Department of Energy
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MAY 30 2014

Mr. John E. Kieling, Bureau Chief
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New Mexico Environment Department
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Santa Fe, NM 87508-6303

Mr. Tom Blaine, Division Director
Environmental Health Division
Harold Runnels Building
1190 Saint Francis Drive, Room
Santa Fe, NM 87502-5469

Subject: The Waste Isolation Pilot Plant Nitrate Salt Bearing Waste Container Isolation Plan

Reference: New Mexico Environment Department E-Mail from Ryan Flynn to Jose Franco, George W. Hellstrom, Robert McQuinn and Dennis N. Cook, dated May 20, 2014, subject: WIPP Order 05-20001

Dear Mr. Kieling and Mr. Blaine:

The purpose of this letter is to provide the WIPP Nitrate Salt Bearing Waste Container Isolation Plan (Plan) required by the New Mexico Environment Department Administrative Order 05-20001 (Order) issued on May 20, 2014, to the U. S. Department of Energy (DOE) and Nuclear Waste Partnership LLC (NWP), collectively referred to as the Permittees. The Order, at paragraph 22, requires the Permittees to submit a Plan for identified nitrate salt bearing waste disposed in the Waste Isolation Pilot Plant (WIPP) underground disposal facility. The Order also requires an implementation schedule for this Plan. The Plan with schedule is due by 2:00 PM on May 30, 2014.

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Mr. George T. Basabilvazo at (575) 234-7488.

Sincerely,

Jose R. Franco, Manager
Carlsbad Field Office

Robert L. McQuinn, Project Manager
Nuclear Waste Partnership LLC

Enclosure

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Waste Isolation Pilot Plant
Nitrate Salt Bearing Waste Container Isolation Plan

Prepared in Response to New Mexico Environment Department
Administrative Order 05-20001 Issued May 20, 2014

1.0 INTRODUCTION

The purpose of this document is to provide the Plan required by the New Mexico Environment Department (NMED) Administrative Order 05-20001 (Order) issued on May 20, 2014 to the U. S. Department of Energy (DOE) and Nuclear Waste Partnership LLC (NWP), collectively referred to as the Permittees. The Order, at paragraph 22, requires the Permittees to submit a *WIPP Nitrate Salt Bearing Waste Container Isolation Plan* (Plan) for identified nitrate salt bearing waste disposed in the Waste Isolation Pilot Plant (WIPP) underground disposal facility. The Order also requests an implementation schedule for this Plan. The Plan and schedule is due by 2:00 p.m. on May 30, 2014. The Order requires that the Plan include "a detailed proposal for the expedited closure of underground Hazardous Waste Disposal Unit (HWDU) Panel 6, so that a potential release from any nitrate salt bearing waste containers in Panel 6 does not pose a threat to human health or the environment." It also requires "a detailed proposal for the expedited closure of underground HWDU Panel 7, Room 7, so that a potential release from any nitrate salt bearing waste containers in Panel 7, Room 7, does not pose a threat to human health or the environment." Additionally, the Order requires information regarding the "volumetric flow rate for ventilation in the WIPP underground, a description of how the volumetric flow rate is protective of human health and the environment, and a description of how volumetric flow rate will be achieved while the WIPP Nitrate Salt Bearing Waste Container Isolation Plan is implemented."

2.0 BACKGROUND

At 11:14 p.m. on February 14, 2014, a continuous air monitor (CAM) detected airborne radiation in the WIPP underground facility. When the CAM alarmed, underground ventilation exhaust air automatically shifted to flow through high-efficiency particulate air (HEPA) filters to remove radioactive particles. Since that time, underground exhaust air has continued to be routed through HEPA filtration. On April 11, 2014, in anticipation of investigation of the source of a radiological release from the facility, the Permittees implemented the Resource Conservation and Recovery Act (RCRA) Contingency Plan. On May 1, 2014, NWP declared a potentially inadequate safety analysis (PISA) based on the possibility that a container of inadequately remediated nitrate salt bearing waste had caused the release of radioactivity in the WIPP underground. Recent entries into underground Panel 7 have confirmed that at least one container from a nitrate salt bearing waste stream from Los Alamos National Laboratory is breached and is the most

likely source of the release. Further investigation is underway to determine if other containers contributed to the release. All shipments of waste to the WIPP facility have been suspended. Records for disposal in underground Panel 6 indicate that Rooms 1 and 2, which are the two rooms closest to the entry of the panel, also have containers of this waste. Panel 6 is full, but not closed and closure has been initiated.

