFO Contractor Oversight Plan</i> .	CBFO Manager	03/30/2015
5	Develop CBFO procedure <i>Operational Awareness and Issues Management</i> , MP 10.9, for identifying, communicating, and managing issues to resolution and DOE/CBFO 14-3533, <i>Issues Collection and Evaluation Users’ Manual</i> .	Approved procedure MP 10.9 and DOE/CBFO 14-3533.	CBFO Quality Assurance Director	10/02/2014
6	Provide training to CBFO Assistant Manager for the Office of Operations Oversight’s designated staff on MP 10.9 and DOE/CBFO 14-3533.	Training records showing at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight’s designated staff have successfully completed training on MP 10.9 and DOE/CBFO 14-3533.	CBFO Assistant Manager for the Office of Operations Oversight	10/09/2014

Number	Action	Deliverable	Action Owner	Due Date
7	<p>Provide input to the FY16 Integrated Evaluation Plan (IEP) in accordance with the requirements of the new CBFO <i>Contractor Oversight Plan</i>.</p> <p>Oversight activities will include the NWP Nuclear Maintenance Management Program (NMMP) description documentation identified processes for developing, implementing, managing, and maintaining the master equipment list; planning, scheduling, coordinating and controlling maintenance activities and properly emphasizing equipment availability; and controlling approved modifications and preventing unauthorized modifications to safety structures, systems and components to ensure all elements of DOE O 433.1B, <i>Maintenance Management Program for DOE Nuclear Facilities</i>, are adequately covered.</p>	<p>List of oversight activities of the NWP Nuclear Maintenance Management Program for inclusion in the FY16 IEP.</p> <p>CBFO oversight documentation covering NWP processes for developing, implementing, managing, and maintaining the master equipment list; planning, scheduling, coordinating and controlling maintenance activities and properly emphasizing equipment availability; and controlling approved modifications and preventing unauthorized modifications to safety structures, systems and components.</p>	<p>CBFO Assistant Manager for the Office of Operations Oversight</p>	<p>10/15/2015</p>

6.2.2 Judgment of Need: JON 17

JON 17: *CBFO needs to ensure that its contractor oversight structure includes elements for comprehensive and timely evaluation and correction of impaired or out-of-service equipment.*

Approach

As with maintenance programs, evaluation and correction of impaired or out-of-service equipment is a NWP program. Therefore, CBFO oversight staff, through the actions of CBFO Fire Report JON 14, will ensure the contractor oversight structure includes elements for comprehensive and timely evaluation and correction of impaired or out-of-service equipment.

Corrective Actions for JON 17

Number	Action	Deliverable	Action Owner	Due Date
	See actions for CBFO Fire Report JON 14, action 3 (3) and 7.			

6.3 Fire Protection Program

6.3.1 Judgment of Need: JON 20

JON 20: *NWP and CBFO need to perform an integrated analysis of credible U/G fire scenarios and develop corresponding response actions that comply with DOE and MSHA requirements. The analysis needs to include formal disposition regarding the installation of an automatic fire suppression system in the mine.*

Approach

The CBFO Fire Protection SSO will review the NWP Fire Hazard Analysis, Baseline Needs Assessment and Emergency Planning Hazard Assessment to ensure credible underground fire scenarios and corresponding response actions comply with DOE and MSHA requirements. This review will also ensure the disposition of the installation of an automatic fire suppression system in the underground.

Corrective Actions for JON 20

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Fire Protection SSO will oversee NWP evaluation of fire suppression systems to be used in the underground that are appropriate to the analyzed fire hazard. Systems will provide the level of safety specified in DOE-STD-1066-2012, <i>Fire Protection</i> .	Documented oversight activities.	CBFO Assistant Manager for the Office of Operations Oversight	In conjunction with NWP during the selection of fire suppression systems and complete review of NWP documents 30 days after they are submitted.

Number	Action	Deliverable	Action Owner	Due Date
2	<p>The CBFO Fire Protection, and Ventilation SSO will ensure NWP has fully analyzed credible underground fire scenarios through the review of the NWP Fire Hazard Analysis, the Baseline Needs Assessment and Emergency Planning Hazard Assessment.</p> <p>This analysis will also include integration of ventilation design and control door operations within the underground.</p>	Documented oversight activities.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP submittal of the NWP Fire Hazard Analysis, Baseline Needs Assessment and Emergency Planning Hazard Assessment

6.3.2 Judgment of Need: JON 21

JON 21: *NWP and CBFO need to review the combustible control program and complete corrective actions that demonstrate compliance with program requirements. These issues remain unresolved from prior internal and external reviews.*

Approach

The CBFO Fire Protection SSO will review the NWP Fire Hazard Analysis for adequacy of the combustible control program. In addition, the CBFO oversight staff will perform periodic operational awareness walk-throughs and inspections of the NWP combustible control program.

Corrective Actions for JON 21

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 9, action 2 and 3.			
1	The CBFO Fire Protection SSO, and Facility Representatives will perform periodic (not to exceed monthly) operational awareness walk-throughs and inspections to ensure combustible material loading is controlled in the WIPP underground.	Documented oversight assessments.	CBFO Assistant Manager for the Office of Operations Oversight	12/01/2015
2	CBFO Fire Protection SSO will evaluate the NWP Contractor Assurance System for combustible controls.	Documented oversight assessments, at least quarterly.	CBFO Assistant Manager for the Office of Operations Oversight	12/01/2015

6.3.3 Judgment of Need: JON 22

JON 22: *NWP and CBFO need to evaluate and address deficiencies in housekeeping to ensure unobstructed egress and clear visibility of emergency egress strobes, reflectors, SCSR lights, etc.*

Approach

The CBFO oversight staff will perform periodic operational awareness walk-throughs and inspections of the NWP housekeeping program.

Corrective Actions for JON 22

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Fire Protection SSO, and Facilities Representatives will perform periodic (not to exceed monthly) operational awareness oversight to identify housekeeping conditions that impede, or potentially impede, egress from the underground and ensure emergency egress strobes, reflectors, and SCSR lights are clearly visible.	Documented oversight assessments.	CBFO Assistant Manager for the Office of Operations Oversight	12/01/2015
2	CBFO Fire Protection SSO will evaluate the NWP Contractor Assurance System for housekeeping.	Documented oversight assessments, at least quarterly.	CBFO Assistant Manager for the Office of Operations Oversight	12/01/2015

6.4 DOE Programs and Oversight

6.4.1 Judgment of Need: JON 24

JON 24: *CBFO needs to establish and implement an effective line management oversight program and processes that meet the requirements of DOE O 226.1B and hold personnel accountable for implementing those programs and processes.*

Approach

The CBFO Manager has established the Office of Operations Oversight to segregate operations, safety, engineering and environmental oversight for WIPP facility operations from programmatic production activities to enhance oversight independence. This newly established Office of Operations Oversight will develop and implement a new Contractor oversight program that fully implements the requirements of DOE O 226.1B, *Implementation of the Department of Energy Oversight Policy*. The new Contractor Oversight Program will ensure that processes for planning, conducting, and documenting oversight evaluations of NWP programs and activities are developed; issues are evaluated, corrected to prevent recurrence and communicated to management in a timely manner; and CBFO oversight personnel are adequately qualified and trained to perform their oversight function. The CBFO Manager, along with the Office Assistant Managers and Division Directors will hold personnel accountable for implementation of the oversight program by revising position descriptions for their staff to identify the expected oversight functions for the position.

Corrective Actions for JON 24

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 14, actions 3 and 4.			
1	Evaluate the current CBFO organizational structure and identify specific staffing needs related to line management, technical discipline, current oversight functions, and overall organizational and overall organizational performance and effectiveness.	Transmittal of proposed organizational changes to EM for approval. EM Approval to Reorganize Offices at the Carlsbad Field Office.	CBFO Manager	06/09/2014
2	Establish an Office of Operations Oversight to segregate the programmatic element from the oversight element.	EM Approval to Reorganize Offices at the Carlsbad Field Office and letter from CBFO Manager to CBFO staff	CBFO Manager	Positions will be filled by 6/1/2015

Number	Action	Deliverable	Action Owner	Due Date
	<p>The Office of Operations Oversight will be responsible for oversight of industrial safety, environmental compliance, mine safety, electrical safety, conduct of operations, engineering and nuclear safety including maintaining all aspects of the Documented Safety Basis.</p> <p>The Office of Operations Oversight will obtain and maintain federal expertise to perform these government oversight functions.</p>	<p>announcing the reorganization.</p> <p>Revised Functional Responsibilities and Authority Manual with new responsibilities from CBFO reorganization.</p> <p>Fill the remainder of the vacant positions (14 of the 22 positions remain unfilled).</p>		
3	<p>The CBFO Assistant Manager to the Office of Operations Oversight’s designated staff will read DOE O 226.1B, <i>Implementation of the Department of Energy Oversight Policy</i>, to re-familiarize themselves with the requirements of the order.</p> <p>In addition, a required briefing will be held by CBFO Subject Matter Experts that explain the requirements of the Policy, Order, and associated Guide and how they apply to WIPP.</p>	<p>Training records indicating at least 80% of the Assistant Manager for the Office of Operations Oversight’s designated staff have read DOE O 226.1B, and attended the required briefing.</p>	<p>CBFO Assistant Manager for the Office of Operations Oversight</p>	<p>02/01/2015</p>
4	<p>The CBFO Assistant Manager to the Office of Operations Oversight’s designated staff will successfully complete DOE National Training Center courses SAF-384, <i>DOE Oversight and Implementation</i>, and SAF-385, <i>Assessment Techniques</i>, to obtain and</p>	<p>Documentation demonstrating successful completion of DOE national training courses SAF-384 and SAF-385 prior to performing oversight activities.</p>	<p>CBFO Assistant Manager for the Office of Operations Oversight</p>	<p>03/31/2015</p>

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Number	Action	Deliverable	Action Owner	Due Date
	demonstrate core competency for providing DOE oversight activities.			
5	Develop and revise qualification cards, as necessary, for CBFO personnel performing oversight of facility systems, operations, and safety management programs.	New and revised CBFO qualification cards for oversight personnel.	CBFO Assistant Manager for the Office of Operations Oversight	09/30/2015
6	Qualify personnel to the new qualification cards.	Objective evidence of qualification. Establish qualification dates in accordance with TQP process.	CBFO Assistant Manager for the Office of Operations Oversight	09/30/2015
7	Evaluate the FY15 Integrated Evaluation Plan (IEP) against the requirements of the new CBFO <i>Contractor Oversight Plan</i> .	Documentation of the evaluation of the FY15 IEP.	CBFO Assistant Manager for the Office of Operations Oversight	06/15/2015
8	Revise and implement CBFO <i>Document Review</i> , MP 4.2 to establish a method for conducting reviews of external documents, except for reviews performed in accordance with CBFO <i>Operational Awareness and Issues Management</i> , MP 10.9. The change to MP 4.2 will include requirements for documenting comments, resolving comments, and submitting records.	Revised CBFO <i>Document Review</i> procedure MP 4.2.	CBFO Assistant Manager for the Office of Program Management and National TRU Program	01/30/2015

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Number	Action	Deliverable	Action Owner	Due Date
9	Formally train CBFO personnel on the revised CBFO <i>Document Review</i> , MP 4.2.	Training records providing objective evidence that at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight's designated staff have successfully completed training to the revised CBFO <i>Document Review</i> , MP 4.2.	CBFO Manager	03/01/2015
10	The CBFO Manager will hold personnel accountable for implementing oversight activities.	Direction from CBFO Manager to Office Assistant Managers and Division Directors	CBFO Manager	5/30/2015
11	Review and revise Office Assistant Managers and Division Directors position descriptions to identify expected oversight functions of the position.	Revised position descriptions and/or memo documenting evaluation of position descriptions.	CBFO Business Operations Director	5/30/2015
12	Review and revise non-supervisory position descriptions in each CBFO office and division to identify expected oversight functions of the position.	Revised position descriptions and/or memo documenting evaluation of position descriptions.	CBFO Business Operations Director	5/30/2015

6.4.2 Judgment of Need: JON 25

JON 25: *CBFO needs to accelerate the implementation of a mechanism for all levels of CBFO staff to document, communicate, track, and close issues both internally and with NWP.*

Approach

The CBFO will develop a new management procedure and user’s manual for the identification, documentation, reporting and correction of issues.

Corrective Actions for JON 25

Number	Action	Deliverable	Action Owner	Due Date
1	<p>Develop CBFO procedure <i>Operational Awareness and Issues Management</i>, MP 10.9, for identifying, communicating, and managing issues to resolution and DOE/CBFO 14-3533, <i>Issues Collection and Evaluation Users’ Manual</i>.</p> <p>Provide training to CBFO Assistant Manager for the Office of Operations Oversight’s designated staff on MP 10.9 and DOE/CBFO 14-3533.</p>	<p>Approved procedure MP 10.9 and DOE/CBFO 14-3533; and training records showing at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight’s designated staff have successfully completed training on MP 10.9 and DOE/CBFO 14-3533.</p>	<p>CBFO Quality Assurance Director</p>	<p>10/09/2014</p>

6.4.3 Judgment of Need: JON 26

JON 26: *The CBFO Site Manager needs to institutionalize and communicate expectations for the identification, documentation, reporting, and correction of issues.*

Approach

The CBFO Site Manager will communicate their expectations for the identification, documentation, reporting and correction of issues through development of the new CBFO Contractor Oversight Plan, and associated procedures.

