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

NOV 2 9 2017

Mr. John E. Kieling, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Permit Modification Requests for the Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Number NM4890139088-TSDF

Dear Mr. Kieling:

Enclosed please find the following Class 2 Permit Modification Requests:

- Training Program Revisions
- Changes Due to Construction and Operation of a New Filter Building

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision according to 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,

Signatures on File

Todd Shrader, Manager
Carlsbad Field Office

Bruce C. Covert, Project Manager
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure
R. Maestas, NMED *ED
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CBFO:OEP:GTB:AC:17-1090:UFC 5487.00

Class 2 Permit Modification Request

Training Program Revision

and

Changes Due to Construction and Operation of a New Filter Building

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP Permit Number - NM4890139088-TSDF

November 2017

Item 1

Class 2 Permit Modification Request

Training Program Revision

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP Permit Number - NM4890139088-TSDF

November 2017

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
CH	contact-handled
DOE	U.S. Department of Energy
FIRST	Facility Inspection, Repair, and Service Team
GET	General Employee Training
HWDU	Hazardous Waste Disposal Unit
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NWP	Nuclear Waste Partnership LLC
Permit	Waste Isolation Pilot Plant Hazardous Waste Facility Permit
PMR	Permit Modification Request
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
SAT	Systematic Approach to Training
TRU	transuranic
TSDF	Treatment, Storage, and Disposal Facility
WIPP	Waste Isolation Pilot Plant
WWIS	WIPP Waste Information System

Overview of the Permit Modification Request

This document contains a Class 2 Permit Modification Request (**PMR**) for the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit (**Permit**) Number NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Nuclear Waste Partnership LLC (**NWP**), collectively referred to as the Permittees, in accordance with the Permit Part 1, Section 1.3.1. (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating Title 40 Code of Federal Regulations (**CFR**) §270.42). The modification provides for the following changes:

- Revise the training program for WIPP facility personnel required by Permit Part 2.8, *Personnel Training,* to be consistent with the applicable requirements of the Resource Conservation and Recovery Act (**RCRA**) regulations and other hazardous waste facility permits throughout the state of New Mexico.

- Update the description of the WIPP facility personnel training program.

- Move details associated with training requirements from the Permit to the WIPP facility files pursuant to 20.4.500 NMAC (incorporating 40 CFR §264.16(d)).

- Move transuranic (**TRU**) Waste Confirmation program related training descriptions from the current Permit Attachments F1 and F2 to Permit Attachment C7, *TRU Waste Confirmation.* This is to address the training of non-facility personnel who perform TRU mixed waste screening and verification, thereby ensuring the continued compliance with the requirements of the WIPP *Waste Analysis Plan*.

- Address training for the WIPP Waste Information System (**WWIS**) Data Administrator in Permit Attachment C, *Waste Analysis Plan*, Section C-5a(1), *WWIS Description,* to ensure the training for the WWIS Data Administrator is aligned with the requirements of the *Waste Analysis Plan*.

- Revise Permit Attachment E, Table E-1, *Inspection Schedule/Procedures*, and Table E-1a, *RH TRU Mixed Waste Inspection Schedule/Procedures,* to remove the identification of personnel job titles performing the specified inspections. This will align the WIPP Permit with 40 CFR §264.15 and other RCRA Permits in New Mexico and minimize the administrative burden associated with maintaining the list current in the Permit. This level of detail can be effectively maintained up-to-date in WIPP facility files.

These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment. These changes are specific to WIPP facility personnel and are not meant to impact the training required by the WIPP *Waste Analysis Plan* in Permit Attachments C through C7.

The requested modification to the Permit and related supporting documents are provided in this PMR. The proposed modification to the text of the Permit has been identified using red text and a double underline and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with Permit Part 1, Section 1.3.1. for submission of this Class 2 PMR.

1. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the Permit.

This PMR proposes to revise the personnel training program required by Permit Part 2, Section 2.8, *Personnel Training,* and described in Permit Attachments F, F1, and F2. This PMR proposes to move the detailed hazardous waste management and emergency response job position titles and descriptions, currently in Permit Attachment F1, and the detail associated with training course and qualification card outlines, currently in Permit Attachment F2, from the Permit to the WIPP facility files in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)). The contents of a Part B Permit Application, at 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(12)) requires an applicant to provide descriptive information regarding the facility training program and its implementation. However, the regulations do not mandate this detailed information be included in hazardous waste facility permits. Instead, 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)) requires the training program information be maintained at the facility. In addition, updates and changes are being proposed to more closely align the training program with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.16). The proposed changes are described below.

The 20.4.1.500 NMAC (incorporating 40 CFR §264.16) regulations specify that personnel working in hazardous waste management positions be trained to perform their duties in a way that ensures the facility's compliance with the requirements of 40 CFR Part 264, *Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*. The program to accomplish this training must be written and must be maintained at the facility. In addition, the Permittees are required to maintain a job title for each position related to hazardous waste management, the name of the individual that fills the position, a written job description for each position, a written description of the type and amount of training that will be given to each individual, and records of the training. Minimum training requirements are specified in the regulations and are to be captured in the training program.

To facilitate identification of changes to Permit-required training course titles and content, changes to the training course materials, which will be maintained in the WIPP facility files, will have revision numbers and a change history summary. This detailed course material will be available for New Mexico Environment Department (**NMED**) inspection upon request to ensure the course material is consistent with the course content described in Table F-2 of the proposed revision to Permit Attachment F.

In order to more closely align the training program with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.16), the following changes are proposed to the Permit text:

- Revise Permit Part 2, Section 2.8.1., *Personnel Training Content,* to change the title of Permit Attachment F from *Personnel Training* to *Facility Personnel Permit Training Program* and delete the reference to Permit Attachment F2.

- Revise Permit Part 2, Section 2.8.2., *Personnel Training Requirements,* to change "mixed and hazardous waste" to "TRU mixed waste" and change the reference from "Permit Attachment F1 (RCRA Hazardous Waste Management Job Titles and Descriptions)" to "Permit Attachment F (*Facility Personnel Permit Training Program*)."

- Revise Permit Part 2, Section 2.10.6., *Live Fire Extinguisher Training,* to remove the references to Permit Attachment F2 and SAF-501.

- Revise Permit Part 2, *Permit Attachments,* to delete the references to Permit Attachments F1 and F2.

- Revise text in Permit Attachment C, Section C-5a(1), *WWIS Description*, to indicate that training for the WWIS Data Administrator job position is in accordance with the WWIS Retrieval Characterization Transportation Data Administrator Task Card, which is kept on file at the WIPP facility.

- Revise text in Permit Attachment C7, Section C7-1b(1), *Radiography Training*, Section C7-1c(1), *Visual Examination Training*, and Section C7-1d(2), *Visual Examination QAOs,* to incorporate TRU waste confirmation personnel training requirements necessary for the Permittees to perform TRU mixed waste confirmation as defined in Permit Part 1, Section 1.5.12., *Waste Confirmation*.

- Update text in Permit Attachment D, Section D-2a, *Emergency Response Personnel,* and Section D-2b, *Emergency Response Training,* to change the title of Permit Attachment F, remove references to Permit Attachments F1 and F2, and remove the statement pertaining to no specific RCRA training being required for the Facility Shift Manager.

- Revise Permit Attachment E, Table E-1, *Inspection Schedule/Procedures*, and Table E-1a, *RH TRU Mixed Waste Inspection Schedule/Procedures,* to remove the following:

  - "Job Title of Personnel Normally Making Inspection" from the column headings entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection."

  - *Inspection schedule/procedures* lists at the end of each table and remove references to the lists from the columns entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection."

  - Footnote at the end of Table E-1 that states, "Positions are not considered RCRA positions (i.e., personnel do not manage or respond to emergencies involving TRU mixed waste)."

- Revise the title of Permit Attachment F from *Personnel Training* to *Facility Personnel Permit Training Program*.

- Add two new tables to Permit Attachment F: Table F-1, *TRU Mixed Waste Management and Emergency Response Job Titles and Descriptions*, and Table F-2, *Permit-Required Training Courses*.

- Revise Permit Attachment F, Section F-1*,* to change the title from *Outline of the Training Program* to *Outline of the Facility Personnel Permit Training Program* and describe the following:

  - Detail regarding the Systematic Approach to Training (**SAT**) is referenced to the *WIPP Training Program* (WP 14-TR.01).

  - Detailed job titles, written position descriptions, and the names of the employees filling each TRU mixed waste management or emergency response job position

will be kept on file at the WIPP facility and will be made available to the NMED for inspection upon request.

- The written description of the type and amount of both introductory and continuing training that will be given to each person filling the positions related to TRU mixed waste management or emergency response (e.g., qualification cards) will be kept on file at the facility and will be made available to the NMED for inspection upon request.

- Personnel involved in the management of site-generated hazardous waste (i.e., non-mixed hazardous waste) are required to be trained per 20.4.1.300 NMAC (incorporating 40 CFR Part 262); however, this non-Permit required training is addressed outside the scope of the *Facility Personnel Permit Training Program*.

- Detailed course material for Permit-required training will be kept on file at the WIPP facility. The change control process for Permit-required training course material and availability of this information for NMED inspection upon request will also be described.

- Remove extraneous detail and make updates and editorial changes to Permit Attachment F, *Facility Personnel Permit Training Program,* throughout.

- Delete Permit Attachment F1, *RCRA Hazardous Waste Management and Emergency Response Job Titles and Descriptions*.

- Delete Permit Attachment F2, *Training Course and Qualification Card Outlines*.

As required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16(d)), ancillary information such as specific job titles, job descriptions, training records, job qualifications, course details, and qualification card information must be maintained on file at the facility. However, it is not required that these items be a part of a hazardous waste facility permit. The Permittees propose that these required records be maintained in WIPP facility files in either electronic or hard copy format. This information will be available to the NMED upon request for review and inspection.

Pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(12)), the *Facility Personnel Permit Training Program* is required to include the following:

> *An outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the HWM [hazardous waste management] facility in a safe manner as required to demonstrate compliance with §264.16. A brief description of how training will be designed to meet actual job tasks in accordance with requirements in §264.16(a)(3).*

The regulations at 40 CFR §264.16(a)(3) state:

> *At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, where applicable:*

(i) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

(ii) Key parameters for automatic waste feed cut-off systems;

(iii) Communications or alarm systems;

(iv) Response to fires or explosions;

(v) Response to ground-water contamination incidents; and

(vi) Shutdown of operations.

Facility personnel are defined in 20.4.1.100 NMAC (incorporating 40 CFR §260.10) as *all persons who work at, or oversee the operations of, a hazardous waste facility, and whose actions or failure to act may result in a noncompliance with the requirements of part 264 or 265 of this chapter*.

Additionally, Permit Part 1, Section 1.5.3. identifies that *"Facility" or "permitted facility" means the Waste Isolation Pilot Plant (WIPP) owned by the DOE and located approximately twenty six (26) miles east of Carlsbad, New Mexico, EPA I.D. Number NM4890139088. The WIPP facility comprises the entire complex within the WIPP Site Boundary as specified in the WIPP Land Withdrawal Act of 1992, Pub. L. 102-579 (1992), including all contiguous land, and structures, other appurtenances, and improvements on the Permittees' land, used for management, storage, or disposal of TRU mixed waste*.

The Permittees propose to include the general job titles and descriptions listed below in Table 1 to the *Facility Personnel Permit Training Program* (Permit Attachment F, Table F-1), under which current specific job titles would be consolidated:

Table 1. TRU Mixed Waste Management and Emergency Response Job Titles and Descriptions

JOB TITLE	POSITION DESCRIPTION
TRU Mixed Waste Worker	Responsible for or involved in the surface processing, transport, and underground emplacement of contact-handled (CH) and remote-handled (RH) transuranic (TRU) mixed waste. May come into contact with TRU mixed waste while carrying out job duties, actions or failure to act could result in a spill or release of TRU mixed waste at the WIPP facility, and job is important for operating the facility safely and in compliance with the hazardous waste regulations. Depending upon the TRU Mixed Waste Worker's specific job position, this may involve one or more of the following: • Operating waste handling equipment and support systems to unload, handle, and emplace TRU mixed waste into the repository • Performing TRU mixed waste or TRU mixed waste constituent spot decontamination of shipping casks, waste containers, and waste handling equipment • Performing waste container overpacking operations • Conducting routine inspections of incoming shipping containers for TRU mixed waste or TRU mixed waste constituent contamination and damage • Conducting routine TRU mixed waste contamination surveys during waste handling activities • Operating the Waste Shaft Hoist

JOB TITLE	POSITION DESCRIPTION
	• Loading and unloading of the Waste Shaft Conveyance above and below ground • Managing and dispositioning of waste derived from releases of TRU mixed waste or TRU mixed waste constituents • Cleaning and restoring emergency response equipment after a release of TRU mixed waste or TRU mixed waste constituents and prior to resumption of normal operations
TRU Mixed Waste Worker Supervisor	Supervisors of TRU Mixed Waste Workers are directly responsible for day-to-day operations related to TRU mixed waste. Depending upon the TRU Mixed Waste Worker Supervisor's specific job position, job duties may involve one or more of the following: • Overseeing TRU mixed waste management activities performed by TRU Mixed Waste Workers • Coordinating and directing the daily operation and maintenance of the Waste Shaft Hoist and Waste Shaft for managing TRU mixed waste
Emergency Responder	Emergency Responders provide expertise and support to the Incident Command. Depending upon the Emergency Responder's specific job position, job duties may involve one or more of the following: • Responding to fires, explosions, or emergencies involving releases of TRU mixed waste or TRU mixed waste constituents • Performing technical rescue operations • Performing emergency medical response • Operating emergency vehicles and equipment • Establishing conditions at the incident scene • Managing incident operations, personnel, and resources • Ensuring that fires, explosions, and releases of TRU mixed waste do not occur, recur, or spread to other hazardous waste at the facility by stopping processes and operations, collecting and containing released TRU mixed waste, and removing or isolating containers, as applicable • Performing TRU mixed waste or TRU mixed waste constituent decontamination of contaminated personnel and providing oversight to emergency medical response personnel, if injured person is contaminated • Conducting TRU mixed waste contamination inspections, establishing TRU mixed waste or TRU mixed waste constituent contamination zones, and performing decontamination following a release of TRU mixed waste or TRU mixed waste constituents • Overpacking or plugging/patching of waste containers associated with release of TRU mixed waste or TRU mixed waste constituents • Performing containerization of released TRU mixed waste or TRU mixed waste constituents • Terminating field emergency response
Emergency Coordinator	In the event of a fire, explosion, release of TRU mixed waste or TRU mixed waste constituents that could threaten human health or the environment, the Emergency Coordinator is responsible for carrying out the implementation of the *RCRA Contingency Plan*. Emergency Coordinators ensure emergency responders have current and specific information to properly address the incident and minimize hazards to human health and the environment. Emergency Coordinators implement measures and procedures to ensure the safety of personnel, such as ensuring that alarms have been activated, personnel have been accounted for, and evacuation of personnel has occurred, if necessary. Upon implementation of the *RCRA Contingency Plan*, depending upon the Emergency Coordinator's specific job position, the job duties may involve one or more of the following: • Providing notification to emergency response personnel

JOB TITLE	POSITION DESCRIPTION
	• Ensuring that alarms have been activated, personnel have been accounted for, any injuries have been attended to, and evacuation of personnel has occurred, if necessary • Restricting personnel not needed for response activities from the scene of the incident and curtailing nonessential activities in the area • Identifying released material and assessing the extent of the emergency • Assessing any hazards to human health or the environment associated with a fire, explosion, or release of TRU mixed waste or TRU mixed waste constituents • Notifying appropriate State or local agencies with designated response roles if their help is needed • Ensuring that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility by taking measures such as stopping processes and operations, collecting and containing released waste, and removing or isolating containers • Documenting the implementation of the *RCRA Contingency Plan* • Ensuring immediate notification to the New Mexico Environment Department is provided for incidents requiring implementation of the *RCRA Contingency Plan* • Making post-assessment notifications if it has been determined that the incident could threaten human health or the environment outside the facility • Providing for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility • Ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed • Ensuring that emergency equipment listed in the *RCRA Contingency Plan* is cleaned and fit for its intended use before operations are resumed
Inspector	Responsible for routine inspection and maintenance (including repairing and replacement, as appropriate) of equipment instrumental in preventing, detecting, or responding to environmental or human health hazards, such as monitoring equipment, safety and emergency equipment, and operating or structural equipment. Inspections are performed at the facility to detect malfunctions, deterioration, operator errors, and discharges that may cause or lead to releases of TRU mixed waste or TRU mixed waste constituents to the environment or that could be a threat to human health. Depending on the Inspector's specific job position, job duties may involve one or more of the following: • Performing functional and operational checks of waste handling equipment and support systems as well as conducting waste container storage inspections • Conducting routine inspections of emergency response equipment and vehicles on site • Performing routine inspections of the hoisting equipment for the Air Intake Shaft, Salt Handling Shaft, and Waste Shaft • Conducting routine inspections and testing of facility fire suppression and detection systems • Inspecting and testing of communication systems, site notification system, the public address system, and alarm systems for proper function • Performing routine inspections of the backup power supply diesel generators • Performing routine inspections of the eye wash and shower equipment • Performing routine inspections of the underground geomechanical instrumentation system • Performing routine inspections of the central uninterruptible power supply • Performing routine inspections of the fire water storage tank • Performing routine inspections of the ventilation exhaust fans

JOB TITLE	POSITION DESCRIPTION
RCRA Training Director	Responsible for directing the hazardous waste management training at the WIPP facility. To meet the 20.4.1.500 NMAC (incorporating 40 CFR §264.16(a)(3)) requirements, the RCRA Training Director must be a person trained in hazardous waste management procedures.

Job titles and descriptions provided in the revision to Permit Attachment F do not encompass personnel who manage site-generated (non-TRU mixed) hazardous waste under 20.4.1.300 NMAC (incorporating 40 CFR Part 262); the training of these personnel, although required under RCRA for large quantity generators of hazardous waste, is not required to be included in the scope of the *Facility Personnel Permit Training Program*. The method for developing these general job position titles and the rationale for inclusion/exclusion of the job titles within these categories is described in Section 3. Based upon the screening criteria described in Section 3, the job titles below are proposed to be consolidated within the proposed general job titles. Those job titles without an "*" are addressed in the current Permit Attachment F1. Job titles denoted with an "*" were not addressed in the current Permit Attachment F1, but the screening evaluation identified they should be included in the *Facility Personnel Permit Training Program*.

- TRU Mixed Waste Worker

  CH Waste Handling Engineer*
  Facility Operations Shift Engineer*
  Facility Shift Manager*
  Manager, Radiation Control
  Manager, Waste Handling
  Radiological Control Technician
  RH Waste Handling Engineer*
  TRU Mixed Waste Handler
  Waste Hoist Operator
  Waste Hoist Shaft Tender
  Waste Hoisting Manager

- TRU Mixed Waste Worker Supervisor

  CH Waste Handling Engineer*
  Manager, Radiation Control
  Manager, Waste Handling
  RH Waste Handling Engineer*
  Waste Hoisting Manager

- Inspector

  Air Intake Shaft Hoist Operator*
  Air Intake Shaft Hoist Tender*
  Air Intake Shaft Hoisting Manager*
  Central Monitoring Room Operator
  CH Waste Handling Engineer*
  Environmental Compliance Representative*
  Facility Operations Shift Engineer*
  Facility Shift Manager*
  Fire Protection Engineer*

Fire System Technician*
Firefighter
Geotechnical Engineer*
Geotechnical Engineer Technician*
Industrial Hygiene Technician*
Instrumentation & Control Technician*
Manager, Waste Handling
Mine Rescue Team Member
RH Waste Handling Engineer*
Salt Handling Shaft Hoist Operator*
Salt Handling Shaft Hoist Tender*
Salt Handling Shaft Hoisting Manager*
Surface Roving Watch*
TRU Mixed Waste Handler
Underground Controller*
Underground Facility Engineer*
Underground Roving Watch*
Waste Hoist Operator
Waste Hoist Shaft Tender
Waste Hoisting Manager

- RCRA Training Director

  Manager, Technical Training

- Emergency Responder

  CH Waste Handling Engineer*
  Emergency Response Team
  Fire Department Incident Commander
  Firefighter
  Radiological Control Technician
  RCRA Emergency Coordinator
  RH Waste Handling Engineer*
  TRU Mixed Waste Handler

- Emergency Coordinator

  Central Monitoring Room Operator
  Facility Operations Shift Engineer*
  Facility Shift Manager*
  RCRA Emergency Coordinator

The Permittees are proposing removal of several job titles and descriptions from the Permit which, based on the screening criteria described in Section 3, do not fall under the general job titles listed above. The job titles listed below do not have TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. In some cases, these job titles no longer exist and their job duties were absorbed by other job positions. In other cases, the job titles and their training requirements are being relocated to other Permit

attachments as appropriate. Additional details concerning these job titles are provided in Section 3.

- DOE Management Representative
- Facility Inspection, Repair, and Service Team (FIRST)
- Facility Inspection, Repair, and Service Team (FIRST) Leader
- Fire Protection Technician
- Hazardous Waste Worker
- Manager, Environmental Compliance
- Manager, Transportation Operations
- Quality Assurance Technician
- Radiographer Level 1 (Radiography Independent Technical Reviewer)
- Radiographer Level 2 (Radiography Independent Technical Reviewer)
- Sampling Team Assistant
- Sampling Team Member
- Site-Generated Waste Handlers
- Team Leader, Inspection Services
- Technical Trainer
- Transportation Engineer
- Underground Hazardous Waste Worker
- Visual Examination Operator/Expert Level 1 (VE Independent Technical Reviewer)
- Visual Examination Operator/Expert Level 2 (VE Independent Technical Reviewer)
- WWIS Data Administrator

The proposed Permit-required training course descriptions are provided in Table F-2 of the proposed revision to Permit Attachment F. These training courses are as follows:

- General Employee Training and Annual Refresher (current GET-21X/21XA)
- RCRA Regulations/Hazardous Waste Facility Permit Overview and Annual Refresher
- RCRA Contingency Plan and Annual Refresher (current SAF-645)
- Permit Inspections/Recordkeeping and Annual Refresher
- Hazardous Waste Worker and Annual Refresher (current HWW-101/102)
- Hazardous Waste Worker Supervisor and Annual Refresher (current HWS-101/101A)
- Hazardous Waste Responder and Annual Refresher (current HWR-101/101R)

The Permittees are proposing to refer to these training courses by title only and not course number (e.g., General Employee Training, not GET-21X). The RCRA Regulations/Hazardous Waste Facility Permit Overview and Permit Inspections/Recordkeeping courses are newly-developed courses designed to enhance the training of employees who are considered TRU mixed waste management personnel, emergency response personnel, and/or conduct Permit-required inspections. Additional emergency response training for those job titles with emergency response responsibilities when the *RCRA Contingency Plan* is implemented is identified in Section D-2, *Emergency Response Personnel and Training,* of Permit Attachment D, *RCRA Contingency Plan*.

By deleting Permit Attachments F1 and F2 and adding Tables F-1 and F-2 to Permit Attachment F, the following training courses, references, and descriptions are being removed from the *Facility Personnel Permit Training Program.*

- Classroom Instructor – Level II (TRG-300)
- Compressed Gas Cylinder Safety (SAF-619)
- Conduct of Shift Operations (OPS-115)
- DOT Emergency Response Information (HMT-104)
- Electrical Safety (ELC 103)
- First Aid and CPR (MED-101/101A)
- Forklift Safety (EQP 402)
- Hazardous Materials and Waste Transportation (HMT-102)
- Heated Environment/Confined Space (SAF-515/515A)
- Incidental Rigger (RIG-001)
- Inexperienced Miner Training (SAF-501/502)
- Initial Mine Rescue (EOC-101)
- Live Fire Extinguisher Training (SAF-502F/SAF-502FR)
- Radiography Training (Level 1)
- Radiography Training (Level 2)
- Visual Examination (Level 1)
- Visual Examination (Level 2)
- Radiological Control Technician Fundamental Academic Lessons
- Radiological Control Technician Site-specific Academic Lessons
- Radiological Worker I (RAD-101)
- Radiological Worker II (RAD-201)
- Respiratory Protection (SAF-630/631)
- Subject Matter Expert/On the Job Trainer (TRG-293/298)
- Technical Safety Requirements (OPS 122)
- Waste Handling Systems (STC-003/STC-015)

Training for these courses falls under the responsibility of the DOE. Consequently, DOE Orders, Standards, and/or Directives or Federal regulations other than 40 CFR Part 264 establish training requirements that the DOE imposes on the personnel who must take these courses; therefore, they are considered non-RCRA training courses which are not subject to the requirements of the *Facility Personnel Permit Training Program*. For example, DOE-STD-1090-2011, *Hoisting and Rigging,* specifies that personnel (e.g., crane operators, forklift operators, riggers, etc.) involved shall complete training for the equipment type and/or assigned function. This DOE Standard also requires each site to develop a requalification program for hoisting and rigging personnel.

Additionally, the qualification card descriptions currently provided in Permit Attachment F2 are being moved to the WIPP facility files. Only those qualification cards that are associated with specific TRU mixed waste management and emergency response job positions will be subject to the requirements of the *Facility Personnel Permit Training Program*; those qualification cards, which will constitute the written description of the type and amount of training given to an employee, will be made available for NMED inspection upon request. It is important to note that, with respect to the non-Permit training courses listed above, these courses may appear on a TRU mixed waste management or emergency response position's qualification card or be documented in an organizational training plan (e.g., Firefighters are required to take SAF-

501/502, *Inexperienced Miner Training*). However, those particular training requirements will continue to be driven by other regulations, standards, or codes, such as those promulgated by the Mine Safety and Health Administration (**MSHA**), those included in DOE Orders, and those issued by the National Fire Protection Association (**NFPA**), which in many cases complement the training requirements of the RCRA regulations. Therefore, the content of this externally-mandated course material will not be controlled in the same manner previously described for the Permit-required training courses.

The qualification card descriptions currently listed in Permit Attachment F2 for radiography and visual examination training are being moved to Permit Attachment C7, *TRU Waste Confirmation.* The rationale for the inclusion of these qualification card descriptions in Permit Attachment C7 is provided below in Section 3. Similarly, training for the WWIS Data Administrators is proposed to be moved to Permit Attachment C, *Waste Analysis Plan*, Section C-5a(1), *WWIS Description*.

Appendices A and B contain the proposed revised Permit text changes. Appendix A provides a detailed list of changes by Permit section and Appendix B provides the proposed redline/strikeout to the existing Permit language.

2. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(ii)) requires the applicant to identify that the modification is a Class 2 modification.

This PMR proposes to remove job titles, position descriptions, and training courses for WIPP facility personnel that are not related to TRU mixed waste management or emergency response from the scope of the *Facility Personnel Permit Training Program*. Additionally, specific job titles and written position descriptions are being proposed for removal from the Permit and maintained in the WIPP facility files. The detailed training course outlines for Permit-required courses are proposed for removal from the Permit and are replaced with summary-level training course descriptions. The detailed training course outlines and materials will be maintained in the WIPP facility files.

Additionally, this PMR proposes to remove specified job titles from the inspection schedules in Permit Attachment E, Tables E-1, *Inspection Schedule/Procedures*, and Table E-1a, *RH TRU Mixed Waste Inspection Schedule/Procedures*.

This PMR is classified as a Class 2 PMR pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, Item B.5.a, “Changes to the training plan…that affect the type or decrease the amount of training given to employees…2” and Item B.4, “Changes in frequency or content of inspection schedules…2”).

3. 20.4.1.900 NMAC (incorporating 40 CFR 270.42(b)(1)(iii)) requires the applicant to explain why the modification is needed.

This PMR is necessary to update the personnel training program (Permit Attachments F, F1, and F2) and to reduce detailed and overly prescriptive information in the Permit (e.g., job titles and descriptions, job qualifications, and written description of the type and amount of training) and move pertinent portions of this information to the WIPP facility files. The prescriptive information in the Permit is not required by the RCRA regulations. The Permittees propose to keep general job titles, job descriptions, training course titles, and training course descriptions for TRU mixed waste management and emergency response personnel within the Permit. This modification is necessary to enable the Permittees to easily maintain the WIPP facility training

curriculum current with applicable external regulations and standards (e.g., NFPA, MSHA, DOE Orders).

In 1999, when the Permit was issued, it included a training plan that had two features that are addressed by this PMR. First the interpretation of the phrase, “position at the facility related to hazardous waste management,” as specified in 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(1)), was interpreted very broadly to include many employees at the facility who never manage hazardous waste or TRU mixed waste in their day-to-day activities. Second, the detailed job titles and descriptions of the type and amount of training were incorporated into the Permit. Typically, these documents are kept on file at the facility and not actually placed in hazardous waste facility permits. These two items are addressed in this PMR in order to accomplish the following and to identify why this PMR is needed:

- Align the Permit training requirements more closely with the regulations of 20.4.1.500 NMAC (incorporating 40 CFR §264.16) in order to streamline the *Facility Personnel Permit Training Program*:
    - Focus on individuals and training courses which are pertinent to TRU mixed waste management and emergency response activities
    - Revise job titles and descriptions to more closely align with the RCRA regulations
    - Update the Permit to consolidate job titles and eliminate specified training for some of the job titles that are not directly related to TRU mixed waste management and/or emergency response
    - Maintain the detailed job titles and position descriptions, detailed course descriptions, and qualification card descriptions from Attachments F1 and F2 in the WIPP facility files so that job descriptions, training course updates, and administrative changes to the *Facility Personnel Permit Training Program* can be made in a timely manner, without having to process Permit modifications
    - Remove extraneous detail from Permit Attachment F and reference the *WIPP Training Program* and WIPP facility files as appropriate
- Update Permit Attachment F to ensure consistency with the SAT process described in the *WIPP Training Program*
- Move training requirements specific to the WIPP *Waste Analysis Plan* from Permit Attachments F1 and F2 to Permit Attachment C and Permit Attachment C7 to address training of non-facility personnel who perform TRU mixed waste screening and verification, thereby ensuring the continued compliance with the requirements of the WIPP *Waste Analysis Plan*
- Remove the identification of personnel job titles performing specified inspections from Permit Attachment E, Table E-1, *Inspection Schedule/Procedures*, to align the inspection schedule more closely with 20.4.1.500 NMAC (incorporating 40 CFR §264.15, *General Inspection Requirements*) and ensure consistency with personnel job titles described in the proposed revised Permit Attachment F

When the Permit Application was originally submitted in 1995, training information outside the scope of the RCRA regulations was submitted but not intended to become part of the final Permit. For example, the MSHA requires workers to have 40 hours of initial training to ensure they are aware of hazards associated with working in a mine. While the Permittees consider this information important for certain job positions described in the Permit, the training course duration and content is not driven by the RCRA regulations and may need to be changed if additional or different safety emphases are identified. Additionally, the training for Radiation Control Technicians and other similar job descriptions and courses dealing with radiation control are specified by DOE Orders and Standards and are outside the regulatory purview of the RCRA regulations. Therefore, this information is not required to be in the Permit. Additionally, subjecting the course content of this training to regulation by the Permit could result in delays in implementing training improvements if a Permit modification is first needed.