The radiological release contaminated portions of the underground facility. The Permittees are currently in the process of determining the extent of such contamination. Because of the contamination, activities in the underground must be carefully planned and performed to assure workers are not exposed to harmful levels of radioactivity. Planning defines the type of protection workers must wear and the duration of their stay. The planning process is comprehensive in that it evaluates both actual and potential conditions and job hazards in order to establish safety boundaries for work activities underground. Throughout this Plan there is reference to numerous documentation steps associated with planning such as preparing work packages, characterizing radiation areas, and preparing and approving safety basis documents. These are important steps in assuring the required closures in Panels 6 and 7 occur within the boundaries of safe radiological operations.

In addition to addressing radiological contamination, mine-related activities must be performed, including the installation of panel closures and resuming mine maintenance activities such as ground control bolting. Therefore, the Permittees must be able to provide sufficient ventilation air to the underground working areas. Sufficient ventilation air is defined by the regulations promulgated for mines such as the WIPP facility by the U.S. Department of Labor, Mine Safety and Health Administration (MSHA). A discussion of the information requested regarding ventilation in the WIPP underground is provided later in this Plan. As described above, the mine is being ventilated in filtration mode. This means that under the current configuration, approximately 60,000 cubic feet per minute (cfm) of ventilation air is available throughout the entire underground. This 60,000 cfm is split through the underground depending upon the location of bulkheads, louvers, and other flow control devices. In order to maintain adequate ventilation to perform required work, as described below, the ventilation control devices (e.g., bulkheads) in the underground need to be properly aligned. The limited amount of ventilation air dictates the types and number of activities that can be performed at any given time in the underground. Until the Permittees install additional filtration devices, the amount of air will remain limited to its current capacity. Although this limitation will not prevent the Permittees from complying with the Order, it does dictate the speed at which an expedited closure can be accomplished, particularly simultaneously in Panels 6 and 7. The Permittees have determined that certain protective measures, as described in this Plan, are possible in Panels 6 and 7 under the conditions of limited ventilation air, which will enable work crews to perform an expedited closure of Panel 6 and Panel 7, Room 7. These measures will be installed, inspected, and repaired if accessible until more permanent measures are possible after establishing additional filtration capacity.

3.0 INFORMATION REQUIRED BY THE ORDER

The following sections describe the Plan required under the Order. In formulating the schedule, some activities may be done concurrently, and some activities performed to close Panel 6 will support closure of Panel 7, Room 7. The relationship between these activities will become more obvious once prerequisite activities are completed and the schedule matures. Some of the proposed activities are already underway, such as:

- Radiological surveys.
- Safety basis documentation.
- Ventilation upgrades.
- Planning for filter change out.
- Work on the waste hoist tower.

3.1 Prerequisites and Key Assumptions

The Order covers underground HDWUs Panel 6 and Panel 7. Access to these units for work is not allowed at this time pending the completion of assessment activities. These assessment activities include the following:

- Evaluation of the cause of the release, currently narrowed down to a single container in Panel 7, Room 7.
- Evaluation of the extent of radiological contamination within the units.
- Evaluation of the ground conditions in and around the units.
- Evaluation of the extent of radiological contamination on entries leading up to Panel 6.
- Evaluation of the extent of radiological contamination on equipment needed to maintain the mine entries for the units.
- Evaluation of the extent of soot on electrical equipment needed to perform work in the underground.

In addition to the ongoing assessment activities, certain additional actions are required prior to initiating work in the units. These actions include the following:

- Release of the underground by the DOE Accident Investigation Board. This will be a phased approach, with the release of all but Panel 7, Room 7 expected by June 20, 2014.
- Implementation of corrective actions identified from the investigation of the haul truck fire in the WIPP facility underground on February 5, 2014, and identification of compensatory measures necessary for those that cannot be implemented prior to initiating closure of Panel 6.
- Radiological posting of work areas needed to implement the Order.

- Reconfiguration of the ventilation to support the actions required by the Order.
- Replacement of applicable underground filtration system filters.
- Finalization and implementation of the WIPP recovery schedule.
- Activation of the Waste Hoist (affects Panel 7, Room 7 closure only).