Corrective Actions for JON 26

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 14, action 3 (6), and JON 25.			

6.4.4 Judgment of Need: JON 32

JON 32: The EMCBC and CBFO need to develop and implement clear expectations and a schedule for EMCBC to provide support in the areas of regulatory compliance, safety management systems, preparation of program procedures and plans, quality assurance, lessons learned, contractor assurance, technical support, DOE oversight assistance, etc.

Approach

The CBFO Business Operations Director will perform a staffing resources needs assessment and communicate those needs to EMCBC in order to develop a schedule for support through the Service Level Agreement.

Corrective Actions for JON 32

Number	Action	Deliverable	Action Owner	Due Date
1	CBFO Business Operations Director will perform a resource needs assessment to determine the EMCBC resources needed to provide support in the area of Environmental Safety Health & Quality Team, as defined in the Service Level Agreement. The CBFO Business Operations Director will communicate these needs to the EMCBC along with a proposed schedule for the support.	Transmittal of CBFO resource needs assessment to EMCBC, along with a proposed schedule for support.	CBFO Business Operations Director	02/15/2015
2	CBFO Business Operations Director and EMCBC will revise the service level agreement to address CBFO’s resource needs assessment and proposed schedule.	Approved EMCBC Service Level Agreement with a schedule for providing support per the CBFO resource needs assessment.	CBFO Business Operations Director	03/15/2015

6.5 Safety Program

6.5.1 Judgment of Need: JON 33

JON 33: *NWP and CBFO need to evaluate and correct weaknesses in the CONOPS program and its implementation, particularly with regard to flow-down of requirements from upper-tier documents, procedure content and compliance, and expert-based decision making.*

Approach

The CBFO staff will review and approve the NWP Conduct of Operations matrix to ensure the matrix adequately demonstrates conformance with DOE O 422.1. In addition CBFO staff will review the procedures and plans listed in that matrix to ensure the appropriate flow-down of requirements. Finally, CBFO staff will provide input to the FY 16 Integrated Evaluation Plan to ensure compliance with DOE O 422.1.

Corrective Actions for JON 33

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Assistant Manager to the Office of Operations Oversight and designated staff will read DOE O 422.1, <i>Conduct of Operations</i> , to re-familiarize themselves with the requirements of the order.	Training records indicating that at least 80% of the CBFO Assistant Manager to the Office of Operations Oversight's designated staff have read and understood DOE O 422.	CBFO Assistant Manager for the Office of Operations Oversight	01/16/2015
2	The CBFO Assistant Manager to the Office of Operations Oversight's designated staff will successfully complete DOE National Training Center course SAF-261, <i>Conduct of Operations</i> , to obtain and demonstrate core competency for providing DOE oversight activities.	Documentation demonstrating that at least 80% of the CBFO Assistant Manager to the Office of Operations Oversight's designated staff have successfully completed SAF-261.	CBFO Assistant Manager for the Office of Operations Oversight	05/30/2015

Number	Action	Deliverable	Action Owner	Due Date
3	Review and approve the NWP Conduct of Operations Matrix to ensure the matrix adequately demonstrates conformance with DOE O 422.1, <i>Conduct of Operations</i> .	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the Conduct of Operations Matrix and Approved NWP Conduct of Operations Matrix.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP submittal of their final Conduct of Operations Matrix
4	Procedures and program plans listed in the NWP Conduct of Operations Matrix will be formally reviewed by CBFO to ensure adequate flow-down of requirements as well as procedure content and compliance in order to assess effective implementation prior to resumption of normal WIPP waste emplacement operations.	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the NWP plans and procedures listed in the Conduct of Operations Matrix.	CBFO Assistant Manager for the Office of Operations Oversight	30 days after NWP submittal of their final Conduct of Operations Matrix
5	Provide input to the FY16 Integrated Evaluation Plan (IEP) in accordance with the requirements of the new CBFO <i>Contractor Oversight Plan</i> . Oversight activities will include oversight of the NWP Conduct of Operations implementing procedures to ensure compliance with DOE O 422.1, <i>Conduct of Operations</i> ; the NWP mentoring program to provide feedback on effectiveness; the NWP procedure development process to ensure abnormal response procedures do not depend on expert judgment or expert-based	List of oversight activities of the NWP Conduct of Operations program for inclusion in the FY16 IEP.	CBFO Assistant Manager for the Office of Operations Oversight	09/15/2015

Number	Action	Deliverable	Action Owner	Due Date
	decision making; the NWP operations drill program to ensure operator response to upset conditions are being evaluated as part of the drill program; the NWP maintenance and engineering processes to ensure out-of-service equipment is evaluated and returned to service in a timely manner.			

6.5.2 Judgment of Need: JON 34

JON 34: *NWP and CBFO need to identify and control the risk imposed by non-waste-handling equipment, e.g., combustible buildup, manual vs. automatic fire suppression system, fire-resistant hydraulic oil, etc., or treat waste-handling equipment and non-waste-handling equipment the same.*

Approach

The distinction between non-waste-handling and waste-handling equipment will be removed from the NWP program. A single NWP program will be used to evaluate all equipment. The CBFO’s role is to oversee the NWP’s development of the program.

Corrective Actions for JON 34

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 14 action 7 and JON 24 action 5 (2, 3, and 7).			

6.5.3 Judgment of Need: JON 35

JON 35: *NWP and CBFO management need to examine and correct the culture that exists regarding the maintenance and operation of non-waste-handling equipment.*

Approach

While both boards identified cultural issues requiring attention by CBFO, the Phase 1 Radiological Event AIB specifically identified that CBFO needs “to develop and implement an effective integrated safety management system that embraces the principals of DOE G 450.4-1C, *Integrated Safety Management Guide...*” The CBFO’s current integrated safety management system is described in DOE/CBFO 09-3442, *CBFO Integrated Safety Management System Description*. This document will be reviewed against the principles of DOE G 450.4-1C, Attachment 10, and revised to incorporate those principles into the CBFO program. Once reviewed and revised, all CBFO personnel will receive training on the revised program. As an immediate action, CBFO management will conduct training on a safety conscious work environment. In addition, CBFO will commission and Institute of Nuclear Power Operations (INPO) visit, and respond as appropriate to the recommendations provided.

Corrective Actions for JON 35

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Office of Operations Oversight Assistant Manager will review DOE/CBFO 09-3442, <i>CBFO Integrated Safety Management System Description</i> , against the principles described in DOE G 450.4-1C, Attachment 10 and revise.	CBFO Document Review Records providing proof of a comprehensive CBFO adequacy review of the DOE/CBFO 09-3442, <i>CBFO Integrated Safety Management System Description</i> , to ensure the principles of DOE G 450.4-1C, Attachment 10 are adequately flowed down. In addition, the revised version of DOE/CBFO 09-3442.	CBFO Assistant Manager for the Office of Operations Oversight	02/15/2015

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Number	Action	Deliverable	Action Owner	Due Date
2	All CBFO personnel will receive training on DOE/CBFO 09-3442, <i>CBFO Integrated Safety Management System Description</i> .	Training records indicating at least 80% of the Assistant Manager for the Office of Operations Oversight's designated staff have read DOE/CBFO 09-3442 and documentation of the attendance of mandatory training on DOE/CBFO 09-3442.	CBFO Assistant Manager for the Office of Operations Oversight	02/28/2015
3	Conduct Safety Conscious Work Environment (SCWE) training for CBFO leadership to reinforce CBFO's commitment to the principles of an integrated safety management system.	Training records indicating at least 80% of the CBFO staff attendance of mandatory training on a safety conscious work environment.	CBFO Manager	12/15/2014
4	CBFO Manager will commission an Institute of Nuclear Power Operations (INPO) safety culture assist visit.,	CBFO Manager summary of CBFO actions to take in response to the INPO evaluation.	CBFO Manager	01/30/2015
5	Implement the recommendations of the evaluation as determined by the CBFO Manager.	To Be Determined based on the recommendations, validation via SC.6	CBFO Manager	Third Quarter of FY17
6	CBFO will commission a follow-up assessment of the safety culture in the third quarter of FY17 to determine the effective implementation of the WIPP safety culture.	Assessment Report of the WIPP safety culture.	CBFO Manager	Third Quarter of FY17

7 CBFO Corrective Actions to Address the Judgments of Need from the Phase 1 Radiological Report

The corrective actions are addressed in the order they were presented in the Phase 1 Radiological Report;

- Nuclear Safety (JON 10-13)
- Emergency Management (JON 15, and 20)
- Safety Culture (JON 24)
- Conduct of Operations (JON 28)
- Maintenance Program (JON 31, and 32)
- Radiation Protection Program (JON 36)
- CBFO Oversight (JON 40- 43)

7.1 Nuclear Safety Program

7.1.1 Judgment of Need: JON 10

JON 10: CBFO needs to revise Management Procedure 4.11, *Safety Basis Review Procedure*, to require adequate documentation of the technical basis supporting approval of changes to the WIPP Document Safety Analysis or Technical Safety Requirements, consistent with DOE Standard 1104, e.g., regulatory compliance, justification for initial assumptions/initial conditions, reduced conservatism of the hazards and accident analysis.

Approach

The CBFO will revise the procedure MP 4.11, *Safety Basis Review Procedure*, to require adequate documentation and technical basis standards consistent with DOE-STD-1104-2009, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*. The CBFO Manager will commission an independent assessment of the CBFO safety basis review and approval process to verify that the new Safety Basis review process is consistent with DOE-STD-1104-2009, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*.

Corrective Actions for JON 10

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Assistant Manager to the Office of Operations Oversight's designated staff will read 10 CFR 830 Subpart B, <i>Safety Basis Requirements</i> , and DOE-STD-1104-2009, <i>Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents</i> , to re-familiarize themselves with the requirements of the orders.	Training records indicating that at least 80% of designated personnel have read and understood 10 CFR 830 Subpart B and DOE-STD-1104-2009.	CBFO Assistant Manager for the Office of Operations Oversight	01/16/2015

Corrective Action Plan Addressing the Accident Investigation Report
of the February 5, 2014 Fire Event and the February 14, 2014 Radiological Release Event

Number	Action	Deliverable	Action Owner	Due Date
2	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will successfully complete DOE National Training Center courses SAF-270, <i>Safety Systems Oversight Duties and Responsibilities</i> , SAF-385, <i>Assessment Techniques</i> , and SAF-784, <i>Review and Approval of Nuclear Safety Basis Documents</i> , to obtain and demonstrate core competency for providing DOE oversight activities.	Documentation demonstrating that at least 80% of designated personnel have successfully completed SAF-270, SAF-385 and SAF-784.	CBFO Assistant Manager for the Office of Operations Oversight	05/31/2015
3	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will revise CBFO MP 4.11, <i>Safety Basis Review Procedure</i> to require adequate documentation and technical basis standards consistent with DOE-STD-1104-2009, <i>Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents</i> .	Revised CBFO MP 4.11.	CBFO Assistant Manager for the Office of Operations Oversight	04/30/2015
4	CBFO Assistant Manager for the Office of Operations Oversight's designated staff will be trained on the MP 4.11 revision prior to review of the revised NWP Safety Basis document.	Training records providing objective evidence that at least 80% of the CBFO Assistant Manager for the Office of Operations Oversight's designated staff have successfully completed training to the revised <i>CBFO Safety Basis Review Procedure</i> , MP 4.11.	CBFO Assistant Manager for the Office of Operations Oversight	05/15/2015
5	The Nuclear Safety Senior Technical Advisor will review the CBFO MP 4.11,	CBFO Document Review Records providing proof of a	CBFO Nuclear	04/30/2015

Corrective Action Plan Addressing the Accident Investigation Report
of the February 5, 2014 Fire Event and the February 14, 2014 Radiological Release Event

Number	Action	Deliverable	Action Owner	Due Date
	<i>Safety Basis Review Procedure</i> , to ensure the procedure requires adequate documentation and technical basis standards consistent with DOE-STD-1104, <i>Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents</i> .	comprehensive CBFO adequacy review of CBFO MP 4.11 to ensure it requires adequate documentation and technical basis standards consistent with DOE-STD-1104.	Safety Senior Technical Advisor	

7.1.2 Judgment of Need: JON 11

JON 11: CBFO and DOE HQ need to commission an independent assessment of the CBFO safety basis review and approval process and implement corrective actions that ensure effective implementation.

Approach

The CBFO Manager’s Office will commission an independent assessment to verify the new Safety Basis Review Process.

Corrective Actions for JON 11

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Manager will commission an independent assessment to verify that the new Safety Basis Review Process is effectively implemented and is consistent with DOE-STD-1104, <i>Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents</i> .	Report documenting the results of the independent review of the Safety Basis Review Process.	CBFO Manager	60 days after NWP submittal of Documented Safety Analysis Revision 5

7.1.3 Judgment of Need: JON 12

JON 12: CBFO needs to perform a critical federal staffing analysis focused on Nuclear Safety e.g., Nuclear Safety Specialist, nuclear safety qualified Senior Technical Advisor and supporting CBFO Subject Matter Experts and determine whether existing resources are adequate.

Approach

CBFO has performed a critical staffing analysis and determined that a Nuclear Safety Senior Technical Advisor position will be filled within the CBFO Office of the Manager. The new organizational structure in CBFO has a vacant position, which will be filled with an additional nuclear safety specialist reporting to the Safety Programs Division Director in the CBFO Office of Operations Oversight.