The *WIPP Training Program* establishes the roles, responsibilities, authorities, accountabilities, and processes necessary to ensure personnel working at the WIPP facility receive training to achieve the competence commensurate with their assigned jobs, duties, and tasks. This includes the processes used to develop, verify, and validate the technical content of training courses as well as the processes used to keep them current through feedback, periodic reviews, and continuous improvement.

Initial and continuing training is analyzed, designed, developed, implemented, and evaluated, using the following elements:

- Needs/job and task analysis
- Development of learning objectives based on analysis results
- Development of lesson plans, training guides, and examination materials
- Assessment of trainee mastery of learning objectives
- Evaluation of the effectiveness of training

Training courses are revised to reflect changes to the facility, procedures, regulations, DOE Orders, the Permit, the WIPP Documented Safety Analysis, and the WIPP Technical Safety Requirements. Improvements to training courses may be identified:

- During work performance from operator or maintenance personnel input (feedback);
- During training evaluations and assessments performed per site procedures (periodic reviews); or
- As a result of lessons learned (continuous improvement).

Because of the robustness of processes used to develop training and to identify changes, it is important that the Permittees have the flexibility to make changes to the training regimen on a timely basis. This PMR provides this flexibility by moving the details of training from the Permit to the WIPP facility files.

The Permittees review personnel position transfers or newly-hired employees to determine if that individual must have Permit-required training for their job function. These reviews are performed jointly by the requesting organization, Technical Training, Site Environmental Compliance, and Human Resources using a matrix developed by the Permittees which identifies criteria that form the basis for making those training determinations. These groups use the criteria below to determine if an individual qualifies as one who works in a Permit-specified position and must take Permit-required training and to ascertain if the individual must receive non-Permit RCRA training or if General Employee Training (**GET**) is sufficient. The following

criteria, which apply to facility personnel, were developed from the requirements listed in 40 CFR §264.16 and 40 CFR §270.14(b)(12) (text clarifications are noted in brackets):

- Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]? (The definition of "facility personnel" at 40 CFR §260.10 is: "Personnel or facility personnel means all persons who work at, or oversee the operations of, a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of part 264 or 265 of this chapter.")

- Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?

- Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?

- Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?

- Is this person directly involved with [TRU mixed] waste management at the WIPP facility?

- Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?

- Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?

- Does this person direct the training program at the facility?

- Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?

- Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?

- Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?

- Is this person responsible for communications or alarm systems in the event of an emergency [related to implementation of the RCRA Contingency Plan]?

- Does this person have emergency response duties in the event of a fire or explosion [related to implementation of the RCRA Contingency Plan]?

- Does this person have emergency response duties in the event of a groundwater contamination incident [related to implementation of the RCRA Contingency Plan]?

- Is this person responsible for the shutdown of operations in the event of an emergency [related to implementation of the RCRA Contingency Plan]?

The above criteria were applied to each specific job position established at the WIPP facility including those currently described in Permit Attachment F1. The results of the screening process are documented in the matrix provided in Appendix C, *Rationale for Including or Excluding Job Positions from the Facility Personnel Permit Training Program*. Based upon the criteria, the screening results identified the following:

- Many job positions currently included in the current Permit *Personnel Training* program warranted retention in the *Facility Personnel Permit Training Program* since they were evaluated as a "General Employee" and met one or more criteria pertaining to TRU mixed waste management or emergency response duties (see section in Appendix C entitled *Current Permit Job Positions included in the Facility Personnel Permit Training Program*). These job positions were identified in Section 1 of this PMR.

- Several job positions currently included in the Permit do not meet the criteria for inclusion in a personnel training program developed to meet the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.16). The screening matrix in Appendix C identifies a "General Employee" job title. A General Employee meets the RCRA definition of "facility personnel" but does not have TRU mixed waste management or emergency response duties. In General Employee Training, the General Employee receives a basic understanding of the RCRA regulatory requirements and the facility emergency procedures, which includes complying with directions from emergency personnel and alarm system notifications; following instructions concerning emergency equipment shutdown procedures; and being aware of safety signage and emergency evacuation routes and exits. This training addresses criteria (a) and (i) of the Appendix C screening matrix. Job positions evaluated as a "General Employee" position alone in the Appendix C screening matrix do not warrant inclusion in the *Facility Personnel Permit Training Program* (see section in Appendix C entitled *Current Permit Job Positions NOT Included in the Facility Personnel Permit Training Program*); these positions were identified in Section 1 of this PMR.

- Several job positions not currently described in the program would fall under the scope of the proposed revised *Facility Personnel Permit Training Program* (see section in Appendix C entitled *Evaluated Job Positions to be Included in the Facility Personnel Permit Training Program*); these positions were identified by an "*" in Section 1 of this PMR.

- Several job positions currently described in the Permit that do not meet the criteria for General Employee. Personnel filling these positions do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling these positions do not have TRU mixed waste management responsibilities nor respond to emergency situations at the WIPP facility. However, inclusion of these training requirements was retained in the Permit for these positions to ensure continued compliance with the requirements of the *WIPP Waste Analysis Plan*. The training requirements for these positions were moved from the *Facility Personnel Permit Training Program* to Permit Attachment C or C7 (as appropriate) as discussed below.

Justification for removal of specific job titles from the scope of the *Facility Personnel Permit Training Program* is discussed below. Some of these job positions are required to take non-Permit RCRA training per the large quantity generator requirements of 20.4.1.300 NMAC (incorporating 40 CFR Part 262). However, this training will be managed outside the scope of the Permit and, therefore, is not included in the revised *Facility Personnel Permit Training Program*.

- **DOE Management Representative** – Personnel filling this position do not work at the WIPP facility, therefore the position does not meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position review confirmation data packages in accordance with WIPP facility procedures, approve confirmation data packages to authorize shipments, and take action to suspend shipments and initiate corrective actions per Permit Attachment C7, Section C7-2, but do not come into contact with TRU mixed waste or take actions that would preclude a spill or release of TRU mixed waste. These duties are outside the scope of the personnel training program requirements of RCRA. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1e(3).

- **Facility Inspection, Repair and Service Team (FIRST)** - The FIRST is no longer a WIPP organizational entity. The FIRST was originally used to move site-generated waste to approved storage locations. That function is now being fulfilled by Site-generated Hazardous Waste Handlers and is strictly a function that pertains to the generation of hazardous waste at the WIPP facility.

- **Facility Inspection, Repair and Service Team (FIRST) Leader** - The FIRST is no longer a WIPP organizational entity. The FIRST was originally used to move site-generated waste to approved storage locations. That function is now being fulfilled by the Site-generated Hazardous Waste Handlers and is strictly a function that pertains to the generation of hazardous waste at the WIPP facility.

- **Fire Protection Technician** - The Fire Protection Technician position no longer exists at the WIPP facility. The WIPP Fire Department Firefighters have absorbed the duties of the Fire Protection Technicians which include conducting routine inspections and testing of fire suppression and detection systems.

- **Hazardous Waste Worker** - This was a general position title that encompassed workers from job positions already included in the Permit (e.g., TRU Mixed Waste Handlers, Radiological Control Technicians). Personnel filling these specific job titles were required to take Hazardous Waste Worker training which included annual refresher training. This Permit Modification creates a new TRU Mixed Waste Worker general position title that includes those specific job titles that are involved in TRU mixed waste management. The specific job titles included in the TRU Mixed Waste Worker general category are still required to take Hazardous Waste Worker training along with the annual refresher training.

- **Manager, Environmental Compliance** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Manager of Environmental Compliance has overall responsibility for supervising the Sampling Team Members, who sample non-TRU mixed site generated waste (i.e., waste managed in the 90-day hazardous waste accumulation areas).

- **Manager, Transportation Operations** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Manager of Transportation Operations oversees the aspects of the work, training, and qualifications of those who work within the transportation organization. They are responsible for transportation of hazardous materials from the WIPP facility, receipt of radioactive waste shipments at the WIPP facility, and oversight of the NWP Motor Carrier Program.

- **Quality Assurance Technician** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Quality Assurance Technician performs independent assessments of waste handling policies and procedures at the WIPP facility. The Quality Assurance Technician does not view every TRU mixed waste management evolution and there is no Permit requirement that he/she view any waste handling activities. These duties are outside the scope of the personnel training program requirements of RCRA.

- **Radiographer Level 1 (Radiography Independent Technical Reviewer)** – Personnel filling this position do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. The Radiographer Level 1 position reviews records of radiography performed by another qualified radiographer to ensure the waste is acceptable at the WIPP facility, but does not come into direct contact with TRU mixed waste or take actions that could cause a spill or release of TRU mixed waste. These duties are outside the scope of the personnel training program requirements of RCRA. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1b(1)(i).

- **Radiographer Level 2 (Radiography Independent Technical Reviewer)** – Personnel filling this position do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. The Radiographer Level 2 position reviews records of radiography performed by another qualified radiographer and can also perform confirmation of waste using radiography. Radiography is not performed at the WIPP facility. This position may come in direct contact with TRU mixed waste during the process of performing radiography operations; however, this contact occurs at the generator/storage site, not at the WIPP facility. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1b(1)(ii).

- **Sampling Team Assistant** - This position no longer exists at the WIPP facility. When first included in the Permit in late 2009, it was identified that personnel filling this position were to provide support to the Sampling Team Members in non-emergency responses. The Sampling Team Assistant activities are being fulfilled by the Sampling Team Member position.

- **Sampling Team Member** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The sampling team member is responsible to sample site effluents, storm drains, and solid

waste management units/areas of concern for hazardous constituents in surface water or groundwater.

- **Site-Generated Hazardous Waste Handler** - This position does not pertain to the management of TRU mixed waste. The Site-Generated Hazardous Waste Handler may assist the Underground Hazardous Waste Worker in transporting site-generated waste. They may inspect and inventory the site-generated hazardous waste staging areas and they may be required to maintain the satellite accumulation areas. This employee's duties are related to the generation of hazardous waste at the WIPP facility.

- **Team Leader, Inspection Services** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Team Leader, Inspection Services ensures that all items and services conform to specific quality requirements. The Team Leader, Inspection Services also controls the use of items until they are placed in service.

- **Technical Trainer** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Technical Trainer is responsible for the development of new courses and are the instructors for courses taught at the WIPP facility. The RCRA regulations specify requirements for a Training Director, but the regulations do not address training personnel in general.

- **Transportation Engineer** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Transportation Engineer is responsible for hazardous materials transportation activities such as reviewing paperwork, vehicle placarding, and container identification. The Transportation Engineer reviews Environmental Protection Agency (**EPA**) Uniform Hazardous Waste manifests for each TRU mixed waste shipment received at the WIPP facility and resolves any identified discrepancies. The Transportation Engineer provides waste generator sites with a signed copy of the completed EPA Uniform Hazardous Waste manifest. If the need arises, the Transportation Engineer prepares waste manifests and supporting documentation for outgoing shipments of TRU mixed waste. The majority of the Transportation Engineer's duties pertain to the Department of Transportation and Federal Motor Carrier regulations.

- **Underground Hazardous Waste Worker** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. The Underground Hazardous Waste Worker deals specifically with the movement of site-generated waste, which may include containerization. The Underground Hazardous Waste Worker's duties are related to the generation of hazardous waste at the facility.

- **Visual Examination Operator/Expert Level 1 (VE Independent Technical Reviewer)** – Personnel filling this position do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. The Visual Examination Operator/Expert Level 1 position reviews visual examination or the visual examination record review performed by another qualified Visual Examination

Operator/Expert to ensure the waste is acceptable at the WIPP facility, but does not come into contact with TRU mixed waste or take actions that could cause a spill or release of TRU mixed waste. These duties of the personnel filling this position are outside the scope of the personnel training program requirements of RCRA. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1c(1)(i).

- **Visual Examination Operator/Expert Level 2 (VE Independent Technical Reviewer)** – Personnel filling this position do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. The Visual Examination Operator/Expert Level 2 position reviews visual examination or the visual examination record review performed by another qualified Visual Examination Operator/Expert. Additionally, personnel filling this position can perform confirmation of waste using visual examination or review of visual examination records. These personnel may come in direct contact with TRU mixed waste during the process of performing visual examination operations; however, this contact occurs at the generator/storage site, not at the WIPP facility. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1c(1)(ii).

- **WWIS Data Administrator** – Personnel filling this position do not have TRU mixed waste management responsibilities nor do they respond to emergency situations. Recent changes to the WWIS have resulted in a new system (Waste Data System) which has automated many of the Data Administrator's functions, such as no longer having to approve data since software will automatically compare waste generator/storage site data to internal limits. With the advent of the confirmation process the Data Administrator becomes a "notification" function rather than an "approval" function. These duties are outside the scope of the personnel training program requirements of RCRA. Training requirements for this position are being moved to Permit Attachment C, Section C-5a(1).

Additional information concerning the removal of the TRU mixed waste confirmation personnel (Radiographer Level 1 (Radiography Independent Technical Reviewer), Radiographer Level 2 (Radiography Independent Technical Reviewer), Visual Examination Operator/Expert Level 1 (VE Independent Technical Reviewer), Visual Examination Operator/Expert Level 2 (VE Independent Technical Reviewer)) and DOE Management Representative positions from the *Facility Personnel Permit Training Program* is provided below.

Permit Attachment C7, *TRU Waste Confirmation,* identifies that waste confirmation may be completed by performing actual radiography/visual examination on the waste container(s) or by a review of radiography/visual examination media and records. This allows for a tiered approach to the training of WIPP TRU waste confirmation personnel. TRU waste confirmation personnel may be trained to either review radiography/visual examination media and records (Level 1) or to perform actual radiography/visual examination on the waste container(s) (Level 2). Level 2 personnel may also perform waste confirmation by review of media and records.

Personnel that hold Level 1 positions do not come into direct contact with TRU mixed waste or take actions that could cause a spill or release TRU mixed waste. Personnel that hold Level 2 positions may come in direct contact with TRU mixed waste during the process of performing

visual examination operations; however, this contact occurs at the generator/storage site, not at the WIPP facility.

Personnel filling the TRU waste confirmation positions do not regularly work at the WIPP facility, nor do they meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling the TRU waste confirmation positions do not have facility TRU mixed waste management responsibilities nor do they respond to emergency situations at the WIPP facility. Based upon the position duties described above, these TRU waste confirmation positions are outside the scope of the facility personnel training program requirements of RCRA. However, the training requirements for these positions were moved from the *Facility Personnel Permit Training Program* to Permit Attachment C7*, TRU Waste Confirmation,* to address training of non-facility personnel who perform TRU mixed waste screening and verification, thereby ensuring the continued compliance with the requirements of the WIPP *Waste Analysis Plan*. Training requirements for Permittee personnel performing TRU mixed waste confirmation are addressed in Permit Attachment C7, Sections C7-1b(1), *Radiography Training*; C7-1c(1), *Visual Examination Training*; Section C7-1d(2), *Visual Examination QAOs;* and C7-1e(3), *DOE Management Representative Training*.

Personnel filling the position of DOE Management Representative do not work at the WIPP facility; therefore, the position does not meet the RCRA definition of "facility personnel" as described in Section 1. Personnel filling this position review confirmation data packages in accordance with WIPP facility procedures, approve confirmation data packages to authorize shipments, and take action to suspend shipments and initiate corrective actions per Permit Attachment C7, Section C7-2, *Noncompliant Waste Identified During Waste Confirmation,* but do not come into contact with TRU mixed waste. Training requirements for this position are being moved to Permit Attachment C7, Section C7-1e(3) to ensure the continued training for TRU mixed waste screening and verification, thereby ensuring the continued compliance of waste characterization data with the WIPP *Waste Analysis Plan*.

Justification for removal of the WWIS Data Administrator job title from the scope of the *Facility Personnel Permit Training Program* was discussed above. However, since the WWIS is an integral component of the process for waste generator/storage sites planning to ship waste to the WIPP facility and the Permittees which perform waste screening and verification, the Permittees propose to add a requirement in Permit Attachment C, Section C-5a(1), *WWIS Description,* that the WWIS Data Administrator training be in accordance with the WWIS Retrieval Characterization Transportation Data Administrator Task Card.

This PMR also updates Permit Attachment F to provide consistency with the SAT process described in the *WIPP Training Program* (WP 14-TR.01). The SAT process is the organized instructional methodology developed by the DOE for use at the WIPP facility to prepare WIPP facility personnel to perform TRU mixed waste management duties and to ensure emergency response personnel receive the appropriate training before being called upon to respond to actual emergencies. Extraneous detail has been removed and the *WIPP Training Program* referenced, as appropriate. This PMR updates Permit Attachment F for the following reasons:

- Revise the title of Permit Attachment F from *Personnel Training* to *Facility Personnel Permit Training Program* to more closely align with the regulations. Personnel training requirements specified in 20.4.1.500 NMAC (incorporating 40 CFR §264.16) address "facility personnel" and a Permit-required "training program."

- The *Introduction* section of Permit Attachment F was revised to align the requirements for training of general employees with the regulatory requirements of 40 CFR §264.16(b) and to clarify the applicability of the *Facility Personnel Permit Training Program* to employees at the WIPP facility. The regulations require that employees receive required training within six months of their employment date and not work unsupervised until the training has been completed. Therefore, the requirement that employees receive General Employee Training within 30 days of employment was removed. Language was revised to clarify the regulatory requirements for General Employee Training under 40 CFR Part 264 and the applicability of Permit-required training to WIPP facility employees.

- Section F-1, *Outline of the Training Program*, was renamed *Outline of the Facility Personnel Permit Training Program* and reorganized for clarity. The description of the SAT process was updated and streamlined and appropriate detail referenced to the *WIPP Training Program.* A new subsection, Section F-1a, entitled *Facility Personnel Training Program Design*, clarifies which documents and records required by 40 CFR §264.16(d) will be maintained in the WIPP facility files. Detailed information regarding the formal qualification process and the use of qualification cards was also deleted.

- The existing Section F-1a, *Job Title/Job Description*, was renumbered to Section F-1b and updated to reference the new Tables F-1 and F-2 for applicable TRU mixed waste and emergency response job titles and associated Permit-required training. Language was added to describe that a list of personnel assigned to the job positions listed in Table F-1 would be maintained in WIPP facility files and that changes in the course materials for the courses listed in Table F-2 would be evaluated to determine if a Permit modification was necessary. Extraneous detail regarding training content, frequency, and techniques was deleted.

- Section F-1b(1), *Training Content,* was updated to specify the training requirements for General Employee Training. Language was also added to this section to describe how training course updates are identified by reviewing the Table F-2 Permit-required training courses periodically to ensure the content remains consistent with applicable federal and state regulations. This review will be performed in accordance with the *WIPP Training Program* and the review will be documented in the WIPP facility files.

- Section F-1b(1), *Training Content,* was further updated to address identification of changes to Table F-2 Permit-required training courses. Changes to training course materials (which will be maintained in the WIPP facility files) will have revision numbers and a change history summary. This training course information will be available for NMED inspection upon request to ensure no changes have been made to this information that would result in a change requiring a permit modification per 40 CFR §270.42.

- Section F-1b(3), *Training Techniques,* was updated to identify that individuals who can provide evidence of equivalency for specific requirements or prerequisites identified in the Table F-2 Permit-required training courses may be granted an exception from further training to those requirements in accordance with the *WIPP Training Program*. Requests for exceptions/equivalencies are made and evaluated in accordance with the *WIPP Training Program*. Training exceptions/equivalencies must be approved by the RCRA Training Director with concurrence of the Environmental Compliance Manager. Each exception/equivalency request is evaluated per specific criteria, such as 1)

completion of previous training (transcripts, training completion records), 2) previous experience (resume) that demonstrates the application of knowledge and or skill presented by course objectives, and 3) satisfactory completion of an examination having equivalent course objectives. Each exception/equivalency will be granted in writing and documented in the individual's training record.

- Section F-1d, *Relevance of Training to Job Position*, was revised to clarify that training beyond the requirements of the general WIPP facility employee is designed and implemented relevant to the specific job functions being performed.

- Section F-1e, *Training for Emergency Response*, was deleted in its entirety, as this information is overly prescriptive and is redundant with information being provided in the new Tables F-1 and F-2. Additionally, Permit Attachment D, *RCRA Contingency Plan*, already addresses the training of emergency response personnel in Section D-2b, *Emergency Response Training,* and references the *WIPP Fire Department Training Plan*, as appropriate.

This PMR also proposes to remove specified job titles from the inspection schedule in Permit Attachment E, Table E-1, *Inspection Schedule/Procedures,* and Table E-1a, *RH TRU Mixed Waste Inspection Schedule/Procedures*. Neither the identification of the responsible organization nor the job title of the individual performing the Permit-specified inspections is required by 40 CFR §264.15, *General Inspection Requirements.* However, it is required that the inspector be identified by name on the inspection log or summary. As described in Permit Attachment E, Section E-1, *Inspection Schedule*, the WIPP facility inspection logs or summary records include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions. The removal of this detail from Tables E-1 and E-1a will ensure consistency in job title descriptions between Permit Attachment E and the proposed revisions to Permit Attachment F.

Table 2, *40 CFR §264.16 Regulations Pertaining to Personnel Training*, provides a correlation of each regulatory requirement of 20.4.1.500 NMAC (incorporating 40 CFR §264.16, *Personnel Training*) to the implementing sections, tables, and figures, of both the current Permit Attachment F, *Personnel Training,* and the proposed revised Permit Attachment F, *Facility Personnel Permit Training Program*.

Table 2. 40 CFR §264.16 Regulations Pertaining to Personnel Training

40 CFR §264.16	Implementing Section of Current Permit Attachment F, *Personnel Training*	Implementing Section of Proposed Revised Permit Attachment F, *Facility Personnel Permit Training Program*
§264.16(a)(1) *Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this part. The owner or operator must ensure that this program includes all the elements described in the document required under paragraph (d)(3) of this section.*	Permit Attachment F, *Personnel Training*	Permit Attachment F, *Facility Personnel Permit Training Program*

40 CFR §264.16	Implementing Section of Current Permit Attachment F, *Personnel Training*	Implementing Section of Proposed Revised Permit Attachment F, *Facility Personnel Permit Training Program*
§264.16(a)(2) *This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed*.	Permit Attachment F, Section F-1c, *Training Manager*	Permit Attachment F, Section F-1c, *Training Manager*
§264.16(a)(3) *At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, where applicable*:	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-1b, *Job Title/Description* Section F-1b(1), *Training Content*
(i) Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-0, *Introduction* Section F-1d, *Relevance of Training to Job Position*
(ii) Key parameters for automatic waste feed cut-off systems;	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-1d, *Relevance of Training to Job Position*
(iii) Communications or alarm systems;	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-0, *Introduction* Section F-1d, *Relevance of Training to Job Position*
(iv) Response to fires or explosions;	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-0, *Introduction* Section F-1d, *Relevance of Training to Job Position*
(v) Response to ground-water contamination incidents; and	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-1d, *Relevance of Training to Job Position*
(vi) Shutdown of operations.	Permit Attachment F, Section F-1e, *Training for Emergency Response*	Permit Attachment F, Section F-0, *Introduction*
§264.16(a)(4) *For facility employees that receive emergency response training pursuant to Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.120(p)(8) and 1910.120(q), the facility is not required to provide separate emergency response training pursuant to this section, provided that the overall facility training meets all the requirements of this section*.	Not Applicable. Only facility specific training allowed.	Permit Attachment F, Section F-1b(3), *Training Techniques*

40 CFR §264.16	Implementing Section of Current Permit Attachment F, *Personnel Training*	Implementing Section of Proposed Revised Permit Attachment F, *Facility Personnel Permit Training Program*
§264.16(b) *Facility personnel must successfully complete the program required in paragraph (a) of this section within six months after the effective date of these regulations or six months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements of paragraph (a) of this section*.	Permit Attachment F, Section F-1b(2), *Training Frequency*	Permit Attachment F, Section F-0, *Introduction* Section F-1(b)(2), *Training Frequency* Section F-2, *Implementation of Facility Personnel Permit Training Program*
§264.16(c) *Facility personnel must take part in an annual review of the initial training required in paragraph (a) of this section*.	Permit Attachment F, Section F-1b(1), *Training Content*	Permit Attachment F, Section F-1b(1), *Training Content* Section F-2, *Implementation of Facility Personnel Permit Training Program*
§264.16(d) *The owner or operator must maintain the following documents and records at the facility:*		
(1) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;	Permit Attachment F, Section F-1a, *Job Title/Description*	Permit Attachment F, Section F-1a, *Facility Personnel Permit Training Program Design* Section F-1b, *Job Title/Description*
(2) A written job description for each position listed under paragraph (d)(1) of this section. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;	Permit Attachment F, Section F-1a, *Job Title/Description*	Permit Attachment F, Section F-1a, *Facility Personnel Permit Training Program Design* Section F-1b, *Job Title/Description*
(3) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under paragraph (d)(1) of this section;	Permit Attachment F, Section F-1a, *Job Title/Job Description* Section F-1b, *Training Content, Frequency, and Techniques*	Permit Attachment F, Section F-1, *Outline of the Facility Personnel Permit Training Program* Section F-1a, *Facility Personnel Permit Training Program Design* Section F-1b, *Job Title/Description*
(4) Records that document that the training or job experience required under paragraphs (a), (b), and (c) of this section has been given to, and completed by, facility personnel.	Permit Attachment F, Section F-1, *Outline of the Training Program* Section F-2, *Implementation of Training Program*	Permit Attachment F, Section F-1, *Outline of the Facility Personnel Permit Training Program* Section F-2, *Implementation of Facility Personnel Permit Training Program*

40 CFR §264.16	Implementing Section of Current Permit Attachment F, *Personnel Training*	Implementing Section of Proposed Revised Permit Attachment F, *Facility Personnel Permit Training Program*
§264.16(e) *Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.*	Permit Attachment F, Section F-2, *Implementation of Training Program*	Permit Attachment F, Section F-2, *Implementation of Facility Personnel Permit Training Program*

4. 20.4.1.900 NMAC (incorporating 40 CFR 270.42 (b)(1)(iv)) requires the applicant to provide the applicable information required by 40 CFR 270.13 through 270.21, 270.62 and 270.63.

The Table 3, *Regulatory Crosswalk,* describes those portions of the Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000 (unless a later date is cited in the history note at the end of the section in the NMAC), incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). Title 40 CFR §§270.16 through 270.22, 270.62, 270.63, and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. Title 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (HWDUs). This modification does not impact the conditions associated with the HWDUs.

5. 20.4.1.900 NMAC (incorporating 40 CFR 270.11(d)(1) and 40 CFR 270.30(k)) requires that any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.

The transmittal letter for this PMR contains the signed certification statement in accordance with Permit Part 1, Section 1.9.