The results of the assessment activities will dictate the schedule and duration of several of the prerequisite actions. As the result, this Plan is submitted with the following assumptions:

- Assumption 1: The extent of radiological contamination is restricted to Panel 7 and the downstream areas.
- Assumption 2: Safety basis documentation to protect workers is prepared and approved.
- Assumption 3: Ongoing work to radiologically clear underground areas progresses. Work areas outside Panel 7 can be established as radiological buffer areas (RBAs). An RBA is an area to which access is managed in order to protect individuals from exposure to radiation and/or radioactive materials. Radiological personal protective equipment is not required in an RBA, optimizing worker efficiency.
- Assumption 4: Habitability of the underground is as anticipated, requiring minimal replacement of facilities and safety required equipment.
- Assumption 5: If additional filter replacement is needed after work commences, only the mod filters will require replacement.
- Assumption 6: Ground control maintenance activities underground are not extensive and can be provided on an as-needed basis during work activities.
- Assumption 7: Work prerequisite to installing the permanent closure in Panel 6 can be performed with 60,000 cfm total available airflow.
- Assumption 8: Worker training to the new underground ventilation and radiological configuration and emergency drills will be completed prior to starting closure work.
- Assumption 9: Closure activities can be accomplished by reconfiguring existing ventilation bulkheads and no new ventilation structures are needed other than those that are integral to the closure itself.
- Assumption 10: No additional filtration is needed to support closure work activities (e.g., scrubbers on diesel-fueled mining equipment such as roof bolters).
- Assumption 11: Corrective actions from the fire accident report can be completed to the extent they affect the equipment and areas needed for the closures or appropriate compensatory measures such as manual fire suppression systems and fire watches can be implemented.

- Assumption 12: Ventilation upgrades needed for permanent Panel 6 closure are accomplished as a notification of a planned change to the permitted facility and subject to NMED inspection when completed.

The following sections address the actions that the Permittees intend to take to meet the conditions of the Order. In some cases, the activities have already been initiated. In other cases, activities cannot be started until the prerequisites occur. To the extent possible, activities will be scheduled to run concurrently. For this reason, the schedule provides duration and sequencing of activities, but no hard dates. Actual dates can be prescribed as prerequisites are completed. Activities and durations are subject to change as field conditions change during performance of work.

3.2 Paragraph 22, Section a) i

The Order requires the Permittees to provide a detailed proposal for the expedited closure of Panel 6, so that a potential release from any nitrate salt bearing waste containers in Panel 6 does not pose a threat to human health or the environment. The Permittees have determined that this involves three activities as follows:

3.2.1 Proposed Activity: Continue HEPA Filtration of Underground Exhaust Air

Description: The design of the WIPP facility incorporates HEPA filtration as the primary method of protecting human health and the environment in the event of a radiological release in the underground. Ventilation air passes through and by waste disposal areas and is circulated through filtration units, thus assuring that air follows the ventilation pathway and not into other portions of the mine or to the surface unfiltered. The filtration system has been operating since February 14, 2014. This mitigates the public exposure hazards associated with a potential release of radioactive contaminants from waste containers in Panel 6 and provides continued protection to human health and the environment. The filtration system consists of two banks of filters that include roughing (mod) filters, high-efficiency filters, and two sets of HEPA filters. Due to buildup on the mod filters primarily, the Permittees are planning a filter change-out based upon the condition of each type of filter. The system is monitored continuously. Filter change-out is required periodically as particulates build up on the filter surfaces. Filter change-out is performed in a manner that minimizes the risk of an airborne release from the facility. Two independent filter banks are in use. They will be changed out one at a time so that one bank continues to be in-service to filter any possible releases. While filter change-out is underway, personnel access to the underground will be controlled.

In the underground the current operating practice is to provide workers with personal protective equipment (PPE) sufficient to mitigate potential exposures. This PPE includes breathing protection, anti-contamination clothing, and administrative controls for the duration of underground activities.

3.2.2 Proposed Activity: Expedited Closure of Panel 6 with Initial Closure

Description: This involves the installation of a barrier that is sufficient to mitigate potential releases from the nitrate salt waste in Panel 6 should an event recur, thereby being protective of workers, the public, and the environment. This will be the substantial barrier and bulkhead as described in Permit Attachment N1. Construction of the substantial barrier and bulkhead structures in Panel 6 was suspended when a vehicle fire in another part of the mine required the immediate evacuation of the underground on February 5, 2014. Work on these structures was not resumed prior to the radiological release event. The substantial barrier (defined in Permit Part 1, Section 1.5.13) has been installed in Panel 6, S-2750 drift (ventilation air intake side). The salt, chain link, and brattice cloth are in place. On the S-3080 drift (ventilation air exhaust side), the brattice cloth and chain link have been dropped from the back (ceiling) but the run–of-mine salt (or other non-flammable material pursuant to Permit Attachment N1, Figure N1-1) has not been placed against the waste. Bulkheads have not yet been installed in either drift. The initial closure will complete construction of the substantial barrier, including bulkheads.