Corrective Actions for JON 12

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 24, action 1 and 2 for actions related to staffing analysis and structure.			

7.1.4 Judgment of Need: JON 13

JON 13: CBFO and DOE HQ need to arrange for temporary DOE senior nuclear safety resources to mentor existing CBFO nuclear safety and supporting resources, and assist as necessary.

Approach

CBFO temporarily filled the vacant Nuclear Safety Senior Technical Advisor position until a full time person can be hired.

Corrective Actions for JON 13

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Manager's office will temporarily fill the Nuclear Safety Senior Technical Advisor position until a permanent staff member hired.	Documentation showing that a temporary staff member has been put in place until a permanent staff member can be hired.	CBFO Manager	07/31/2014

7.2 Emergency Management

7.2.1 Judgment of Need: JON 15

JON 15: CBFO needs to take prompt action to fully integrate trained Federal management resources into the emergency response organization and take action to bring their emergency management program into compliance with DOE Order 151.1C, *Comprehensive Emergency Management System*.

Approach

The CBFO Manager’s Office will take compensatory actions to integrate Federal management resources into the emergency response organization and bring their emergency management program into compliance with DOE Order 151.1C.

Corrective Actions for JON 15

Number	Action	Deliverable	Action Owner	Due Date
1	Until the approval of a revised emergency management program, the CBFO Manager will direct the establishment and assignment of senior management to the Emergency Operations Center (EOC) for additional oversight.	Documentation of direction from CBFO Manager.	CBFO Manager	04/03/2014
2	See CBFO Fire Report JON 4, action 1, JON 5, action 1 and 2, and JON 7, action 1.			

7.2.2 Judgment of Need: JON 20

JON 20: CBFO needs to ensure that NWP completes prompt action to correct longstanding deficiencies from previous reviews.

Approach

The CBFO will develop a new procedure for responding to reviews, surveillances, and audits conducted by parties outside of the CBFO to ensure issues are tracked to completion. CBFO and EM-40 personnel will review prior assessments received between July 2008 and June 2013 to ensure issues have been address.

Corrective Actions for JON 20

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 4, actions 2-4.			

7.3 Safety Culture

7.3.1 Judgment of Need: JON 24

JON 24: NWP and CBFO need to develop and implement an effective integrated safety management system that embraces and implements the principles of DOE G 450.4-1C, *Integrated Safety Management Guide*, including but not limited to:

- Demonstrated leadership in risk informed, conservative decision making
- Improved learning through error reporting and effective resolution of problems
- Line management encouraging a questioning attitude without fear of reprisal and following through to resolve issues identified by the workforce
- Reinforcing the mechanisms, e.g., WIPP Forms, “Notes to Joe,” employee concern program, differing professional opinions, and protocols for communicating issues to NWP and CBFO leadership.

Approach

While both boards identified cultural issues requiring attention by CBFO, the Phase 1 Radiological Event AIB specifically identified that CBFO needs “to develop and implement an effective integrated safety management system that embraces the principals of DOE G 450.4-1C, *Integrated Safety Management Guide*...” The CBFO’s current integrated safety management system is described in DOE/CBFO 09-3442, *CBFO Integrated Safety Management System Description*. This document will be reviewed against the principals of DOE G 450.4-1C, and revised to incorporate those principles into the CBFO program. Once reviewed and revised, all CBFO personnel will receive training on the principals of the program. As an immediate action, CBFO management will conduct training on a safety conscious work environment. In addition, CBFO will commission and Institute of Nuclear Power Operations (INPO) visit, and respond as appropriate to the recommendations provided.

Corrective Actions for JON 24

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 35, actions 1-6.			

7.4 Conduct of Operations

7.4.1 Judgment of Need: JON 28

JON 28: CBFO needs to take an active role towards improving NWP conduct of operations through implementation of a structured DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, oversight process that includes mechanisms for identifying, reporting, and transmitting issues that tracks corrective actions to effective closure. Specific areas of focus must include, but are not limited to:

- Develop and conduct routine oversight of contractor implementation of the WP 04-CO.01, *Conduct of Operations* series procedures. Oversight needs to include detailed oversight plans that contain specific criteria and lines of inquiry to effectively assess compliance with DOE O 422.1.
- Oversight of the NWP mentoring program e.g., senior supervisor watch that provides real time feedback to first and second line supervisors as to their responsibilities regarding compliant execution of operations activities in order to provide feedback on effectiveness.
- Oversight of procedure development in order to strengthen the structure, content and flow of abnormal response procedures to ensure immediate actions do not require judgment calls prior to execution.
- Overseeing execution of the NWP operational drill program that evaluates operator response to upset conditions.
- Strengthen oversight of NWP processes that monitor equipment status and initiate action to correct deficiencies in order to ensure a reduction in the quantity and length of time key pieces of equipment are out of service.

Approach

The CBFO staff will review and approve the NWP Conduct of Operations matrix to ensure the matrix adequately demonstrates conformance with DOE O 422.1. In addition CBFO staff will review the procedures and plans listed in that matrix to ensure the appropriate flow-down of requirements. Finally, CBFO staff will provide input to the FY 16 Integrated Evaluation Plan to ensure compliance with DOE O 422.1.

Corrective Actions for JON 28

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 14, action 3 JON 33, actions 1-5.			

7.5 Maintenance Program

7.5.1 Judgment of Need: JON 31

JON 31: CBFO needs to take a more proactive role in the configuration management and maintenance programs to ensure that the facility can meet its operational and life time expectancy.

Approach

The CBFO will develop a new CBFO Contractor Oversight Plan to ensure the flow down of DOE O 226.1B, *Implementation of the Department of Energy Oversight Policy*. The Plan will address evaluations of changes to WIPP facilities, equipment, and operations and their impact on safety, and the evaluation and the timely correction of impaired or out-of-service equipment. DOE oversight staff will be trained to the requirements of DOE O 430.1B, *Life Cycle Asset Management*, and DOE O 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, in preparation for performing oversight activities associated with maintenance and configuration control activities.

Corrective Actions for JON 31

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 14, actions 1-7.			

7.5.2 Judgment of Need: JON 32

JON 32: DOE HQ Office of Environmental Management and CBFO need to develop an infrastructure improvement plan within six months to identify and prioritize program wide critical infrastructure upgrades for key systems to ensure continuation of EM's programmatic mission execution at WIPP.

Additionally, DOE HQ Office of Environmental Management needs to coordinate an extent of condition review at other EM sites and take action based on the outcome of that review.

Approach

CBFO has an approved Recovery Plan which addresses actions and upgrades to address resumption of operations. In addition, CBFO will develop a plan for improvements to the WIPP infrastructure to identify critical infrastructure upgrades for key systems and seek budget approval from DOE HQ for implementation.

Corrective Actions for JON 32

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO will submit a Recovery Plan to DOE HQ prior to resume TRU waste operations.	Recovery Plan	CBFO Manager	10/01/2014
2	The CBFO Assistant Manager for the Office of Program Management and the National TRU Program will develop a plan for improvements to the WIPP infrastructure. The Plan will identify and prioritize critical infrastructure upgrades for key systems to ensure continuation of the WIPP mission.	Plan for WIPP infrastructure improvements and upgrades.	CBFO Assistant Manager for the Office of Program Management and the National TRU Program	06/01/2015

7.6 Radiation Protection Program

7.6.1 Judgment of Need: JON 36

JON 36: CBFO needs to determine the effectiveness of the radiation protection program within three months of completion of NWP's corrective actions.

Approach

CBFO will determine the effectiveness of the radiation program following the guidance in DOE O 425.1D, *Verification of Readiness and Startup or Restart Nuclear Facilities*, and DOE-STD-3006, *Planning and Conducting Readiness Reviews*.

Corrective Actions for JON 36

Number	Action	Deliverable	Action Owner	Due Date
1	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will read 10 CFR 835, <i>Occupational Radiation Protection</i> , to re-familiarize themselves with the requirements.	Required reading documentation with signatures showing that at least 80% of the designated staff have read and understood 10 CFR 835 prior to performing oversight activities.	CBFO Assistant Manager for the Office of Operations Oversight	01/16/2015
2	The CBFO Assistant Manager for the Office of Operations Oversight's designated staff will successfully complete DOE National Training Center course: SAF-385, <i>Assessment Techniques</i> , to obtain and demonstrate core competency for performing readiness review assessment of the radiation protection.	Documentation demonstrating that at least 80% of the designated staff have successfully completed SAF-385.	CBFO Assistant Manager for the Office of Operations Oversight	05/31/2015
3	CBFO will determine the effectiveness of the NWP radiation program corrective actions within three months of completion.	Documented determination of effectiveness.	CBFO Assistant Manager for the Office of Operations Oversight	Within 3 months of completion of NWP's corrective actions

7.7 CBFO Oversight

7.7.1 Judgment of Need: JON 40

JON 40: CBFO needs to establish and implement line management oversight programs and processes such that CBFO:

- Verifies that NWP has developed and implemented a DOE Order 226.1B compliant Contractor Assurance System.
- Meets the requirements of DOE Order 226.1B and hold personnel accountable for implementing those programs and processes.
- Implements effective oversight processes to ensure emphasis on conduct of operations, maintenance, radiological protection, nuclear safety, emergency management, and safety culture

Approach

The CBFO Manager has established the Office of Operations Oversight to segregate operations, safety, engineering and environmental oversight for WIPP facility operations from programmatic production activities to enhance oversight independence. This newly established Office of Operations Oversight will develop and implement a new Contractor oversight program that fully implements the requirements of DOE O 226.1B, *Implementation of the Department of Energy Oversight Policy*. The new Contractor Oversight Program will ensure that processes for planning, conducting, and documenting oversight evaluations of NWP programs and activities are developed; issues are evaluated, corrected to prevent recurrence and communicated to management in a timely manner; and CBFO oversight personnel are adequately qualified and trained to perform their oversight function. The CBFO Manager, along with the Office Assistant Managers and Division Directors will hold personnel accountable for implementation of the oversight program by revising position descriptions for their staff to identify the expected oversight functions for the position.

Corrective Actions for JON 40

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report Jon 24, actions 1 - 13.			

7.7.2 Judgment of Need: JON 41

JON 41: CBFO needs to develop and implement an effective issues management process to document, disposition (including extent of condition), close, track/trend issues, and ensure effectiveness of corrective actions. The process shall also ensure that actions from prior assessments are implemented to prevent or minimize recurrence of identified deficiencies.

Approach

The CBFO will develop a new management procedure and user’s manual for the identification, documentation, reporting and correction of issues.

Corrective Actions for JON 41

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 25, action 1.			

7.7.3 Judgment of Need: JON 42

JON 42: The CBFO Site Manager needs to institutionalize and communicate expectations for a strong safety culture and the identification, documentation, reporting, and correction of issues without fear of reprisal.

Approach

While both boards identified cultural issues requiring attention by CBFO, the Phase 1 Radiological Event AIB specifically identified that CBFO needs “to develop and implement an effective integrated safety management system that embraces the principals of DOE G 450.4-1C, *Integrated Safety Management Guide...*” The CBFO’s current integrated safety management system is described in DOE/CBFO 09-3442, *CBFO Integrated Safety Management System Description*. This document will be reviewed against the principals of DOE G 450.4-1C, and revised to incorporate those principles into the CBFO program. Once reviewed and revised, all CBFO personnel will receive training on the principals of the program. As an immediate action, CBFO management will conduct training on a safety conscious work environment. In addition, CBFO will commission and Institute of Nuclear Power Operations (INPO) visit, and respond as appropriate to the recommendations provided.

Corrective Actions for JON 42

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 35, actions 1-6.			

7.7.4 Judgment of Need: JON 43

JON 43: CBFO needs to evaluate the current organizational structure, identify specific staffing needs related to line management, technical discipline and oversight functions, submit those staffing needs to DOE HQ, and effectively manage their resources such that qualified personnel are effectively performing those functions.

Approach

CBFO will evaluate its current organizational structure to identify specific staffing needs related to line management, technical discipline, current oversight functions, and overall organizational and overall organizational performance and effectiveness.

Corrective Actions for JON 43

Number	Action	Deliverable	Action Owner	Due Date
	See CBFO Fire Report JON 24, action 1.			



Department of Energy
 Carlsbad Field Office
 P. O. Box 3090
 Carlsbad, New Mexico 88221

February 12, 2015

Ms. Marty P. Gonzales
 Nuclear Waste Partnership LLC
 P.O. Box 2078
 Carlsbad, New Mexico 88221-2078

Subject: Approval of the Nuclear Waste Partnership LLC Corrective Action Plan, Underground Salt Haul Truck Fire Event and Nuclear Waste Partnership LLC Corrective Action Plan, Phase 1 Radiological Release Event, Under Prime Contract DE-EM0001971

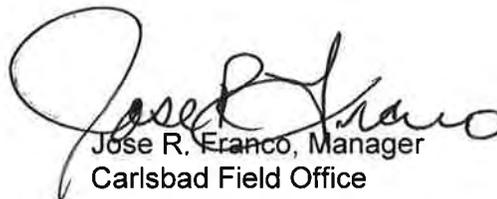
Dear Ms. Gonzales:

Per DOE O 225.1B, *Accident Investigations*, the Carlsbad Field Office (CBFO) is providing approval to implement the Nuclear Waste Partnership LLC (NWP) Corrective Action Plan, Underground Salt Haul Truck Fire Event and Nuclear Waste Partnership LLC Corrective Action Plan, Phase 1 Radiological Release Event, Under Prime Contract DE-EM0001971 received by our office on February 11, 2015. Please begin implementation of the subject corrective actions immediately. The CBFO Manager must approve changes to the plans prior to implementation.