Table 3. Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.13		Contents of Permit Part A permit application	Attachment B, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment C		✓
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment C		✓
	§264.13(c)	Off-site waste analysis requirements	Attachment C		✓
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Part 2.6		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment E	✓	
	§264.174	Container inspections	Attachment E		✓
§270.23(a)(2)	§264.602	Miscellaneous unit inspections	Attachment E		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		✓
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment D		✓
	§264.51	Contingency plan design and implementation	Attachment D		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment D	✓	
	§264.53	Contingency plan copies	Attachment D		✓
	§264.54	Contingency plan amendment	Attachment D		✓
	§264.55	Emergency coordinator	Attachment D		✓
	§264.56	Emergency procedures	Attachment D		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Part 2.10		✓
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Part 2.10		✓
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Part 2.10		✓
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Part 2.10		✓
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Part 2.10		✓
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Part 2.10		✓
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Part 1 Part 4 Attachment A2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Part 2.10	✓	

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
	§264.31	Design and operation of facility	Part 2.10		✓
	§264.32	Required equipment	Part 2.10 Attachment D		✓
	§264.33	Testing and maintenance of equipment	Attachment E		✓
	§264.34	Access to communication/alarm system	Part 2.10		✓
	§264.35	Required aisle space	Part 2.10		✓
	§264.37	Arrangements with local authorities	Attachment D		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Part 2.10		✓
§270.14(b) (10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment A4		✓
§270.14(b) (11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b) (11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b) (12)	§264.16(a-e)	Personnel training program	Part 2 Attachment F	✓	
§270.14(b) (13)	264 Subpart G	Closure and post-closure plans	Attachment G & H		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment G		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment G		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment G		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment G		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment G		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment G		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment G		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment H		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment H		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment G		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment G		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment G		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment H		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment B Part A		✓
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment B Part A		✓
§270.14(b)(19)(iii)		Surface waters	Attachment B Part A		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment B Part A		✓
§270.14(b)(19)(v)		Wind rose	Attachment B Part A		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment B Part A		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment B Part A		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Attachment B Part A		✓
§270.14(b)(19)(xii)		Location of operational units	Attachment B Part A		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Attachment B Part A		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the Permit or Permit Application	Yes	No
§270.15	264 Subpart I	Containers	Attachment A1		✓
	§264.171	Condition of containers	Attachment A1		✓
	§264.172	Compatibility of waste with containers	Attachment A1		✓
	§264.173	Management of containers	Attachment A1		✓
	§264.174	Inspections	Attachment E Attachment A1	✓	
§270.15(a)	§264.175	Containment systems	Attachment A1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Part 2		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Part 2		✓
	§264.178	Closure	Attachment G		✓
§270.15(e)	§264.179	Air emission standards	Part 4 Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment A2		✓
§270.23(a)	§264.601	Detailed unit description	Attachment A2		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorological assessments	Part 5 Attachment L		✓
§270.23(c)	§264.601	Potential exposure pathways	Part 4 Attachment A2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	NA		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Part 2 Part 4 Part 5 Attachment A2 Attachment N		✓
	§264.603	Post-closure care	Attachment H Attachment H1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Part 2 Attachment C		✓

Appendix A
Table of Changes

Table of Changes

Affected Permit Section	Explanation of Change
Part 2, Section 2.8.1., *Personnel Training Content*	Replaced "Personnel Training" with "*Facility Personnel Permit Training Program*" and deleted "and Permit Attachment F2 (Training Course and Qualification Card Outlines)" after Attachment F.
Part 2, Section 2.8.2., *Personnel Training Requirements*	Added "TRU" before mixed and deleted "and hazardous" after mixed. Deleted the "1" in Attachment F1. Replaced "RCRA Hazardous Waste Management Job Titles and Descriptions" with "Facility Personnel Permit Training Program" after Attachment F1 in the parenthesis.
Part 2, Section 2.10.6., *Live Fire Extinguisher Training*	Deleted "as identified in Permit Attachment F2" after Training. Deleted "and is part of SAF-501" after underground.
Part 2, *Permit Attachments*	Deleted "Permit Attachment F1 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, "RCRA Hazardous Waste Management Job Titles and Descriptions" - Appendix H1)." from the list of permit attachments. Deleted "Permit Attachment F2 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, "Training Course and Qualification Card Outlines" - Appendix H2)." from the list of permit attachments.
Part 2, *Table of Contents*	Added new entry for Section 2.10.6. "Live Fire Extinguisher Training in Table of Contents."
Attachment C, Section C-5a(1), *WWIS Description*	Added "Training for the WWIS Data Administrator job position will be in accordance with the WWIS Retrieval Characterization Transportation Data Administrator Task Card on file at the WIPP facility." to end of paragraph beginning with access.
Attachment C7, *Table of Contents*	Added "TRU Waste" before Confirmation in the heading for Section C7-1a(1). Added new entry "C7-1e(3) DOE Management Representative Training" to table of contents. Corrected page count in Attachment C7 from "11" to "14".
Attachment C7, Section C7-1a(1), *Confirmation Training Requirements*	Added "TRU Waste" before "Confirmation" in the heading. Added "TRU" to beginning of paragraph and lowercased the word waste in two places. Added "This allows for a tiered approach for the training of WIPP TRU waste confirmation personnel." to the end of the first paragraph.
Attachment C7, Section C7-1b(1), *Radiography Training*	Deleted "The Permittee radiography operators performing waste confirmation shall be trained in accordance with the requirements of Permit Attachment F1." Added the following text to the end of the section: "Radiographer Level 1 personnel performing TRU mixed waste confirmation shall be trained in: • TRU Waste Confirmation Radiographer Level 1 Qualification. Radiographer Level 2 personnel performing TRU mixed waste confirmation shall be trained in: • TRU Waste Confirmation Radiographer Level 2 Qualification."
Attachment C7, Section C7-1b(1)(i), *TRU Waste Confirmation Radiographer Certification Level 1 Qualification*	Added new section "C7-1b(1)(i) TRU Waste Confirmation Radiographer Certification Level 1 Qualification" with the following text: "Level 1 radiography operators are instructed in the specific waste-generating practices and typical packaging configurations expected to be found in each Waste Matrix Code at each site shipping waste to the WIPP facility. The on-

Affected Permit Section	Explanation of Change
	the-job training (OJT) and apprenticeship is conducted by an experienced, qualified radiography operator or trainer prior to the qualification of the training candidate. Radiography operators are requalified once every two years. The Level 1 radiography training program includes the following elements: <u>Formal Training</u> • Project Requirements • State and Federal Regulations • Basic Principles of Radiography • Radiography of Waste Forms (including the ability to identify liquid and compressed gases which will be verified by a radiography subject matter expert) • Waste Stream-Specific Instruction (e.g., specific waste-generating processes, typical packaging configurations, waste material parameters) <u>On-the-Job Training</u> • System Operation (equipment and procedures used by Level 1 radiographers) • Identification of Packaging Configurations • Identification of Waste Material Parameters/Waste Matrix Codes • Identification of liquid in excess of the TSDF-WAC limits and compressed gases • Verification of waste stream description"
Attachment C7, Section C7-1b(1)(ii), *TRU Waste Confirmation Radiographer Certification Level 2 Qualification*	Added new section "C7-1b(1)(ii) TRU Waste Confirmation Radiographer Certification Level 2 Qualification" with the following text: "Level 2 radiography operators are instructed in the specific waste-generating practices and typical packaging configurations expected to be found in each Waste Matrix Code at each site shipping waste to the WIPP facility. The OJT and apprenticeship are conducted by an experienced, qualified radiography operator prior to the qualification of the training candidate. Radiography operators are requalified once every two years. The Level 2 radiography training program includes the following elements: <u>Formal Training</u> • Project Requirements • State and Federal Regulations • Basic Principles of Radiography • Radiographic Image Quality • Radiographic Scanning Techniques • Application Techniques • Radiography of Waste Forms • Standards, Codes, and Procedures for Radiography • Waste Stream-Specific Instruction <u>On-the-Job Training</u> • System Operation • Identification of Packaging Configurations • Identification of Waste Material Parameters/Waste Matrix Codes • Identification of liquid in excess of the TSDF-WAC limits and compressed gases • Verification of waste stream description"

Affected Permit Section	Explanation of Change
Attachment C7, Section C7-1c(1), *Visual Examination Training*	Deleted "The Permittees' VE operators performing waste confirmation shall be trained in accordance with the requirements of Permit Attachment F1." Added the following text to the section: Visual Examination Operator/Expert Level 1 personnel performing TRU mixed waste confirmation shall be trained in: • TRU Waste Confirmation Visual Examination Level 1 Qualification. Visual Examination Operator/Expert Level 2 performing TRU mixed waste confirmation shall be trained in: • TRU Waste Confirmation Visual Examination Level 2 Qualification. <u>C7-1c(1)(i) TRU Waste Confirmation Visual Examination Level 1 Qualification</u> Level 1 visual examination personnel are instructed in the specific waste-generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code in the waste stream being confirmed using visual examination. The OJT and apprenticeship are conducted by an operator experienced and qualified in visual examination or a qualified trainer prior to qualification of the candidate. The training is waste stream-specific to include the various waste configurations being confirmed. For example, the particular physical forms and packaging configurations at each site will vary and operators shall be trained on types of waste that are generated, stored, and/or characterized at that particular site. Visual examination personnel are requalified once every two years. The Level 1 visual examination training program includes the following elements: <u>Formal Training</u> • Project Requirements • State and Federal Regulations • Batch Data Report Forms • Waste Stream-Specific Instruction (e.g., waste generating processes, typical packaging configurations, waste material parameters) <u>On-the-Job Training</u> • System Operation (equipment and procedures used by Level 1 visual examination personnel) • Identification of Packaging Configurations • Identification of Waste Material Parameters/Waste Matrix Codes • Identification of liquid in excess of the limits in the TSDF-WAC and compressed gases • Verification of waste stream description <u>C7-1b(1)(ii) TRU Waste Confirmation Visual Examination Level 2 Qualification</u> Level 2 visual examination operators are instructed in the specific waste-generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code in the waste stream being confirmed using visual examination. The OJT and apprenticeship are conducted by an operator experienced and qualified in visual examination prior to qualification of the candidate. The training is waste stream-specific to include the various waste configurations being confirmed. For example, the particular physical forms and packaging configurations at each site will vary so operators shall be trained on types of waste that are generated, stored, and/or characterized at that particular site. Visual examination personnel are requalified once every two years. The Level 2 visual examination training program includes the following elements:

Affected Permit Section	Explanation of Change
	Formal Training • Project Requirements • State and Federal Regulations • Batch Data Report Forms • Application Techniques • Waste Stream-Specific Instruction (e.g., specific waste-generating processes, typical packaging configurations, waste material parameters) On-the-Job Training • Identification of Packaging Configurations • Identification of Waste Material Parameters/Waste Matrix Code • Identification of liquid in excess of the TSDF-WAC limits and compressed gases • Verification of waste stream description
Attachment C7, Section C7-1d(2), *Visual Examination QAOs*	Under the subheading Accuracy, in the last sentence replaced "as specified in Permit Attachment F2" with "once every two years".
Attachment C7, Section C7-1e(3), *DOE Management Representative Training*	Added new section "C7-1e(3) DOE Management Representative Training" with the following text: "The DOE Management Representative performing TRU mixed waste confirmation data package review and approval shall be trained in: • Required Reading: - DOE's Quality Assurance Program Document - Permit Attachments C through C7 - Required Reading identified in DOE's management procedure, *Approval of Contractor-Generator Confirmation Data Packages"*
Attachment D, Section D-2a, *Emergency Response Personnel*	Editorial change to add "Permit" before "Attachment" in first paragraph. Deleted "1" and "RCRA" in last sentence of first paragraph. Editorial change to add "Permit" before "Attachment" in second bullet of second set of bullets. Deleted "1" and added "(Facility Personnel Permit Training Program)" to same bullet. Deleted "Since the FSM provides support to the RCRA Emergency Coordinator relative to the safety of the WIPP facility, no specific RCRA training is required."
Attachment D, Section D-2b, *Emergency Response Training*	Editorial change to add "Permit" before "Attachment" in fourth paragraph. Replaced "; Attachment F1 *RCRA Hazardous Waste Management and Emergency Response Job Titles and Descriptions*; and Attachment F2, *Training Course and Qualification Card Outlines*" with "*Facility Personnel Permit Training Program*" at end of fourth paragraph.
Attachment E, Table E-1, *Inspection Schedule/Procedures*	Deleted "and Job Title of Personnel Normally Making Inspection" from the column heading entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection." Deleted *Inspection Schedule/Procedures Lists* at the end of the table and deleted references to list from column entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection." Deleted footnote, "Positions are not considered RCRA positions (i.e., personnel do not manage or respond to emergencies involving TRU mixed waste)."
Attachment E, Table E-1a, *RH TRU Mixed Waste Inspection Schedule/Procedures*	Deleted "and Job Title of Personnel Normally Making Inspection" from the column heading entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection."

Affected Permit Section	Explanation of Change
	Deleted *RH TRU Mixed Waste Inspection Schedule/Procedures Lists* at the end of the table and deleted references to list from column entitled "Inspection Frequency and Job Title of Personnel Normally Making Inspection."
Attachment F, *Personnel Training*	Changed "Personnel Training" to "*Facility Personnel Permit Training Program*" for attachment title.
Attachment F, *Table of Contents*	Changed "Personnel Training" to "*Facility Personnel Permit Training Program*" for title on table of contents page. Added "Facility Personnel Permit" to heading F-1 in table of contents. Added new heading "F-1a Facility Personnel Permit Training Program Design" in table of contents. Renumbered "F-1a" to "F-1b" for Job Title/Job Description in table of contents. Deleted old heading "F-1b Training Content, Frequency, and Techniques" in table of contents. Deleted heading "F-1e Training for Emergency Response" in table of contents.
Attachment F, *Introduction*	Added section number "F-0" to heading Introduction. Replaced "personnel training program" with "*Facility Personnel Permit Training Program*" and added callout "New Mexico Administrative Code "(" before NMAC and ")" after NMAC in first paragraph. Added "(b)(12)" to end of first paragraph. Replaced "WIPP facility training program" with "*Facility Personnel Permit Training Program*," added "facility" before personnel, added "and maintain" after operate, added "in compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16)" after manner and added "WIPP facility" before employees in second paragraph. Added a return after positions to create a new third paragraph. In the third paragraph deleted "every" at beginning of first sentence. Added "s" at the end of employee. Replaced "," with "or emergency response" after activities. Deleted "s" at the end of receives. Added the word "regulations" after RCRA. Replaced "within 30 days of employment" with "in their General Employee Training (GET) class" after preparedness. Added new sentence "General Employee Training emphasizes that WIPP facility personnel and site visitors are required to comply with directions from emergency personnel and alarm system notifications and to follow instructions concerning emergency equipment, shutdown procedures, signage, and emergency evacuation routes and exits." Replaced "everyone" with "employees" and "is" with "are" in next sentence. Added new sentence "This ensures that facility employees know how to respond effectively to emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems." after procedures. Replaced "hazardous" with "TRU mixed" and added "or emergency response" after management. Replaced "hazardous" with "TRU mixed". Added "of 20.4.1.500 NMAC (incorporating 40 CFR Part 264)" after requirements. In fourth paragraph added "of the *Facility Personnel Permit Training Program* are implemented via the *WIPP Training Program* and" after requirements. Deleted "all" before appropriate, replaced "employees" with "facility personnel", and added ", subcontractors, and bargaining-unit members" after contractors. Changed "r" to "R" and replaced "hazardous" with "TRU mixed" before waste. Added ", or" after waste for newly created first bullet. Created 3 new bullets as follows: • "Oversee the operations of the facility that may come in contact with and/or manage TRU mixed waste, or

Affected Permit Section	Explanation of Change
	• Supervise individuals who may come in contact with and/or manage TRU mixed waste, or • Provide emergency response capabilities." In first paragraph after bullets deleted "The WIPP Project training program is comprehensive and applies to all areas of personnel performance and development." Replaced "attachment" with "*Facility Personnel Permit Training Program*" and replaced "hazardous" with "TRU mixed" before waste. Deleted "These personnel are directly involved with hazardous waste management at the WIPP facility. Their training allows them to operate the facility safely and in compliance with hazardous waste regulations." from end of paragraph. Added new paragraph "This *Facility Personnel Permit Training Program* does not apply to facility employees who manage site-generated hazardous waste, low-level waste, universal waste, or other forms of hazardous waste that are not categorized as TRU mixed waste." to end of section.
Attachment F, Section F-1, *Outline of the Training Program*	Added "Facility Personnel Permit" before Training in heading for Section F-1. In the first sentence, replaced "hazardous" with "TRU mixed" before waste, added "and emergency response" after management. In the second sentence, added a "." after "Technical Training Manager", replaced "who" with The Technical Training Manager (or designee)", and replaced "training program" with "*Facility Personnel Permit Training Program*". In the last sentence, replaced "Attachment F1" with "Table F-1", and replaced "shows" with "presents" and "key" with "identified" and added "TRU mixed" before "waste".
Attachment F, Section F-1a, *Facility Personnel Permit Training Program Design*	Created new section heading "F-1a Facility Personnel Permit Training Program Design" after first paragraph of Section F-1. Combined the first two paragraphs and made the following changes. Replaced "The WIPP facility uses" with "In developing the *WIPP Training Program*, Technical Training has used" at beginning of paragraph. Replaced "to analyze, design, develop, implement, and evaluate training." with "which has" and deleted the return. Deleted "this approach employs" and combined the remainder of the sentence with the above paragraph. Added "training" before programs. Deleted "In "analysis," technical training and line management identify job performance requirements. These requirements are derived by studying job duty areas, related tasks, and required skills and knowledge. These derived skills and knowledge, in turn, form the blueprint for the "design" phase. In "design" these requirements are translated into learning objectives, performance standards, and test items. In "development" the products of design are incorporated into new training programs or, if appropriate, incorporated into revisions of existing programs. Products of development are lesson plans, qualification cards, student materials, and examinations. Implementation of these programs then occurs. This may be through classroom instruction, on-the-job-training, self-paced study, or any combination of the three. "Evaluation" is the final phase of the SAT process. Evaluation uses feedback derived from several sources to improve or enhance the training." at beginning for first paragraph after bullets. Replaced "The WIPP" with "Technical Training" before utilizes and deleted "extensive" after utilizes. Replaced "all program analysis, design, development, implementation, or evaluation. Further details of these processes may be derived by reviewing this manual" with "these five phases" at end of this paragraph. Added "Permit-" before "required," deleted "Resource Conservation and Recovery Act (RCRA) related" before "training," and added "as indicated in

Affected Permit Section	Explanation of Change
	the WIPP Training Program" after "instructors" in the first sentence of second paragraph. Deleted "On-the-job training is conducted by Level I instructors. Level I instructors are subject matter experts; members of line organizations who have qualified on the related equipment and have attended the on-the-job training course. Classroom instruction is provided by Level II and Level III instructors. Level II instructors are members of Technical Training and line organizations that are qualified to conduct limited classroom training in their technical area of expertise. Level III instructors are members of Technical Training who are qualified to conduct classroom training, skills evaluation, and needs assessment. Level II and III instructors are required to attend a train-the-trainer course and periodic refresher training." From the end of this paragraph. Made the following changes to the second set of bullets. Deleted "-Objectives, -Lesson Plans, -Student Materials, -Examinations" under the first bullet. Added "Required reading, structured self-study, eLearning, computer based training" as new second bullet. Deleted "-Qualification Cards" after third bullet. Deleted entire paragraph "Technical training materials are approved by the Technical Training Manager and the cognizant line manager." after last bullet. Replaced "Following" with "Upon completion of the specific classroom, computer based training, eLearning or structured self-study" before "technical" and added "courses" after "training" and deleted "examinations" after written, and deleted "conducted by boards made up of cognizant personnel (referred to as "oral boards") after examinations in first paragraph after deleted paragraph. Deleted "The records of oral examinations are called "oral board sheets". These examinations are based on objectives and/or competency statements. Oral boards are based on knowledge learned in the on-the-job training process. Trainees also provide feedback on the content and quality of instruction, at this time, in the form of course critiques and verbal input." at end of first paragraph after deleted paragraph. Replaced "is" with "and records are", and replaced "These technical training records include:" with "Documents and records required by 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(1), (2), (3), and (4)) are maintained in WIPP facility files and include the following:" in second paragraph after deleted paragraph. Added the following bullets after this paragraph. • Job titles for positions related to TRU mixed waste management and emergency response and names of the employees filling those positions • Written job descriptions for the applicable positions • Written description of the type and amount of introductory and continuing training given for each applicable position • Records documenting that the training or job experience required has been given to or completed by facility personnel to include as appropriate: Changed original bullets to secondary bullets after last new bullet and replaced "Oral Board Sheets" with "Training or job experience given and completed for each position" in last secondary bullet. Changed "A database" to "Documentation", deleted "records", added "includes records of" after which. In the next sentence, changed "database" to "documentation". In the third sentence, added "until facility closure" after "files". In the fifth sentence, added "also" before maintained. Deleted the

Affected Permit Section	Explanation of Change
	sentence "The documents which define the process by which these training activities are managed are maintained by Technical Training and are part of the Operating Record." from first paragraph after third set of bullets. Deleted "To ensure the safe and efficient operation of the WIPP facility, certain positions require formal qualification. Department managers identify these positions based upon safety, complexity, and involvement with hazardous waste handling operations. A document known as a "qualification card" is prepared to identify required training for each designated position. In the case of equipment and system/procedure qualification, a "qualification card" is prepared that specifies the required knowledge and practical skills needed in such areas as equipment maintenance and safety. Individual participation in the qualification card system is varied and is dependent on an incumbent's specific job duties. A complete listing of active qualifications, as they apply to any individual position, may be determined by review of the WIPP Training Database. The list of active WIPP Qualification cards is maintained at the WIPP facility. When the qualification card is completed, that particular qualification is recorded. Successful completion of formal classroom training is documented on the individual's qualification card. When requirements are met, both for classroom instruction and on-the-job training, and oral board, if applicable, the qualification card is signed by the manager certifying that the employee is fully competent to perform all aspects of the associated qualification. Qualification cards are included in the training records maintained by Technical Training. Qualification cards are living documents subject to change as the scope and content of training changes to meet new and revised regulatory requirements and modifications in job scope. The hazardous waste management training program described in Section F-1b consists of a series of courses designed to ensure that hazardous waste management employees at the WIPP facility receive initial and continuing training relevant to their positions. These courses include instruction on the RCRA and Occupational Safety and Health Administration regulations, emergency procedures, and procedures for handling both site-generated hazardous waste and TRU mixed waste. Visitors, temporary personnel, and contractors are trained commensurate with the nature of their visit or duties. For visitors, this includes basic site safety and emergency notification procedures. Visitors who require unescorted access are also required to take an examination covering the material in the training they are given. Visitor records are maintained by security. Temporary or subcontract personnel, if hired to fill a hazardous waste management position, are required to complete the same training as permanent personnel. Record of this training is maintained by Technical Training." from the end of the section.
Attachment F, Section F-1a, *Job Title/Job Description*	Renumbered section number from "F-1a" to F-1b". Deleted "Employees at the WIPP" before "facility." added "personnel" after "facility," replaced "hazardous" with "TRU mixed" before waste, and added "RCRA" after "core" in first sentence. Replaced "hazardous" with "TRU mixed" before waste, replaced "are" with "is" after descriptions, Replaced "Permit Attachment F1" with "Table F-1" at end of second sentence. Added "in WIPP facility files" after maintained and added "(d)(1)" after "§264.16" in third sentence. Replaced "These" with "The" and replaced "hazardous" with "TRU mixed" before waste, added "and emergency response" after management, and replaced "described briefly in Section F-1(b)(1) and outlines of the core classes, as well as other job specific training classes, are included in Permit Attachment F2" with "indicated in Table F-2" in fourth sentence. Replaced "training plan" with "*Facility Personnel Permit Training Program* specified training course materials (contained in WIPP facility files)" and

Affected Permit Section	Explanation of Change
	replaced “decrease the type or amount of training that is given to employees will be handled as a Class 2 modification” with “affect the Table F-2 training course content will be evaluated to determine if a permit modification is required” in fifth sentence. Replaced “Other changes to the training plan will be handled as Class 1 modifications. In accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(2)), the job descriptions include hazardous and TRU mixed waste management and emergency response job duties, required skills, qualifications, and experience, as well as educational requirements. These job descriptions are approved by the cognizant staff managers. Included in the appendices are management and supervisory positions that are considered to be critical from the standpoint of hazardous waste management or emergency response. These include the following positions” with “The job titles listed in Table F-1 include” at end of paragraph. Deleted “RCRA” before Emergency Coordinator in first bullet. Added the following bullets. • TRU Mixed Waste Worker • TRU Mixed Waste Worker Supervisor • Inspector • RCRA Training Director • Emergency Responder Deleted the following bullets. • Manager, Hoisting Operations • Manager, Radiation Control • Manager, Waste Handling • Team Leader, Inspection Services • Manager, Environmental Compliance • Manager, Technical Training
Attachment F, Section F-1b, *Training Content, Frequency, and Techniques*	Deleted original heading “F-1b Training Content, Frequency, and Techniques” and all text for this section.
Attachment F, Section F-1b(1), *Training Content*	Replaced “WIPP facility employees, who will be on site longer than 30 days, including personnel in management and supervisory positions and personnel not directly involved with hazardous waste management, receive facility-specific training in the following areas: • General Employee Training (**GET**) Overview (procedures and policies) • WIPP Facility Description • Radiation Safety • Emergency Preparedness (including *RCRA Contingency Plan* implementation) • Security • Fire Protection • Quality Assurance • Occurrence Reporting • Industrial Safety • RCRA • Hazard Communication This training is provided in GET-19X/GET-20X/GET-21X [1], conducted by the WIPP qualified instructors, and must be completed within 30 days of employment. Annual refresher training on the topics taught in GET-19X/GET-20X/GET-21X is given in the General Employee Training Annual Refresher (GET-

Affected Permit Section	Explanation of Change
	19XA/GET-20XA/GET-21XA). This self-paced module provides employees with a review and update of the topics covered in GET-19X/GET-20X/GET-21X. WIPP employees involved in managing site-generated, nonradioactive waste, or TRU mixed waste will receive the Hazardous Waste Worker course (HWW-101). This comprehensive course will provide job specific training required to safely receive, transfer, or handle waste at the WIPP facility. Review and update of HWW-101 topics is provided annually in the Hazardous Waste Worker refresher course (HWW-102). Course outlines for GET-19X/GET-20X/GET-21X, GET-19XA/GET-20XA/GET-21XA, HWW-101, and HWW-102 are provided in Permit Attachment F2." with "To ensure that facility personnel are knowledgeable in responding effectively to emergency situations, every employee, regardless of whether they hold a position in TRU mixed waste management or emergency response, receives GET and an annual refresher training on topics relevant to the management of TRU mixed waste and emergency response that include: • Emergency Preparedness and Response • RCRA (including the Permit and the *RCRA Contingency Plan*) • Fire protection • Safety signage Training course updates are identified by periodically reviewing the Table F-2 Permit-required training courses to ensure the content remains consistent with applicable Federal and State regulations. This review will be performed in accordance with the *WIPP Training Program* and the review will be documented in the WIPP facility files. To facilitate identification of changes to Table F-2 Permit-required training courses, changes to training course materials, which will be maintained in the WIPP facility files, will have revision numbers and a change history summary. This training course information will be available for NMED inspection upon request." Deleted footnote "[1]" in its entirety.
Attachment F, Section F-1b(2), *Training Frequency*	Replaced "Hazardous" with "TRU mixed" 3 times in paragraph, added "and emergency response" after management, added "(although some emergency response training may require longer time periods to complete certifications)" after position. In last sentence, changed "Human Resources Department" to "cognizant manager," changed "cognizant manager" to "Human Resources Department", changed "and" to "who notifies the" before training staff and added "or emergency response" after management.
Attachment F, Section F-1b(3), *Training Techniques*	Added "may" after courses and replaced "lectures, demonstrations, visual aids (such as video tapes, slides, and viewgraphs), and exercises" with "classroom, on-the-job-training, eLearning, self-paced study, laboratory work, and/or comprehensive examinations" in first paragraph. Deleted sentence "Calculation, multiple choice, and fill-in-the-blank, or other approved formats, may be used." Also deleted sentence "Personnel filling positions requiring qualification cards to perform job functions will be requalified at least biennially in those specific areas." in second paragraph. Added fifth paragraph as follows: "Individuals who provide evidence of equivalency for specific requirements or prerequisites identified in the Table F-2 Permit-required training courses may be granted an exception from further training to those requirements in accordance with the *WIPP Training Program*. Requests for

Affected Permit Section	Explanation of Change
	exceptions/equivalencies are made and evaluated in accordance with the *WIPP Training Program*. Training exceptions/equivalencies must be approved by the RCRA Training Director with concurrence of the Environmental Compliance Manager. Each exception/equivalency request is evaluated per specific criteria, such as 1) completion of previous training (transcripts, training completion records), 2) previous experience (resume) that demonstrates the application of knowledge and or skill presented by course objectives, and 3) satisfactory completion of an examination having equivalent course objectives. Each exception/equivalency will be granted in writing and documented in the individual's training record."
Attachment F, Section F-1c, *Training Manager*	In first sentence of the first paragraph, added "(or designee)" after "Manager" and replaced "training program" with "*Facility Personnel Permit Training Program*, implemented via the *WIPP Training Program*,". In the third sentence, added "(or designee)" after "Manager", and deleted "and receives train-the-trainer and instructor training" after procedures. In the last sentence of the first paragraph, Added "(or designee)" after "Manager". Replaced "at the" with "in" after documented and added "files" after facility in second paragraph.
Attachment F, Section F-1d, *Relevance of Training to Job Position*	Replaced "WIPP facility training program" with "*WIPP Training Program*" after The, replaced "F-1" with "F-1a", replaced "hazardous" with "TRU mixed" before waste, and replaced "fully develop their necessary expertise" with "perform their work in a manner that protects human health and the environment and complies with the Permit" in first paragraph. In the second paragraph, replaced "courses" with "topics" after training, deleted "determined to be so basic to the WIPP Project mission that they are" before considered and changed "employees" to "personnel". In the second sentence, changed "employees" to "facility personnel" after facility and added "as well as emergency actions required of facility personnel" after operate. In the last sentence, change "employees" to "personnel" after facility, and replaced "introductory" with "GET". In the third paragraph, replaced "core courses" with "universal topics" after these, replaced "such as" with "e.g.," before forklifts, deleted ", etc." after "cars", replaced "to operate and inspect equipment and to recognize maintenance problems before a specific job function is performed" with "to perform their duties in a way that ensures the WIPP facility compliance with the Permit" after trained, deleted "must" after employees, replaced ", before being qualified" with ", and must at a minimum be able to respond effectively to emergencies that might arise while performing their duties. Emergency response personnel receive training, commensurate with their duties, that ensures their familiarity with emergency procedures, emergency equipment, and emergency systems including, but not limited to: • Procedures for using and inspecting facility emergency equipment; • Communications and alarm systems; and • Response to fires or explosions." Deleted "This process is controlled and documented by the qualification process described in Section F-1. A complete listing of active qualification cards, along with descriptions of training courses, is on file at the WIPP facility. Summaries of qualification cards and other job specific training courses are included in Permit Attachment F2. Waste handling personnel performing CH or RH TRU mixed waste handling tasks will be qualified to the applicable specific equipment or system qualification card on file at the WIPP facility." in third paragraph. Deleted entire text "Managers who have direct responsibility for supervising hazardous waste management personnel receive hazardous waste management training relevant to their positions. This training will include GET-19X/GET-20X/GET-21X and its refresher GET-19XA/GET-20XA/GET-

Affected Permit Section	Explanation of Change
	21XA, which is required for all employees, and the Hazardous Waste Worker Supervisor course HWS-101 and its refresher HWS-101A. In addition, a manager may also take HWW-101 and its refresher HWW-102 if these courses are determined to be useful for his/her position. These course descriptions are included in Permit Attachment F2. Managers who do not have direct hazardous waste management supervisory responsibilities receive training sufficient to ensure their awareness of hazardous waste management requirements and procedures; however, they do not perform hazardous waste management duties and their positions are not included in the appendices. As is the case with all WIPP facility employees, all managers receive RCRA overview training in GET-19X/GET-20X/GET-21X." from last paragraph. Added text "As there are no automatic waste feed systems at the WIPP facility, training on parameters for waste feed cut-off systems is not required. Similarly, as there is no potential for groundwater contamination incidents at the WIPP facility, training for responding to such incidents is not required."
Attachment F-1e, *Training for Emergency Response*	Deleted Section F-1e heading and text in its entirety
Attachment F, Section F-2, *Implementation of Facility Personnel Permit Training Program*	Added "Facility Personnel Permit" to heading of Section F-2. Replaced "The WIPP facility training program has been implemented to ensure that hazardous waste management and emergency response personnel employed at the WIPP facility receive the training indicated within the respective qualification cards." with "The *WIPP Training Program* has been formulated to implement the requirements of this *Facility Personnel Permit Training Program*, thereby ensuring TRU mixed waste management and emergency response personnel employed at the facility receive the training necessary to comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264.16)" in first paragraph. Deleted first sentence "Personnel are made aware of the *RCRA Contingency Plan* and its intended purpose through general employee training." and changed "in unsupervised" to "unsupervised in" of second paragraph Replaced "Attachment F1" with "Table F-2" and added "pursuant to 20.4.1.500 NMAC (incorporating 40 CFR §264.16(b))" in second paragraph. Added new sentence "(Note that some emergency responder certifications may take more than six months to complete.)" after requirements and replaced "Hazardous" with "TRU mixed" before waste twice in same paragraph. Replaced "WIPP facility training program" with "Facility Personnel Permit Training Program" and replaced "hazardous" with "TRU mixed" before waste in last paragraph. Deleted "; and backup information regarding qualification and examination" after training in last paragraph.
Attachment F, *References*	Replaced "15, 2015" with "19-FR1, 2017" and removed "." in first reference. Replaced "0" with "2" and "2015" with "2016" in second reference.
Attachment F, Table F-1	Created "Table F-1 TRU Mixed Waste Management and Emergency Response Job Titles and Descriptions" as a new table in Attachment F.
Attachment F, Table F-2	Created "Table F-2 Permit-Required Training Courses" as a new table in Attachment F.
Attachment F1, *RCRA Hazardous Waste Management and Emergency Response Job Titles and Descriptions*	This attachment has been deleted in its entirety.