Based upon a review of the information available to date regarding the release in Panel 7, Room 7, the Permittees are proposing that the substantial barrier and bulkhead will be sufficient based on the following observations regarding the release event in Panel 7:

- The event did not appear to involve an explosion.
- A chemical reaction in the involved container created sufficient heat to breach the lid to the container and caused a release.
- Damage to surrounding containers, backfill bags, shrink-wrap, and slip-sheets was due to the heat.
- The bulkhead adjacent to the waste stack in Panel 7, Room 7 does not appear to display signs of pressure.
- The risk to workers is from heat, smoke, airborne radionuclides, and pressure related to container(s) breaching.

However, the radiological event investigation being performed by the DOE Accident Investigation Board is not yet complete. The results from the investigation may require changes to the proposed closures and schedules described in this plan. The NMED will be notified of any required changes.

The following discrete steps are proposed as part of this Plan to provide the initial closure (some activities will be performed in parallel):

- Assess the physical conditions and clear the route between the shafts and the entries to Panel 6. This includes ground inspection, equipment inspections and cleaning (which applies to the removal of soot and combustion products from the February 5, 2014, haul truck fire) if needed, and decontamination (which applies to the removal of contamination from the radiological release on February 14, 2014) if needed, and radiological contamination assessment. This activity is to

provide work crews with access to work areas and equipment, assure safety equipment is in place, assure the stability of the underground, and assure the protection of work crews from exposure to radioactive contamination.

- Establish underground areas to RBAs, such that work can be performed without the need for radiological personal protective equipment.
- Determine the roof stability and radiological conditions in the entry drifts to Panel 6. This will influence the selection of PPE and limitations on work activity duration. Roof bolting and/or other geotechnical work will be performed as needed as a prerequisite for entry by work crews.
- Complete necessary work orders. Develop, review, and approve applicable safety basis documentation and other work planning documents to authorize the work and define safe working conditions.
- Implement compensatory measures and interim actions for fire protection and emergency management safety management programs (SMPs).
- Conduct drills, training, and mock-ups.
- Perform necessary maintenance activities on equipment that will be needed for placing the closures.
- Return mine phones to service and verify operability.
- Assess ventilation needs and reconfigure air flow to assure adequate ventilation in compliance with applicable work and safety standards.
- Prestage needed materials in the underground.
- Install the substantial barrier in the S-3080 drift.
- Prepare bulkhead locations (e.g., remove loose material, terminate air monitoring tubing inside the bulkhead location, and remove tubes in the bulkhead area).
- Install bulkheads in both the S-2750 drift and in the S-3080 drift.
- Add new bulkheads to the monthly inspection schedule.
- Install radiological monitoring equipment at the entries to S-2750 and S-3080, and assure access is restricted.

3.2.3 Proposed Activity: Expedited Closure of Panel 6 with the Permanent Closure

Description: The second step to closing Panel 6 involves placing the required final panel closure. This step requires significantly more underground ventilation than placement of the initial substantial structures and therefore will be deferred until the Permittees have established the needed ventilation. The Permittees have made final closure of Panel 6 a high priority activity by focusing on improving ventilation in the underground for operational activities.

The design proposed to the NMED on March 18, 2013, will be evaluated to determine if it adequately addresses the potential hazards from the nitrate salt bearing waste for the permanent closure of Panel 6. The bulkheads alone will not be the final closure. The Permittees will evaluate a component that can be relied on to mitigate the effects of an event similar to the event that occurred in Panel 7. This component may include a substantial structure, but must take into consideration constructability and available ventilation.

The following discrete steps are anticipated as part of this Plan to provide the permanent (final) closure of Panel 6 (some activities will be performed in parallel):

- Submit the final closure design for Panel 6 to the NMED for approval.
- Determine the roof stability and radiological conditions in Panel 6. This will influence the selection of PPE and limitations on work activity duration. Roof bolting and scaling will be performed as needed as a prerequisite for entry by work crews.
- Complete necessary work orders, safety basis documentation, and other work planning documents to authorize the work and define safe working conditions.
- Perform necessary maintenance activities on equipment that will be needed for placing the closures.
- Assess ventilation needs and reconfigure ventilation to assure adequate ventilation in compliance with applicable work standards.
- Order components for the final closure and work to be performed in the underground.
- Stage required components and materials in the underground.
- Install the final closure as approved by the NMED.