The CBFO will track the effective implementation of the Corrective Actions Plans to closure. NWP is directed to begin submitting objective evidence to the CBFO Corrective Action Manager, as corrective actions are completed.

If you have any questions please contact the CBFO's Corrective Action Manager, Mr. Wes Mouser, at (575) 234-7309.

Sincerely,


 Jose R. Franco, Manager
 Carlsbad Field Office

cc:

J. Hutton, EM	* ED	M. Brown, CBFO	ED
T. Wyka, EM	ED	D. Snow, CBFO	ED
D. Bryson, CBFO	ED	R. McQuinn, NWP	ED
K. Watson, CBFO	ED	J. Blankenhorn, NWP	ED
G. Hellstrom, CBFO	ED	J. Harris, NWP	ED
S. Dunagan, CBFO	ED	T. Reynolds, NWP	ED
W. Mouser, CBFO	ED	P. Hester, NWP	ED
W. Mackie, CBFO	ED	S. Hendrickson, NWP	ED
G. Basabilvazo, CBFO	ED	CBFO Contract File	
D.C. Gadbury, CBFO	ED	CBFO M&RC	

*ED denotes electronic distribution

Nuclear Waste Partnership LLC
Corrective Action Plan
Underground Salt Haul Truck Fire Event

RL McQuinn

NWP President & Project Manager

2/11/15

Date



A URS-led partnership with B&W and AREVA

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ACRONYMS

AIB	Accident Investigation Board
BNA	Baseline Needs Assessment
CAP	Corrective Action Plan
CAS	Contractor Assurance System
CBFO	U.S. Department of Energy Carlsbad Field Office
CC	Contributing Cause
CFR	Code of Federal Regulations
CONOPS	Conduct of Operations
CMR	Central Monitoring Room
DC	Direct Cause
DNFSB	Defense Nuclear Facility Safety Board
DOE	U.S. Department of Energy
DOE O	U.S. Department of Energy Order
DSA	Documented Safety Analysis
EAL	Emergency Action Level
EOC	Emergency Operations Center
EPHA	Emergency Planning Hazards Assessment
ERO	Emergency Response Organization
FHA	Fire Hazard Analysis
FLIRT	First Line Initial Response Team
FP	Fire Protection
ICS	Incident Command System
JON	Judgment of Need
LTA	Less than Adequate
M&O	Management and Operating
MRT	Mine Rescue Team
MSHA	Mine Safety and Health Administration
NWP	Nuclear Waste Partnership LLC
PM	Preventive Maintenance
PPE	Personal Protective Equipment
RC	Root Cause
RCRA	Resource Conservation and Recovery Act
SCSR	Self-Contained Self Rescuer
SME	Subject Matter Expert
SSC	Structure, System, and Component
TBD	To Be Determined
TRU	Transuranic
TSR	Technical Safety Requirements
U/G	Underground
USQ	Unreviewed Safety Question
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION

On Wednesday February 5, 2014 at approximately 10:45 Mountain Standard Time an underground mine fire involving an EIMCO Haul Truck 74-U-006B (salt haul truck) occurred at the Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico.

2.0 ACCIDENT INVESTIGATION

On February 7, 2014 the Deputy Assistant Secretary for Safety, Security, and Quality Programs, U.S. Department of Energy, Office of Environmental Management formally appointed an Accident Investigation Board (AIB) to investigate the accident based on the accident meeting Accident Investigation Criteria 2.d.1 of DOE O 225.1B, *Accident Investigations*, Appendix A.

The AIB began the investigation on February 10, 2014, completed the investigation on March 8, 2014, and submitted its findings to the Deputy Assistant Secretary for Safety, Security, and Quality Programs, Office of Environmental Management on March 11, 2014. On March 14, 2014 the AIB's Accident Investigation Report (Report) was formally transmitted to Nuclear Waste Partnership LLC (NWP).

The AIB concluded the following causes of the accident.

Direct Cause (DC) – the immediate events or conditions that caused the accident.

The AIB identified the direct cause of this accident to be contact between flammable fluids (either hydraulic fluid or diesel fuel) and hot surfaces (most likely the catalytic converter) on the salt haul truck, which resulted in a fire that consumed the engine compartment and two front tires.

Root Cause (RC) – causal factors that, if corrected, would prevent recurrence of the same or similar accidents.

The AIB identified the root cause of this accident to be the failure of NWP LLC and the previous management and operations (M&O) contractor to adequately recognize and mitigate the hazard regarding a fire in the underground. This includes recognition and removal of the buildup of combustibles through inspections and periodic preventive maintenance (e.g., cleaning), and the decision to deactivate the automatic onboard fire suppression system.

Contributing Causes (CC) – events or conditions that collectively with other causes increased the likelihood or severity of an accident but that individually did not cause the accident. For the purposes of this investigation, contributing causes include those related to the cause of the fire, as well as those related to the subsequent response.

The AIB identified ten contributing causes to this accident or the resultant response:

1. The preventive and corrective maintenance program did not prevent or correct the buildup of combustible fluids on the salt haul truck. There is a distinct difference between the way waste-handling and non-waste-handling vehicles are maintained.
2. The fire protection program was less than adequate (LTA) in regard to flowing down upper-tier requirements relative to vehicle fire suppression system actuation from the Baseline Needs Assessment into implementing procedures. There was also an accumulation of combustible materials in the underground in quantities that exceeded the limits specified in the Fire Hazard Analysis (FHA) and implementing procedures. Additionally, the FHA does

not provide a comprehensive analysis that addresses all credible underground fire scenarios including a fire located near the Air Intake Shaft.

3. The training and qualification of the operator was inadequate to ensure proper response to a vehicle fire. He did not initially notify the Central Monitoring Room (CMR) that there was a fire or describe the fire's location.
4. The CMR Operations response to the fire, including evaluation and protective actions, was LTA.
5. Elements of the emergency/preparedness and response program were ineffective.
6. A nuclear versus mine culture exists, where there are significant differences in the maintenance of waste-handling versus non-waste-handling equipment.
7. The NWP Contractor Assurance System (CAS) was ineffective at identifying the conditions and maintenance program inadequacies associated with the root cause of this event.
8. The DOE Carlsbad Field Office (CBFO) was ineffective in implementing line management oversight programs and processes that would have identified NWP CAS weaknesses and the conditions associated with the root cause of this event.
9. Repeat deficiencies were identified in previous DOE and external agencies' assessments, e.g., Defense Nuclear Facility Safety Board (DNFSB), emergency management, fire protection, maintenance, CBFO oversight, and work planning and control, but were allowed to remain unresolved for extended periods of time without ensuring effective site response.
10. There are elements of the Conduct of Operations (CONOPS) program that demonstrate a lack of rigor and discipline commensurate with the operation of a Hazard Category 2 Nuclear Facility.

3.0 CORRECTIVE ACTION PLAN DEVELOPMENT

NWP reviewed the Conclusions and Judgments of Need (JONs) from the AIB Report and developed actions to address each of the 25 JONs and supporting conclusions identified in the report pertaining to NWP. The JON tables in Section 6 of this plan describe the approach, actions and planned due dates to respond to each JON.

4.0 CORRECTIVE ACTION PLAN MANAGEMENT

During implementation of the Corrective Action Plan, it may be necessary to revise specific actions in order to optimize the effectiveness of associated programs. Proposed changes to the specified actions in this plan, including due dates, will be identified and addressed proactively with the CBFO Corrective Actions Manager. Changes to the Corrective Action Plan require CBFO approval. Corrective action progress meetings will be conducted at the request of the CBFO Corrective Actions Manager.

5.0 CORRECTIVE ACTIONS VERIFICATION AND EFFECTIVENESS REVIEW

NWP Functional Managers will ensure that actions are completed in a timely manner and that objective evidence of completion is provided to NWP Contractor Assurance. Contractor Assurance will then verify completion of the actions and that the objective evidence is adequate to demonstrate completion. Six to twelve months after completion of the actions, NWP will evaluate whether the actions have been effectively implemented and have addressed the Judgments of Need.

6.0 JON ACTION PLANS

The following subsections include the 25 JONs pertaining to NWP. Each subsection includes the AIB Report JON description and NWP's approach for addressing the JON. Actions, deliverables, action owners, and planned due dates are listed in table format.

Judgment of Need (JON 1)

NWP needs to evaluate and correct deficiencies regarding the controls for communicating emergencies to the underground, including the configuration and adequacy of equipment (alarms, strobes, and public address).

Approach

To address the weaknesses indicated by this JON, NWP's approach will include performing an evaluation of the CMR control panel switch, which is used to signal the underground personnel of an emergency event, for replacement with a time delay, open relay switch to minimize the CMR Operator's actions during an emergency. NWP will then conduct a human factors evaluation of the CMR control panels related to communicating emergencies to the underground; and will evaluate the visibility and audibility of the underground communications systems. Prior to startup, NWP will implement recommendations from the evaluation which correct deficiencies with regulatory requirements. NWP will then submit for CBFO approval, a plan for implementation of enhancements to the emergency communication system resulting from the NWP evaluation..

JON 1					
Number	Action	Deliverable	Action Owner	Due Date	
1	Evaluate the CMR control panel switch, for replacement with a time delay open relay switch to minimize the CMR operator's actions during an emergency.	Approved report of evaluation.	Engineering Manager	Complete	
2	Evaluate human factors of the CMR control room panels related to communicating emergencies to the underground.	Approved report of evaluation.	Engineering Manager	Complete	
3	Evaluate the visibility and audibility of underground communication systems.	Approved report of evaluation.	Emergency Management Manager	Complete	

<p>JON 1</p> <p>4</p>	<p>Implement required actions based on JON 1 Actions 1, 2, and 3.</p>	<p>Based on the outcome of the evaluations, NWP will implement recommendations from the evaluation which correct deficiencies with regulatory requirements. NWP will then submit to CBFO, a plan for implementation of enhancements to the emergency communication system resulting from the NWP . evaluations.</p>	<p>Engineering Manager</p>	<p>6/30/15</p>
<p>5</p>	<p>Training on identified changes</p>	<p>Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.</p>	<p>Training Manager</p>	<p>7/30/15</p>

Judgment of Need (JON 2)

NWP needs to evaluate the procedures and capabilities of the FSM and CMRO in managing a broad range of emergency response events through a comprehensive drill and requalification program.

Approach

NWP has developed a comprehensive approach related to JON 2. This approach leads to a completely revamped Emergency Management Program which is compliant with DOE O 151.1C to include requirements for Incident Command System. NWP will ensure that the Emergency Management Program contains provisions for timely entry into the Resource Conservation and Recovery Act contingency plan. The program will also include reorganization of the roles and responsibilities for emergency response and emergency management in order to more effectively manage a broad range of events. The new Emergency Management Program will also include a comprehensive drill and qualification program and emergency response procedures. Achieving this approach includes: performing an independent assessment of the Emergency Management Program; ensuring both an accurate program description is in place and that procedures supporting compliant program execution are established; and that a level of training has been developed to support compliant program execution.

JON 2	Action	Deliverable	Action Owner	Due Date
1	Perform an independent assessment of the Emergency Management Program to ensure compliance with DOE Order 151.1 C.	Report of independent assessment.	Contractor Assurance Manager	Complete
2	Revise the Resource Conservation and Recovery Act Contingency Plan implementing procedure and training course to ensure timely implementation during incidents.	Approved RCRA Contingency Plan implementing procedure, training materials, and documentation of completion	Emergency Management Manager	Complete

JON 2				
3	Revise Emergency Management Plan, incorporating issues from the independent assessment and evaluation, to include reorganization of the roles and responsibilities.	Approved Emergency Management Plan.	Emergency Management Manager	4/30/15
4	Develop and implement a comprehensive drill and exercise program.	Approved comprehensive drill program description and multi-year drill and exercise schedule.	Emergency Management Manager	Complete
5	Revise emergency response procedures to align with Emergency Management Plan.	Approved emergency response procedures.	Emergency Management Manager	4/30/15
6	Develop and implement an Emergency Response Organization Training and Qualification Program.	Approved ERO Training Plan and EOC position-specific authorization/qualification cards.	Emergency Management Manager	Complete
7	Implement the revised procedures	Training material and documentation of completion (e.g., rosters, completed qualification/authorization cards, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	Complete

Judgment of Need (JON 3)

NWP needs to evaluate and apply a process/systems based approach for decision making relative to credible emergencies in the underground, including formalizing response actions, e.g., decision to change to filtration mode during an ongoing evacuation.

Approach

NWP is developing a process/systems based approach for decision making relative to credible emergencies through the development of an EPHA, incorporating the resulting EALs and response actions into the appropriate emergency response procedures.

JON 3	Action	Deliverable	Action Owner	Due Date
1	Revise EPHA.	Final EPHA submitted to DOE field element for approval.	Emergency Management Manager	4/30/15
2	Incorporate the EALs and response actions into the appropriate emergency response procedures. Implement revised emergency response procedures.	Approved emergency response procedures.	Emergency Management Manager	4/30/15
3		Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	4/30/15

Judgment of Need (JON 4)

NWP and CBFO need to evaluate their corrective action plans for findings and opportunities for improvement identified in previous external reviews, and take action to bring their emergency management program into compliance with requirements.