Affected Permit Section	Explanation of Change
Attachment F2, *Training Course and Qualification Card Outlines*	This attachment has been deleted in its entirety.

Appendix B
Proposed Revised Permit Text

Proposed Revised Permit Text:

PART 2 - GENERAL FACILITY CONDITIONS

2.8. PERSONNEL TRAINING

2.8.1. Personnel Training Content

The personnel training program shall include the requirements specified in Permit Attachment F (*Facility Personnel Permit Training Program*) ~~and Permit Attachment F2 (Training Course and Qualification Card Outlines),~~ as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.16).

2.8.2. Personnel Training Requirements

The Permittees shall train all persons involved in the management of TRU mixed ~~and hazardous~~ waste in procedures relevant to the positions in which they are employed, as specified in Permit Attachment F~~1~~ (~~RCRA Hazardous Waste Management Job Titles and Descriptions~~*Facility Personnel Permit Training Program*), and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.16).

2.10. PREPAREDNESS AND PREVENTION

2.10.6. Live Fire Extinguisher Training

The Permittees shall develop and implement a Live Fire Extinguisher Training class ~~as identified in Permit Attachment F2~~. The Live Fire Extinguisher Training class will be made available to employees as a preparedness and prevention measure, but is not a mandatory training class for the general employee. It is mandatory for unescorted access in the underground ~~and is part of SAF 501~~.

PERMIT ATTACHMENTS

Permit Attachment A (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “General Facility Description and Process Information” - Chapter A and “Information for Specific Units - Chapter M)

Permit Attachment A1 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Container Storage - Appendix M1)

Permit Attachment A2 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Geologic Repository - Appendix M2)

Permit Attachment B (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Part A Application”).

Permit Attachment C (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Waste Analysis Plan” - Chapter B).

Permit Attachment C1 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Waste Characterization Sampling Methods” - Appendix B1).

Permit Attachment C3 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Quality Assurance Objectives and Data Validation Techniques for Waste Characterization Sampling and Analytical Methods” - Appendix B3).

Permit Attachment C4 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “TRU Waste Characterization Using Acceptable Knowledge” - Appendix B4).

Permit Attachment C5 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Quality Assurance Project Plan Requirements” - Appendix B5).

Permit Attachment C6 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Waste Isolation Pilot Plant DOE Audit and Surveillance Program” - Appendix B6).

Permit Attachment C7 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Permittee Level TRU Waste Confirmation Processes” - Appendix B7).

Permit Attachment D (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “RCRA Contingency Plan” - Chapter F).

Permit Attachment E (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Inspection Schedule, Process and Forms” - Chapter D).

Permit Attachment F (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Personnel Training” - Chapter H).

~~Permit Attachment F1 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, "RCRA Hazardous Waste Management Job Titles and Descriptions" - Appendix H1).~~

~~Permit Attachment F2 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, "Training Course and Qualification Card Outlines" - Appendix H2).~~

ATTACHMENT C

WASTE ANALYSIS PLAN

C-5 Permittee Level Waste Screening and Verification of TRU Mixed Waste

C-5a Phase I Waste Stream Screening and Verification

C-5a(1) WWIS Description

Access to the WWIS will be controlled by the Permittees' Data Administrator (**DA**) who will control the WWIS users based on approval from management personnel. Training for the WWIS Data Administrator job position will be in accordance with the WWIS Retrieval Characterization Transportation Data Administrator Task Card on file at the WIPP facility.

ATTACHMENT C7

TRU WASTE CONFIRMATION

TABLE OF CONTENTS

C7-1 Permittee Confirmation of TRU Mixed Waste

C7-1a(1) TRU Waste Confirmation Training Requirements

TRU ~~W~~waste confirmation may be completed by performing actual radiography/visual examination on the waste container(s) or by a review of radiography/visual examination media and records. This allows for a tiered approach for the training of WIPP TRU waste confirmation personnel.

TRU ~~W~~waste confirmation personnel may be trained to either review ~~of~~ radiography/visual examination media and records (Level 1) or to perform actual radiography/visual examination on the waste container(s) (Level 2). Level 2 personnel may also perform waste confirmation by review of media and records.

C7-1b Radiography Methods Requirements

C7-1b(1) Radiography Training

The radiography system involves qualitative and semiquantitative evaluations of visual displays. Operator training and experience are the most important considerations for ensuring quality controls in regard to the operation of the radiography system and for interpretation and disposition of radiography results. Only trained personnel shall be allowed to operate radiography equipment.

~~The Permittee radiography operators performing waste confirmation shall be trained in accordance with the requirements of Permit Attachment F1.~~

Radiographer Level 1 personnel performing TRU mixed waste confirmation shall be trained in:

- TRU Waste Confirmation Radiographer Level 1 Qualification.

Radiographer Level 2 personnel performing TRU mixed waste confirmation shall be trained in:

- TRU Waste Confirmation Radiographer Level 2 Qualification.

C7-1b(1)(i) TRU Waste Confirmation Radiographer Certification Level 1 Qualification

Level 1 radiography operators are instructed in the specific waste-generating practices and typical packaging configurations expected to be found in each Waste Matrix Code at each site shipping waste to the WIPP facility. The on-the-job training (OJT) and apprenticeship is conducted by an experienced, qualified radiography operator or trainer prior to the qualification of the training candidate. Radiography operators are requalified once every two years.

The Level 1 radiography training program includes the following elements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Basic Principles of Radiography
- Radiography of Waste Forms (including the ability to identify liquid and compressed gases which will be verified by a radiography subject matter expert)
- Waste Stream-Specific Instruction (e.g., specific waste-generating processes, typical packaging configurations, waste material parameters)

On-the-Job Training

- System Operation (equipment and procedures used by Level 1 radiographers)
- Identification of Packaging Configurations
- Identification of Waste Material Parameters/Waste Matrix Codes
- Identification of liquid in excess of the TSDF-WAC limits and compressed gases
- Verification of waste stream description

C7-1b(1)(ii) TRU Waste Confirmation Radiographer Level 2 Qualification

Level 2 radiography operators are instructed in the specific waste-generating practices and typical packaging configurations expected to be found in each Waste Matrix Code at each site shipping waste to the WIPP facility. The OJT and apprenticeship are conducted by an experienced, qualified radiography operator prior to the qualification of the training candidate. Radiography operators are requalified once every two years.

The Level 2 radiography training program includes the following elements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Basic Principles of Radiography
- Radiographic Image Quality
- Radiographic Scanning Techniques
- Application Techniques
- Radiography of Waste Forms
- Standards, Codes, and Procedures for Radiography
- Waste Stream-Specific Instruction

On-the-Job Training

- System Operation
- Identification of Packaging Configurations
- Identification of Waste Material Parameters/Waste Matrix Codes
- Identification of liquid in excess of the TSDF-WAC limits and compressed gases
- Verification of waste stream description

C7-1c(1) Visual Examination Training

~~The Permittee's VE operators performing waste confirmation shall be trained in accordance with the requirements of Permit Attachment F1.~~

Visual Examination Operator/Expert Level 1 personnel performing TRU mixed waste confirmation shall be trained in:

- TRU Waste Confirmation Visual Examination Level 1 Qualification.

Visual Examination Operator/Expert Level 2 performing TRU mixed waste confirmation shall be trained in:

- TRU Waste Confirmation Visual Examination Level 2 Qualification.

C7-1c(1)(i) TRU Waste Confirmation Visual Examination Level 1 Qualification

Level 1 visual examination personnel are instructed in the specific waste-generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code in the waste stream being confirmed using visual examination. The OJT and apprenticeship are conducted by an operator experienced and qualified in visual examination or a qualified trainer prior to qualification of the candidate. The training is waste stream-specific to include the various waste configurations being confirmed. For example, the particular physical forms and packaging configurations at each site will vary and operators shall be trained on types of waste that are generated, stored, and/or characterized at that particular site. Visual examination personnel are requalified once every two years.

The Level 1 visual examination training program includes the following elements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Batch Data Report Forms
- Waste Stream-Specific Instruction (e.g., waste-generating processes, typical packaging configurations, waste material parameters)

On-the-Job Training

- System Operation (equipment and procedures used by Level 1 visual examination personnel)
- Identification of Packaging Configurations
- Identification of Waste Material Parameters/Waste Matrix Codes
- Identification of liquid in excess of the limits in the TSDF-WAC and compressed gases

- Verification of waste stream description

C7-1b(1)(ii) TRU Waste Confirmation Visual Examination Level 2 Qualification

Level 2 visual examination operators are instructed in the specific waste generating processes, typical packaging configurations, and waste material parameters expected to be found in each Waste Matrix Code in the waste stream being confirmed using visual examination. The OJT and apprenticeship are conducted by an operator experienced and qualified in visual examination prior to qualification of the candidate. The training is waste-stream specific to include the various waste configurations being confirmed. For example, the particular physical forms and packaging configurations at each site will vary so operators shall be trained on types of waste that are generated, stored, and/or characterized at that particular site. Visual examination personnel are requalified once every two years.

The Level 2 visual examination training program includes the following elements:

Formal Training

- Project Requirements
- State and Federal Regulations
- Batch Data Report Forms
- Application Techniques
- Waste Stream-Specific Instruction (e.g., specific waste-generating processes, typical packaging configurations, waste material parameters)

On-the-Job Training

- Identification of Packaging Configurations
- Identification of Waste Material Parameters/Waste Matrix Code
- Identification of liquid in excess of the TSDF-WAC limits and compressed gases
- Verification of waste stream description

C7-1d(2) Visual Examination QAOs

Accuracy

Accuracy is maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification. VE operators shall be requalified ~~as specified in Permit Attachment F2~~once every two years.

C7-1e Review and Validation of Radiography and Visual Examination Data Used for Waste Examination

C7-1e(3) DOE Management Representative Training

The DOE Management Representative performing TRU mixed waste confirmation data package review and approval shall be trained in:

- Required Reading:
  - DOE's Quality Assurance Program Document
  - Permit Attachments C through C7
  - Required Reading identified in DOE's management procedure, *Approval of Contractor-Generator Confirmation Data Packages*

ATTACHMENT D

RCRA CONTINGENCY PLAN

D-2 Emergency Response Personnel and Training

D-2a Emergency Response Personnel

A RCRA Emergency Coordinator will be on-site at the WIPP facility 24 hours a day, seven days a week, with the responsibility for coordinating emergency response measures. In accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.52(d)), qualified RCRA Emergency Coordinators are listed in Table D-1 and are trained to the requirements found in Permit Attachment F~~1~~, under "~~RCRA~~ Emergency Coordinator".

In addition, persons qualified to act as the RCRA Emergency Coordinator have the authority to commit the necessary resources to implement this *RCRA Contingency Plan*.

During emergencies, the RCRA Emergency Coordinator has three primary responsibilities:

- Assess the Situation—The RCRA Emergency Coordinator shall gather information relevant to the incident, such as the type of event, quantity and type of released waste, and existing or potential hazards to human health and the environment.

- Protect Personnel—The RCRA Emergency Coordinator shall take reasonable measures to ensure the safety of personnel, such as ensuring that alarms have been activated, personnel have been accounted for, any injuries have been attended to, and evacuation of personnel has occurred, if necessary.

- Contain the Release—The RCRA Emergency Coordinator shall take reasonable measures to ensure that fires, explosions, or releases of hazardous waste or hazardous waste constituents do not occur, recur, or spread.

In addition to the RCRA Emergency Coordinator, the following individuals, groups, and organizations have specified responsibilities during any WIPP facility emergency:

- WIPP Fire Department—The primary providers of fire suppression, technical rescue, Emergency Medical Services (EMS), and hazardous materials response for the protection of personnel in both surface and underground facilities.

- Facility Shift Manager (**FSM**)—A member of the Facility Operations organization who is in charge of plant operations and is the senior shift representative responsible for maintaining the facility in a safe configuration during normal and abnormal conditions. The FSM can concurrently serve as the RCRA Emergency Coordinator, if trained to the requirements of Permit Attachment F~~1~~ (*Facility Personnel Permit Training Program*), or provide support to the qualified RCRA Emergency Coordinator on shift. ~~Since the FSM provides support to the RCRA Emergency Coordinator relative to the safety of the WIPP facility, no specific RCRA training is required.~~

D-2b Emergency Response Training

The WIPP Fire Department personnel are trained in accordance with the *WIPP Fire Department Training Plan*, which is kept on file at the WIPP facility. The training plan incorporates current National Fire Protection Association (**NFPA**) standards for training Firefighters and ERT members.

Fire Department Incident Commanders are also trained in accordance with the *WIPP Fire Department Training Plan*, which incorporates the Federal Emergency Management Agency (**FEMA**), Incident Command System (**ICS**), and the National Incident Management System (**NIMS**) standards.

WIPP personnel who perform EMS duties are licensed through the State of New Mexico Emergency Medical Systems Bureau. Licensure requirements for training, continuing education, and skills maintenance are set forth through state requirements. Licenses are maintained by attending training seminars or conferences.

As described above, emergency response training is conducted in accordance with the *WIPP Fire Department Training Plan*, which is updated whenever the applicable standards are revised. In addition to the emergency response training, WIPP Fire Department personnel are required to complete applicable site-specific training, which is described in Permit Attachment F, *Facility Personnel Permit Training Program*~~; Attachment F1, *RCRA Hazardous Waste Management and Emergency Response Job Titles and Descriptions*; and Attachment F2, *Training Course and Qualification Card Outlines*.~~

ATTACHMENT E

INSPECTION SCHEDULE, PROCESS AND FORMS

Table E-1
Inspection Schedule/Procedures

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
Air Intake Shaft Hoist	Underground Operations	Preoperational [c] ~~See Lists 1b and c~~	WP 04-HO1004 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with Mine Safety and Health Administration (MSHA) requirements
Ambulance (Surface) and Medical Cart (Underground)	Fire Department	Weekly ~~See List 11~~	WP 12-FP0030 Inspecting for Mechanical Operability[m], Deterioration[b], and Required Equipment[n]
Adjustable Center of Gravity Lift Fixture	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1410 Inspecting for Mechanical Operability[m] and Deterioration[b]
Backup Power Supply Diesel Generators	Facility Operations	Monthly ~~See List 3~~	WP 04-ED1301 Inspecting for Mechanical Operability[m] and Leaks/Spills by starting and operating both generators. Results of this inspection are logged in accordance with WP 04-AD3008.
Facility Inspections (Water Diversion Berms)	Facility Engineering	Annually ~~See List 4~~	WP 10-WC3008 Inspecting for Damage, Impediments to water flow, and Deterioration[b]
Central Monitoring Systems (CMS)	Facility Operations	Continuous ~~See List 3~~	Automatic Self-Checking
Contact-Handled (CH) TRU Underground Transporter	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1603 Inspecting for Leaks/Spills, Mechanical Operability[m], Deterioration[b], and area around transporter clear of obstacles
Conveyance Loading Car	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1406 Inspecting for Mechanical Operability[m], Deterioration[b], path clear of obstacles, and guards in the proper place

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
Facility Transfer Vehicle	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1204 Inspecting for Mechanical Operability[m], Deterioration[b], path clear of obstacles, and guards in the proper place
Emergency Lighting	Fire Department	Monthly/annually ~~See List 11~~	WP 12-FP0051 Inspecting for Deterioration[b], and Operability of indicator lights in accordance with NFPA 101
Exhaust Shaft	Underground Operations	Quarterly ~~See List 1a~~	PM041099 Inspecting for Deterioration[b] and Leaks/Spills
Eye Wash and Shower Equipment	Equipment Custodian	Weekly ~~See List 5~~	WP 12-IS1832 Inspecting for Deterioration[b]
		Semi-annually ~~See List 2a~~	WP 12-IS1832 Inspecting for Deterioration[b] and Fluid Levels–Replace as Required
Fire Detection and Alarm System	Fire Protection Engineering	Semi-annually/annually ~~See List 12~~	WP 12-FP0027 Inspecting for Deterioration[b] and Operability of underground fuel station fire suppression system in accordance with NFPA 17 (semi-annual inspection); Inspecting for Deterioration[b] and Operability of the alarm panel and transmitter, audible/visual alarm devices, detectors, and pull stations in accordance with NFPA 72 (annual inspection). WP 12-FP0028 Inspection for Deterioration[b], and Operability of the alarm panel and transmitter, audible/visual alarm devices, detectors, and pull stations in accordance with NFPA 72
		Monthly/quarterly/annually ~~See List 12~~	
Fire Extinguishers[j]	Fire Department	Monthly ~~See List 11~~	WP 12-FP0036 Inspecting for Deterioration[b], Leaks/Spills, Expiration, seals, fullness, and pressure
Fire Hoses	Fire Department	Annually (minimum) ~~See List 11~~	WP 12-FP0031 Inspecting for Deterioration[b] and Leaks/Spills
Fire Hydrants	Fire Protection Engineering	Semi-annual/annually ~~See List 12~~	WP 12-FP0034 Inspecting for Deterioration[b] and Leaks/Spills

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
Fire Pumps	Fire Protection Engineering	Weekly ~~See List 12~~	WP 12-FP0026 Inspecting for Deterioration[b], Leaks/Spills, fire water valve positions(s), and panel light status
		Annually (Electric Pump) ~~See List 12~~	WP 12-FP5113 Inspection for Deterioration[b], operability, flow, discharge pressure, suction pressure, and pump speed
		Annually (Diesel Pump) ~~See List 12~~	WP 12-FP5114 Inspecting for Deterioration[b], operability, flow, discharge pressure, suction pressure, and pump speed
Fire Sprinkler Systems	Fire Protection Engineering	Monthly/ quarterly/ annually ~~See List 12~~	WP 12-FP0025, WP 12-FP0063, and WP 12-FP0064 Inspecting for Deterioration[b], Leaks/Spills, water pressures, and main drain test
Fire and Emergency Response Vehicles (Fire Trucks, Fire Suppression Cart, and Rescue Cart/Truck)	Fire Department	Weekly ~~See List 11~~	WP 12-FP0033 Inspecting for Mechanical Operability[m], Deterioration[b], Leaks/Spills, and Required Equipment[n]
Forklifts Used for Waste Handling (Electric and Diesel forklifts, Push-Pull Attachment)	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1201, WP 05-WH1207, WP 05-WH1401, WP 05-WH1402, WP 05-WH1403, and WP 05-WH1412 Inspecting for Leaks/Spills, Mechanical Operability[m], Deterioration[b], and On board fire suppression system
Automatic on-board fire suppression systems	Fire Protection Engineering	Semi-annually ~~See List 12~~	WP 12-FP0060 Inspecting for Mechanical Operability[m] and Deterioration[b]
Hazardous Material Response Equipment	Fire Department	Quarterly ~~See List 11~~	WP 12-FP0033 Inspecting for Deterioration[b], and Required Equipment[n]
Head Lamps	Facility Personnel	Daily[i]	Head lamps are operated daily and are repaired or replaced upon failure
Miners First Aid Station	Fire Department	Quarterly ~~See List 11~~	WP 12-FP0035 Inspecting for Required Equipment[n]

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
Mobile Phones	Facility Personnel	Daily[i]	Mobile Phones are operated daily and are repaired or replaced upon failure
Mine Pager Phones (between surface and underground)	Facility Operations	Monthly/Annually[o] ~~See List 3~~	WP 04-PC3017 WP 04-PC3018 Testing of Mine Pager Phones at essential locations
MSHA Air Quality Monitor	Maintenance/ Underground Operations	Daily[l] ~~See Lists 1 and 10~~	WP 12-IH1828 Inspecting for Air Quality Monitoring Equipment Functional Check
Perimeter Fence, Gates, Signs	Security	Daily ~~See List 6~~	WP 17-SS1023 Inspecting for Deterioration[b] and Posted Warnings
Mine Rescue Self-Contained Breathing Apparatus (**SCBA**)	Mine Rescue Team	30 days ~~See List 5~~	Inspection for Deterioration[b] and Pressure[g]
Fire Department SCBA	Fire Department	Weekly/monthly ~~See List 11~~	WP 12-FP0029 Inspecting for Deterioration[b] and Pressure
Site Notification System; Underground Evacuation Alarm System	Facility Operations	Monthly/Annually ~~See List 3~~	WP 04-PC3017 WP 04-PC3018 Testing of PA and Underground Alarms
Radio Equipment	Facility Personnel	Daily[i]	Radios are operated daily and are repaired or replaced upon failure
Salt Handling Shaft Hoist	Underground Operations	Preoperational [c] ~~See List 1b and c~~	WP 04-HO1002 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with MSHA requirements
Self-Rescuers and Self-Contained Self-Rescuers	Underground Operations	Quarterly ~~See List 1c~~	WP 04-AU1026 Inspecting for Deterioration[b] and Functionality in accordance with MSHA requirements
Surface TRU Mixed Waste Handling Area [k]	Waste Handling	Preoperational [c] or Weekly [e] ~~See List 8~~	WP 05-WH1101 Inspecting for Deterioration[b], Leaks/Spills, Required Aisle Space, Posted Warnings, Communication Systems, Container Condition, and Floor coating integrity

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
TRU Mixed Waste Decontamination Equipment	Waste Handling	Annually ~~See List 8~~	WP 05-WH1101 Inspecting for Required Equipment[n]
Underground Openings—Roof Bolts and Travelways	Underground Operations	Weekly ~~See List 1a~~	WP 04-AU1007 Inspecting for Deterioration[b] of Accessible Areas
Underground— Geomechanical Instrumentation System (GIS)	Geotechnical Engineering	Monthly ~~See List 9~~	WP 07-EU1301 Inspecting for Deterioration[b]
Underground TRU Mixed Waste Disposal Area	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1810 Inspecting for Deterioration[b], Leaks/Spills, mine pager phones, equipment, unobstructed access, signs, debris, and ventilation
Uninterruptible Power Supply (Central UPS)	Facility Operations	Daily ~~See List 3~~	WP 04-ED1542 Inspecting for Mechanical Operability[m] and Deterioration[b] with no malfunction alarms. Results of this inspection are logged in accordance with WP 04-AD3008.
TDOP Upender	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1010 Inspecting for Mechanical Operability[m] and Deterioration[b]
Ventilation Exhaust	Maintenance Operations	Quarterly ~~See List 10~~ Quarterly ~~See List 10~~ Semi-annually ~~See List 10~~	IC413000 (700, 860, and 960 Fans) Flow Verification of total mine airflow for fans in service IC041098 (700 Fans)Check for Deterioration[b] and Calibration of Mine Ventilation Rate Monitoring Equipment and flow verification of individual fans IC413005 (860 Fans) IC041087 (960 Fans) Check for Deterioration[b], and Calibration of Mine Ventilation Rate Monitoring Equipment and flow verification of individual fans
Waste Handling Cranes	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1407 Inspecting for Mechanical Operability[m], Deterioration[b], and Leaks/Spills

System/Equipment Name	Responsible Organization	Inspection[a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~	Procedure Number and Inspection Criteria[h]
Waste Hoist	Underground Operations	Preoperational [c] ~~See List 1b and c~~	WP 04-HO1003 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m], Leaks/Spills, in accordance with MSHA requirements
Water Tanks	Facility Operations	Daily ~~See List 3~~	WP 04-AD3008 Inspecting for Deterioration[b], valve lineup and water levels. Results of this inspection are logged in accordance with WP 04-AD3008.
Push-Pull Attachment	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1401 Inspecting for Damage and Deterioration[b]
Trailer Jockey	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1405 Inspecting for Leaks/Spills, Mechanical Operability[m] and Deterioration[b]
Explosion-Isolation Walls	Underground Operations	Quarterly ~~See List 1~~	PM000032 Integrity and Deterioration[b] of Accessible Areas
Bulkhead in Filled Panels	Underground Operations	Monthly ~~See List 1~~	PM000011 PM000015 Integrity and Deterioration[b] of Accessible Areas
Bolting Robot	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1203 Mechanical Operability[m]
Yard Transfer Vehicle	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1205 Mechanical Operability[m], Deterioration[b], Path clear of obstacles and Guards in proper place
Payload Transfer Station	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1208 Mechanical Operability[m], Deterioration[b], and Guards in proper place
Monorail Hoist	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1202 Mechanical Operability[m], Deterioration[b], and Leaks/Spills
Bolting Station	Waste Handling	Preoperational [c] ~~See List 8~~	WP 05-WH1203 Mechanical Operability[m], Deterioration[b], and Guards in proper place

Table E-1 (Continued)
Inspection Schedule/Procedures Lists

List 1: Underground Operations

a. Mining Technician *
Senior Mining Technician *
Continuous Mining Specialist *
Senior Mining Specialist *
Mine OPS Supervisor *

b. Waste Hoist Operator
Waste Hoist Shaft Tender

c. U/G Facility Operations* - Self Rescuers
Shaft Technician *

d. Operations Engineer
Supervisor U/G Services*
Senior Operations Engineer*

List 2: Industrial Safety

a. Safety Technician *
Senior Safety Technician *
Safety Specialist *
Safety Engineer *
Industrial Hygienist *

b. Fire Protection Engineering *

List 3: Facility Operations

Facilities Technician *
Facility Operations Roving Watch *
Central Monitoring Room Operator
Operations Engineer
Senior Operations Engineer *
Facility Shift Manager *
Operations Technical Coordinator *

List 4: Facility Engineering

Senior Engineer *

List 5: General

Equipment Custodian*

List 6: Security

Security Protective *
Security Protective Supervisor *

List 8: Waste Handling

Manager, Waste Operations
TRU Waste Handler

List 9: Geotechnical Engineering

Engineer Technician *
Associate Engineer *
Engineer *
Senior Engineer *
Principal Engineer*

List 10: Maintenance Operations

Maintenance Technician *
Maintenance Specialist *
Senior Maintenance Specialist *
Contractor *

List 11: Fire Department

Qualified Fire Department Personnel

List 12: Fire Protection Engineering

Fire Protection Engineering Representative*
Qualified Fire Department Personnel

Table E-1 (Continued)
Inspection Schedule/Procedures Notes

[a] Inspection may be accomplished as part of or in addition to regularly scheduled preventive maintenance inspections for each item or system. Certain structural systems of the WHB, Waste Hoist and Station A are also subject to inspection following severe natural events including earthquakes, tornados, and severe storms. Structural systems include columns, beams, girders, anchor bolts and concrete walls.

[b] Deterioration includes: obvious visible cracks, erosion, salt build-up, damage, corrosion, loose or missing parts, malfunctions, and structural deterioration.

[c] "Preoperational" signifies that inspections are required prior to the first use during a calendar day. For calendar days in which the equipment is not in use, no inspections are required. For an area this includes: area is clean and free of obstructions (for emergency equipment); adequate aisle space; emergency and communications equipment is readily available, properly located and sign-posted, visible, and operational. For equipment, this includes: checking fluid levels, pressures, valve and switch positions, battery charge levels, pressures, general cleanliness, and that all functional components and emergency equipment is present and operational.

[e] These weekly inspections apply to container storage areas when containers of waste are present for a week or more.

[g] Inspections are performed per manufacturer's maintenance instructions.

[h] Inspections and PM's are not required for equipment that is out of service. However, if compensatory measures have been established to ensure an equivalent level of protection during the period that the equipment is out of service (e.g., required equipment/supplies from an out-of-service emergency vehicle have been temporarily relocated), appropriate inspections will be scheduled, conducted, and documented in the Operating Record, in accordance with Attachment E, Section E-1.

[i] Head Lamps, Mobile Phones, and Radios are not routinely "inspected." They are typically used in day-to-day operations. They are used until they fail, at which time they are replaced and repaired.

[j] Fire extinguisher inspections are performed in accordance with NFPA 10.

[k] Surface CH TRU mixed waste handling areas include the Parking Area Unit, the WHB unit, and unloading areas.

[l] No log forms are used for daily readings. However, readings that are out of tolerance are reported to the CMR and logged by CMR operator. Inspection includes daily functional checks of portable equipment.

[m] Mechanical Operability means that the equipment has been checked and is operating in accordance with site safety requirements (e.g., proper fluid levels and tire pressure; functioning lights, alarms, sirens, and power/battery units; and belts, cables, nuts/bolts, and gears in good condition), as appropriate.

[n] Required Equipment means that the equipment identified in Table D-2 is available and usable (i.e., not expired/depleted and works as designed).

[o] Mine pager phones in non-essential locations are not routinely "inspected". Many are used in day-to-day operations. They are used until they fail, at which time they are repaired. Mine pager phones are used routinely by Underground Operations.

~~* Positions are not considered RCRA positions (i.e., personnel do not manage or respond to emergencies involving TRU mixed waste).~~

Table E-1a
RH TRU Mixed Waste Inspection Schedule/Procedures

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~ [J]	Procedure Number (Latest Revision)[I]	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Cask Transfer Car(s)	Waste Operations	Pre-evolution [c,d,e] ~~See List 1~~	WP05-WH1701 PM041187 (Semi-Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
RH Bay Overhead Bridge Crane	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1741 PM041232 (Quarterly) PM041117 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Facility Cask	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1713 PM041201 (Annual) PM041203 (Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical PM.
RH Bay Cask Lifting Yoke	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1741 PM041169 (Annual)	Yes	NA	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Facility Cask Transfer Car	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1704 PM041186 (Quarterly) PM041195 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication Electrical Inspection
Facility Cask Rotating Device	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1713 PM041175 (Annual) PM041176 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication Electrical Inspection
Facility Grapple	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1721 PM041172 (Quarterly) PM041177 (Annual)	Yes	NA	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear. Non-Destructive Examination
6.25-Ton Grapple Hoist	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1721 PM411028 (Annual)	Yes	Yes	Pre-evolution Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication
Transfer Cell Shuttle Car	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1705 PM041184 (Semi-Annual) PM041222 (Annual)	Yes	Yes	Pre-evolution Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection.