3.3 Paragraph 22, Section a) ii

The Order requests a schedule for the expedited closure of Panel 6. The schedule is presented in three broad categories: prerequisite actions, installation of initial closures in Panel 6, and installation of permanent closures in Panel 6. The schedules are based on the understanding of the current underground conditions and they will be updated as conditions are better understood.

3.3.1 Proposed Activity: Prerequisite Actions

These activities must be completed prior to initiating panel closure activities to ensure safety of personnel and in order to resume operating the equipment that is needed.

- Change out filters. Replace some or all of the filters in the filtration system during the duration of the activities under this order. This activity is required to ensure the filtration system operates at optimal efficiency.

- Perform underground radiological surveys to determine the extent of contamination. The surveys performed to date have been focused on re-entry needs for the purposes of investigations. This must be expanded to include areas where personnel will be working and to gain access to the required equipment.
- Establish underground habitability to meet applicable worker safety and health standards. Activities required for personnel hygiene and safety (e.g., portable toilets replacement, eyewash stations inspections, and fire suppression equipment inspections) must be completed to re-establish personnel habitability.
- Work packages, procedures, and health and safety plans require evaluation and updating to address current conditions, workability, adequacy and flow down of necessary manufacturers' recommendations, work in minimally ventilated areas and in potentially contaminated areas. Personnel training to these documents and activities will be required.
- Perform electrical equipment safety inspections and maintenance. Due to the underground fire, some electrical equipment may have carbon buildup. These inspections and maintenance activities may need to be completed for the required equipment in order to prevent the potential for electrical arcing.
- Perform maintenance, cleaning, and inspections on the salt haulage vehicles and scissor lifts to ensure safe operability.
- Complete corrective actions and/or implement compensatory measures for inadequacies noted in the fire protection and emergency management SMPs.
- Establish required ventilation. Minimum ventilation must be established pursuant to MSHA requirements in order to operate the salt haulage vehicles and other necessary equipment.
- Prepare, approve, and implement safety basis documentation.

These prerequisite activities are addressed in the schedule below. Durations are work days and are based on five-day work weeks, one entry per shift per day.

Prerequisite Actions for Panel 6 Closure

Activity	Duration
Moderate and high efficiency filter change out (if the HEPA filters require replacement, an additional 10 days is required)	20 days
Perform underground radiological surveys and decontaminate as needed	40 days
Establish underground habitability	20 days
Evaluate, update, prepare and train to work packages, procedures, and health and safety plans	20 days

Prerequisite Actions for Panel 6 Closure

Activity	Duration
Perform electrical equipment safety inspections and maintenance for required equipment	20 days
Perform vehicle inspections and maintenance	15 days
Delineate ventilation requirements and establish required ventilation	10 days
Prepare, approve, and implement safety basis documentation	75 days*
* This is for a consolidated safety basis document, however, activities will be addressed through other safety basis documentation (i.e., certain work may begin prior to completion of the consolidated safety basis document).	

3.3.2 Proposed Activity: Initial Panel 6 Closure Activities

The following activities have been identified for the initial closures for Panel 6:

- Remove volatile organic compound (VOC) and hydrogen/methane monitoring lines in S-2750.
- Erect bulkhead in S-2750.
- Anchor chain-link and brattice and place run-of-mine salt against waste in S-3080.
- Remove VOC and hydrogen/methane monitoring lines in S-3080.
- Erect bulkhead in S-3080.
- Install radiological monitors for entries to Panel 6.

Activities for Panel 6 Initial Closure

Activity	Duration
Remove VOC and hydrogen/methane monitoring lines in S-2750	1 day
Erect bulkhead in S-2750	7 days
Anchor chain-link and brattice and place run-of-mine salt against waste in S-3080	8 days
Remove VOC and hydrogen/methane monitoring lines in S-3080	1 day
Erect bulkhead in S-3080	7 days
Install radiological monitors for entries to Panel 6	5 days

3.3.3 Proposed Activity: Permanent Panel 6 Closure Activities

The following activities have been identified for the permanent closures for Panel 6:

- Select closure design and submit to NMED.
- NMED evaluation period.
- Install closure in Panel 6.
- Send notifications of final closure.