Approach

NWP will create a list of external assessments performed between July 2008 and June 2013 and perform an independent review of the findings and observations to ensure that they have been previously addressed, or are being addressed in the new Emergency Management Program.

JON 4					
Number	Action	Deliverable	Action Owner	Due Date	
1	Develop a list of external assessments received between July 2008 and June 2013.	List of external assessments.	Contractor Assurance Manager	Complete	
2	Perform a review of the findings and observations and ensure they have been addressed or are being addressed by the new Emergency Management Program.	Approved assessment report.	Emergency Management Manager	6/30/15	
3	Incorporate required changes, based upon the results of the above review, into the Emergency Management Program.	Approved program description document and procedures.	Emergency Management Manager	7/30/15	
4	Implement required changes, based upon the results of the above review, into the Emergency Management Program.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	8/30/15	

Judgment of Need (JON 5)

NWP and CBFO need to correct their activation, notification, classification, and categorization protocols to be in full compliance with DOE O 151.1C and then provide training for all applicable personnel

Approach

In response to JON 2, NWP is developing a revamped Emergency Management Program to ensure that the applicable protocols for activation, notification, and classification are fully compliant with DOE O 151.1C. Achieving this approach includes performing an independent assessment of the Emergency Management Program using the requirements in DOE O 151.1C, and ensuring that the requirements for activation, notification, classification, and categorization protocols have been addressed and that the appropriate personnel have been trained to the protocols. These actions will address JON 5.

JON 5	Action	Deliverable	Action Owner	Due Date
	See JON 2 Actions 1-5			

Judgment of Need (JON 6)

NWP and CBFO need to improve the content of site-specific EALs to expand on the information provided in the standard EALs contained in DOE O 151.1C.

Approach

NWP is developing a process/systems based approach for decision making relative to credible emergencies through the development of an EPHA, incorporating the resulting EALs and response actions into the appropriate emergency response procedures. These actions are specified in this CAP in the response to JON 3 and will satisfy JON 6.

JON 6	Action	Deliverable	Action Owner	Due Date
	See JON 3 actions.			

Judgment of Need (JON 7)

NWP and CBFO need to develop and implement an Incident Command System (ICS) for the EOC/CMR that is compliant with DOE O 151.1C and is capable of assuming command and control for all anticipated emergencies.

Approach

In response to JON 2, NWP is developing a comprehensive Emergency Management Program that aligns with the Incident Command System and is compliant with DOE O 151.1C, including the requirements for the Incident Command System. Additionally, NWP will institutionalize the ICS within the Emergency Management Plan and perform an exercise that allows evaluation of the ICS, to include the EOC/CMR and first-responders. These actions will address JON 7.

JON 7					
Number	Action	Deliverable	Action Owner	Due Date	
	See JON 2 Actions 1-3.				
1	Develop and institutionalize Incident Command System within the Emergency Management Plan and ICS procedure.	Copy of Emergency Management Plan – ICS Support Annex and ICS Procedure.	Emergency Management Manager	Complete	
2	Plan and conduct an exercise that allows the evaluation of the ICS to include the EOC/CMR and first-responders.	Exercise After Action Report.	Emergency Management Manager	Complete	

Judgment of Need (JON 8)

NWP needs to review procedures and ensure consistent actions are taken in response to a fire in the underground.

Approach

NWP's approach to address JON 8 is to develop and implement an Underground Fire Response Plan and implementing procedure to establish a consistent approach to respond to fires in the underground. Implementation will include conducting a drill to demonstrate the use of the new procedure.

JON 8	Action	Deliverable	Action Owner	Due Date
1	Develop an Underground Fire Response Plan and procedure to create a consistent approach to respond to fire in the underground to include the order of actions such as communications, fire suppression systems and PPE.	Approved Underground Fire Response Plan and procedure.	Emergency Management Manager	4/30/15
2	Implement procedure through training.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	5/30/15
3	Plan and conduct an underground fire response drill demonstrating a consistent approach to underground fire response.	Drill After Action Report.	Emergency Management Manager	6/30/15

Judgment of Need (JON 9)

NWP, CBFO and DOE HQ need to clearly define expectations for responding to fires in the underground, including incipient and beyond incipient stage fires.

Approach

NWP's approach to address JON 9 is to determine the underground firefighting capacity and capability needed to protect worker egress. NWP will develop a policy for underground firefighting that addresses the incipient and beyond incipient stages, which recognizes the limits in capacity and capability to fight fire in the underground. The implementation of underground firefighting is captured in JON 8.

JON 9					
Number	Action	Deliverable	Action Owner	Due Date	
1	Determine the underground firefighting capacity and capability needed to protect worker egress.	Submit the determination to CBFO for approval.	Emergency Management Manager	3/15/15	
2	Develop NWP policy for underground firefighting in the incipient and beyond incipient stages, based on the capacity and capability to protect worker egress.	Approved NWP Policy for underground firefighting.	Emergency Management Manager	3/15/15	
	See JON 8 actions for implementation.				

Judgment of Need (JON 10)

NWP and CBFO need to develop and implement a training program that includes hands-on training in the use of personal safety equipment, e.g., self-rescuers, SCRSs, portable fire extinguishers, etc.

Approach

NWP's approach to address JON 10 is to identify fire-related personal protective equipment needed by underground workers and implement a comprehensive hands-on training program to ensure proficiency in its use.

JON 10	Action	Deliverable	Action Owner	Due Date
1	Identify fire-related personal safety equipment required for the underground.	List of fire-related personal safety equipment required for the underground.	Safety Manager	Complete
2	Evaluate and revise training associated with the underground fire-related equipment to include hands-on training and recurring proficiency requirements.	Approved training materials.	Training Manager	3/19/15
3	Implement training.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Training Manager	4/3/15

Judgment of Need (JON 11)

NWP and CBFO need to improve and implement an integrated drill and exercise program that includes all elements of the ICS, including the MRT, First Line Initial Response Team (FLIRT) and mutual aid; unannounced drills and exercises; donning of self-rescuers/SCSRs; and full evacuation of the underground.

Approach

NWP committed to developing a new Emergency Management Program in JON 2, Actions 3, 4, and 5. This includes the development and implementation of a comprehensive drill and exercise program that encompasses unannounced and no-notice drills; and development of a multi-year drill and exercise schedule that ensures all ERO response elements participate over a multi-year period. Specifically, to address JON 11, NWP will conduct unannounced drill(s) incorporating ICS, MRT, FLIRT, and mutual aid; and will require donning of self-rescuers and a full evacuation of the underground.

JON 11				
Number	Action	Deliverable	Action Owner	Due Date
1	See Actions 3, 4, and 5 of JON 2 for development of the drill and exercise program. Conduct unannounced drill(s) incorporating ICS, MRT, FLIRT, and mutual aid and requiring the donning of self-rescuers and a full evacuation of the underground.	Drill After Action Report.	Emergency Management Manager	Complete

Judgment of Need (JON 12)

NWP needs to evaluate and improve their criteria for granting unescorted access to the underground such that personnel with unescorted access to the underground are proficient in responding to abnormal events.

Approach

In response to JON 12, NWP will define the requirements for granting unescorted access to the underground including the establishment of proficiency requirements for responding to abnormal events. These requirements will be implemented through a revision of the underground access control procedure.

JON 12					
Number	Action	Deliverable	Action Owner	Due Date	
1	Define requirements and revise the underground access procedure for escorted and unescorted access to the underground, including proficiency requirements for responding to abnormal events.	Approved procedure.	Operations Manager	8/30/15	
2	Implement revised procedure.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Operations Manager	9/30/15	

Judgment of Need (JON 13)

NWP management needs to reevaluate and modify the approach to conducting preventive and corrective maintenance on all underground vehicles such that combustible fluids are effectively managed to prevent the recurrence of fires.

Approach

NWP will revise Engineering and Maintenance/Work Control procedures to incorporate expectations for reviewing manufacturer's recommendations as part of the PM determination process. NWP will perform an engineering evaluation of manufacturers operating and maintenance manuals to determine the appropriate maintenance strategy for underground liquid fueled vehicles. In addition, equipment checklists and preventive maintenance procedures for underground vehicles will be revised to include applicable, vendor requirements. Waste handling and non-waste handling equipment maintenance will be evaluated using the same revised processes ensuring the appropriate level of rigor. This approach also includes an evaluation of the use of alternative fire resistant fluids in the hydraulic systems of underground equipment.

JON 13				
Number	Action	Deliverable	Action Owner	Due Date
1	Revise engineering procedures to provide a formal process to identify applicable maintenance requirements (vendor and other).	Approved, revised engineering procedures: WP 09-12, Evaluation of Technical Operability Adequacy of Facility Systems, Structures, and Components WP 09-CN3007, Engineering Change Order Preparation and Design Change Control	Engineering Manager	Complete

JON 13				
2	Revise maintenance procedures to incorporate engineering-identified maintenance requirements.	Approved, revised maintenance procedure: WP 10-WC3014, Periodic Maintenance Activity Screening Process	Work Control Manager	Complete
3	Review, and revise, as necessary, PM procedures for underground equipment.	Approved, revised PM procedures.	Work Control Manager	2/28/15
4	Revise operator pre-use checklists to address leaks and accumulation of combustible fluids.	Approved operator pre-use checklists.	Work Control Manager	3/13/15
5	Evaluate the use of alternative fire resistant fluids in the hydraulic systems of underground equipment.	Report of evaluation. Evaluation of high flashpoint fluids on UG vehicles, documented in ETO-U-022, and WIPP AHJ Determination of Fire Protection Guidance for Hydraulic Fluids, dated 10/23/14.	Engineering Manager	Complete
6	Implement recommendations from the evaluation of alternative fire resistant fluids.	Based on the outcome of the evaluations, NWP will implement appropriate changes. (No action is required as a result of the evaluations performed.)	Engineering Manager	Complete

JON 13	7	Implement revised procedures.	<p>Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions. (No action is required as a result of the evaluations performed.)</p>	Work Control Manager	Complete
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Judgment of Need (JON 14)

NWP and CBFO need to develop and implement a rigorous process that effectively evaluates: changes to facilities, equipment, and operations for their impact on safety, e.g., plant operations review process; impairment and corresponding compensatory measures on safety-related equipment; and the impact of different approaches in maintaining waste-handling and non-waste-handling equipment.

Approach

NWP's Engineering, Maintenance, and Work Control organizations will work together to establish processes that effectively evaluate changes to facilities, equipment or operations, that will include considerations for impairments of safety-related equipment, even if this equipment is not credited in the safety basis. NWP will establish procedure guidance on the selection of preventive maintenance and calibration activities and to ensure the flow down of requirements from applicable engineering procedures. This procedure modification will also improve maintenance prioritization to support critical system operational readiness and will include provisions for trending of deficiencies. NWP will also revise the engineering processes to provide a standard uniform approach for changes to site systems and equipment and ensure evaluation via the USQ process, as appropriate. JON 13, Actions 1, 2, and 3, are actions to ensure waste handling and non-waste handling equipment maintenance will be evaluated using the same processes ensuring the appropriate level of rigor.

JON 14				
Number	Action	Deliverable	Action Owner	Due Date
1	Evaluate and revise NWP engineering procedure to require the cognizant system engineer to evaluate changes to facilities, equipment, and operations for impact to safety.	Approved procedures: WP 09-CN3007, Engineering Change Order Preparation and Design Change Control WP 09-CN3021, Component Indices WP 09-CN3022, Engineering File Room Operations	Engineering Manager	Complete

JON 14					
2	Evaluate and revise NWP USQ procedure to ensure changes to facilities, equipment, and operations are reviewed for their impact to safety.	Approved procedure.	Nuclear Safety Manager	5/31/15	
3	Evaluate and revise the NWP work control procedure to ensure the appropriate SMEs are involved in evaluating changes to facilities, equipment, and operations.	Approved procedure.	Work Control Manger	Complete	
4	Develop a list of critical plant systems and safety-related equipment.	Approved list of systems and equipment.	Operations Manager	3/31/15	
5	Revise or develop an NWP procedure that provides instructions on evaluating the impact on critical systems and safety-related equipment impairments and guidance on establishing compensatory measures. Additionally, this procedure will direct the prioritization of maintenance activities.	Approved procedure.	Work Control Manger	3/31/15	

JON 14	6	Implement revised procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Nuclear Safety Manager	4/31/15
		See JON 13 Actions 1 and 2 for the actions that revise the approach for maintaining waste-handling and non-waste-handling equipment to use the same processes ensuring the appropriate rigor.			

Judgment of Need (JON 15)

NWP needs to determine the extent of this condition and develop a comprehensive corrective action plan to address identified deficiencies.

Approach

In response to JON 15, NWP will perform a review to determine the extent of condition. The actions of JON 14 will also address the extent of condition.

JON 15					
Number	Action	Deliverable	Action Owner	Due Date	
1	NWP will conduct an extent of condition review with respect to JON 14 for non-safety systems and equipment.	Extent of Condition Report.	Work Control Manager	3/20/15	
2	Implement recommendations.	Based on the outcome of the evaluations, NWP will implement appropriate changes.	Work Control Manager	6/30/15	

Judgment of Need (JON 16)

NWP needs to develop and implement a process that ensures comprehensive and timely impact evaluation and correction of impaired or out-of-service equipment.

Approach

The programmatic approach to addressing JON 14 will also ensure that impaired or out-of-service equipment is evaluated and corrected in a timely manner.