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~ [J]	Procedure Number (Latest Revision)[I]	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Cask Unloading Room	Waste Operations	Preoperational [c,d,e,f,h,i] ~~See List 1~~	WP05-WH1744	Yes	NA	Floor integrity
Hot Cell	Waste Operations	Preoperational [c,d,e,f,g,h,i] ~~See List 1~~	WP05-WH1744	Yes	NA	Floor integrity
Hot Cell Overhead Powered Manipulator	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1743 PM041215 (Annual) PM041216 (Annual) IC411037 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration
Hot Cell Bridge Crane	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1742 PM041217 (Annual) PM041209 (Annual) IC411038 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration.
Transfer Cell	Waste Operations	Preoperational [c,d,e,f,h,i] ~~See List 1~~	WP05-WH1744	Yes	NA	Floor integrity
Facility Cask Loading Room	Waste Operations	Preoperational [c,d,e,f,h,i] ~~See List 1~~	WP05-WH1744	Yes	NA	Floor integrity
Closed Circuit Television Camera	Waste Operations	Preoperational [c,i] ~~See List 1~~	WP05-WH1757	NA	NA	Operability
Radiation Monitoring Equipment	Radiation Control	Preoperational [c,d,e] ~~See List 2~~	WP12-HP1245 IC240010 WP12-HP1307 IC534000 WP12-HP1314 (Annual)	Yes	NA	Operability Checks, Functional Checks, Instrument calibrations, Flow Calibration, Efficiency Checks.
Cask Unloading Room Crane	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1719 PM041190 (Quarterly) PM041191 (Annual) PM041192 (Annual) IC411035 (Annual)	Yes	Yes	Pre-operational Checks and Operating Instructions. Mechanical Inspection for Wear and Lubrication. Electrical Inspection. Load Cell Calibration.

System/ Equipment Name	Responsible Organization [J]	Inspection [a] Frequency ~~and Job Title of Personnel Normally Making Inspection~~ [J]	Procedure Number (Latest Revision)[l]	Inspection Criteria		
				Deterioration[b]	Leaks/ spills	Other
Horizontal Emplacement and Retrieval Equipment or functionally equivalent equipment	Waste Operations	Pre-evolution [c,d,e,f] ~~See List 1~~	WP05-WH1700 PM052010 (Semi-Annual)[k] PM052011 (Annual) PM052013 PM052012 PM052014 (Annual)	Yes	Yes	Assembly and Operating Instructions. Electrical Inspection. Position Transducer Calibration. Tilt Sensor Calibration.
41-Ton Forklift	Waste Operations	Preoperational [c,d,e,i] ~~See List 1~~	WP05-WH1602 PM074061 PM052003 (Hours of Use) PM074027 (Quarterly) PM074029 & PM074051 (Annual)	Yes	Yes	Pre-Operational Checks. PM performed every 100 hours of operation, every 500 hours of operation or every 5 Years. Quarterly Engine Emission Test. Annual Electrical Inspection. Annual NDE.
RH Bay	Waste Operations	Preoperational [c,d,e,h,i] ~~See List 1~~	WP05-WH1744	Yes	NA	Floor integrity
Surface RH TRU Mixed Waste Handling Area	Waste Operations	Preoperational [i] ~~See List 1~~	WP- 05 WH1744	Yes	Yes	Posted Warning, Communications

Table E-1a (Continued)
RH TRU Mixed Waste Inspection Schedule/Procedures Lists

List 1: Waste Operations

RH Waste Handling Engineer

Qualified TRU Waste Handler

List 2: Radiological Control

Radiological Control Technician

ATTACHMENT F

FACILITY PERSONNEL PERMIT TRAINING PROGRAM~~PERSONNEL TRAINING~~

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ATTACHMENT F

FACILITY PERSONNEL PERMIT TRAINING PROGRAM~~PERSONNEL TRAINING~~

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ATTACHMENT F

FACILITY PERSONNEL PERMIT TRAINING PROGRAM~~PERSONNEL TRAINING~~

F-0 Introduction

This attachment describes the *Facility Personnel Permit Training Program* ~~personnel training program~~for the Waste Isolation Pilot Plant (**WIPP**) in accordance with the requirements of the Resource Conservation and Recovery Act (**RCRA**) and the New Mexico Hazardous Waste Act as described in 20.4.1.500 New Mexico Administrative Code (**NMAC**) (incorporating 40 CFR §264.16), and 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(12)).

The primary objective of the *Facility Personnel Permit* ~~WIPP facility training program~~*Training Program* is to prepare facility personnel to operate and maintain the WIPP facility in a safe and environmentally sound manner in compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16). To achieve this objective, the program provides WIPP facility employees with training relevant to their positions.

~~Every~~ WIPP facility employee~~s~~, including those not directly involved in transuranic (**TRU**) mixed waste handling activities~~,~~ or emergency response, receive~~s~~ an introduction to the RCRA regulations and emergency preparedness ~~within 30 days of employment~~in their General Employee Training (GET) class. General Employee Training emphasizes that WIPP facility personnel and site visitors are required to comply with directions from emergency personnel and alarm system notifications and to follow instructions concerning emergency equipment, shutdown procedures, signage, and emergency evacuation routes and exits. In this way ~~everyone~~ employees at the WIPP facility ~~is~~are given, at a minimum, a basic understanding of the regulatory requirements and emergency procedures. This ensures that facility employees know how to respond effectively to emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems. Employees in ~~hazardous~~TRU mixed waste management or emergency response positions receive additional classroom and on-the-job training designed specifically to teach them how to perform their duties safely and in conformance with regulatory requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264). ~~Hazardous~~TRU mixed waste management personnel receive the required training before being allowed to work unsupervised, and emergency response personnel receive appropriate training before being called upon to respond to actual emergencies.

The training requirements of the *Facility Personnel Permit Training Program* are implemented via the *WIPP Training Program* and apply to ~~all~~ appropriate ~~employees~~ facility personnel of the U.S. Department of Energy (**DOE**) and contractors, subcontractors, and bargaining-unit members who:

- ~~r~~Regularly work at the facility that may come in contact with and/or manage ~~hazardous~~TRU mixed waste, or
- Oversee the operations of the facility that may come in contact with and/or manage TRU mixed waste, or
- Supervise individuals who may come in contact with and/or manage TRU mixed waste, or

- Provide emergency response capabilities.

~~The WIPP Project training program is comprehensive and applies to all areas of personnel performance and development.~~ This ~~*attachment*~~ *Facility Personnel Permit Training Program* describes the introductory and continuing training provided to personnel at the WIPP facility, with emphasis on those facility personnel and their supervisors whose jobs are such that their actions or failure to act could result in a spill or release, or the immediate threat of a spill or release of ~~hazardous~~TRU mixed waste. ~~These personnel are directly involved with hazardous waste management at the WIPP facility. Their training allows them to operate the facility safely and in compliance with hazardous waste regulations.~~

This *Facility Personnel Permit Training Program* does not apply to facility employees who manage site-generated hazardous waste, low-level waste, universal waste, or other forms of hazardous waste that are not categorized as TRU mixed waste.

F-1 Outline of the Facility Personnel Permit Training Program

Employee training for the purpose of ~~hazardous~~ TRU mixed waste management and emergency response at the WIPP facility is the overall responsibility of the Management and Operating Contractor (**MOC**) Project Manager, with responsibility for implementation delegated to Technical Training. Technical Training is managed by the Technical Training Manager. The Technical Training Manager (or designee) ~~who~~ has the responsibility for directing the ~~*training program*~~*Facility Personnel Permit Training Program*. The list of job titles in ~~Attachment~~Table F-1 ~~shows~~presents the personnel with ~~key~~identified responsibilities for TRU mixed waste management and emergency response.

F-1a Facility Personnel Permit Training Program Design

In developing the *WIPP Training Program*, Technical Training has used~~The WIPP facility uses~~ a modified version of the Systematic Approach to Training (**SAT**) ~~to analyze, design, develop, implement, and evaluate training.~~which has

~~This approach employs~~ five distinct phases to develop training programs. These phases are:

- Analysis
- Design
- Development
- Implementation
- Evaluation

~~In "analysis," technical training and line management identify job performance requirements. These requirements are derived by studying job duty areas, related tasks, and required skills and knowledge. These derived skills and knowledge, in turn, form the blueprint for the "design" phase. In "design" these requirements are translated into learning objectives, performance standards, and test items. In "development" the products of design are incorporated into new training programs or, if appropriate, incorporated into revisions of existing programs. Products of development are lesson plans, qualification cards, student materials, and examinations. Implementation of these programs then occurs. This may be through classroom instruction, on-the-job-training, self-paced study, or any combination of the three. "Evaluation" is the final phase of the SAT process. Evaluation uses feedback derived from several sources to improve or enhance the training. The WIPP~~Technical Training utilizes ~~extensive~~ guidance provided within

the DOE Handbooks, “Training Program Handbook: A Systematic Approach to Training (DOE-HDBK-1078-94),” and “Alternative Systematic Approaches to Training (DOE-HDBK-1074-95)” to direct ~~all program analysis, design, development, implementation, or evaluation. Further details of these processes may be derived by reviewing this manual~~these five phases.

Technical Training ensures that Permit-required ~~Resource Conservation and Recovery Act **(RCRA)** related~~ training is conducted by qualified instructors as indicated in the *WIPP Training Program*. ~~On-the-job training is conducted by Level I instructors. Level I instructors are subject matter experts; members of line organizations who have qualified on the related equipment and have attended the on-the-job training course. Classroom instruction is provided by Level II and Level III instructors. Level II instructors are members of Technical Training and line organizations that are qualified to conduct limited classroom training in their technical area of expertise. Level III instructors are members of Technical Training who are qualified to conduct classroom training, skills evaluation, and needs assessment. Level II and III instructors are required to attend a train-the-trainer course and periodic refresher training.~~

Cognizant line managers provide significant input on training requirements for the WIPP facility to qualified instructors who develop the following, as required:

- Classroom Instruction
  ~~-Objectives~~
  ~~-Lesson Plans~~
  ~~-Student Materials~~
  ~~-Examinations~~
- Required reading, structured self-study, eLearning, computer based training
- On-the-Job Training

  ~~-Qualification Cards~~

~~Technical training materials are approved by the Technical Training Manager and the cognizant line manager.~~

Upon completion of the specific classroom, computer based training, eLearning or structured self-study~~Following~~ technical training courses, trainees must successfully complete written ~~examinations~~ or oral examinations ~~conducted by boards made up of cognizant personnel (referred to as “oral boards”)~~ to demonstrate competency. ~~The records of oral examinations are called “oral board sheets”. These examinations are based on objectives and/or competency statements. Oral boards are based on knowledge learned in the on-the-job training process. Trainees also provide feedback on the content and quality of instruction, at this time, in the form of course critiques and verbal input.~~

Technical training documentation ~~is~~ and records are maintained by Technical Training located at the WIPP facility. Documents and records required by 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(1), (2), (3), and (4)) are maintained in WIPP facility files and include the following:~~These technical training records include:~~

- Job titles for positions related to TRU mixed waste management and emergency response and names of the employees filling those positions

- Written job descriptions for the applicable positions

- Written description of the type and amount of introductory and continuing training given for each applicable position

- Records documenting that the training or job experience required has been given to or completed by facility personnel include as appropriate:

    - Course Attendance
    - Completed Qualification Cards
    - Off-Site Training Documentation
    - Training or job experience given and completed for each position~~Oral Board Sheets~~

~~A database~~Documentation is maintained which ~~records~~ includes records of training qualifications, and course attendance. The ~~database~~ documentation is used to identify course refresher and requalification dates. Training records on current personnel are kept in the Technical Training files until facility closure. Technical training records on former employees are kept by Technical Training for at least three years from the date of employment termination from the WIPP facility. Training documentation for emergency response training received by personnel called out in the *RCRA Contingency Plan* (Permit Attachment D) is also maintained by Technical Training. ~~The documents which define the process by which these training activities are managed are maintained by Technical Training and are part of the Operating Record.~~

~~To ensure the safe and efficient operation of the WIPP facility, certain positions require formal qualification. Department managers identify these positions based upon safety, complexity, and involvement with hazardous waste handling operations. A document known as a "qualification card" is prepared to identify required training for each designated position. In the case of equipment and system/procedure qualification, a "qualification card" is prepared that specifies the required knowledge and practical skills needed in such areas as equipment maintenance and safety. Individual participation in the qualification card system is varied and is dependent on an incumbent's specific job duties. A complete listing of active qualifications, as they apply to any individual position, may be determined by review of the WIPP Training Database. The list of active WIPP Qualification cards is maintained at the WIPP facility.~~

~~When the qualification card is completed, that particular qualification is recorded. Successful completion of formal classroom training is documented on the individual's qualification card. When requirements are met, both for classroom instruction and on-the-job training, and oral board, if applicable, the qualification card is signed by the manager certifying that the employee is fully competent to perform all aspects of the associated qualification. Qualification cards are included in the training records maintained by Technical Training. Qualification cards are living documents subject to change as the scope and content of training changes to meet new and revised regulatory requirements and modifications in job scope.~~

~~The hazardous waste management training program described in Section F-1b consists of a series of courses designed to ensure that hazardous waste management employees at the WIPP facility receive initial and continuing training relevant to their positions. These courses include instruction on the RCRA and Occupational Safety and Health Administration regulations, emergency procedures, and procedures for handling both site-generated hazardous waste and TRU mixed waste. Visitors, temporary personnel, and contractors are trained commensurate with the nature of their visit or duties. For visitors, this includes basic site safety and emergency notification procedures. Visitors who require unescorted access are also required to take an~~

~~examination covering the material in the training they are given. Visitor records are maintained by security. Temporary or subcontract personnel, if hired to fill a hazardous waste management position, are required to complete the same training as permanent personnel. Record of this training is maintained by Technical Training.~~

F-1a~~b~~ Job Title/Job Description

~~Employees at the WIPP f~~Facility personnel who are involved in ~~hazardous~~ TRU mixed waste management and emergency response activities receive the same core RCRA training. A list of ~~hazardous~~TRU mixed waste management and emergency response job titles and position descriptions ~~are~~is provided in ~~Permit Attachment F1~~Table F-1. An up-to-date list of personnel assigned to these positions is maintained in WIPP facility files by the Permittees in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(1)). The~~se~~ core ~~hazardous~~TRU mixed waste management and emergency response training courses are ~~described briefly in Section F-1(b)(1) and outlines of the core classes, as well as other job specific training classes, are included in Permit Attachment F2~~indicated in Table F-2. Any changes to the *Facility Personnel Permit Training Program* specified training course materials (contained in WIPP facility files)~~training plan~~ that affect the Table F-2 training course content will be evaluated to determine if a permit modification is required~~decrease the type or amount of training that is given to employees will be handled as a Class 2 modification~~, as specified in 20.4.1.900 NMAC (incorporating 40 CFR §270.42). ~~Other changes to the training plan will be handled as Class 1 modifications. In accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.16(d)(2)), the job descriptions include hazardous and TRU mixed waste management and emergency response job duties, required skills, qualifications, and experience, as well as educational requirements. These job descriptions are approved by the cognizant staff managers. Included in the appendices are management and supervisory positions that are considered to be critical from the standpoint of hazardous waste management or emergency response. These include the following positions~~ The job titles listed in Table F-1 include:

- ~~RCRA~~ Emergency Coordinator
- TRU Mixed Waste Worker
- TRU Mixed Waste Worker Supervisor
- Inspector
- RCRA Training Director
- Emergency Responder
- ~~Manager, Hoisting Operations~~
- ~~Manager, Radiation Control~~
- ~~Manager, Waste Handling~~
- ~~Team Leader, Inspection Services~~
- ~~Manager, Environmental Compliance~~
- ~~Manager, Technical Training~~

~~F-1b Training Content, Frequency, and Techniques~~

~~The WIPP training program includes a comprehensive combination of classroom training courses and on-the-job training. Each training course is carefully developed and periodically reevaluated to ensure relevancy to the course objectives and to ensure its support of the goal of safe and environmentally sound operations at the WIPP facility. On-the-job training is accomplished and documented through the use of qualification cards. Before an employee is~~

~~considered qualified to operate certain equipment, the person must pass a prescribed set of performance standards.~~

F-1b(1) Training Content

~~WIPP facility employees, who will be on site longer than 30 days, including personnel in management and supervisory positions and personnel not directly involved with hazardous waste management, receive facility-specific training in the following areas:~~

- ~~General Employee Training (**GET**) Overview (procedures and policies)~~
- ~~WIPP Facility Description~~
- ~~Radiation Safety~~
- ~~Emergency Preparedness (including *RCRA Contingency Plan* implementation)~~
- ~~Security~~
- ~~Fire Protection~~
- ~~Quality Assurance~~
- ~~Occurrence Reporting~~
- ~~Industrial Safety~~
- ~~RCRA~~
- ~~Hazard Communication~~

~~This training is provided in GET-19X/GET-20X/GET-21X [1], conducted by the WIPP qualified instructors, and must be completed within 30 days of employment.~~

~~Annual refresher training on the topics taught in GET-19X/GET-20X/GET-21X is given in the General Employee Training Annual Refresher (GET-19XA/GET-20XA/GET-21XA). This self-paced module provides employees with a review and update of the topics covered in GET-19X/GET-20X/GET-21X.~~

~~WIPP employees involved in managing site-generated, nonradioactive waste, or TRU mixed waste will receive the Hazardous Waste Worker course (HWW-101). This comprehensive course will provide job specific training required to safely receive, transfer, or handle waste at the WIPP facility. Review and update of HWW-101 topics is provided annually in the Hazardous Waste Worker refresher course (HWW-102).~~

~~Course outlines for GET-19X/GET-20X/GET-21X, GET-19XA/GET-20XA/GET-21XA, HWW-101, and HWW-102 are provided in Permit Attachment F2.~~

To ensure that facility personnel are knowledgeable in responding effectively to emergency situations, every employee, regardless of whether they hold a position in TRU mixed waste management or emergency response, receives GET and an annual refresher training on topics relevant to the management of TRU mixed waste and emergency response that include:

- Emergency Preparedness and Response
- RCRA (including the Permit and the *RCRA Contingency Plan*)
- Fire protection

~~[1] The "X" in the course number is assigned the last number of the current year (e.g., GET-195 is General Employee Training for 1995, GET-200 is for the year 2000). Course content is updated annually to provide the latest information available to students.~~

- Safety signage

Training course updates are identified by periodically reviewing the Table F-2 Permit-required training courses to ensure the content remains consistent with applicable Federal and State regulations. This review will be performed in accordance with the *WIPP Training Program* and the review will be documented in the WIPP facility files.

To facilitate identification of changes to Table F-2 Permit-required training courses, changes to training course materials, which will be maintained in the WIPP facility files, will have revision numbers and a change history summary. This training course information will be available for NMED inspection upon request.

F-1b(2) Training Frequency

~~Hazardous~~TRU mixed waste management and emergency response courses are offered at a frequency that ensures new hires or transfers can receive relevant training within six months of assuming their new position (although some emergency response training may require longer time periods to complete certifications). Employees do not work unsupervised in ~~hazardous~~TRU mixed waste management positions until they have completed the required initial training. The ~~Human Resources Department~~cognizant manager notifies the ~~cognizant manager~~Human Resources Department ~~and~~ who notifies the training staff when any employee is transferred into or out of a position associated with ~~hazardous~~TRU mixed waste management or emergency response.

F-1b(3) Training Techniques

A variety of instructional techniques are used at the WIPP facility depending on the subject matter and the techniques that best suit the learning objectives. Many courses may include a combination of classroom, on-the-job-training, eLearning, self-paced study, laboratory work, and/or comprehensive examinations~~lectures, demonstrations, visual aids (such as video tapes, slides, and viewgraphs), and exercises~~. Most equipment operation courses include hands-on practical instruction.

Written examinations are used as a technique to test and document the knowledge level of individuals participating in classroom training courses. The length and content of each exam varies according to its objective. ~~Calculation, multiple-choice, and fill-in-the-blank, or other approved formats, may be used.~~ If individuals fail a written examination, they must be reexamined in identified areas of weakness. ~~Personnel filling positions requiring qualification cards to perform job functions will be requalified at least biennially in those specific areas.~~

On-the-job training at the WIPP facility follows a prescribed set of standards specific to the job to be performed. Typically, to become qualified to operate a piece of equipment or system, employees must be able to demonstrate the location and purpose of specified controls and gauges, describe proper startup and shutdown procedures, describe specific safety features and limitations of the equipment, and, in some cases, perform maintenance functions. They must also demonstrate the ability to operate the equipment or system. On-the-job training may also be function specific, such as performing a specific administrative function that is regulated. The terms “on-the-job-training,” “on-the-job-evaluation,” and “job performance measures” are considered equivalent with respect to training course or qualification cards in accordance with DOE-HDBK-1074-95.

In addition to on-the-job training, some positions require the trainee to attend an oral board. The oral board is given upon completion of on-the-job training and prior to operating any equipment unsupervised. In the oral board, the trainee is quizzed on knowledge learned in on-the-job training. The purpose of the oral board is to determine if the trainee fully understands and can apply the knowledge learned in the training process.

Individuals who provide evidence of equivalency for specific requirements or prerequisites identified in the Table F-2 Permit-required training courses may be granted an exception from further training to those requirements in accordance with the *WIPP Training Program*. Requests for exceptions/equivalencies are made and evaluated in accordance with the *WIPP Training Program*. Training exceptions/equivalencies must be approved by the RCRA Training Director with concurrence of the Environmental Compliance Manager. Each exception/equivalency request is evaluated per specific criteria, such as 1) completion of previous training (transcripts, training completion records), 2) previous experience (resume) that demonstrates the application of knowledge and or skill presented by course objectives, and 3) satisfactory completion of an examination having equivalent course objectives. Each exception/equivalency will be granted in writing and documented in the individual's training record.

F-1c Training Manager

The Technical Training Manager (or designee) directs the *Facility Personnel Permit Training Program,* implemented via the *WIPP Training Program,*~~training program~~ and is responsible for establishing technical training requirements in cooperation with the line managers. Specifically, this includes analysis, design, development, implementation, and evaluation of technical training. The Technical Training Manager (or designee) is trained in hazardous waste management procedures~~ and receives train-the-trainer and instructor training~~. The Technical Training Manager (or designee) is also required to be knowledgeable of the applicable regulations, orders, guidelines, and the specific training process employed at the WIPP facility.

The name and qualifications of the current Technical Training Manager are documented ~~at the~~in WIPP facility files.

F-1d Relevance of Training to Job Position

The *WIPP Training Program*~~WIPP facility training program~~ provides employees and their supervisors with training relevant to their positions. The SAT process mentioned in Section F-1a is a systematic method for determining the proper training for each ~~hazardous~~TRU mixed waste management position. It compels managers and training staff to look critically at each position and determine the necessary training program for each employee to perform their work in a manner that protects human health and the environment and complies with the Permit~~fully develop their necessary expertise~~.

Several training ~~courses~~ topics are ~~determined to be so basic to the WIPP Project mission that they are~~ considered relevant for all WIPP facility ~~employees~~personnel. The basic philosophy at the WIPP facility is that, as a RCRA-regulated facility, ~~employees~~ facility personnel must understand the basic regulatory requirements under which the WIPP facility must operate as well as emergency actions required of facility personnel. Therefore, all WIPP facility ~~employees~~ personnel receive an introduction to the RCRA during their ~~introductory~~ GET~~training~~.

Beyond these ~~core~~ universal ~~courses~~topics, training is designed and implemented relevant to the specific job functions being performed. For example, employees who operate key pieces of

equipment necessary to manage contact-handled (**CH**) or remote-handled (**RH**) TRU mixed waste (~~such as~~e.g., forklifts, hoists, bridge cranes, cask transfer cars~~, etc.~~) must be trained to perform their duties in a way that ensures the WIPP facility compliance with the Permit~~to operate and inspect equipment and to recognize maintenance problems before a specific job function is performed~~. These employees ~~must~~ receive on-the-job training and demonstrate the ability to operate the equipment, as appropriate, and must at a minimum be able to respond effectively to emergencies that might arise while performing their duties~~, before being qualified~~. Emergency response personnel receive training, commensurate with their duties, that ensures their familiarity with emergency procedures, emergency equipment, and emergency systems including, but not limited to:

- Procedures for using and inspecting facility emergency equipment;
- Communications and alarm systems; and
- Response to fires or explosions.

~~This process is controlled and documented by the qualification process described in Section F-1. A complete listing of active qualification cards, along with descriptions of training courses, is on file at the WIPP facility. Summaries of qualification cards and other job specific training courses are included in Permit Attachment F2. Waste handling personnel performing CH or RH TRU mixed waste handling tasks will be qualified to the applicable specific equipment or system qualification card on file at the WIPP facility.~~

As there are no automatic waste feed systems at the WIPP facility, training on parameters for waste feed cut-off systems is not required. Similarly, as there is no potential for groundwater contamination incidents at the WIPP facility, training for responding to such incidents is not required.

~~Managers who have direct responsibility for supervising hazardous waste management personnel receive hazardous waste management training relevant to their positions. This training will include GET-19X/GET-20X/GET-21X and its refresher GET-19XA/GET-20XA/GET-21XA, which is required for all employees, and the Hazardous Waste Worker Supervisor course HWS-101 and its refresher HWS-101A. In addition, a manager may also take HWW-101 and its refresher HWW-102 if these courses are determined to be useful for his/her position. These course descriptions are included in Permit Attachment F2. Managers who do not have direct hazardous waste management supervisory responsibilities receive training sufficient to ensure their awareness of hazardous waste management requirements and procedures; however, they do not perform hazardous waste management duties and their positions are not included in the appendices. As is the case with all WIPP facility employees, all managers receive RCRA overview training in GET-19X/GET-20X/GET-21X.~~

~~F-1e Training for Emergency Response~~

~~The WIPP facility training program ensures that personnel are able to respond appropriately and effectively to emergency situations. WIPP facility employees receive GET-19X/GET-20X/GET-21X, which includes instruction on hazard awareness, emergency preparedness, spill control, and the *RCRA Contingency Plan* (Permit Attachment D). This training ensures that every employee understands how to recognize real or potential emergencies and how to report such incidents to the proper WIPP facility officials. It also ensures that employees will not endanger themselves or others by taking actions beyond their ability. Emergency response personnel receive more extensive training as described in the subsequent paragraphs.~~

The WIPP facility emergency response organization is capable of providing emergency response services both above ground and underground. The WIPP Fire Department Firefighters serve as first responders to surface and underground emergencies, including fires, medical emergencies, and releases of hazardous materials. Firefighters are trained in accordance with NFPA 1001, *Standard for Fire Fighting Professional Qualification*, and other NFPA qualification standards. This training is administered by qualified individuals/organizations in accordance with the *WIPP Fire Department Training Plan*.

The Emergency Response Team (**ERT**) is an Industrial Fire Brigade which supplements the capabilities of the WIPP Fire Department. Members of the ERT are trained to respond to surface and underground emergencies on site, including fires, medical emergencies, and releases of hazardous materials. The Mine Rescue Team (**MRT**) is responsible for emergency rescue and recovery of trapped or missing personnel in the underground and underground fire suppression once the underground has been evacuated. The responsibilities of emergency response personnel and associated training are described in the *RCRA Contingency Plan*, Permit Attachment D, Section D-2. These teams receive thorough emergency response training before they are called upon to perform in real emergencies. The ERT members are trained to NFPA standards, including NFPA 1081, *Standard for Industrial Fire Brigade Member Professional Qualifications*, which addresses the training requirements established by NFPA 600, *Standard on Industrial Fire Brigades*. The MRT consists of personnel who have been trained to the applicable requirements of 30 CFR Part 49, *Mine Rescue Team*. A list of required training and associated duties is included in each job position description in Permit Attachment F1. These training requirements must be met prior to an unsupervised individual serving in an associated emergency response function. Training records for these individuals are maintained in each individual's training file in Technical Training located at the WIPP facility.

Emergency response personnel receive training, commensurate with their duties that ensures their familiarity with emergency procedures, emergency equipment, and emergency systems including, but not limited to:

- Procedures for using and inspecting facility emergency equipment;
- Communications and alarm systems; and
- Response to fires or explosions.

The RCRA Emergency Coordinator receives training relevant to the *RCRA Contingency Plan* and must be familiar with the contents of the *RCRA Contingency Plan* prior to serving as RCRA Emergency Coordinator. Documentation of this training is maintained in the RCRA Emergency Coordinator's training file. All individuals qualified to serve as RCRA Emergency Coordinators are required to complete *RCRA Contingency Plan* training (SAF-645). The RCRA Emergency Coordinator is provided with updated copies of the *RCRA Contingency Plan* in accordance with permit Attachment D, Section D-9, whenever changes are made. In addition, the training requirements of the Central Monitoring Room (**CMR**) Operator are included in Permit Attachment F1. The CMR Operator is listed in Permit Attachment D, Section D-2, as an emergency response related position.

As there are no automatic waste feed systems at the WIPP facility, training on parameters for waste feed cut-off systems is not required. Similarly, as there is no potential for groundwater contamination incidents at the WIPP facility, training for responding to such incidents is not required.

F-2 Implementation of Facility Personnel Permit Training Program

The *WIPP Training Program* has been formulated to implement the requirements of this *Facility Personnel Permit Training Program*, thereby ensuring TRU mixed waste management and emergency response personnel employed at the facility receive the training necessary to comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264.16).~~The WIPP facility training program has been implemented to ensure that hazardous waste management and emergency response personnel employed at the WIPP facility receive the training indicated within the respective qualification cards.~~

~~Personnel are made aware of the *RCRA Contingency Plan* and its intended purpose through general employee training.~~ Newly hired employees, whose job positions are listed in ~~Attachment F1~~Table F-2, receive the indicated training within six months of their date of hire or their transfer to a new position pursuant to 20.4.1.500 NMAC (incorporating 40 CFR §264.16(b)). Personnel do not work ~~in unsupervised~~unsupervised in ~~hazardous~~TRU mixed waste management or emergency response positions until they successfully complete the indicated training requirements. (Note that some emergency responder certifications may take more than six months to complete.) ~~Hazardous~~TRU mixed waste management and emergency response personnel attend annual refresher courses that review the initial training received and document knowledge transfer.

Records relating to the *Facility Personnel Permit Training Program*~~WIPP facility training program~~ for ~~hazardous~~TRU mixed waste management and emergency response personnel are maintained by WIPP Technical Training as personally identifiable information. These records are located at the WIPP facility and include a roster of employees in hazardous waste management positions; a list of courses required for each position; course descriptions; documentation when each employee has received and completed appropriate training~~; and backup information regarding qualification and examination~~. Training records of current personnel are kept by Technical Training until closure of the WIPP facility. Records of former employees are kept by Technical Training for at least three years from the date the employee last worked at the facility.