Activities for Panel 6 Permanent Closure

Activity (these activities are in series)	Duration
Select closure design and submit to NMED	90 days
NMED evaluation and approval period	60 days
Install closure in Panel 6	180 days
Send notifications of final closure	60 days

3.4 Paragraph 22, Section a) iii

The Order requires a detailed proposal for the expedited closure of Panel 7, Room 7, so that a potential release from any nitrate salt bearing waste containers in Panel 7, Room 7, does not pose a threat to human health or the environment.

3.4.1 Proposed Activity: Continue HEPA Filtration of Underground Exhaust Air

Description: The design of the WIPP facility incorporates HEPA filtration as the primary method of protecting human health and the environment in the event of a radiological release in the underground. The filtration system has been continuously operating since February 14, 2014. This mitigates the public exposure hazards associated with a potential release of nitrate bearing salts from waste containers in Room 7 of Panel 7 and provides continued protection to human health and the environment. The filtration system consists of two banks of filters that include roughing (mod) filters, high efficiency filters and two sets of HEPA filters. Due to buildup on the mod filters primarily, the Permittees are planning a filter change-out based upon the condition of each type of filter to ensure continued filtration. The system is continuously monitored and the Permittees plan to change-out filters as needed to ensure continued filtration. Filter change-out will be required periodically as particulates build up on the filter media. Filter change-out is performed in a manner that minimizes the risk of an airborne release from the facility. Two independent filter banks are in use. They will be changed out one at a time so that one bank continues to be available to filter any possible releases.

In the underground, the current operating practice is to provide workers with PPE sufficient to mitigate potential releases. This PPE includes breathing protection, anti-contamination clothing, and administrative controls for the duration of underground activities. Ultimately, protection from waste disposed in Panel 7 will be provided by the Room 7 closures described in the subsequent section.

The following discrete steps are planned to be performed as part of this Plan to provide the closure for Room 7 of Panel 7 (some activities may be performed in parallel):

- Complete entries into Panel 7 to determine the cause of the February 14, 2014, radiological event (closure of Panel 7 Room 7 is subject to release of the location by the DOE Accident Investigation Board). This is an ongoing investigation and results may require changes to the proposed closures and schedules described in this plan. The NMED will be notified of any required changes.
- Perform any additional assessments of the physical conditions along the route between the shafts and the entries to Panel 7. This includes ground inspection, equipment inspection and decontamination if needed, and radiological assessment. This activity is to provide work crews with safe access to work areas and equipment, assure safety equipment is in place, assure the stability of the underground, and assure the protection of work crews from exposure to radioactive contamination.
- Determine the roof stability and radiological conditions in Panel 7. This will influence the selection of PPE and limitations on work activity duration. Roof bolting will be performed as needed as a prerequisite for entry by work crews.
- Complete necessary work orders, safety basis documentation, and work planning documents to authorize the work and define safe working conditions
- Implement compensatory measures and interim actions for fire protection and emergency management SMPs.
- Conduct drills, training, and mock-ups.
- Perform necessary maintenance activities on equipment that will be needed for placing the closures.
- Assess ventilation needs and reconfigure ventilation to ensure adequate ventilation in compliance with applicable work standards.
- Prestage needed materials in the underground.
- Prepare and move equipment contaminated by the radiological release event that cannot be decontaminated nor operated safely in a contaminated condition into Panel 7, Room 7 for disposal. This disposal is allowed under the provisions of the RCRA Contingency Plan, Permit Part D, Section D-4d(6).
- Prepare bulkhead locations (e.g., remove loose material, terminate air monitoring tubing inside bulkhead location and remove tubes in bulkhead area, apply fixatives or other decontamination methods to deal with radiological conditions).

- Install a steel bulkhead in S-2520 between Panel 7, Room7 and Panel 7, Room 6.
- Seal the slider in the bulkhead ventilation regulator in Panel 7, Room 7 in S-2180.
- Install a steel bulkhead in S-2180 between Panel 7, Room7 and Panel 7, Room 6.
- Add new bulkheads to the monthly inspection schedule (for as long as they are accessible).
- Install radiological monitoring equipment and assure access is restricted.

3.5 Paragraph 22, Section a) iv

The Order requests a schedule for expedited closure of Panel 7, Room 7, that takes into account all factors related to the ongoing recovery efforts being undertaken at WIPP and that will be implemented following completion of the investigation in the underground related to the cause of the radiological release in Panel 7, Room 7. The schedule is presented in two broad categories: prerequisite actions, and closure of Panel 7, Room 7.