JON 16				
Number	Action	Deliverable	Action Owner	Due Date
	See JON 14, Action 5 for measures to be taken in addressing the development of requirements for comprehensive and timely evaluations of impaired or out-of-service equipment.			

Judgment of Need (JON 18)

NWP needs to develop and reinforce clear expectations regarding the performance of rigorous equipment inspections in accordance with manufacturer recommendations, established technical requirements; corrective action; and trending of deficiencies.

Approach

JON 13 actions 1, 2, and 4 address the development of clear expectations for equipment inspections and vendor/manufacturer recommendations. Additionally, the approach to this JON includes establishing processes for the trending of deficiencies and the evaluation of the aggregate effects of out-of-service equipment.

JON 18	Action	Deliverable	Action Owner	Due Date
1	Revise the applicable work control and engineering procedures to include a process for the trending of deficiencies and to evaluate the aggregate effects of out-of- service equipment.	Approved procedures: WP 10-WC3010, Periodic Maintenance Administration and Controlled Document Processing WP 10-WC3011, Work Control Process WP 09-12, Evaluation of Technical Operability Adequacy of Facility Systems, Structures, and Components WP 09-CN3007, Engineering Change Order Preparation and Design Change Control	Work Control Manager	Complete

JON 18	2	Implement procedure revisions.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Work Control Manager	Complete
		See JON 13 actions 1, 2, 3 and 4 addressing developing clear expectations for equipment inspections and vendor/manufacturer recommendations.			

Judgment of Need (JON 19)

NWP needs to ensure that all requirements of DOE O 420.1C and MSHA are addressed in the BNA, with the results completely incorporated into implementing procedures and the source requirements referenced, and that training consistent with those procedures is performed.

Approach

In response to JON 19, NWP will revise the BNA to ensure the requirements of DOE O 420.1 C and MSHA are addressed in the appropriate procedures, sources are referenced, and personnel are trained.

JON 19	Action	Deliverable	Action Owner	Due Date
1	Revise BNA to ensure the requirements of DOE O 420.1 C and MSHA are addressed.	Submit BNA to CBFO.	Emergency Management Manager	3/30/15
2	Revise appropriate procedures including source requirements to implement the approved BNA.	Approved procedures.	Emergency Management Manager	5/30/15
3	Implement approved procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	6/30/15

Judgment of Need (JON 20)

NWP and CBFO need to perform an integrated analysis of credible underground fire scenarios and develop corresponding response actions that comply with DOE and MSHA requirements. The analysis needs to include formal disposition regarding the installation of an automatic fire suppression system in the mine.

Approach

In response to JON 20, NWP will revise the FHA to include a list of credible underground fire scenarios. NWP will then ensure that the resulting actions are incorporated into applicable response procedures and that personnel are trained. The disposition of the automatic fire suppression system is addressed in JON 19 action 1.

JON 20					
Number	Action	Deliverable	Action Owner	Due Date	
1	Revise the FHA to include a list of credible underground fire scenarios.	Approved FHA.	Nuclear Safety Manager	3/31/15	
2	Revise procedures to include corresponding actions to respond to credible underground fire scenarios.	Approved procedures.	Emergency Management Manager	6/30/15	
3	Implement approved procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	8/31/15	

JON 20						
			Analysis of the installation of an automatic fire suppression system in the underground is addressed in JON 19, Action 1.			

Judgment of Need (JON 21)

NWP and CBFO need to review the combustible control program and complete corrective actions that demonstrate compliance with program requirements.

Approach

NWP will ensure that the WIPP Fire Protection Program provides comprehensive requirements for the use, accumulation and inspection of combustible materials in the underground and that personnel are appropriately trained to implement the requirements. Periodic inspections of the combustible loading in the underground will be conducted to ensure compliance.

JON 21				
Number	Action	Deliverable	Action Owner	Due Date
1	Review and revise the WIPP Fire Protection Program to provide comprehensive requirements that are consistent with FHA criteria for the use, accumulation, and periodic inspection of combustible materials in the underground.	Approved procedures.	Nuclear Safety Manager	3/31/15
2	Implement approved procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Nuclear Safety Manager	6/31/15

JON 21				
3	Perform a periodic inspection of combustible loading in the underground.	Inspection report.	Nuclear Safety Manager	9/31/15

Judgment of Need (JON 22)

NWP and CBFO need to evaluate and address deficiencies in housekeeping to ensure unobstructed egress and clear visibility of emergency egress strobes, reflectors, SCSR lights, etc.

Approach

NWP will ensure that the requirements are implemented for evaluating and addressing deficiencies in housekeeping issues to ensure unobstructed egress and clear visibility of emergency communications systems.

JON 22					
Number	Action	Deliverable	Action Owner	Due Date	
1	NWP shall identify and implement requirements for evaluating deficiencies in housekeeping to ensure unobstructed egress and clear visibility of egress strobes, reflectors, SCSR lights, etc.	Approved procedures and applicable round sheets/data sheets.	Operations Manger	3/31/15	
2	Implement approved procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Operations Manager	4/6/15	

Judgment of Need (JON 23)

NWP needs to develop and implement a fully integrated contractor assurance system that provides DOE and NWP confidence that work is performed compliantly, risks are identified, and control systems are effective and efficient.

Approach

NWP will develop and implement an integrated contractor system that is fully compliant with the requirements of DOE O 226.1B. This approach includes development of a program description and implementing procedures, as well as the performance of an independent evaluation of the new program. NWP will then perform an effectiveness review once the program has been fully implemented.

JON 23				
Number	Action	Deliverable	Action Owner	Due Date
1	Develop a Contractor Assurance Program Description that captures required elements of an effective contractor assurance system as defined by DOE Order 226.1B.	Submit Contractor Assurance Program Description to CBFO for approval.	Contractor Assurance Manager	Complete
2	Develop or expand upon procedures required to implement a contractor assurance system compliant with DOE 226.1B.	Approved procedures.	Contractor Assurance Manager	5/29/15
3	Implement procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Contractor Assurance Manager	9/29/15

JON 23				
4	Perform an independent assessment of the NWP Contractor Assurance System to verify compliance with DOE Order 226.1B.	Assessment report.	Contractor Assurance Manager	3/12/15
5	Implement corrective actions for issues identified during the performance of the independent assessment.	Based on the outcome of the evaluations, NWP will implement appropriate changes.	Contractor Assurance Manager	5/29/15
6	NWP will perform an effectiveness review on the implementation of the Contractor Assurance System.	Effectiveness report.	Contractor Assurance Manager	3/15/16

Judgment of Need (JON 33)

NWP and CBFO need to evaluate and correct weaknesses in the Conduct of Operations (CONOPS) program and its implementation, particularly with regard to flow-down of requirements from upper-tier documents, procedure content and compliance, and expert-based decision making.

Approach

NWP will correct weaknesses in the CONOPS program and its implementation by conducting an independent evaluation of the program and correcting the identified deficiencies. This approach includes revising the CONOPS Matrix and affected implementing procedures, and training personnel. The approach also includes establishing a CONOPS mentoring program. NWP Contractor Assurance will also include CONOPS as an assessment focus area to verify the flow down of upper tier requirements, procedure content and compliance, and that expert-based decision-making is minimized.

JON 33					
Number	Action	Deliverable	Action Owner	Due Date	
1	Conduct independent evaluation of CONOPS program.	Evaluation report.	Operations Manager	Complete	
2	Review and revise the CONOPS Matrix.	Revised CONOPS Matrix submitted to CBFO for approval.	Operations Manager	3/31/15	
3	Revise implementing procedures.	Approved procedures.	Operations Managers	4/6/15	
4	Implement procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Operations Manager	5/6/15	

JON 33				
5	Implement a CONOPS mentoring program.	CONOPS mentoring program description.	Operations Manager	Complete
6	Establish a focus area for CONOPS compliance in the approved CAS assessment schedule.	Approved CAS assessment schedule.	Operations Manager	6/30/15

Judgment of Need (JON 34)

NWP and CBFO need to identify and control the risk imposed by non-waste-handling equipment, e.g., combustible buildup, manual vs. automatic fire suppression system, fire-resistant hydraulic oil, and treat waste-handling equipment and non-waste-handling equipment the same.

Approach

NWP has determined that a single system will be used to evaluate and impose requirements for nuclear and non-nuclear equipment. JON 13 and 14 corrective actions identify these requirements.

JON 34				
Number	Action	Deliverable	Action Owner	Due Date
	See JON 13 and 14 actions.			

Judgment of Need (JON 35)

NWP and CBFO management need to examine and correct the culture that exists regarding the maintenance and operation of non-waste-handling equipment

Approach

NWP will evaluate and integrate mine operations and nuclear operations in the underground through the use of common processes. For the specific issue of non-waste-handling equipment, NWP will develop common maintenance and operations review processes as defined in JONs 13 and 14. NWP will nurture an appropriate safety culture through the actions defined below.

JON 35					
Number	Action	Deliverable	Action Owner	Due Date	
1	See actions in JONs 13 and 14 for processes and requirements regarding non-waste handling equipment.				
2	Conduct root cause analysis of the degradation of the safety culture.	Root cause analysis report.	Safety Manager	Complete	
3	Develop Expectations, Values and Behaviors in Sr. Management workshops.	Roster of attendance and training materials.	Safety Manager	Complete	
	Communicate updated safety culture plan to the workforce.	Roster of attendance and training materials.	Safety Manager	Complete	

Nuclear Waste Partnership LLC
Corrective Action Plan
Phase 1 Radiological Release Event

RL McQuinn

NWP President & Project Manager

2/11/15

Date



A URS-led partnership with B&W and AREVA

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ACRONYMS

AIB	Accident Investigation Board
CAM	Continuous Air Monitor
CAP	Corrective Action Plan
CAS	Contractor Assurance System
CBFO	U.S. Department of Energy Carlsbad Field Office
CC	Contributing Cause
CFR	Code of Federal Regulations
CON	Conclusion
CONOPS	Conduct of Operations
CMR	Central Monitoring Room
DC	Direct Cause
DNFSB	Defense Nuclear Facility Safety Board
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
EAL	Emergency Action Levels
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ESS	Evaluation of the Safety Situation
FHA	Fire Hazard Analysis
FP	Fire Protection
INPO	Institute of Nuclear Power Operations
JON	Judgment of Need
LTA	Less than Adequate
M&O	Management and Operating
NWP	Nuclear Waste Partnership LLC
PISA	Potential Inadequate Safety Analysis
RadCon	Radiological Control
RC	Root Cause
RCRA	Resource Conservation and Recovery Act
SSC	Structure, System, and Component
TRU	Transuranic
TSR	Technical Safety Requirements
U/G	Underground
USQ	Unreviewed Safety Question
WIPP	Waste Isolation Pilot Plant

1.0 INTRODUCTION

On Friday, February 14, 2014 there was an incident in the underground (U/G) repository at WIPP, which resulted in the release of americium and plutonium from one or more transuranic (TRU) waste containers into the U/G mine and the environment.

2.0 ACCIDENT INVESTIGATION

On February 27, 2014, the Deputy Assistant Secretary for Safety, Security, and Quality Programs, U.S. Department of Energy, Office of Environmental Management, formally appointed a second Accident Investigation Board (the Board) to investigate the radiological release in accordance with DOE O 225.1B, *Accident Investigations*.

The Board began the investigation on March 3, 2014, completed Phase 1 of the investigation on March 28, 2014, and submitted the report to the Acting Deputy Assistant Secretary for Safety, Security, and Quality Programs, U.S. Department of Energy, Office of Environmental Management on April 1, 2014. The Phase 1 report covers the Board's conclusions for the release of TRU from the U/G to the environment. Based upon the conclusions of this accident investigation, the Board concluded that the above ground release identified in Phase 1 of the investigation was preventable. On April 24, 2014 the Board's Accident Investigation Report (Report) was published and made available to Nuclear Waste Partnership LLC (NWP).

The Board concluded the following causes of the accident.

Direct Cause (DC) – the immediate events or conditions that caused the accident.

The Board identified the direct cause of this accident to be the breach of at least one TRU waste container in the U/G which resulted in airborne radioactivity escaping to the environment downstream of the HEPA filters. Due to restrictions on access to the U/G following the event, the exact mechanism of container failure, e.g., back or rib fall, puncture by a failed roof bolt, off-gassing, etc., is unknown at this time and must be determined once access to the U/G is restored.

Root Cause (RC) – causal factors that, if corrected, would prevent recurrence of the same or similar accidents.

The Board identified the root cause of Phase 1 of the investigation of the release of radioactive material from U/G to the environment to be NWP's and CBFO's management failure to fully understand, characterize, and control the radiological hazard. The cumulative effect of inadequacies in ventilation system design and operability compounded by degradation of key safety management programs and safety culture resulted in the release of radioactive material from the U/G to the environment, and the delayed/ineffective recognition and response to the release.

Contributing Causes (CC) – events or conditions that collectively with other causes increased the likelihood or severity of an accident but that individually did not cause the accident. For the purposes of this investigation, contributing causes include those related to the cause of the release, as well as those related to the subsequent response.