References

Nuclear Waste Partnership LLC, “WIPP Training Program,” WP 14-TR.01, Rev. ~~15, 2015~~19-FR1, 2017~~.~~

Nuclear Waste Partnership LLC, “WIPP Fire Department Training Plan,” WP 12-FP.04, Rev. ~~0~~2, ~~2015~~2016

U.S. Department of Energy, “Training Program Handbook: A Systematic Approach to Training (DOE-HDBK-1078-94)”

U.S. Department of Energy, “Alternative Systematic Approaches to Training (DOE-HDBK-1074-95)”

TABLE F-1
TRU MIXED WASTE MANAGEMENT AND EMERGENCY RESPONSE JOB TITLES AND DESCRIPTIONS

JOB TITLE	POSITION DESCRIPTION
TRU Mixed Waste Worker	Responsible for or involved in the surface processing, transport, and underground emplacement of contact-handled (CH) and remote-handled (RH) transuranic (TRU) mixed waste. May come into contact with TRU mixed waste while carrying out job duties, actions or failure to act could result in a spill or release of TRU mixed waste at the WIPP facility, and job is important for operating the facility safely and in compliance with the hazardous waste regulations. Depending upon the TRU Mixed Waste Worker's specific job position, this may involve one or more of the following: • Operating waste handling equipment and support systems to unload, handle, and emplace TRU mixed waste into the repository • Performing spot decontamination of shipping casks, waste containers, and waste handling equipment • Performing waste container overpacking operations • Conducting routine inspections of incoming shipping containers for contamination and damage • Conducting routine contamination surveys during waste handling activities • Operating the Waste Shaft Hoist • Loading and unloading of the Waste Shaft Conveyance above and below ground • Managing and dispositioning of waste resulting from releases of TRU mixed waste or TRU mixed waste constituents • Cleaning and restoring emergency response equipment after a release of TRU mixed waste or TRU mixed waste constituents and prior to resumption of normal operations
TRU Mixed Waste Worker Supervisor	Supervisors of TRU Mixed Waste Workers are directly responsible for day-to-day operations related to TRU mixed waste. Depending upon the TRU Mixed Waste Worker Supervisor's specific job position, job duties may involve one or more of the following: • Overseeing TRU mixed waste management activities performed by TRU Mixed Waste Workers • Coordinating and directing the daily operation and maintenance of the Waste Shaft Hoist and Waste Shaft
Emergency Responder	Emergency responders provide expertise and support to the Incident Command. Depending upon the Emergency Responder's specific job position, job duties may involve one or more of the following: • Responding to fires, explosions, or emergencies involving releases of TRU mixed waste or TRU mixed waste constituents • Performing technical rescue operations • Performing emergency medical response • Operating emergency vehicles and equipment • Establishing conditions at the incident scene • Managing incident operations, personnel, and resources • Ensuring that fires, explosions, and releases of TRU mixed waste do not occur, recur, or spread to other hazardous waste at the facility by stopping processes and operations, collecting and containing released TRU mixed waste, and removing or isolating containers, as applicable • Performing decontamination of contaminated personnel and providing oversight to emergency medical response personnel, if injured person is contaminated

JOB TITLE	POSITION DESCRIPTION
	• Conducting contamination surveys, establishing hot lines/cold zones, and performing decontamination following a release of TRU mixed waste or TRU mixed waste constituents • Overpacking or plugging/patching of waste containers associated with release of TRU mixed waste or TRU mixed waste constituents • Performing containerization of released TRU mixed waste or TRU mixed waste constituents • Terminating field emergency response
Emergency Coordinator	In the event of a fire, explosion, release of TRU mixed waste or TRU mixed waste constituents that could threaten human health or the environment, the Emergency Coordinator is responsible for carrying out the implementation of the *RCRA Contingency Plan*. Emergency Coordinators ensure emergency responders have current and specific information to properly address the incident and minimize hazards to human health and the environment. Emergency Coordinators implement measures and procedures to ensure the safety of personnel, such as ensuring that alarms have been activated, personnel have been accounted for, and evacuation of personnel has occurred, if necessary. Upon implementation of the *RCRA Contingency Plan*, depending upon the Emergency Coordinator's specific job position, the job duties may involve one or more of the following: • Providing notification to emergency response personnel • Ensuring that alarms have been activated, personnel have been accounted for, any injuries have been attended to, and evacuation of personnel has occurred, if necessary • Restricting personnel not needed for response activities from the scene of the incident and curtailing nonessential activities in the area • Identifying released material and assessing the extent of the emergency • Assessing any hazards to human health or the environment associated with a fire, explosion, or release of TRU mixed waste or TRU mixed waste constituents • Notifying appropriate State and local agencies with designated response roles if their help is needed • Ensuring that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility by taking measures such as stopping processes and operations, collecting and containing released waste, and removing or isolating containers • Documenting the implementation of the *RCRA Contingency Plan* • Ensuring immediate notification to the New Mexico Environment Department is provided for incidents requiring implementation of the *RCRA Contingency Plan* • Making post-assessment notifications if it has been determined that the incident could threaten human health or the environment outside the facility • Providing for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility • Ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed • Ensuring that emergency equipment listed in the *RCRA Contingency Plan* is cleaned and fit for its intended use before operations are resumed
Inspector	Responsible for routine inspection and maintenance (including repairing and replacement, as appropriate) of equipment instrumental in preventing, detecting, or responding to environmental or human health hazards, such as monitoring equipment, safety and emergency equipment, and operating or structural equipment. Inspections are performed at the facility to detect malfunctions, deterioration, operator errors, and

JOB TITLE	POSITION DESCRIPTION
	discharges that may cause or lead to releases of TRU mixed waste or TRU mixed waste constituents to the environment or that could be a threat to human health. Depending on the Inspector's specific job position, job duties may involve one or more of the following: • Performing functional and operational checks of waste handling equipment and support systems as well as conducting waste container storage inspections • Conducting routine inspections of emergency response equipment and vehicles, on site • Performing routine inspections of the hoisting equipment for the Air Intake Shaft, Salt Handling Shaft, and Waste Shaft • Conducting routine inspections and testing of facility fire suppression and detection systems • Inspecting and testing of communication systems, site notification system, the public address system, and alarm systems for proper function • Performing routine inspections of the backup power supply diesel generators • Performing routine inspections of the eye wash and shower equipment • Performing routine inspections of the underground geomechanical instrumentation system • Performing routine inspections of the central uninterruptible power supply • Performing routine inspections of the fire water storage tank • Performing routine inspections of the ventilation exhaust fans
RCRA Training Director	Responsible for directing the hazardous waste management training at the WIPP facility. To meet the 20.4.1.500 NMAC (incorporating 40 CFR §264.16(a)(3)) requirements, the RCRA Training Director must be a person trained in hazardous waste management procedures.

Table F-2
PERMIT-REQUIRED TRAINING COURSES

Course	TRU Mixed Waste Worker	TRU Mixed Waste Worker Supervisor	Inspector	Emergency Responder	Emergency Coordinator	RCRA Training Director
General Employee Training – WIPP facility employees must be escorted at the WIPP facility until this course has been completed. Course content contains information on RCRA, the Permit, the WIPP RCRA Contingency Plan, emergency preparedness, emergency response and evacuation procedures, fire protection, and safety signage. There is an annual refresher required for this course.	X	X	X	X	X	X
RCRA Regulations/Hazardous Waste Facility Permit Overview – This course includes an overview of 40 CFR Parts 260-282; *New Mexico Hazardous Waste Act* (Title 20 of the NMAC, Part 4.1); protocol for facility and waste handling equipment inspections; overview of communication systems; overview of security systems; overview of *RCRA Contingency Plan*; overview of WIPP emergency equipment use, inspection, and repair; overview of training requirements; overview of Permit recordkeeping requirements; overview of NMED facility inspections; and consequences of Permit noncompliance. This course also provides an overview of the screening process (for procedures, facility configuration changes, training program changes, etc.) to ensure compliance with the Permit, along with an overview of the Permit modification process. There is an annual refresher required for this course.	X	X	X	X	X	X

Course	TRU Mixed Waste Worker	TRU Mixed Waste Worker Supervisor	Inspector	Emergency Responder	Emergency Coordinator	RCRA Training Director
Hazardous Waste Worker – This course addresses regulatory requirements for personnel who manage hazardous waste, including an in-depth review of the Hazard Communication Standard, principles of toxicology, hazard identification, and an overview of personal protective equipment for work activities associated with TRU mixed waste management. It also prepares emergency response personnel for hazardous waste handling, containment, and decontamination. There is an annual refresher required for this course.	X	X		X		X
Hazardous Waste Responder – Employees must complete Hazardous Waste Worker training before taking this course. Upon successful completion of the course and its prerequisites, a trainee will be able to respond to emergencies involving TRU mixed waste. Course curriculum includes an overview of the regulatory requirements, incident evaluation, overview of response operations, maintaining safety during an emergency response, and an overview of the Incident Command System at the WIPP facility. There is an annual refresher required for this course.				X		
Hazardous Waste Worker Supervisor – This course addresses manager and/or supervisor responsibilities for TRU mixed waste management. It addresses individual and corporate liability under applicable hazardous waste regulations. Course discusses impacts that decisions made during emergency situations may have, some with serious legal and safety consequences directly impacting the entities involved. There is an annual refresher required for this course.		X				

Course	TRU Mixed Waste Worker	TRU Mixed Waste Worker Supervisor	Inspector	Emergency Responder	Emergency Coordinator	RCRA Training Director
Permit Inspections/Recordkeeping – These technical work documents are under the purview of the responsible organization identified in Table E-1 of Permit Attachment E, *Inspection Schedule, Process and Forms*. This course addresses protocols for conducting Permit-specified inspections to detect malfunctions, deterioration, operator errors, and discharges; completion of inspection records; Permit-specified inspection frequencies; and corrective actions, including notifications and establishment of compensatory measures. This course also addresses review of the completed inspection record for completeness and accuracy; and the Permit-specified recordkeeping requirements. There is an annual refresher required for this course.			X			
RCRA Contingency Plan – This course provides an in-depth review of the WIPP RCRA Contingency Plan addressing when the Plan is to be implemented, appropriate emergency response actions, required notifications, evacuation plan details, and post-emergency RCRA-required activities. This course also addresses where copies of the Plan are required to be located and when the Plan must be amended. There is an annual refresher required for this course.					X	

X - indicates the training is required for the job position.

~~ATTACHMENT F1~~

~~RCRA HAZARDOUS WASTE MANAGEMENT AND EMERGENCY RESPONSE JOB TITLES AND DESCRIPTIONS~~

This attachment has been deleted in its entirety.

~~ATTACHMENT F2~~

~~TRAINING COURSE AND QUALIFICATION CARD OUTLINES~~

This attachment has been deleted in its entirety.

Appendix C
Rationale for Including or Excluding Job Positions from Scope of Facility Personnel Permit Training Program

(Blue highlighted rows are job positions that do not perform TRU mixed waste management or emergency response duties required by the Permit)

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Current Permit Job Positions Included in the *Facility Personnel Permit Training Program*																		
Central Monitoring Room Operator	Yes	No	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes/Yes	a & i, g, j, l, o	General Employee, Emergency Coordinator, Inspector
Emergency Response Team	Yes	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No	No	Yes/Yes	a & i, g, m	General Employee, Emergency Responder
Firefighter	Yes	No	No	No	No	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes/Yes	a & i, g, j, m	General Employee, Emergency Responder, Inspector
Fire Department Incident Commander	Yes	No	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No	No	Yes/Yes	a & i, g, m	General Employee, Emergency Responder
Manager, Radiation Control	Yes	Yes	Yes	No	No	No	Yes	No	Yes	No	No	No	No	No	No	Yes/Yes	a & i, b, c, g	General Employee, TRU Mixed Waste Worker, TRU Mixed Waste Supervisor
Manager, Technical Training	Yes	No	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	No	Yes/Yes	a & i, g, h	General Employee, RCRA Training Director
Manager, Waste Handling	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, b, c, d, e, f, g, j	General Employee, TRU Mixed Waste Worker, TRU Mixed Waste Supervisor, Inspector
Mine Rescue Team Member	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Radiological Control Technician	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No	No	Yes	No	No	Yes/Yes	a & i, b, g, m	General Employee, TRU Mixed Waste Worker, Emergency Responder
RCRA Emergency Coordinator	Yes	No	No	No	No	No	Yes	No	Yes	No	No	Yes	Yes	No	Yes	Yes/Yes	a & i, g, l, m, o	General Employee, Emergency Responder, Emergency Coordinator
TRU Mixed Waste Handler	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes/Yes	a & i, b, d, e, f, g, j, m	General Employee, TRU Mixed Waste Worker, Inspector, Emergency Responder
Waste Hoist Operator	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, b, d, e, f, g, j	General Employee, TRU Mixed Waste Worker, Inspector
Waste Hoist Shaft Tender	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, d, f, g, j	General Employee, TRU Mixed Waste Worker, Inspector
Waste Hoisting Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No	Yes/Yes	a & i, b, c, d, e, f, g	General Employee, TRU Mixed Waste Worker, TRU Mixed Waste Supervisor
Current Permit Job Positions NOT Included in the *Facility Personnel Permit Training Program*																		
Facility Inspection, Repair, and Service Team (FIRST)	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Facility Inspection, Repair, and Service Team (FIRST) Leader	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Fire Protection Technician	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i,	General Employee

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Hazardous Waste Worker	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Manager, Environmental Compliance (EC)	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Manager, Transportation Operations	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Quality Assurance Technician	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Sampling Team Assistant	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Sampling Team Member	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Site-Generated Waste Handlers	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Team Leader, Inspection Services	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Technical Trainer	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Transportation Engineer	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Underground Hazardous Waste Worker	Yes	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	a & i	General Employee
Current Permit Job Positions Moved to Other Permit Attachments																		
DOE Management Representative	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	None	N/A
Radiographer Level 1	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	None	N/A
Radiographer Level 2	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	None	N/A

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Visual Examination Operator/Expert Level 1	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	None	N/A
Visual Examination Operator/Expert Level 2	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	None	N/A
WWIS Data Administrator	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	None	N/A
Evaluated Job Positions to be Included in the *Facility Personnel Permit Training Program*																		
Air Intake Shaft Hoisting Manager	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Air Intake Shaft Hoist Operator	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Air Intake Shaft Hoist Tender	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
CH Waste Handling Engineer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes/Yes	a & i, b, c, d, e, f, g, j, m	General Employee, TRU Mixed Waste Worker, Inspector, Emergency Responder, TRU Mixed Waste Worker Supervisor
Environmental Compliance Representative (eyewash & safety shower inspections)	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Facility Operations Shift Engineer	Yes	No	No	No	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes/Yes	a & i, f, g, j, l, o	General Employee, TRU Mixed Waste Worker, Inspector, Emergency Coordinator

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Facility Shift Manager	Yes	No	No	No	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes/Yes	a & i, f, g, j, l, o	General Employee, TRU Mixed Waste Worker, Inspector, Emergency Coordinator
Fire Protection Engineer	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Fire System Technician	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Geotechnical Engineer (Underground Geomechanical Instrumentation System (GIS) inspections)	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Geotechnical Engineering Technician (Underground Geomechanical Instrumentation System (GIS) inspections)	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Industrial Hygiene Technician (eyewash & safety shower inspections)	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
RH Waste Handling Engineer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes/Yes	a & i, b, c, d, e, f, g, j, m	General Employee, TRU Mixed Waste Worker, Inspector, Emergency Responder, TRU Mixed Waste Worker Supervisor

Criterion	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)		
Origin of Criterion	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 270.14(b) (12)**	**40 CFR 264.16(a) (1)**	**40 CFR 264.16(a) (2)**	**40 CFR 264.16(a)(3)**	**40 CFR 264.16(a)(3) (i)**	**40 CFR 264.16(a)(3) (ii)**	**40 CFR 264.16(a)(3) (iii)**	**40 CFR 264.16(a)(3) (iv)**	**40 CFR 264.16(a)(3) (v)**	**40 CFR 264.16(a)(3) (vi)**			
Job Position Title	Does this person regularly work at the facility [and/or meet the RCRA definition of facility personnel]?	Might this person [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Does this person supervise someone at the facility who may [routinely] come in contact with and/or manage [TRU mixed] waste [under non-emergency facility conditions]?	Is this person's job such that their actions or failure to act could result in a spill or release of [TRU mixed] waste [at the WIPP facility]?	Is this person directly involved with [TRU mixed] waste management at the WIPP facility?	Is this person responsible for operating the facility safely and in compliance with the hazardous waste regulations [at 40 CFR Part 264]?	Must this person receive training to ensure that they perform their duties in compliance with 40 CFR Part 264?	Does this person direct the training program at the facility?	Must this person know how to respond effectively to [WIPP facility] emergencies through familiarization with emergency procedures, emergency equipment, and emergency systems?	Does this person perform procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment [related to the management of TRU mixed waste]?	Is this person responsible for understanding key parameters for automatic waste feed cut-off systems should an emergency occur?	Is this person responsible for communications or alarm systems in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a fire or explosion [related to the implementation of the RCRA Contingency Plan]?	Does this person have emergency response duties in the event of a groundwater contamination incident [related to the implementation of the RCRA Contingency Plan]?	Is this person responsible for the shutdown of operations in the event of an emergency [related to the implementation of the RCRA Contingency Plan]?	Must this Job Title be included in the Permit (if "No," designated as General Employee)? If YES, can this Job Title be generically described?	Bases	Generic Job Title(s) under which this position will fall
Salt Handling Shaft Hoisting Manager	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Salt Handling Shaft Hoist Operator	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Salt Handling Shaft Hoist Tender	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Surface Roving Watch	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Underground Watch	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Underground Controller (SCSR inspections)	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Underground Facility Engineer	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Underground Roving Watch	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector
Ventilation Exhaust	Yes	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes/Yes	a & i, j	General Employee, Inspector

Generic Job Position Titles:		
	a AND i	**General Employee**
	g; AND b, d, e, AND/OR f	**TRU Mixed Waste Worker**
	g AND c	**TRU Mixed Waste Supervisor**
	j	**Inspector**
	g AND h	**RCRA Training Director**
	g; AND m OR n	**Emergency Responder**
	g; AND l OR o	**Emergency Coordinator**

Item 2

Class 2 Permit Modification Request

Changes Due to Construction and Operation of a New Filter Building

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP Permit Number - NM4890139088-TSDF

November 2017

Table of Contents

Acronyms and Abbreviations

acfm	actual cubic feet per minute
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
D&D	decontamination and decommissioning
HEPA	high efficiency particulate air
IVS	Interim Ventilation System
NFB	New Filter Building
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
Permit	WIPP Hazardous Waste Facility Permit
PMR	Permit Modification Request
PPA	Property Protection Area
RAA	running annual average
RCRA	Resource Conservation and Recovery Act
SRB	Salt Reduction Building
TRU	transuranic
UVFS	Underground Ventilation Filtration System
UVS	Underground Ventilation System
VOC	volatile organic compound
WIPP	Waste Isolation Pilot Plant

Overview of the Permit Modification Request

This document contains a Class 2 Permit Modification Request (**PMR**) for the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit (**Permit**) Number NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Nuclear Waste Partnership LLC, collectively referred to as the Permittees, in accordance with the Permit, Part 1, Section 1.3.1. (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating Title 40 of the Code of Federal Regulations (**CFR**) §270.42(b)). The modification provides for the following changes:

- Updates the Underground Ventilation System (**UVS**) description and Permit text to include the New Filter Building (**NFB**) and appurtenances, including a Salt Reduction Building (**SRB)**. The NFB is identified as Building 416, and the SRB is identified as Building 417. The NFB represents a significant upgrade to the UVS, and is required to permanently support concurrent operations at WIPP including, but not limited to, mining and waste emplacement. Additionally, the NFB provides a new, radiologically clean, exhaust system capable of full scale operations with a nominal operational flow rate of 540,000 actual cubic feet per minute (**acfm**).

- The addition of the NFB requires descriptive changes and updates to the Permit. The new Underground Ventilation Filtration System (**UVFS**) includes new ventilation fans; new high efficiency particulate air (**HEPA**) filters; new electrical substation, necessary electrical power and backup diesel generators, lighting, control, and monitoring systems; new ductwork; and a new salt reduction system. These descriptive changes include specifics to the ventilation system description and modes of operation discussed in Permit Attachment A2, *Geologic Repository*. The UVFS description with modes of operation is being added to the Permit. Figure A2-9a-NFB is being added. In addition, Permit Part 2, Section 2.10.1.5. is being revised to address the new backup diesel generators.

- The NFB fans and filtration system will eventually include replacement of the existing UVS once it is placed into operation. The description of the current UVS and Interim Ventilation System (**IVS**) configuration in Permit Attachment A2 is being modified to include the integration of the NFB into the overall ventilation system configuration.

- The project includes not only the construction of additional ventilation and filtration features, but also the eventual decontamination and decommissioning (**D&D**) of the IVS that is currently in operation to support WIPP facility disposal activities. Some of the components of the IVS are radiologically contaminated, and will have to be handled and disposed of accordingly. The existing UVS configuration will be dismantled and removed after the NFB is placed into operation. Similar to the IVS, some of the components of the UVS are radiologically contaminated, including the Exhaust Filter Building (Building 413), and will have to be handled and disposed of accordingly. Therefore, Permit Part 6.4., Part 6.5.1., Part 6.6., and Attachment G are being modified to include D&D of surface structures prior to final closure activities.

- The NFB changes WIPP facility surface buildings as shown in Permit Attachment A4. Figure A4-2-NFB, *WIPP Traffic Flow Diagram with NFB*, is being added.

- The addition of the NFB requires changes, additions, and/or modifications to emergency notifications, communications, staging areas, and inspections in the vicinity of the NFB. Changes to emergency notifications, communications, staging areas, and inspections, affects the *Resource Conservation and Recovery Act (**RCRA**) Contingency Plan* in Permit Attachment D, Table D-2.

- The addition of the NFB adds Figures D-1-NFB, D-1a-NFB, D-5-NFB, and D-6-NFB to Permit Attachment D. These figures supplement Figures D-1, D-1a, D-5, and D-6 depicting the NFB and the SRB.

- Facility description and process information in Permit Attachment A, *General Facility Description and Process Information*, and Permit Attachment B, *Hazardous Waste Permit Application Part A*, changes because the installation of the NFB and its appurtenances requires modification to the Property Protection Area (**PPA**) and the UVS. This modification will increase the acreage discussed in Permit Attachment A and Permit Attachment B.

- The requirements and equipment relative to verifying total mine airflow, as described in Permit Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan* are being removed. Table O-1 and references to nominal mine ventilation flow rates are also being removed from the Permit as mine flow rates are no longer required by the Permit to be specified. Table O-1 was previously used to verify the minimum running annual average (**RAA**) mine ventilation exhaust rate, which is no longer a Permit requirement. The requirements to monitor in order to maintain a minimum RAA mine ventilation rate are no longer needed since risk to the non-waste surface worker is monitored directly. The revised and current method for calculating risk to the non-waste surface worker, as adjudicated with a Class 2 PMR approval letter dated January 8, 2016[1], is based on volatile organic compound (**VOC**) monitoring results and will prevent the exceedance of the risk levels; therefore, monitoring total mine ventilation flow rate to maintain and report a minimum mine ventilation flow rate is no longer needed.

- The location for measuring the dose to the non-waste surface worker from VOCs is described in Permit Part 4, Section 4.6.2., *Repository Volatile Organic Compound Monitoring*, and is not changing from the Training Building (Building 489) after the construction and operation of the NFB. Because the design includes a new stack location and new stack height (i.e., new release point at 125 ft.), which is at a higher elevation than the existing release point, modeling results, as shown in Appendix D of this PMR, determined that the maximum dose for VOCs occur at a location outside the PPA[1]. However, the location of the non-waste surface worker who will be exposed to the largest VOC concentration will remain at the Training Building (Building 489). Because of the new stack height, (125 ft.) VOC concentrations are expected to be less at the Training Building (Building 489) Sampling Station (VOC-C) as compared to concentrations resulting from the current stack height (24 ft.). The rationale for this decision is provided in Appendix D. Therefore, the addition of the NFB does not affect repository VOC monitoring specific to surface sampling locations discussed in Permit

[1] Final Determination, Class 2 Permit Modification Decision. Waste Isolation Pilot Plant. EPA I.D. Number NM4890139088. Letter to Todd A. Shrader, Manager, Carlsbad Field Office and Philip J. Breidenbach, Project Manager, Nuclear Waste Partnership, LLC. January 8, 2016.

Attachment N, Section N-3a(1). The exhaust stack height determination calculation is found in Appendix C of this PMR.

The Permittees are proposing changes to the following Permit Parts and Attachments:

- Part 2, *General Facility Conditions*, Section 2.10.1.5., *Electrical Backup*
- Part 6, *Closure Requirements*, Section 6.4., *Notification of Closure*
- Part 6, *Closure Requirements*, Section 6.5.1., *Partial Closure*
- Part 6, *Closure Requirements*, Section 6.6., *Disposal or Decontamination of Equipment, Structures, and Soils*
- Attachment A, *General Facility Description and Process Information*, Section A-3, *Property Description*
- Attachment A2, *Geologic Repository*, Section A2-1, *Description of the Geologic Repository*
- Attachment A2, *Geologic Repository*, Section A2-2a(3), *Subsurface Structures, Underground Ventilation System Description*
- Attachment A2, *Geologic Repository*, Section A2-2a(3), *Subsurface Structures, Underground Ventilation Filtration System Description with the New Filter Building (NFB)*
- Attachment A2, *Geologic Repository*, Section A2-2a(3), *Subsurface Structures, Underground Ventilation Filtration System Modes of Operation with the NFB*
- Attachment A2, *Geologic Repository*, Section A2-2a(3), *Subsurface Structures, Underground Ventilation Modes of Operation*
- *Attachment A2, Geologic Repository, Section A2-2a(3), Subsurface Structures, Underground Ventilation Normal Mode Redundancy*
- Attachment A2, *Geologic Repository*, Section A2-2a(3), *Subsurface Structures, Electrical System*
- Attachment A2, *Geologic Repository,* Figure A2-9a, *Underground Ventilation System Airflow*
- Attachment A4, *Traffic Patterns*, Figure A4-2, *WIPP Traffic Flow Diagram with NFB*
- Attachment B, *Hazardous Waste Permit Application Part A*, Appendix B2, *Maps*, Figure B2-2, *Planimetric Map-WIPP Facility Boundaries*
- Attachment B, *Hazardous Waste Permit Application Part A*, Appendix B2, *Maps*, Figure B2-2a, *Legend to Figure B2-2*

- Attachment D, *RCRA Contingency Plan*, Table D-2, *Emergency Equipment Maintained at the Waste Isolation Pilot Plant*

- Attachment D, *RCRA Contingency Plan*, Figure D-1-NFB, *WIPP Surface Structures with NFB*

- Attachment D, *RCRA Contingency Plan*, Figure D-1a-NFB, *Legend to Figure D-1-NFB*

- Attachment D, *RCRA Contingency Plan*, Figure D-5-NFB, *Fire-Water Distribution System with NFB*

- Attachment D, *RCRA Contingency Plan*, Figure D-6-NFB, *WIPP On-Site Assembly Areas and Off-Site Staging Areas with NFB*

- Attachment E, *Inspection Schedule, Process and Forms*, Table E-1, *Inspection Schedule/Procedures*

- Attachment G, *Closure Plan*, Introduction

- Attachment G, *Closure Plan*, Section G-1, *Closure Plan*

- Attachment G, *Closure Plan*, Section G-1(e)2(c), *Dismantling*

- Attachment G1, Appendix G, *Technical Specifications*, Division 1 – General Requirements, Section 01010 – Summary of Work, Part 1 – General, 1.3 Definitions and Abbreviations, Definitions

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan*, Section O-3, *Design and Procedures*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan,* Section O-3b, *Total Mine Airflow*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan,* Section O-3c, *Active Room Minimum Airflow*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan,* Section O-3d, *Verification of Total Mine Airflow*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan*, Section O-4*, Equipment Calibration and Maintenance*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan*, Table O-1, *Ventilation Operating Modes and Associated Flow Rates*

- Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan,* Table O-2, *Mine Ventilation Rate Testing Equipment*

These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The requested modification to the Permit and related supporting documents are provided in this PMR. The proposed modification to the text of the Permit has been identified using red text and double underline and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the Permit Part 1, Section 1.3.1., for submission of this Class 2 PMR.

1. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)) requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the Permit.

This PMR section provides a description of the UVS upgrades, a regulatory evaluation of the UVS upgrades, and describes the exact changes to Permit conditions and supporting documents. These changes have been identified by the Permittees as necessary to improve the UVS as a result of the February 2014 events. A notification of planned change was submitted to the New Mexico Environment Department (**NMED**) on June 9, 2017[2], describing the new UVFS and NFB.

Because of their importance to controlling the emissions of radioactive particulate, the NFB and appurtenances are identified by the DOE as safety significant systems with basic design requirements and principal codes and standards equivalent to a Design Class II structure identified in Permit Attachment A1, Table A1-1. Safety significant systems are described in the WIPP Documented Safety Analysis. Detailed mechanical drawings for the NFB structure and appurtenances including the SRB, fans, ductwork, and filtration units are shown in Appendix E of this PMR. The NFB consists of fans and filter units that will upgrade the UVS in order to increase the current filtration capacity of the UVS. The current filtration capacity is approximately 114,000 acfm, which includes the UVFS and the IVS. The primary functions of the new UVFS will be to provide sufficient ventilation airflow in order to achieve up to approximately 540,000 acfm and to remove the airborne radioactive particulate from the exhaust air through HEPA filtration before the air is released to the environment. The UVFS is normally operated in filtration mode. Additional filtered ventilation will facilitate increased underground activities such as bolting, which will make the facility safer.

Prior to passing through the NFB, air from the Exhaust Shaft may be directed through the SRB, which contains de-dusters, commonly used in the mining industry, and de-misters for salt dust and brine/water mist removal. The de-duster and de-mister combination has a water wash down system that is connected to a water collection, treatment and sludge tank. The outlet of the water collection, treatment, and sludge tank is piped out of the SRB to a two cell evaporative pond.

The Permittees have determined that the following Permit condition and supporting documents are impacted by the proposed changes. In each case, reference to the regulation specifying the information required to be provided, pursuant to 20.4.1.900 NMAC (incorporating 40 CFR 270) is included.