3.5.1 Proposed Activity: Prerequisite Actions

These actions must be completed prior to initiating closure activities to ensure safety of personnel and in order to resume operating the equipment that is needed. Installation of initial closures in Panel 6 must be completed prior to starting the physical work in Panel 7 due to ventilation constraints.

- Change out filters. The filter change-out is scheduled for early June. This has been a planned activity and is required in order to ensure the filtration system operates at optimal efficiency.
- Perform underground radiological surveys to determine the extent of contamination. The surveys performed to date have been focused on re-entry needs for the purposes of investigations. This must be expanded to include areas where personnel will be working and to gain access to the required equipment. (The assumption is that decontamination activities will be the minimal amount needed to support bulkhead installation for Room 7 closure.)
- Establish underground habitability for activity in Panel 7 to meet applicable worker safety and health standards. Activities required for personnel hygiene and safety (e.g., eyewash stations inspections and fire suppression equipment inspections) must be performed to re-establish personnel habitability.
- Work packages, procedures, and health and safety plans require evaluation and updating to address current conditions, workability, adequacy and flow down of necessary manufacturers' recommendations, work in minimally ventilated areas

and in potentially contaminated areas. Personnel training to these documents and activities will be required.

- Perform electrical equipment safety inspections and maintenance. Due to the underground fire, some electrical equipment may have carbon buildup. These inspections may need to be completed for the required equipment in order to prevent electrical arcing.
- Prepare an area in Panel 7 in order to conduct maintenance activities on contaminated equipment.
- Conduct maintenance on forklifts and scissor lifts to ensure safe operability.
- Establish required ventilation. Minimum ventilation must be established pursuant to MSHA requirements in order to operate the salt haulage vehicles and other necessary equipment.
- Prepare, approve, and implement safety basis documentation.
- Build bulkheads.
- Re-establish the waste conveyance hoist operability to transport bulkheads to the underground. The waist hoist equipment is currently undergoing cleaning (to remove soot from the February 5, 2014, fire) and inspections to ensure operability. This does not include vendor work as part of the recovery schedule.
- Complete underground investigations of the radiological release event in Panel 7, Room 7. At least one breached container has been identified. Ongoing investigations are underway to determine if other containers have been breached.

These prerequisite activities are addressed in the schedule below.

Prerequisite Activities for Panel 7 Room 7 Closure

Activity	Duration
Moderate and high efficiency filter change-out (if the HEPA filters require replacement, an additional 10 days is required)	20 days
Perform underground radiation surveys and decontaminate as needed	60 days
Establish underground habitability	20 days
Evaluate, update, prepare and train to work packages, procedures, and health and safety plans	20 days
Perform electrical equipment safety inspections and maintenance for the required equipment	20 days
Perform vehicle inspections and maintenance	20 days
Delineate ventilation requirements and establish required ventilation	10 days

Prerequisite Activities for Panel 7 Room 7 Closure

Activity	Duration
Prepare, approve, implement safety basis documentation	10 days
Establish waste conveyance hoist operability	40 days
Fabricate new bulkheads	10 days
Complete underground investigations	Ongoing

3.5.2 Proposed Activity: Panel 7, Room 7 Closure Activities

The following activities have been identified for the closures of Panel 7, Room 7:

- Identify contaminated equipment to be disposed of in Room 7 of Panel 7.
- Prepare and move contaminated equipment into Room 7 of Panel 7.
- Remove monitoring lines to Room 7.
- Drop and anchor brattice cloth and chain link in S-2520.
- Erect bulkhead in S-2520.
- Seal sliders on bulkhead in S-2180.
- Erect bulkhead in S-2180.

Panel 7, Room 7 Closure Activities

Activity	Duration
Identify contaminated equipment to be disposed of in Room 7 of Panel 7	14 days
Prepare and move contaminated equipment into Room 7 of Panel 7	20 days
Remove monitoring lines to Room 7	1 day
Drop and anchor brattice and chain link in S-2520	3 days
Erect bulkhead in S-2520	7 days
Seal sliders on bulkhead in S-2180	1 day
Erect bulkhead in S-2180	7 days

3.6 Paragraph 22, Section a) v

The Order requests a description of how the volumetric flow rate is protective of human health and the environment, and a description of how volumetric flow rate will be achieved while the WIPP Nitrate Salt Bearing Waste Container Isolation Plan is implemented.