The Board identified nine contributing causes to the radiological release to the environment investigated in Phase 1, or resultant response:

1. Implementation of the NWP Conduct of Operations Program is not fully compliant with DOE O 422.1, *Conduct of Operations*, and impacted the identification of abnormal conditions and timely response.
2. NWP does not have an effective Radiation Protection Program in accordance with 10 Code of Federal Regulations (CFR) 835, *Occupational Radiation Protection*, including, but not limited to radiological control technician training, qualification, and requalification, equipment and instrumentation, and audits.
3. NWP does not have an effective maintenance program. The condition of critical equipment and components, including continuous air monitors, ventilation dampers, fans, sensors, and the primary system status display were degraded to the point where the cumulative impact on overall operational readiness and safety was not recognized or understood.
4. NWP does not have an effective Nuclear Safety Program in accordance with 10 CFR 830 Subpart B, *Safety Basis Requirements*. There has been a reduction in the conservatism in the Documented Safety Analysis (DSA) hazard/accident analysis and corresponding Technical Safety Requirement (TSR) controls over time. In addition, the DSA and TSRs contain errors, there is a lack of DSA linkage to supporting hazard analysis information, and there is confusion over the back fall accident description in a closed versus open panel.
5. NWP implementation of DOE O 151.1C, *Comprehensive Emergency Management System*, was ineffective. Personnel did not adequately recognize, categorize, or classify the emergency and did not implement adequate protective actions in a timely manner.
6. The current site safety culture does not fully embrace and implement the principles of DOE Guide (G) 450.4-1C, *Integrated Safety Management Guide*. There is a lack of a questioning attitude, reluctance to bring up and document issues, and an acceptance and normalization of degraded equipment and conditions.
7. Execution of the NWP Contractor Assurance System (CAS) in accordance with DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, was ineffective. Execution of the CAS did not identify precursors to this event or the unacceptable conditions and behaviors documented in this Phase 1 report.

3.0 CORRECTIVE ACTION PLAN DEVELOPMENT

NWP reviewed the Conclusions and Judgments of Need (JONs) from the AIB Report and developed actions to address each of the 25 JONs and supporting conclusions identified in the report pertaining to NWP. The JON tables in Section 6 of this plan describe the approach, actions, and planned due dates to respond to each JON.

4.0 CORRECTIVE ACTION PLAN MANAGEMENT

During implementation of the Corrective Action Plan, it may be necessary to revise specific actions in order to optimize the effectiveness of associated programs. Proposed changes to the specified actions in this plan, including due dates, will be identified and addressed proactively with the CBFO Corrective Actions Manager. Changes to the Corrective Action Plan require CBFO approval. Corrective action progress meetings will be conducted at the request of the CBFO Corrective Actions Manager.

5.0 CORRECTIVE ACTIONS VERIFICATION AND EFFECTIVENESS REVIEW

NWP Functional Managers will ensure that actions are completed in a timely manner and that objective evidence of completions is provided to NWP Contractor Assurance. Contractor Assurance will then verify completion of the actions and that the objective evidence is adequate to demonstrate completion. Six to twelve months after completion of the actions, NWP will evaluate whether the actions have been effectively implemented and have addressed the Judgments of Need.

6.0 JON ACTION PLANS

The following subsections include the 25 JONs pertaining to NWP. Each subsection includes the AIB Report JON description and NWP's approach for addressing the JON. Actions, deliverables, action owners, and planned due dates are listed in table format.

Judgment of Need (JON 1)

Nuclear Waste Partnership LLC (NWP) and the Carlsbad Field Office (CBFO) need to implement a detailed recovery plan to systematically reenter the underground, collect data and information, and make an absolute determination as to the mechanism of the TRU waste release.

Approach

DOE has determined that Phase II of the AIB investigation of the radiological release will make an absolute determination as to the mechanism of the release. To address JON 1, NWP will develop a recovery plan to systematically reenter the underground and support the AIB in the collection of data and information related to their investigation.

RJON 1				
Number	Action	Deliverable	Action Owner	Due Date
1	Develop a recovery plan for reentry into the underground for collection of data and information.	Approved recovery plan.	Recovery Manager	Complete

Judgment of Need (JON 3)

NWP needs to revise the hazard and accident analyses to comply with DOE-STD - 3009, *Preparation Guidance for US. Department of Energy Nonreactor Nuclear Facility Safety Analysis* and DOE-STD-5506, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, regarding not crediting administrative controls in the unmitigated analysis. In particular, some initial assumptions/initial conditions, e.g., compliance with 30 CFR 57, *Safety and Health Standards Underground Metal and Nonmetal Mines* ground control program requirements, should be preventive or mitigative controls derived by the mitigated analysis and should be evaluated for the need for protection with Technical Safety Requirement controls.

Approach

NWP's approach to address JON 3 is to conduct an independent assessment of the Nuclear Safety Program and develop, or revise, the program description and applicable implementing procedures, to include the TSR requirement for independent reviews. NWP will also revise the Hazard and Accident Analysis to comply with DOE Standards 3009 and 5506, with particular consideration for the crediting of administrative controls. NWP will then develop and implement the DSA and TSRs, and will perform an independent verification review.

RJON 3	Action	Deliverable	Action Owner	Due Date
1	NWP will conduct an independent assessment of the Nuclear Safety Program and track identified deficiencies in the NWP issues management program.	Completed independent assessment of the Nuclear Safety Program.	Safety Basis Manager	Complete
2	Develop or revise program description document and implementing procedures. (Include the TSR requirement for independent reviews in this revision effort.)	Approved Nuclear Safety Program description document and implementing procedures.	Safety Basis Manager	5/31/15

RJON 3					
3	Implement revised Nuclear Safety Program procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Safety Basis Manager	8/31/15	
4	NWP will revise the Hazard and Accident Analysis to comply with DOE Standards 3009 and 5506, with particular consideration for the crediting of administrative controls.	Revised DSA and TSR submitted to CBFO for approval.	Safety Basis Manager	5/31/15	
5	NWP will implement the DSA and TSRs.	Independent verification review report.	Safety Basis Manager	10/31/15	

Judgment of Need (JON 4)

NWP needs to commission an independent assessment of the Documented Safety Analysis/Technical Safety Requirement, Revision 4 through corporate assistance or other recognized external resources, and corrective actions implemented that establish appropriate hazard controls and functional classifications.

Approach

To address JON 4, NWP will conduct an independent assessment of the DSA, Revision 4, and TSRs in place and will establish a mechanism for the periodic review of the DSA and TSRs. Corrective actions for the deficiencies identified as a result of the independent assessment may be implemented via various corrective action mechanisms.

RJON 4	Action	Deliverable	Action Owner	Due Date
1	NWP to conduct an independent assessment, gap analysis, of DSA/TSRs (Rev. 4).	Independent assessment report of DSA/TSRs (Rev. 4).	Safety Basis Manager	Complete
2	Correct deficiencies from the independent assessment of DSA/TSRs (Rev. 4).	Objective evidence of resolution of identified deficiencies.	Safety Basis Manager	7/27/15
3	Establish a focus area for TSR development process and implementation in the approved CAS assessment schedule.	Approved CAS assessment schedule.	Contractor Assurance Manager	6/30/15

Judgment of Need (JON 5)

NWP needs to re-evaluate the importance of the suite of available preventive and mitigative controls, e.g., continuous air monitors and underground ventilation system, in the supporting hazards analysis report, and the Documented Safety Analysis, Section 3.3 hazard evaluation, and whether they should be considered as major contributors to defense in depth. This may require upgrading of some Structures, Systems, and Components functional classifications.

Approach

Due to the radiological release, NWP performed a thorough evaluation which resulted in several PISAs and ESSs. The ESSs identified several systems that were important to safety that were not credited as safety SSCs. The above ground Continuous Air Monitor at Station B and the Underground ventilation system are now being treated as important to Safety through the ESS process. NWP will perform a gap analysis of the DSA in Action 1 for JON 4, and will revise the Hazard Analysis in JON 3 Actions 4 and 5. NWP will revise the DSA based upon the results of the gap analysis and revised Hazard Analysis.

RJON 5				
Number	Action	Deliverable	Action Owner	Due Date
	See JON 4, Actions 1 and 2, and JON 3, Actions 4 and 5.			

Judgment of Need (JON 6)

NWP needs to re-evaluate the classification of continuous air monitors and the underground ventilation system consistent with the outcome of the revised hazard analysis and develop technical safety requirement controls consistent with that classification.

Approach

The above ground Continuous Air Monitor Station B and the underground ventilation system are now being treated as Important to Safety through the ESS process. These systems will be reclassified as part of the DSA revision process. Refer to JON 5 for the actions to revise the DSA.

RJON 6 Number	Action	Deliverable	Action Owner	Due Date
	See JON 5.			

Judgment of Need (JON 7)

NWP needs to revise the Technical Safety Requirements to align with changes to the Documented Safety Analysis, e.g., continuous air monitor and underground ventilation system, correct current errors in the Technical Safety Requirements, and ensure that implementing procedures clearly support consistent interpretations.

Approach

NWP has addressed revising the TSRs to align with the new DSA in JON 3 Actions 4 and 5. NWP has addressed the above ground Continuous Air Monitors Station B and the Underground ventilation system classification as Important to Safety through JON 6. NWP has addressed ensuring the implementing procedures for the TSRs in JON 4, Actions 4 and 5; and will assess their implementation in JON 5, action 3

RJON 7			
Number	Action	Deliverable	Action Owner Due Date
	See JONs 3, 4 and 5 and 6.		

Judgment of Need (JON 8)

NWP needs to commission an independent assessment of the Unreviewed Safety Question process through corporate assistance or other recognized external resources, and implement corrective actions that ensure effectiveness.

Approach

NWP will conduct an independent assessment of the USQ process and implement appropriate corrective actions including revising the USQ process to clarify the guidance for the performance and timeliness of PISAs. Mentors were assigned to coach USQ evaluators and reviewers.

RJON 8 Number	Action	Deliverable	Action Owner	Due Date
1	NWP will conduct an independent review of the Unreviewed Safety Question process.	Report of the review.	Safety Basis Manager	Complete
2	Implement corrective actions for deficiencies identified from the independent review.	Objective evidence that issues from the independent review have been addressed.	Safety Basis Manager	7/31/15
3	NWP will mentor USQ evaluators and reviewers.	NWP nuclear safety manager to supply objective evidence that mentoring was performed.	Safety Basis Manager	10/15/15
4	NWP will revise the USQ procedure.	Submit to CBFO for approval.	Safety Basis Manager	Complete
5	NWP will implement revised USQ procedure.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Safety Basis Manager	5/31/15

Judgment of Need (JON 9)

NWP needs to strengthen the Unreviewed Safety Question Determination procedure to clarify Potential Inadequacy in the Safety Analysis guidance, including the appropriate timeliness for entrance into the process and decision making.

Approach

NWP has addressed the revision of the USQ process in JON 8, to include the clarification of PISA guidance and timeliness. NWP will assess implementation of the approved USQ process.

RJON9	Action	Deliverable	Action Owner	Due Date
1	See JON 8. Establish a focus area for the USQ process and implementation in the approved CAS assessment schedule.	Approved CAS assessment schedule.	Contractor Assurance Manager	6/30/15

Judgment of Need (JON 14)

NWP needs to immediately develop and implement interim compensatory measures to ensure prompt identification, categorization, classification, and response to operational emergencies, e.g., corporate reach-back, training, Senior Management Watch in the Central Monitoring Room, etc.

Approach

To address JON 14, NWP developed interim compensatory measures regarding identification, categorization, classification, and response to operational emergencies, and submitted these measures to CBFO for approval.

RJON 14	Action	Deliverable	Action Owner	Due Date
1	Develop interim compensatory measures sufficient for recovery and mine entry.	CBFO approval of interim compensatory measures.	Recovery Manager	Complete
2	Implement interim compensatory measures.	Objective evidence of implementation.	Recovery Manager	6/30/15

Judgment of Need (JON 16)

NWP needs to correct their activation, notification, classification, and categorization protocols to be in full compliance with DOE O 151.1C, *Comprehensive Emergency Management System*, Resource Conservation and Recovery Act (RCRA) Contingency Plan and then provide training and drills for all applicable personnel.

Approach

NWP has committed to independently reviewing and revising, as necessary, the Emergency Management Plan to ensure compliance with DOE Order 151.1C and to validate implementation of the RCRA contingency plan through the actions of the Salt Haul Fire CAP, JON 2.

RJON 16				
Number	Action	Deliverable	Action Owner	Due Date
	See the actions in the Salt Haul Fire CAP, JON 2.			

Judgment of Need (JON 17)

NWP needs to revise Emergency Response Organization training to include more supervised hands-on training and drills to enhance the effectiveness of the Emergency Response Organization's response.

Approach

NWP has already committed to developing a comprehensive drill and exercise program and a multi-year drill and exercise schedule in the Salt Haul Fire CAP, JONs 10 and 11. NWP will assess training to validate effectiveness in addressing this JON.

RJON 17	Action	Deliverable	Action Owner	Due Date
1	Develop and implement an Emergency Response Organization training and qualification program.	Approved ERO Training Plan and EOC position-specific authorization/qualification cards.	Emergency Management Manager	Complete
2	Develop and implement a comprehensive drill and exercise program.	Approved comprehensive drill program description and multi-year drill and exercise schedule.	Emergency Management Manager	Complete
3	Assess Emergency Operations Center (EOC) training and qualification program to determine effectiveness.	EOC Training Assessment Report	Emergency Management Manager	7/30/15
4	Conduct training of the ERO staff.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Emergency Management Manager	Complete
5	Assess performance of the ERO through an exercise.	Exercise After Action Report.	Emergency Management Manager	Complete
	See also actions in Salt Haul Fire CAP JONs, 10 and 11.			