- Permit Attachment B, *Hazardous Waste Permit Application Part A*, is being changed to reflect the proposed NFB and its appurtenances pursuant to 40 CFR §270.13. The

[2] Notification of Planned Change to the Permitted Facility Regarding the Construction of a New Filter Building, Hazardous Waste Facility Permit, Number: NM4890319088-TSDF. Letter to Mr. John E. Kieling, Chief, Hazardous Waste Bureau, New Mexico Environment Department. June 9, 2017.

changes to Section A-3 will revise the area of the PPA to reflect the addition of the NFB. The changes to Permit Part A include the following:

- Figure B2-2 and Figure B2-2a are being updated and Note 1 is being revised to change the PPA to include the addition of the NFB. These changes are depicted in the redline strikeout of this PMR.

- Note that revised pages to Form OMB#: 2050-0024 (RCRA Hazardous Waste Part A Application forms) are not included. These will be provided as a Class 1 Permit Modification Notification once this Permit modification is adjudicated.

- The new structures have been designed and will be constructed and operated in a manner that protects human health and the environment as required by 40 CFR §264.31. No transuranic (**TRU**) mixed waste will be managed in the new area since its function is to support ventilation of areas where TRU mixed waste is managed in the underground. The Permittees have provided the required design information in Appendix E of this PMR pursuant with 40 CFR §270.14(a).

- The addition of the NFB modifies the UVS description and modes of operation to provide a general description of the modified facility pursuant to 40 CFR §270.14(b)(1). This addition also requires descriptive changes and updates to the Permit. Changes are being proposed to Permit Attachment A, Section A-3 to describe the modified facility. The changes to Section A-3 revise the area of the PPA to reflect the addition of the NFB also pursuant to 40 CFR §270.14(b)(1). Permit figures are also being revised to address these changes. The text describing the UVFS in Permit Attachment A2 is being revised to reflect the ventilation configurations when operating with the NFB. The new UVFS includes new ventilation fans; new HEPA filters; new electrical substation, necessary electrical power and backup diesel generators, lighting, control, and monitoring systems; new ductwork; and a new salt reduction system. Permit Part 2, Section 2.10.1.5. and Permit Attachment A2, Section A2-2a(3) are being revised to address the new backup diesel generators. The new generators have different ratings than the existing site generators because their design functions are intended to support different loads; therefore, the specific capacity is not being prescribed in the Permit for these new generators to eliminate future confusion. As such, the specifications for the existing generators will be removed because this detail is only descriptive in nature and these generators are designed for their specific safety functions, which are different than the new generators. Instead of describing two different sets of detailed specifications for different generator sets, the detail will be removed from the Permit and the language will be written to state that WIPP will have backup diesel generators capable of supporting safety functions in the event of loss of off-site power. This is being addressed by removing the detail regarding the existing backup diesel generators (e.g. deleting “1,300 KW” and “480 volts”).

- Operation of the NFB requires changes, additions, and/or modifications to emergency notifications, communications, staging areas, and inspections in the vicinity of the NFB. These types of changes affect the *RCRA Contingency Plan* discussed in Permit Attachment D, Table D-2. Inspections for the NFB and the SRB are being added pursuant to 40 CFR §270.14(b)(7).

- Operation of the NFB does not impact traffic patterns as shown in Permit Attachment A4 as required by 40 CFR §270.14(b)(10).

- Training concerning the UVS will be provided to applicable facility personnel consistent with the Mine Safety and Health Administration. Therefore, no changes pursuant to 40 CFR §270.14(b)(12) are required to the WIPP Permit training program relative to the UVS.

- The project planning includes the construction of additional ventilation and filtration features, and also D&D of the IVS that is currently in operation to support WIPP facility disposal activities. Some of the components of the IVS may be radiologically contaminated, and will have to be handled and disposed of accordingly. Additionally, the existing UVS will be dismantled and removed after the NFB and UVFS are placed into operation. Similar to the IVS, some of the components of the UVS may be radiologically contaminated including the Exhaust Filter Building (Building 413) and will have to be handled and disposed of accordingly. Permit Part 6.4., Part 6.5.1., Part 6.6., and Attachment G are being modified to include D&D of structures prior to final closure activities pursuant to 40 CFR §270.14(b)(13).

- The location for surface VOC monitoring does not change from the current location, Station VOC-C, adjacent to the Training Building (Building 489) due to implementation of the NFB. Although the design includes a new stack location and new stack height (i.e., new release point at 125 feet), which is at a higher elevation than the existing release point, modeling results as required by 40 CFR §270.23(c), as shown in Appendix D of this PMR, determined that the location of the non-waste surface worker who will be exposed to the largest VOC concentration will remain at the Training Building (Building 489)[3]. Therefore, there is no change necessary to Permit Attachment N.

The requirements and equipment relative to verifying total mine airflow, as described in Permit Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan* are being removed. Table O-1, *Ventilation Operating Modes and Associated Flow Rates,* and references to nominal mine ventilation flow rates are being removed from the Permit. Table O-1 was previously used to verify the minimum RAA mine ventilation exhaust rate; however, the requirements to monitor in order to maintain a minimum RAA mine ventilation rate are no longer needed since risk to non-waste surface workers is monitored directly. The changes to remove the requirement to maintain the minimum RAA mine ventilation exhaust rate and to monitor surface receptors directly, was adjudicated with the Class 2 PMR approval letter dated January 8, 2016[3]. The requirement to measure total flow is therefore an artifact remaining in the Permit that needs to be deleted. Previously, the NMED included the requirement to monitor and report the minimum RAA mine ventilation rate to ensure the risk standards for the non-waste surface worker would be met pursuant to 40 CFR §270.23(e). The revised and current method for calculating risk to the non-waste surface worker is based on VOC monitoring results and will prevent the exceedance of the risk levels; therefore, monitoring to verify and report a minimum mine ventilation flow rate is no longer necessary. Proposed text changes are included in Appendix A and Appendix B of this PMR. Appendix A provides a detailed list of changes by Permit section and Appendix B provides the proposed redline/strikeout to the existing Permit language. Note

[3] Final Determination, Class 2 Permit Modification Decision. Waste Isolation Pilot Plant. EPA I.D. Number NM4890139088. Letter to Todd A. Shrader, Manager, Carlsbad Field Office and Philip J. Breidenbach, Project Manager, Nuclear Waste Partnership, LLC. January 8, 2016.

also a table entitled “Description of the Changes with Explanation of Need” is included in Section 2 of this Overview. The following is the list of the appendices to this PMR:

- Appendix A, Table of Changes, describes each change that is being proposed.
- Appendix B, Proposed Revised Permit Text, identifies the proposed changes to the permit text in redline strikeout.
- Appendix C, Stack Height Determination for the New Filter Building (NFB) at WIPP
- Appendix D, Volatile Organic Compound (VOC) Modeling Assessment Report
- Appendix E, WIPP New Filter Building Design (NFB) Design Drawings

2. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii), requires the applicant to identify that the modification is a Class 2 modification.

This PMR is classified as a Class 2 modification for the reason indicated below:

> 20.4.1.900 NMAC (incorporating 40 CFR 270.42, Appendix I, Item A. “General Permit Provisions, 4. Changes in the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee: b. Other changes…2”
>
> 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, Item D, “Closure, 1. Changes to the closure plan: e. Changes in approved closure plan resulting from unexpected events occurring during partial or final closure, unless otherwise specified in this appendix…2”)

The requirements in Permit Attachment O, Sections O-3b(1), *Monitoring Total Mine Airflow*, O-3d, *Verification of Total Mine Airflow*, Table O-1, *Ventilation Operating Modes and Associated Flow Rates,* and references to nominal mine ventilation flow rates are proposed for deletion from the Permit. These changes related to monitoring and verification of total mine airflow constitute changes in the “procedures for monitoring” required by the Permit and therefore require this modification to be classified as a Class 2 Permit modification.

In addition, the Permit does not anticipate the D&D of portions of the facility prior to final facility closure. The Permittees intend to remove the equipment and structures that are being upgraded and replaced by the NFB. These structures and equipment may be contaminated with TRU mixed waste; therefore, their removal needs to be included in the Permit to ensure proper closure prior to final facility closure. Although the proposed changes are minor in nature, they can be considered to fall into the Class 2 category defined by 40 CFR §270.42, Appendix I, Item D.1.e. *changes in approved closure plan resulting from unexpected events occurring during partial or final closure, unless otherwise specified in this appendix.*

Although this modification is a Class 2 PMR, as described above, the following information is being provided for completeness. This PMR provides for the addition of equipment and structures with functionally equivalent components for the existing UVS. In addition, new equipment inspections are being added to Permit Attachment E, Table E-1 and a significant amount of descriptive text associated with the UVS is being changed due to the addition of the NFB. These types of changes are considered Class 1 permit modification notifications pursuant to 40 CFR 270.42 Appendix I because they are minor and are necessary to keep the Permit

current with routine changes to the facility and its operations. Class 1 Permit modifications include administrative and informational changes (40 CFR §270.42 Appendix I, A.1), correction of typographical errors (40 CFR §270.42 Appendix I, A.2), equipment replacement or upgrading with functionally equivalent components (40 CFR §270.42, Appendix I, A.3), and changes in the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee to provide for more frequent monitoring, reporting, sampling, or maintenance (40 CFR §270.42 Appendix I, A.4). These changes do not change permit conditions or reduce the ability of the facility to protect human health and the environment.

In addition, the Permittees evaluated Permit conditions related to the UVS found in Permit Part 4, Sections 4.5.3.2., *Ventilation*, 4.6.2., *Repository Volatile Organic Compound Monitoring*, 4.6.3., *Disposal Room Volatile Organic Compound Monitoring*, 4.6.4., *Mine Ventilation Rate Monitoring*, 4.6.5., *Hydrogen and Methane Monitoring*, and Permit Part 6, *Closure Requirements*, to determine if changes to these Permit conditions were necessary. In each case, no modification to the conditions is necessary to implement the changes proposed in the PMR to upgrade the equipment with functionally equivalent equipment. However, in the case of Repository VOC Monitoring, air dispersion modeling was performed, which confirmed that no change to the location of monitoring equipment or procedures was necessary. This is discussed in more detail below.

The NFB design includes a VOC release point that is different from the current release point. However, modeling results, as shown in Appendix D of this PMR, were used to determine that the VOC monitoring location for the non-waste surface worker will remain at the Training Building (Building 489). Previously, this air dispersion modeling has been reviewed as part of a Class 2 PMR.

3. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.

In February 2014, there were two unrelated incidents in the underground area of the facility: (1) a salt haul truck fire, (2) a radiological release from one of the disposed waste drums. As a result of the radiological event, portions of the WIPP underground and the existing surface mounted ventilation and exhaust systems have become radiologically contaminated; therefore, a decision was made to operate using continuous filtration of underground exhaust flow (filtration mode). Continuous filtration mitigates any future radioactive releases. The filtration system, as originally designed, can only accommodate approximately 15 percent of the flow needed to support normal operations for mining, construction, and TRU waste emplacement. The NFB represents a significant upgrade to the existing UVS, and will provide new, radiologically clean, surface exhaust system components capable of supporting full-scale mining and waste emplacement operations.

This modification is needed because the Permittees are upgrading the manner in which the underground hazardous waste disposal facility is ventilated. Ventilation of the underground disposal units has been identified as important to protecting the health of underground TRU mixed waste workers and non-waste surface workers. Ventilation of the entire underground is important for the safety of all underground workers. The protection provided by the new UVFS is four-fold:

1. The new UVFS and NFB increase the ventilation airflow to allow for safe concurrent work activities such as mining, waste disposal, and ground support maintenance, which is vital to the safety of the underground worker.

2. The new UVFS and NFB provide ventilated air to support workers in the underground where equipment fumes and dust could pose a health and safety risk as they perform critical waste management activities such as waste emplacement, monitoring, maintenance, inspection, and closure.

3. The new UVFS and NFB provide ventilated air to protect underground waste workers from VOC emissions from containers of waste that are disposed in active disposal panels.

4. The new UVFS and NFB provide filtration to capture radiological particulates should they become airborne in the event of an underground release or spill, thereby protecting human health and the environment on the surface.

In addition, the UVFS parameters affect the amount and type of VOCs that are emitted from the underground ventilation stack. Non-waste surface workers may be exposed to these VOCs. Therefore, the Permittees conducted surface monitoring to assess the doses these workers receive. The location of the monitoring station is directly related to the location of the ventilation stack and the ventilation flow rates. The PMR is needed to show that the modification of the UVFS did not result in a change to the surface VOC monitoring station location. Because the new stack height of 125 feet provides for additional dispersion of VOCs, surface worker exposure to VOC emissions is minimized. As shown in Appendix D of this PMR, it was determined that the maximum dose for VOCs will occur at a location outside the PPA; therefore, monitoring at the Training Building (Building 489) provides a conservative sampling location.

It is standard practice in atmospheric dispersion modeling studies to use five years of meteorological data when predicting potential future impacts. The modeling makes use of past conditions for wind speed, wind direction, and atmospheric stability to predict future conditions. The use of five years of data helps ensure that the data set is representative and avoids undo bias from any one year that might differ from typical conditions.

The underlying assumption is that any five-year period is equivalent to any other five-year period. Therefore, it is not necessary to use the most recent five-year data set (e.g., 2012 – 2016). The meteorological data set, previously used for a stack evaluation at WIPP in 2014, was also used for the atmospheric dispersion modeling performed in September 2017. The data were reprocessed to ensure compatibility with the current version of the AERMOD model. The September 2017 work has also undergone a Quality Assurance review that included evaluating the appropriateness of the meteorological data set.

The use of the existing data set was done for reasons of convenience and efficiency. The use of existing data also helped to limit errors that could arise from use of a new, untried data set.The NFB design will meet or exceed pre-incident airflow rates, and will provide a nominal 540,000 acfm to support operations. The capacity of 540,000 acfm is based upon the potential to have ventilation air exhausted through the existing Exhaust Shaft to the NFB in a filtered (typical) or unfiltered (e.g., to support evacuation in the event of an underground fire that is not associated with TRU mixed waste) mode of operation.

The upgraded UVS (i.e., UVFS) will have sufficient capacity to support simultaneous mine maintenance, mining, and waste emplacement operations. The design serves three functions: (1) provide sufficient airflow to the mine for personnel life-safety requirements (directing releases of radioactive material away from workers); (2) direct and filter potentially contaminated air to mitigate the potential release of airborne contaminants; and (3) incorporate sufficient

redundancy to facilitate maintenance outages and filter changes without impeding waste management activities.

Impacts of the NFB and its appurtenances on the Permit have been evaluated. The results of the Permit impact assessment are identified in Table 1 below. This table identifies that the impacted portions of the Permit are Part 2, Part 6, and several Permit Attachments. This Permit modification is needed to address the following changes, modifications, or updates due to the NFB modification:

Table 1: Description of Changes and Explanation of Need

Permit Part/Section	Impact
Part 2, Section 2.10.1.5.	Part 2.10.1.5. discusses electrical backup supply including diesel generators. The addition of the NFB includes a new electrical substation and necessary electrical power, lighting, control, and monitoring systems including backup diesel generators. This new preparedness and protection provision needs to be added to the Permit. The new generators have different ratings than the existing site generators because their design functions are intended to support different loads; therefore, the specific capacity is not being prescribed in the Permit for these new generators to eliminate future confusion. As such, the specifications for the existing generators will be removed because this detail is only descriptive in nature and these generators are designed for their specific safety functions, which are different than the new generators. Instead of describing two different sets of detailed specifications for different generator sets, the detail will be removed from the Permit and the language will be written to state that WIPP will have backup diesel generators capable of supporting safety functions in the event of loss of off-site power.
Part 6, Section 6.4.	Part 6.4. discusses partial closure requirements which include surface equipment, structures, and soils. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Part 6, Section 6.5.1.	Part 6.5.1. discusses partial closure requirements which include surface equipment, structures, and soils. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Part 6, Section 6.6.	Part 6.6. discusses partial closure requirements which include surface equipment, structures, and soils. This part is being modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Attachment A, Section A-3	This section describes the facility layout and process information including the acreage of the PPA. This part needs to be revised to address the area of the PPA to reflect the addition of the NFB and its appurtenances.
Attachment A2, Section A2-1	This section provides a description of the ventilation flow paths. The NFB will include new ventilation fans; new HEPA filters; new electrical substation and necessary electrical power, lighting, control, and monitoring systems; new ductwork; and a new salt reduction system. The descriptive changes that are needed include specifics to the ventilation system description and modes of operation.

Attachment A2, Section A2-2a(3)	This section describes the UVS. The new UVFS will include new ventilation fans; new HEPA filters; new electrical substation and necessary electrical power, lighting, control, and monitoring systems; new ductwork; and a new salt reduction system. The descriptive changes that are needed include specifics to the ventilation system description and modes of operation. The new generators have different ratings than the existing site generators because their design functions are intended to support different loads; therefore, the specific capacity is not being prescribed in the Permit for these new generators to eliminate future confusion. As such, the specifications for the existing generators will be removed because this detail is only descriptive in nature and these generators are designed for their specific safety functions, which are different than the new generators. Instead of describing two different sets of detailed specifications for different generator sets, the detail will be removed from the Permit and the language will be written to state that WIPP will have backup diesel generators capable of supporting safety functions in the event of loss of off-site power.
Attachment A2, Figure A2-9a	This figure depicts the UVS. The figure needs to be revised to add features of the UVFS including new ventilation fans, new HEPA filters, new ductwork, and a new salt reduction system.
Attachment A4, Figure A4-2	This figure depicts the surface building locations. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment B, Appendix B2	Figure B2-2 and Figure B2-2a show the PPA acreage. These figures need to be revised to address the area of the PPA to reflect the addition of the NFB and its appurtenances.
Attachment D, Table D-2	This table discusses fire alarms in reference to building locations. The addition of the NFB will change, add, and/or modify emergency notifications, communications, staging areas, and inspections in the vicinity of this new building (Building 416). These changes need to be added to the Permit. Inspections for the NFB and the SRB also need to be added to the Permit.
Attachment D, Figure D-1	This figure depicts the surface building locations. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment D, Figure D-1a	This figure depicts the surface building locations. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment D, Figure D-5	This figure depicts the Fire Water Distribution System. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment D, Figure D-6	This figure depicts the surface building locations. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment D, Figure D-8	This figure depicts the surface building locations. A new figure needs to be added to the Permit to include the NFB and its appurtenances.
Attachment E, Table E-1	This section includes the inspection criteria for ventilation exhaust. Total mine airflow monitoring is no longer a Permit requirement; therefore, this item is being deleted.
Attachment G, Introduction	This section discusses partial closure requirements which include surface equipment, structures, and soils. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Attachment G, Section G-1	This section discusses partial closure requirements which include surface equipment, structures, and soils. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Attachment G, Section G-1(e)2(c)	This section discusses partial closure requirements which include surface equipment, structures, and soils. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.

Attachment G1, Appendix G, Definitions	This section states the definition of partial closure. This part needs to be modified to include D&D of specific surface structures (i.e., Exhaust Filter Building) prior to final closure activities because D&D prior to final closure was not anticipated by the Permit when it was issued.
Attachment O, Section O-3	This section requires the monitoring and reporting of total mine airflow. The revised and current method for calculating risk to the non-waste surface worker is based on VOC monitoring results and will prevent the exceedance of the risk levels; therefore, monitoring to maintain and report a minimum mine ventilation flow rate is no longer required.
Attachment O, Section O-4	This section makes a reference to Table O-2, which is changing to Table O-1 after the existing Table O-1 is deleted. This change is needed because Table O-1 is no longer referenced in the text.
Attachment O, Table O-1	This attachment is the WIPP Mine Ventilation Rate Monitoring Plan. The affected portions include ventilation description and the ventilation modes of operation. Nominal mine ventilation flow rates need to be removed from the Permit because the mine flow rates are no longer required to be specified.
Attachment O, Table O-2	This attachment lists the calibrated equipment needed for Flow Verification Checks. This column will be removed as these are no longer required.

4. 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.

The regulatory crosswalk describes those portions of the WIPP Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised March 9, 2009, incorporating 40 CFR Parts §§264 and 270. 40 CFR §§270.16 through 270.21, 270.62, and 270.63 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table.

5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires that any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.

The transmittal letter for this PMR contains the signed certification statement in accordance with Permit Part 1, Section 1.9.

Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the WIPP Permit	Yes	No
§270.13		Contents of Part A permit application	Attachment B, Part A	✓	
§270.14(b)(1)		General facility description	Attachment A	✓	
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment C		✓
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment C		✓
	§264.13(c)	Off-site waste analysis requirements	Attachment C		✓
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Part 2.6.		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment E	✓	
	§264.174	Container inspections	Attachment E		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment E		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		✓
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment D	✓	
	§264.51	Contingency plan design and implementation	Attachment D		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment D		✓
	§264.53	Contingency plan copies	Attachment D		✓
	§264.54	Contingency plan amendment	Attachment D		✓
	§264.55	Emergency coordinator	Attachment D		✓
	§264.56	Emergency procedures	Attachment D		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Part 2.10.		✓
§270.14(b)(8)(i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Part 2.10.		✓
§270.14(b)(8)(ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Part 2.10.		✓
§270.14(b)(8)(iii)		Prevention of contamination of water supplies	Part 2.10.		✓
§270.14(b)(8)(iv)		Mitigation of effects of equipment failure and power outages	Part 2.10.	✓	
§270.14(b)(8)(v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Part 2.10.		✓
§270.14(b)(8)(vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Part 4 Attachment A2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Part 2.10.	✓	
	§264.31	Design and operation of facility	Part 2.10.	✓	
	§264.32	Required equipment	Part 2.10. Attachment D	✓	
	§264.33	Testing and maintenance of equipment	Attachment E	✓	
	§264.34	Access to communication/alarm system	Part 2.10.	✓	
	§264.35	Required aisle space	Part 2.10.		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the WIPP Permit	Yes	No
	§264.37	Arrangements with local authorities	Attachment D		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Part 2.10.		✓
§270.14(b) (10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment A4		✓
§270.14(b) (11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b) (11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b) (12)	§264.16(a-e)	Personnel training program	Part 2 Attachment F		✓
§270.14(b) (13)	264 Subpart G	Closure and post-closure plans	Attachment G & H	✓	
§270.14(b)(13)	§264.111	Closure performance standard	Attachment G		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment G		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment G		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment G		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment G		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment G	✓	
§270.14(b)(13)	§264.115	Certification of closure	Attachment G		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment G		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment H		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment H		✓
§270.14(b)(13)	§264.178	Closure/ containers	Attachment G		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment G		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment G		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment H		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the WIPP Permit	Yes	No
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment B Part A	 ✓	
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment B Part A		✓
§270.14(b)(19)(iii)		Surface waters	Attachment B Part A		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment B Part A		✓
§270.14(b)(19)(v)		Wind rose	Attachment B Part A		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment B Part A		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment B Part A		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Attachment B Part A		✓
§270.14(b)(19)(xii)		Location of operational units	Attachment B Part A		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Attachment B Part A		 ✓
§270.15	§264 Subpart I	Containers	Attachment A1		✓
	§264.171	Condition of containers	Attachment A1		✓
	§264.172	Compatibility of waste with containers	Attachment A1		✓
	§264.173	Management of containers	Attachment A1		✓
	§264.174	Inspections	Attachment E Attachment A1		✓
§270.15(a)	§264.175	Containment systems	Attachment A1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Part 2		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Part 2		✓
	§264.178	Closure	Attachment G		✓
§270.15(e)	§264.179	Air emission standards	Part 4 Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment A2 Attachment O		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the WIPP Permit	Yes	No
§270.23(a)	§264.601	Detailed unit description	Attachment A2 Attachment O	✓	
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Part 5 Attachment L		✓
§270.23(c)	§264.601	Potential exposure pathways	Part 4 Attachment A2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	NA		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Part 2 Part 4 Part 5 Attachment A2 Attachment N Attachment O	✓	
	§264.603	Post-closure care	Attachment H Attachment H1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Part 2 Attachment C		✓

Appendix A
Table of Changes

Table of Changes

Affected Permit Section	Explanation of Change
Part 2, Section 2.10.1.5., Electrical Backup	Deleted “dual 1,300 KW” and “located between the exhaust shaft and the WHB” in third sentence of second paragraph. Made editorial correction to delete extra space between powered and generators. Added “facility functions that include” and “TRU mixed” to fourth sentence of second paragraph. Added “TRU mixed” to fifth sentence of second paragraph. Added “TRU mixed waste” to seventh sentence of second paragraph. Added “TRU mixed waste” and deleted “at 480 volts and below to eighth sentence of second paragraph. Added “ventilation” and replaced “fails in the “filter” mode” with “operates as designed” in numbered item i. Deleted “all” in numbered item ii.
Part 6, Section 6.4., Notification of Closure	Replaced “i.e.” with “e.g.” in first paragraph.
Part 6, Section 6.5.1., Partial Closure	Added “or upon completion of decontamination and decommissioning of surface equipment, structures, and soils” after HWDU in first paragraph.
Part 6, Section 6.6., Disposal or Decontamination of Equipment, Structures, and Soils	Replaced “The” with “As part of either partial closure or final facility closure, the” and deleted “all” in first paragraph.
Attachment A, Section A-3, Property Description	Added “which” and replaced “34.16” with “approximately 40” in second sentence of first paragraph.
Attachment A2, List of Figures	Added “Figure A2-9a-NFB Underground Ventilation System Airflow (with Building 416)” to the List of Figures.
Attachment A2, Section A2-1, Description of the Geologic Repository	Deleted “Sampling Station VOC-C, as” in fifth sentence of paragraph. Replaced “Sampling Station VOC-C” with “The point of compliance” in sixth sentence of paragraph.
Attachment A2, Section A2-2a(3), Subsurface Structures	Made the following changes to subsection Underground Ventilation System Description. Deleted “two identical” before HEPA-filter in first sentence of first paragraph. Replaced “the nominal air flow of 425,000 standard ft^3 per minute (scfm)” with “sufficient airflow” after providing in third sentence of first paragraph. Deleted “260,000 scfm” before underground in fourth sentence of first paragraph. Deleted “, and each can provide 60,000 scfm of air flow” after fans in fifth sentence of first paragraph. Deleted “, each of which can provide approximately 23,000 scfm of air flow” after assemblies in seventh sentence of first paragraph. Deleted “all” before areas and added “requiring ventilation” after repository in first sentence of second paragraph. Replaced “approximately 140,000 actual ft^3 (3962 m^3) per min” with “sufficient ventilation airflow” after operations), and added “from the underground ventilation system” after area in second sentence of second paragraph. Replaced “This quantity” with “Ventilation airflow” in last sentence of second paragraph. After “ventilation rate of 35,000” added “standard ft^3 per minute” before “scfm Added new subsection “Underground Ventilation Filtration System Description with

Affected Permit Section	Explanation of Change
	Building 416” Added the following text to the new subsection. “The UVFS fans which are part of the New Filter Building (NFB) (Building 416) provide enhanced ventilation in the underground, sufficient to allow concurrent mining and waste emplacement while in filtration mode. The UVFS will provide filtered airflow through a surface mounted ventilation and filtration system. The intake duct to the surface ventilation and filtration facility is connected to the Exhaust Shaft. The exhaust from the underground will normally be directed to the salt reduction system located in Building 417. The salt reduction system consists of multiple parallel de-dusting units. The exhaust from the de-dusting units is directed to the filter supply manifold and then to the filtration units. Multiple filtration units will be provided with a combination of mod pre–filters and HEPA filter stages. Differential pressure instrumentation will be provided with a high differential pressure alarm, which is monitored in the CMR. The exhaust from each of the filter banks is directed to a plenum. The facility will have exhaust fans connected to the plenum which has a single duct that discharges to the environment through a stack.” ” Added new subsection “Underground Ventilation Filtration System Modes of Operation with Building 416” in the Underground Ventilation Modes of Operation subsection. Added the following text to the new subsection. “The new underground ventilation filtration system (UVFS), which includes the NFB, is designed to perform under two types of operation: filtered (the exhaust is filtered through the HEPA filtration system), and bypassed (the HEPA exhaust filtration system is bypassed). For UVFS Filtration Mode • 1 exhaust fan • 2 exhaust fans • 3 exhaust fans • 4 exhaust fans For UVFS Bypass Mode • 1 to 4 exhaust fans” Made the following changes to subsection Underground Ventilation Modes of Operation. Replaced “such as” with “e.g., before power and deleted “, etc.” before parenthesis and replaced “all mine ventilation” with “exhaust fan operation” in first paragraph after new subsection. Revised first and second paragraph after bullets Replaced “goes into the fail-safe position, and the system high-efficiency particulate-air filter dampers are placed into filtration position. When power is restored by the diesel generators, a decision is made whether to remain in filtration mode and energize a filtration fan or to realign the dampers into the minimum exhaust mode. Without any indication of a radiological release, the decision is usually the latter.” with “is powered by backup diesel generators. Normal” in third paragraph after bullets. Deleted subsection “Underground Ventilation Normal Mode Redundancy” Made the following changes to subsection Electrical System. Deleted “two 1,100-kilowatt” and “480-volt power with” in second paragraph. Replaced “CMR” with “**CMR**” in last sentence of second paragraph.
Attachment A2, Figure A2-9a-NFB	Added new Figure A2-9a-NFB “Underground Ventilation System Airflow with Building 416” after Figure A2-9a.
Attachment A4, List of Figures	Added “Figure A4-2-NFB WIPP Traffic Flow Diagram with Building 416” to the List of Figures.