The design of the WIPP facility incorporates HEPA filtration as the primary method of protecting human health and the environment in the event of a radiological release in the underground. Ventilation air passes through and by waste disposal areas and is circulated through filtration units, thus assuring that air follows the ventilation pathway and not into other portions of the mine or to the surface unfiltered. The filtration system has been operating since February 14, 2014. This mitigates the public exposure hazards associated with a potential release of radioactive contaminants from waste containers in Panel 6 and provides continued protection to human health and the environment.

Ventilation of the underground facility at WIPP is accomplished with four main ventilation paths having a common exhaust. One flow path supports the underground mining activities, a second path supports the north area activities, and a third path supports activities in the disposal panels. The fourth path provides ventilation in the waste handling station. The mining and waste disposal circuits share a common exhaust downstream of the active disposal area. This concept results in a design where waste disposal areas are separated from the mining and experimental area. The underground ventilation configuration is designed such that air leakage is from the mining and north areas into the waste disposal area. Bulkheads and their associated doors and flow regulators are used throughout the underground facility to direct the underground air flow as required. Pressure differentials are maintained between flow paths to ensure that air leakage is always from areas of lower to higher contamination potential.

Protection of human health and the environment is accomplished by continuing to operate the ventilation fans in order maintain underground airflow through the surface filter system. Air flow through the Air Intake, Waste, and Salt Handling Shafts will be maintained to allow down casting. The alignment of the underground bulkheads will be configured to provide adequate ventilation flows to select work areas and direct the flow to the exhaust path. The basic criteria is to maintain the Waste Handling Tower differential pressure negative (from the Waste Shaft Station towards the E-300 drift); keep the differential pressure negative across the bulkheads located between the mining circuit and the waste handling circuit (from mining to waste handling); and maintain the exhaust flow direction from the disposal panels to the E-300 exhaust drift and subsequently up the Exhaust Shaft through the filter bank.

The underground is currently operating in filtration mode, which means that only approximately 60,000 cfm of air is being circulated through the underground. The priority use for this air is mentioned above. In order to perform work in the underground, areas will have to be adequately ventilated. Adequate ventilation is as defined in the regulations promulgated by MSHA (30 CFR 57 Subpart G) to protect underground workers and is related to the type and number of internal combustion engines being used for work activities. Sufficient air will have to be diverted, using currently installed bulkheads, curtains, and ducting to assure workers are protected when performing work. Air requirements for each piece of equipment that will be used for implementing the Order are listed below.

Ventilation Requirements for Mining Equipment to be Used for Closure of Panel 6 and Panel 7, Room 7

Equipment	MSHA air requirements (cfm)	Use	Where needed	Duration
Roof bolter	6,500	Install roof bolts	Main access and cross drifts, Panel 6 entries, Panel 7 entries and Room 7	Intermittent as needed
Scissor lift	2,500	Install bulkheads	Panel 6 entries, Panel 7 Room 7	Intermittent during bulkhead installation
Fork lift	6,500	Move, erect bulkheads	Panel 6 entries, Panel 7 Room 7	Intermittent
Load-Haul-Dump loader	7,500	Transport salt backfill	Panel 6 S3080 entry	Intermittent
Haul truck	7,500	Transport salt backfill	Panel 6 S3080 entry	Intermittent

Installing the initial Panel 6 closure and the Panel 7, Room 7 closure can be performed with the existing ventilation configuration on the surface (i.e., filtration mode with one 60,000 cfm fan). The permanent closure for Panel 6 will require modification of these ventilation requirements for the run-of-mine salt component of the closure. The revision to the ventilation requirements will be provided with the final design of the permanent Panel 6 closure. Providing this increased ventilation is part of the WIPP recovery schedule, which is currently being developed. Use of the diesel equipment may accelerate particulate loading on the underground filtration system resulting in additional filter change-outs and potentially impacting the schedules.

3.7 Paragraph 23

The Order requests that the Permittees provide daily updates on the implementation of the WIPP Nitrate Salt Bearing Waste Container Isolation Plan during prescheduled technical calls with NMED, and that such updates are memorialized in daily written submissions to NMED until NMED indicates otherwise. The Permittees suggest scheduling these calls for 3:00 p.m. daily except for weekends and holidays.

3.8 Paragraph 24

The Order requires the Permittees to post submissions to NMED related to this Order in the Information Repository within five working days of submission to NMED. The Permittees will create a folder in the information repository specifically for these submissions.