Judgment of Need (JON 18)

NWP needs to fully integrate the Resource Conservation and Recovery Act Contingency Plan activation criteria within the site Emergency Action Levels and to train the applicable personnel to ensure implementation of the Resource Conservation and Recovery Act, Contingency Plan.

Approach

NWP has committed to independently reviewing and revising, as necessary, the Emergency Management Plan to ensure compliance with DOE Order 151.1C and to validate implementation of the RCRA contingency plan through the actions of the Salt Haul Fire CAP, JON 2. These actions will fully integrate the requirements of the two programs and address JON 18.

RJON 18 Number	Action	Deliverable	Action Owner	Due Date
	See actions in the Salt Haul Fire CAP, JON 2.			

Judgment of Need (JON 19)

NWP needs to take prompt action to correct longstanding deficiencies from previous reviews.

Approach

NWP has taken action to identify issues from previous external reviews through the actions in the Salt Haul Fire CAP, JON 4 which dealt with the Emergency Management Organization. NWP will broaden the scope of that review to include external assessments regardless of focus.

RJON 19				
Number	Action	Deliverable	Action Owner	Due Date
1	Develop a list of external assessments received between July 2008 and June 2013.	List of external assessments.	Contractor Assurance Manager	Complete
2	Perform a review of the findings and observations and ensure they are addressed.	Approved review report and disposition of un-addressed items.	Contractor Assurance Manager	6/30/15

Judgment of Need (JON 21)

NWP needs to improve the content of site-specific Emergency Action Levels to expand on the information provided in the standard Emergency Action Levels contained in DOE O 151.1C, *Comprehensive Emergency Management System*.

Approach

NWP has committed to taking action to revise the site specific EALs through actions contained in JONs 2 and 3 of the Salt Haul Fire CAP.

RJON 21				
Number	Action	Deliverable	Action Owner	Due Date
	See the actions in the Salt Haul Fire CAP, JONs 2 and 3.			

Judgment of Need (JON 22)

NWP needs to develop and implement an Incident Command System for the Emergency Operations Center/Central Monitoring Room that is compliant with DOE O 151.1C and is capable of assuming command and control for all anticipated emergencies.

Approach

NWP has committed to revising the Emergency Management Plan and to integrate the Incident Command System principles, concepts and terminology for the EOC/CMR and first responders through the actions of the Salt Haul Fire CAP, JONs 2 and 7.

RJON 22				
Number	Action	Deliverable	Action Owner	Due Date
	See the actions in the Salt Haul Fire CAP, JONs 2 and 7.			

Judgment of Need (JON 24)

NWP and CBFO need to develop and implement an effective integrated safety management system (ISMS) that embraces and implements the principles of DOE G 450.4- 1C, *Integrated Safety Management Guide*, including but not limited to:

- Demonstrated leadership in risk-informed, conservative decision making;
- Improved learning through error reporting and effective resolution of problems;
- Line management encouraging a questioning attitude without fear of reprisal and following through to resolve issues identified by the workforce
- Reinforcing the mechanisms, e.g., WIPP Forms, "Notes to Joe," employee concern program, differing professional opinions, and protocols for communicating issues to NWP and CBFO leadership.

Approach

NWP will take action to improve the effectiveness of the Integrated Safety Management System by addressing the deterioration of safety culture referenced in Conclusion 13 (CON 13) for this JON including addressing questioning attitude, demonstrated leadership in risk-informed conservative decision making, reporting and effective resolution of problems, and improvement in nuclear safety culture attributes embracing the Safety Culture Focus Areas in DOE G 450.4-1C, *Integrated Safety Management Guide*.

RJON 24 Number	Action	Deliverable	Action Owner	Due Date
1	NWP will conduct a Root Cause Analysis on the degradation of the Safety Culture referenced in CON 13 related to this JON.	Root Cause Analysis Report.	Safety Manager	Completed
2	An INPO assist visit team will evaluate the implementation of the Safety Culture Focus Area attributes from DOE G 450.4-1C, <i>Integrated Safety Management Guide</i> .	INPO approved summary of results.	Safety Manager	6/1/15
3	Implement actions to address the safety culture root cause and the issues identified by the INPO assist visit team through the Nuclear Safety Culture Improvement Plan.	Evidence of implementation of the Nuclear Safety Culture Improvement Plan.	Safety Manager	1/1/16

RJON 24	4	Include the conduct of an effectiveness review of the implementation of the corrective actions associated with Nuclear Safety Culture in the approved CAS assessment schedule.	Approved CAS assessment schedule.	Contractor Assurance Manager	1/30/17
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Judgment of Need (JON 27)

NWP needs to strengthen execution of the Conduct of Operations Program to be compliant with DOE O 422.1, *Conduct of Operations*. Specific areas of focus must include (but not limited to):

- Establishing and reinforcing expectations conveyed in WP 04-CO.OI, *Conduct of Operations* series procedures.
- Initiate a mentoring program, e.g., senior supervisor watch that provides real-time feedback to first and second line supervisors as to their responsibilities regarding compliant execution of operations activities.
- Strengthen the structure, content and flow of abnormal response procedures to ensure immediate actions do not require judgment calls prior to execution.
- Consider the addition of real-time surveillance capability, e.g., video of the active waste panels/rooms.
- Establish and execute an operational drill program that evaluates operator response to upset conditions.
- Establish a process that heightens awareness and requires deliberate action to reduce the quantity and length of time key pieces of equipment are out of service.

Approach

NWP has committed to actions to address improvement of the conduct of operations in the Salt Haul Fire CAP, JON 33. Improvements in the process that evaluates the length of time key pieces of equipment are out of service are included in the Salt Haul Fire CAP, JON 14 Action 5. NWP will initiate an additional series of actions directed at improving CONOPS as noted below.

RJON 27	Action	Deliverable	Action Owner	Due Date
	See Salt Haul Fire CAP, JON 33 and JON 14 Action 5.			
1	Revise abnormal response procedures to reduce expert-based decision making.	Approved procedures.	Operations Manager	Complete
2	Implement revised abnormal response procedures.	Training determination, training material and documentation of completion (e.g., rosters, required reading, etc.) Untrained personnel will not be authorized to perform the associated functions.	Operations Manager	Complete

RJON 27				
3	Perform an engineering evaluation to consider the addition of real-time surveillance capabilities.	Engineering evaluation report.	Engineering Manager	5/20/15
4	Implement recommendations of the engineering evaluation.	Based on the outcome of the evaluation, NWP will implement recommendations from the evaluation which correct deficiencies with regulatory requirements. NWP will then submit to CBFO, a plan for implementation of enhancements to the real-time surveillance capabilities resulting from the NWP evaluation.	Operations Manager	7/30/15
5	Develop an Operations abnormal conditions drill program that can accommodate a range of upset conditions.	Approved operations abnormal drill program.	Emergency Management	Complete
6	Conduct an operational drill with upset conditions.	After Action Report.	Emergency Management	Complete

Judgment of Need (JON 29)

NWP needs to take action to ensure that the maintenance process effectively considers and prioritizes repairs to achieve and maintain a high state of operational readiness.

Approach

NWP has committed to actions to identify critical systems, evaluate impairments and to prioritize maintenance to improve operational readiness in the Salt Haul Fire CAP, JONs 13 and 14. These actions will address JON 29

RJON 29				
Number	Action	Deliverable	Action Owner	Due Date
	See the Salt Haul Fire CAP, JONs 13 and 14.			

Judgment of Need (JON 30)

NWP needs to improve the execution of engineering processes that ensure system configuration management is maintained and that the rigor in processing proposed changes to systems is at a level that ensures system design functionality is maintained. Specific examples include:

- Conversion of the 860 vortex damper actuator from automatic to manual operation.
- Functionality of the ventilation system in filtration including evaluation and testing of leakage via the bypass dampers.
- The impact of salt buildup on bypass damper effectiveness.

Approach

NWP has committed to actions to improve the status of critical equipment and to improve prioritization of maintenance of that equipment through the Salt Haul Fire CAP JON, 13 Actions 1, 2 and 7, and JON 14 Actions 4, 5 and 7. NWP will improve the configuration management of critical equipment so that system design functionality is ensured through improved engineering processes identified in the Salt Haul Fire CAP, JONs 14 Actions 1, 3, 5 and 7.

RJON 30			
Number	Action	Deliverable	Action Owner
			Due Date
	See Salt Haul Fire CA, JONs 13 and 14.		

Judgment of Need (JON 33)

NWP needs to evaluate the current state of the radiological control program including the current radiological conditions and implement compensatory measures to support recovery and current activities.

Approach

NWP has developed a set of compensatory actions to address radiological controls to support recovery and current activities. These compensatory measures were approved by CBFO and include a suite of 22 actions addressing topics such as staffing, posting, sampling, monitoring, mentoring, etc. to respond to current radiological conditions.

RJON 33				
Number	Action	Deliverable	Action Owner	Due Date
1	Develop interim radiological control compensatory measures sufficient for recovery and current activities.	CBFO approval of interim compensatory measures.	RadCon Manager	Complete
2	Implement interim radiological control compensatory measures.	Objective evidence of implementation.	RadCon Manager	4/30/15

Judgment of Need (JON 34)

NWP needs to perform an extent of condition review of the training program incorporating the results of this event and implement actions to improve radiological control management, RCT, and radiation worker proficiency in dealing with contamination, and airborne radioactive material

Approach

NWP will conduct an extent of condition review of the Radiological Control Program including the associated training program for radiological control, and the requirements of 10 CFR 835 so that the issues of JONs 34 and 35 are addressed.

RJON 34	Action	Deliverable	Action Owner	Due Date
1	NWP will conduct an extent of condition review of the Radiological Control Program, including the training program for radiological control.	Extent of condition report.	RadCon Manager	Complete
2	Implement actions to address the issues identified in the extent of condition review.	Based on the outcome of the evaluation, NWP will implement appropriate changes from the extent of condition review.	RadCon Manager	4/30/15
3	NWP will assess the proficiency of radiological control management, radiological control technicians and rad workers.	Objective evidence of proficiency.	RadCon Manager	6/1/15

Judgment of Need (JON 35)

NWP needs to perform an extent of condition review for identified weaknesses in the radiological control program and implement corrective actions to fully implement 10 CFR 835.

Approach

NWP will conduct an extent of condition review of the Radiological Control Program including the associated training program and the requirements of 10 CFR 835 so that the issues of JONs 34 and 35 are addressed.

RJON 35				
Number	Action	Deliverable	Action Owner	Due Date
	See JON 34.			

Judgment of Need (JON 37)

NWP needs to develop a technical basis to implement continuous and reliable/redundant real-time air monitoring with appropriate automatic shift to filtration to protect the workers, the public and the environment. This needs to take into consideration the different ventilation modes, protection of workers in the U/G, and release of contaminants to the environment. The technical basis must also consider the hazardous constituents in the TRU mixed waste.

Approach

The underground ventilation system has been in the Filtration Mode since the event on February 14, 2014. Therefore, the reliability of a single CAM does not need to be addressed for shifting the ventilation mode. Evaluations of the Safety of the Situation (ESS) controls are in place requiring maintaining the ventilation system in filtration mode, the above ground Station B CAM in operation, and conducting radiological monitoring at Station A, whenever personnel are in the underground. Additionally, underground airborne monitoring is conducted by the radiological control program. Leakage past the bypass dampers has been addressed by applying high density foam to the dampers.

RJON 37	Action	Deliverable	Action Owner	Due Date
1	NWP shall develop an ESS requiring use of the Filtration Mode and operation of the Station B CAM.	Approved ESS by the CBFO.	Nuclear Safety Manager	Complete
2	Implement the ESS controls.	Implementation verification review.	RadCon Manager	Complete
3	NWP shall apply high density foam to the bypass dampers to reduce leakage.	Completed bypass damper work package.	RadCon Manager	Complete
4	NWP will develop a technical basis for monitoring airborne radiological activity in the underground.	Approved technical basis document.	RadCon Manager	Complete
5	NWP will implement radiological controls for airborne radioactivity in the underground.	Objective evidence that the controls were implemented.	RadCon Manager	4/30/15

Judgment of Need (JON 38)

NWP needs to develop and implement a fully integrated contractor assurance system that provides DOE and NWP confidence that work is performed compliantly, risks are identified, and control systems are effective and efficient.

Approach

NWP has committed to actions to implement a fully integrated contractor assurance system in the Salt Haul Fire CAP, JON 23.

R/JON 38				
Number	Action	Deliverable	Action Owner	Due Date
	See the Salt Haul Fire CAP, JON 23.			

Judgment of Need (JON 39)

NWP needs to establish and implement line management oversight programs and processes that:

- Meet the requirements of DOE O 226.1B, *Implementation of Department of Energy Oversight Policy*, and hold personnel accountable for implementing those programs and processes.
- Implement effective contractor assurance processes to emphasize conduct of operations, maintenance, radiological protection, nuclear safety, emergency management, and safety culture.
- Implement a Contractor Assurance System to ensure that actions from prior assessments are implemented to prevent or minimize recurrence of identified deficiencies.
- Include self-assessments by knowledgeable, qualified subject matter experts within the various safety management programs.

Approach

NWP has committed to the implementation of a fully integrated contractor assurance system, including the implementation of a line management oversight program, in the Salt Haul Fire CAP, JON 23.

RJON 39				
Number	Action	Deliverable	Action Owner	Due Date
	See the Salt Haul Fire CAP, JON 23.			