Affected Permit Section	Explanation of Change
Attachment A4, Figure A4-2-NFB	Added new Figure A4-2-NFB “WIPP Traffic Flow Diagram with Building 416” after Figure A4-2.
Attachment B, Appendix B2, Maps	Editorial change to remove open parenthesis in heading.
Attachment B, Figure B2-2	Replaced figure to a more legible figure and extended the Property Protection Area
Attachment B, Figure B2-2a	Replaced figure to a more legible figure Replaced “35” with “40” in Note 1 Removed Note 2 and changed Note 3 to Note 2.
Attachment D, List of Figures	Added the following figures to the List of Figures. “Figure D-1-NFB WIPP Surface Structures with Building 416” “Figure D-1a-NFB Legend to Figure D-1-NFB (Building 416)” “Figure D-5-NFB Fire-Water Distribution System with Building 416” “Figure D-6-NFB WIPP On-Site Assembly Areas and Off-Site Staging Areas with Building 416”
Attachment D, Table D-2, Emergency Equipment Maintained at the Waste Isolation Pilot Plant	Added “NFB (Building 416), SRB (Building 417)” in column 3 of line item Building Fire Alarms. Added “NFB (Building 416), SRB (Building 417),” in column 3 of line item Sprinkler Systems. Added “NFB (Building 416), and SRB (Building 417),” and “deleted “and” in column 3 of line item Emergency Lighting. Replaced “Generators are east of Safety and Emergency Services Facility Building 452);” with “Generators are located on the surface” in column 3 of line item Backup Power Sources. Added “NFB (Building 416), SRB (Building 417),” in column 3 of line item Emergency Eyewash Equipment.
Attachment D, Figure D-1-NFB	Added new Figure D-1-NFB “WIPP Surface Structures with Building 416” after Figure D-1.
Attachment D, Figure D-1a-NFB	Added new Figure D-1a-NFB “Legend to Figure D-1-NFB (Building 416)” after Figure D-1a.
Attachment D, Figure D-5-NFB	Added new Figure D-5-NFB “Fire-Water Distribution System with Building 416” after Figure D-5.
Attachment D, Figure D-6-NFB	Added new Figure D-6-NFB “WIPP On-Site Assembly Areas and Off-Site Staging Areas with Building 416” after Figure D-6.
Attachment E, Table E-1, Inspection Schedule/Procedures	Remove line item “Ventilation Exhaust”
Attachment G, Introduction	Replaced “and” with “,” after unit. Added “, or Permit-related surface equipment, structures and contaminated soils” after (PAU).
Attachment G, Section G-1, Closure Plan	Replaced “and” with “,” after WHB. Added “, or Permit-related surface equipment, structures and contaminated soils” after HWMUs.

Affected Permit Section	Explanation of Change
Attachment G, Section G-1e(2)(c), Dismantling	Added new heading “G-1e(2)(c)(1) Dismantling During Final Closure” after Heading G-1e(2)(c) Dismantling. Added new section “G-1e(2)(c)(2) Dismantling of Permit-Related Surface Equipment, Structures, and Contaminated Soils During Partial Closure” Added the following text to new section. “Partial closure includes dismantling of Permit-related structures and/or equipment and removal of contaminated soils on the surface prior to final closure. During dismantling, priority will be given to structures and equipment contaminated with hazardous waste or hazardous waste constituents that cannot be decontaminated due to the presence of radioactivity to ensure these are properly disposed of at the WIPP facility or at another designated disposal facility in a timely manner. It should be noted that the placement of D&D waste into a WIPP HWDU may, by necessity, involve the placement of uncontainerized bulk materials such as concrete components, building framing, structural members, disassembled or partially disassembled equipment, or containerized materials in non-standard waste boxes. Such placement will only occur if it can be shown that it is protective of human health and the environment and items are described in the operating record. Identification of bulk items is not possible at this time since their size and quantity will depend on the extent of non-removable contamination.”
Attachment G1, Appendix G, Technical Specifications, Division 1 – General Requirements	Added “either” and “or decontaminating and decommissioning of Permit-related surface equipment, structures and contaminated soils prior to final facility closure” to definition Partial closure.
Attachment O, Table of Contents	Deleted “O-3b Total Mine Airflow”, “O-3b(1) Monitoring Total Mine Airflow” and “O-3d Verification of Total Mine Airflow” Renumbered “O-3c” to “O-3b”
Attachment O, List of Tables	Deleted “O-1 Ventilation Operating Modes and Associated Flow Rates” in the List of Tables. Renumbered Table “O-2” to “O-1” in the List of Tables
Attachment O, Section O-3, Design and Procedures	Changed “O-3c(1)” to “O-3b(1)” Removed “Verification of the total mine airflow”
Attachment O, Section O-3b, Total Mine Airflow	Removed in its entirety.
Attachment O, Section O-3c, Active Room Minimum Airflow	Renumbered Section “O-3c” to “O-3b” Added “Central Monitoring Room Operator’s” to define “(**CMRO**)” Changed “O-3c(1)” to “O-3b(1)”
Attachment O, Section O-3d, Verification of Total Mine Airflow	Removed in its entirety.
Attachment O, Section O-4, Equipment Calibration and Maintenance	Deleted “flow verification checks” Deleted “Verification of Total Mine Airflow” and replaced “2” with “1” in second paragraph.
Attachment O, Table O-1, Ventilation Operating Modes and Associated Flow Rates	Deleted Table O-1 in its entirety.

Affected Permit Section	Explanation of Change
Attachment O, Table O-2, Mine Ventilation Rate Testing Equipment	Renumbered table O-2 to O-1.

Appendix B
Proposed Revised Permit Text

Proposed Revised Permit Text:

PART 2 - GENERAL FACILITY CONDITIONS

2.10. PREPAREDNESS AND PREVENTION

2.10.1. Required Equipment

2.10.1.5. Electrical Backup

In case of loss of AC power input to the Uninterrupted Power Supply (UPS) units, the dedicated batteries were designed to supply power to a fully loaded UPS for 30 minutes. It is expected that the AC power input to the UPS will be restored within 30 minutes, either from the off-site electric utility or from the site back-up power generator system.

The remote-handled(RH) Complex is included in the Waste Handling Building (WHB). The Central UPS supplies power to the WHB which includes the RH Complex. The RH Bay, Hot Cell and Transfer Cell equipment are serviced by ~~dual 1,300 KW~~ diesel powered generators ~~located between the exhaust shaft and the WHB~~. The generators provide backup power to facility functions that include both contact-handled(CH) and RH TRU mixed waste handling operations. The RH TRU mixed waste handling equipment is designed to stop as a result of loss of power in a fail-safe condition. Power from the back-up generators may be utilized to place RH TRU mixed waste containers in process into a safe configuration. During a total power outage condition selected RH TRU mixed waste loads can be powered by the Central UPS. Within a short time selected RH TRU mixed waste loads ~~at 480 volts and below~~ can be powered by the Backup Diesel Generators. The backup central UPS for the WHB would also supply backup power to the RH Complex.

Human health and the environment are protected during a loss of off-site power by a combination of factors:

i. The underground ventilation filtration system ~~fails in the "filter" mode~~ operates as designed so that no releases of contaminated particulates will occur

ii. The UPS maintains ~~all~~ monitoring systems and alarms in waste handling areas so that fires or pressure loss will be detected and an appropriate response initiated

iii. Generators are brought on line within 30 minutes, at which time hoisting can be initiated so that personnel do not have to stay underground for extended lengths of time.

PART 6 – CLOSURE REQUIREMENTS

6.4. NOTIFICATION OF CLOSURE

The Permittees shall notify the Secretary in writing at least 60 calendar days prior to the date on which they expect to begin partial closure, ~~i.e.~~e.g., closure of an Underground Hazardous Waste Disposal Unit (**Underground HWDU**), or final closure of the facility as required by 20.4.1.500 NMAC (incorporating 40 CFR §§264.112(d) and 264.601). The Permittees shall post a link to the closure notice transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

6.5. TIME ALLOWED FOR CLOSURE

6.5.1. Partial Closure

Upon completion of disposal operations in an Underground HWDU or upon completion of decontamination and decommissioning of surface equipment, structures, and soils, the Permittees shall complete partial closure activities as specified in Permit Attachment G, as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.113).

6.6. DISPOSAL OR DECONTAMINATION OF EQUIPMENT, STRUCTURES, AND SOILS

As part of either partial closure or final facility closure,~~The~~ the Permittees shall decontaminate or dispose of ~~all~~ contaminated equipment, structures, and soils, as specified in Permit Attachment G and as required by 20.4.1.500 NMAC (incorporating 40 CFR§264.114).

ATTACHMENT A

GENERAL FACILITY DESCRIPTION AND PROCESS INFORMATION

A-3 Property Description

The WIPP property has been divided into functional areas. The Property Protection Area (**PPA**), surrounded by a chain-link security fence, which encompasses ~~34.16~~ approximately 40 acres and provides security and protection for all major surface structures. The DOE Off Limits Area encloses the PPA, and is approximately 1,454 acres. These areas define the DOE exclusion zone within which certain items and material are prohibited. The final zone is marked by the WIPP Site Boundary (WIPP Land Withdrawal Area), a 16-section Federal land area under the jurisdiction of the DOE.

ATTACHMENT A2

GEOLOGIC REPOSITORY

LIST OF FIGURES

A2-1 Description of the Geologic Repository

Panels 1 through 8 will consist of seven rooms and two access drifts each. Panels 9 and 10 have yet to be designed. Access drifts connect the rooms and have the same cross section (see Section A2-2a(3)). The closure system installed in each HWDU after it is filled will prevent anyone from entering the HWDU and will restrict ventilation airflow. The point of compliance for air emissions from the Underground is ~~Sampling Station VOC-C, as~~ defined in Permit Attachment N (Volatile Organic Compound Monitoring Plan). ~~Sampling Station VOC-C~~ The point of compliance is the location where the concentration of volatile organic compounds (VOCs) in the air emissions from the Underground HWDUs will be measured and then compared to the VOC action levels (10^{-5} for carcinogens and HI>1 for non-carcinogens) as required by Permit Part 4, Section 4.6.2.3.

A2-2a(3) Subsurface Structures

Underground Ventilation System Description

The underground ventilation system consists of centrifugal exhaust fans, ~~two identical~~ HEPA-filter assemblies arranged in parallel, isolation dampers, a filter bypass arrangement, two skid-mounted HEPA-filter assemblies arranged in parallel, and associated ductwork. The fans, connected by the ductwork to the underground exhaust shaft so that they can independently draw air through the Exhaust Shaft, are divided into three groups. One group consists of three main exhaust fans, two of which are utilized to provide ~~the nominal air flow of 425,000 standard ft^3 per minute (**scfm**)~~ sufficient airflow throughout the WIPP facility underground during normal (unfiltered) operation. One main fan may be operated in the alternate mode to provide ~~260,000 scfm~~ underground ventilation flow. These fans are located near the Exhaust Shaft. The second group consists of three filtration fans~~, and each can provide 60,000 scfm of air flow~~. These fans, located at the Exhaust Filter Building, can be operated in the filtration mode, where exhaust is diverted through HEPA filters, or in the reduced or minimum ventilation mode, where air is not drawn through the HEPA filters. The third group consists of two skid mounted filtration fans and HEPA-filter assemblies~~, each of which can provide approximately 23,000 scfm of air flow~~. The skid-mounted filtration fan and HEPA-filter assemblies, referred to as the Interim Ventilation System (**IVS**) located south of the Exhaust Filter Building, are only operated in filtration mode, where exhaust is diverted through HEPA filters. In addition to the surface fans, an underground fan has been installed to ventilate uncontaminated areas in the North and Construction Circuits. This system is referred to as Supplemental Ventilation System (**SVS**) and will be used in conjunction with IVS (as shown in Figure A2-9b). When this fan is operating, the Salt Shaft will serve as an unfiltered exhaust shaft for the North and Construction Circuits. A portion of the airflow provided by the SVS to the Construction Circuit can also be used to provide fresh air to the Disposal Circuit, if needed. In this case, the air from the Disposal Circuit will continue to be exhausted through the HEPA filtration system.

The underground mine ventilation is designed to supply sufficient quantities of air to ~~all~~ areas of the repository requiring ventilation. During normal operating mode (simultaneous mining and waste emplacement operations), ~~approximately 140,000 actual ft^3 (3,962 m^3) per min~~ sufficient ventilation airflow can be supplied to the panel area from the underground ventilation system. ~~This quantity~~ Ventilation airflow is necessary in order to support the level of activity and the pieces of diesel equipment that are expected to be in operation.

At any given time during waste emplacement activities, there may be significant activities in multiple rooms in a panel. For example, one room may be receiving CH TRU mixed waste containers, another room may be receiving RH TRU mixed waste canisters, and the drilling of RH TRU mixed waste emplacement boreholes may be occurring in another room. The remaining rooms in a panel will either be completely filled with waste; be idle, awaiting waste handling operations; or being prepared for waste receipt. A minimum ventilation rate of 35,000 standard ft^3 (990 m^3) per minute (**scfm**) will be maintained in each active room when waste disposal is taking place and workers are present in the room. This quantity of air is required to support the numbers and types of diesel equipment that are expected to be in operation in the area, and to support the underground personnel working in that area. The remainder of the air is needed in order to account for air leakage through inactive rooms. If an active room ventilation rate of 35,000 scfm cannot be met, actions as described in Permit Attachment O shall be taken during waste disposal operations when workers are present.

Underground Ventilation Filtration System Description with Building 416

The Underground Ventilation Filtration System (**UVFS**) fans which are part of the New Filter Building (**NFB**) (Building 416) provide enhanced ventilation in the underground, sufficient to allow concurrent mining and waste emplacement while in filtration mode. The UVFS will provide filtered airflow through a surface mounted ventilation and filtration system. The intake duct to the surface ventilation and filtration facility is connected to the Exhaust Shaft. The exhaust from the underground will be directed to the salt reduction system located in Building 417. The salt reduction system consists of multiple parallel de-dusting units. The exhaust from the de-dusting units is directed to the filter supply manifold and then to the filtration units. Multiple filtration units will be provided with a combination of pre–filter and HEPA filter stages. Differential pressure instrumentation will be provided with a high differential pressure alarm, which is monitored in the CMR. The exhaust from each of the filter banks is directed to a plenum which has a single duct that discharges to the environment through a stack.

Underground Ventilation Modes of Operation

The underground ventilation system is designed to perform under three types of operation: normal (the HEPA exhaust filtration system is bypassed), and filtered (the exhaust is filtered through the HEPA filtration system), if radioactive contaminants are detected or suspected, or a combined mode in which the air in the Disposal Circuit is filtered and the air in the North and Construction Circuits is unfiltered.

The possible modes of exhaust fan operation are as follows:

- 2 main fans in operation
- 1 main fan in operation
- 1 filtration fan in filtered operation
- 2 fans in filtered operation (one filtration fan and one IVS fan or two IVS fans)
- 3 fans in filtered operation (one filtration fan and two IVS fans)
- 1 filtration fan in unfiltered operation
- 2 filtration fans in unfiltered operation
- 1 main and 1 filtration fan in unfiltered operation
- 3 fans in filtered operation (one filtration fan and two IVS fans exhausting through the Exhaust Shaft) and an underground SVS fan in operation (boosting fresh air into the

mine causing the Salt Handling Shaft to serve as an unfiltered exhaust shaft for the North and Construction Circuits)

Underground Ventilation Filtration System Modes of Operation with Building 416

The UVFS, which includes the NFB, is designed to perform under two types of operation: filtered (the exhaust is filtered through the HEPA filtration system), and bypassed (the HEPA exhaust filtration system is bypassed).

For UVFS Filtration Mode

- 1 exhaust fan
- 2 exhaust fans
- 3 exhaust fans
- 4 exhaust fans

For UVFS Bypass Mode

- 1 to 4 exhaust fans

Under some circumstances (~~such as~~ e.g., power outages and maintenance activities~~, etc.~~), ~~all mine ventilation~~ exhaust fan operation may be discontinued for short periods of time.

In the normal mode, two main surface exhaust fans, located near the Exhaust Shaft, will provide continuous ventilation of the underground areas. In this mode, underground flows join at the bottom of the Exhaust Shaft before discharge to the atmosphere. However, in some cases, the Salt Handling Shaft may be used as an unfiltered exhaust shaft to ventilate areas of the underground that do not need filtration.

Typically, outside air will be supplied to the construction areas and the waste disposal areas through the Air Intake Shaft, the Salt Handling Shaft, and access entries. A small quantity of outside air will flow down the Waste Shaft to ventilate the Waste Shaft station. The ventilation system is designed to operate with the Air Intake Shaft as the primary source of fresh air. Under these circumstances, sufficient air will be available to simultaneously conduct all underground operations (e.g., waste handling, mining, experimentation, and support). Ventilation may be supplied by operating fans in the configurations listed in the above descriptions of the ventilation modes.

An underground SVS fan, located in the S-90 drift, provides additional ventilation to the underground facility, as needed. The SVS ventilates the following:

- The North and Construction Circuits, exhausting through the Salt Handling Shaft and
- The disposal areas of the underground, exhausting through the Exhaust Shaft and through the filtration system

~~If the nominal flow of 425,000 scfm (12,028 m^3/min) is not available (e.g., only one of the main ventilation fans is available) underground operations may proceed,~~ Depending on the amount of airflow available,~~but~~ the number of activities that can be performed in parallel may be limited~~, depending on the quantity of air available.~~ Ventilation may be supplied by operating one or more of the filtration exhaust fans. To accomplish this, the isolation dampers will be opened, which

will permit air to flow from the main exhaust duct to the filter outlet plenum or to the IVS. The filtration fans may also be operated to bypass the HEPA plenum. The isolation dampers of the filtration exhaust fan(s) to be employed will be opened, and the selected fan(s) will be switched on. In this mode, underground operations will be limited, because filtration exhaust fans cannot provide sufficient airflow to support the use of diesel equipment.

If the UVS is ~~the nominal flow of 425,000 scfm (12,028 m³/min) is not available because the facility is~~ operating in filtration mode, the exhaust air will pass through HEPA-filter assemblies, with filtration fans operating (i.e., all other fans are stopped). This system provides a means for removing the airborne particulates that may contain radioactive and hazardous waste particulates before they are discharged through the exhaust stack to the atmosphere. The filtration mode is activated manually or automatically if the radiation monitoring system detects abnormally high concentrations of airborne radioactive particulates (an alarm is received from the continuous air monitor in the exhaust drift of the active waste panel) or a waste handling incident with the potential for a waste container breach is observed. The filtration mode is not initiated by the release of gases such as VOCs.

If utility power fails, the exhaust filter system ~~goes into the fail-safe position, and the system high-efficiency particulate-air filter dampers are placed into filtration position. When power is restored by the diesel generators, a decision is made whether to remain in filtration mode and energize a filtration fan or to realign the dampers into the minimum exhaust mode. Without any indication of a radiological release, the decision is usually the latter.~~ is powered by backup diesel generators. Normal TRU mixed waste handling and related operations cease upon loss of utility power and are not resumed until normal utility power is returned. As specified in Part 2, all waste handling equipment will "fail safe," meaning that it will retain its load during a power outage.

~~Underground Ventilation Normal Mode Redundancy~~

~~The underground ventilation system has been provided redundancy in normal ventilation mode by the addition of a third main fan. Ductwork leading to that new fan ties into the existing main exhaust duct.~~

Electrical System

The WIPP facility uses electrical power (utility power) supplied by the regional electric utility company. If there is a loss of utility power, TRU mixed waste handling and related operations will cease.

Backup, alternating current power will be provided on site by ~~two 1,100-kilowatt~~ diesel generators. These units provide ~~480-volt power with~~ a high degree of reliability. Each of the diesel generators can carry predetermined equipment loads while maintaining additional power reserves. Predetermined loads include lighting and ventilation for underground facilities, lighting and ventilation for the TRU mixed waste handling areas, and the Air Intake Shaft hoist. The diesel generators can be brought on line within 30 minutes either manually or from the control panel in the Central Monitoring Room (~~CMR~~**CMR**).

Uninterruptible power supply (**UPS**) units are also on line providing power to predetermined monitoring systems. These systems ensure that the power to the radiation detection system for

airborne contamination, the local processing units, the computer room, and the CMR will always be available, even during the interval between the loss of off-site power and initiation of backup diesel generator power.

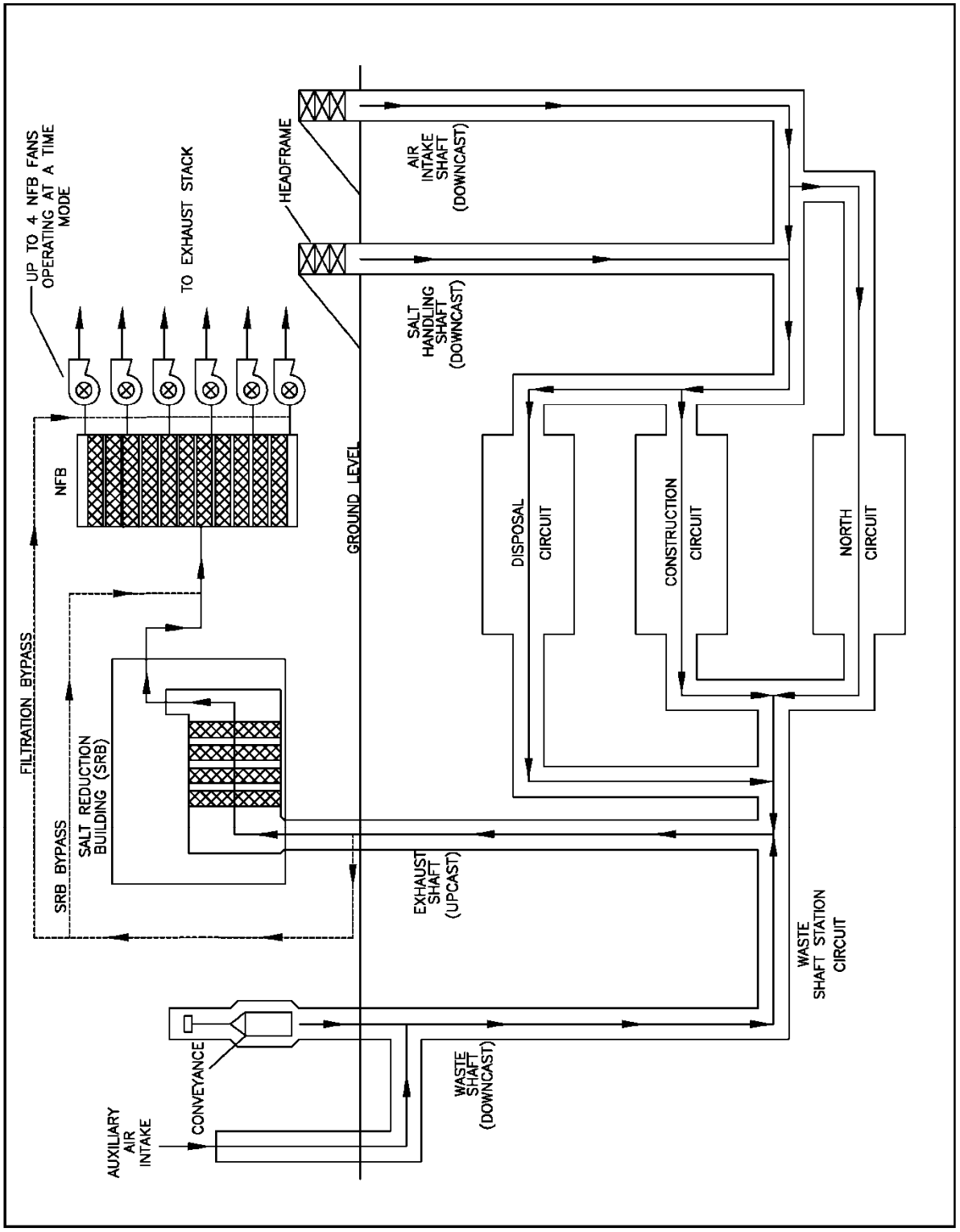


Figure A2-9a-NFB

Underground Ventilation System Airflow (with Building 416)

ATTACHMENT A4

TRAFFIC PATTERNS

LIST OF FIGURES

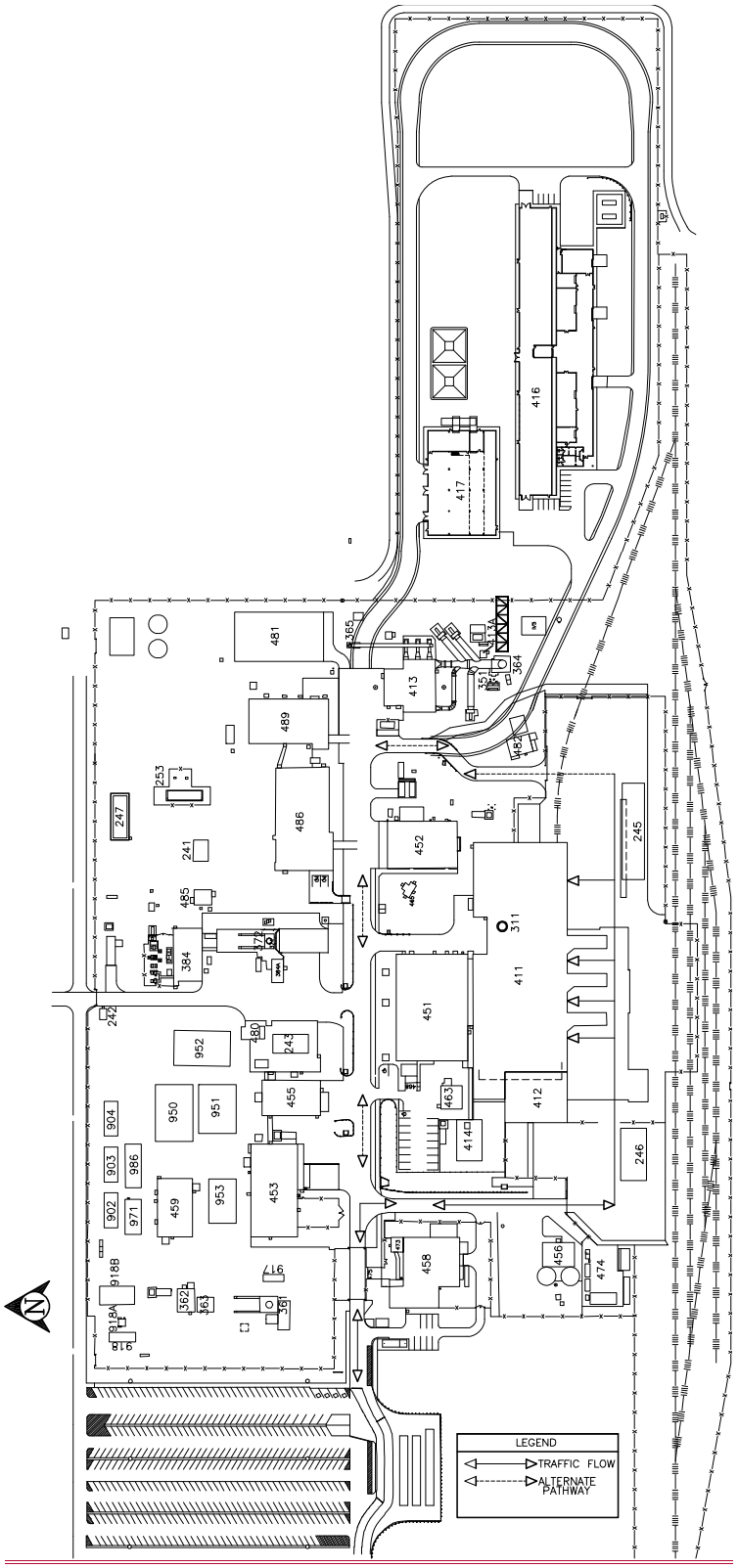


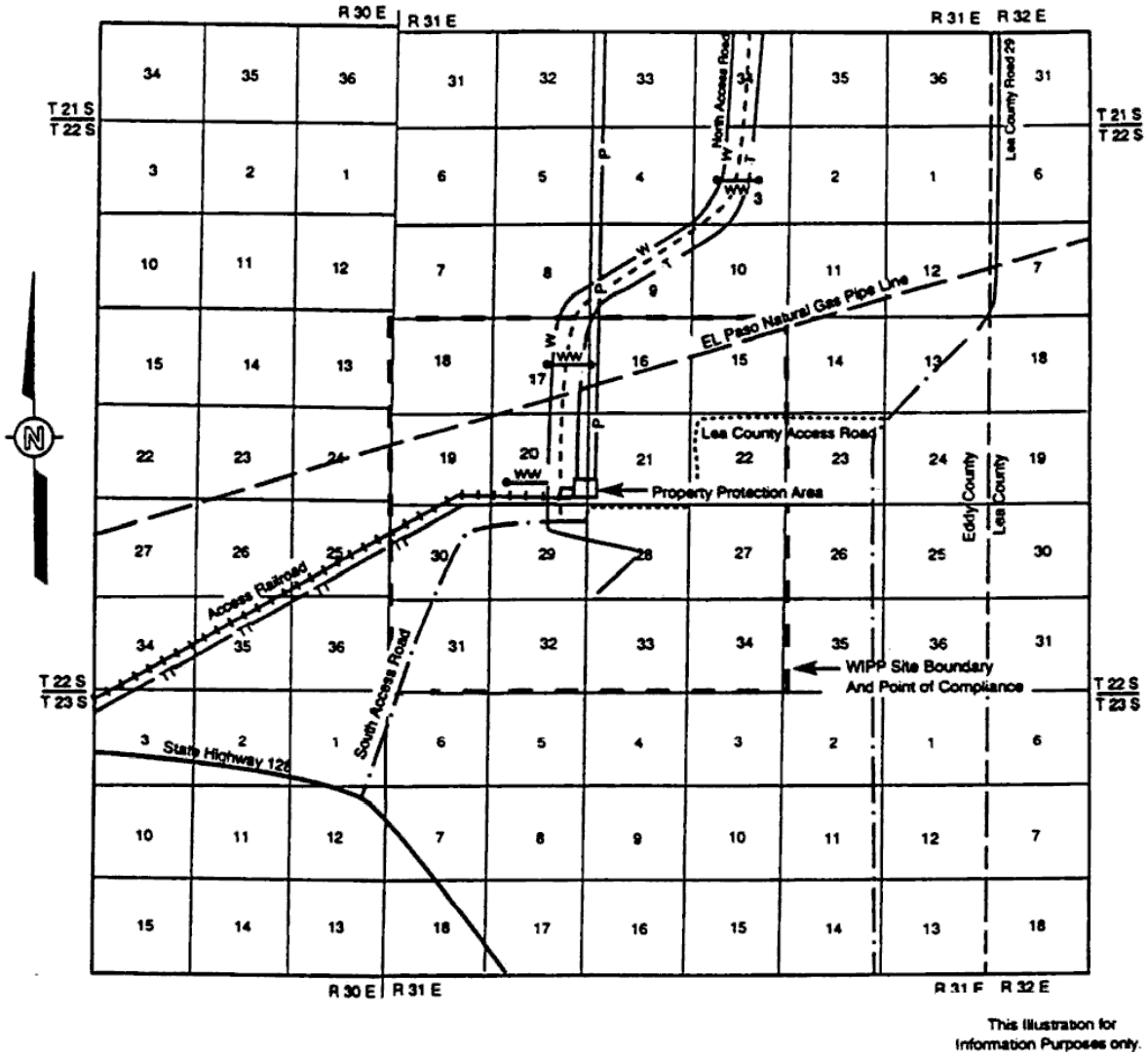
Figure A4-2-NFB

WIPP Traffic Flow Diagram with Building 416

ATTACHMENT B

HAZARDOUS WASTE PERMIT APPLICATION PART A

{APPENDIX B2
MAPS



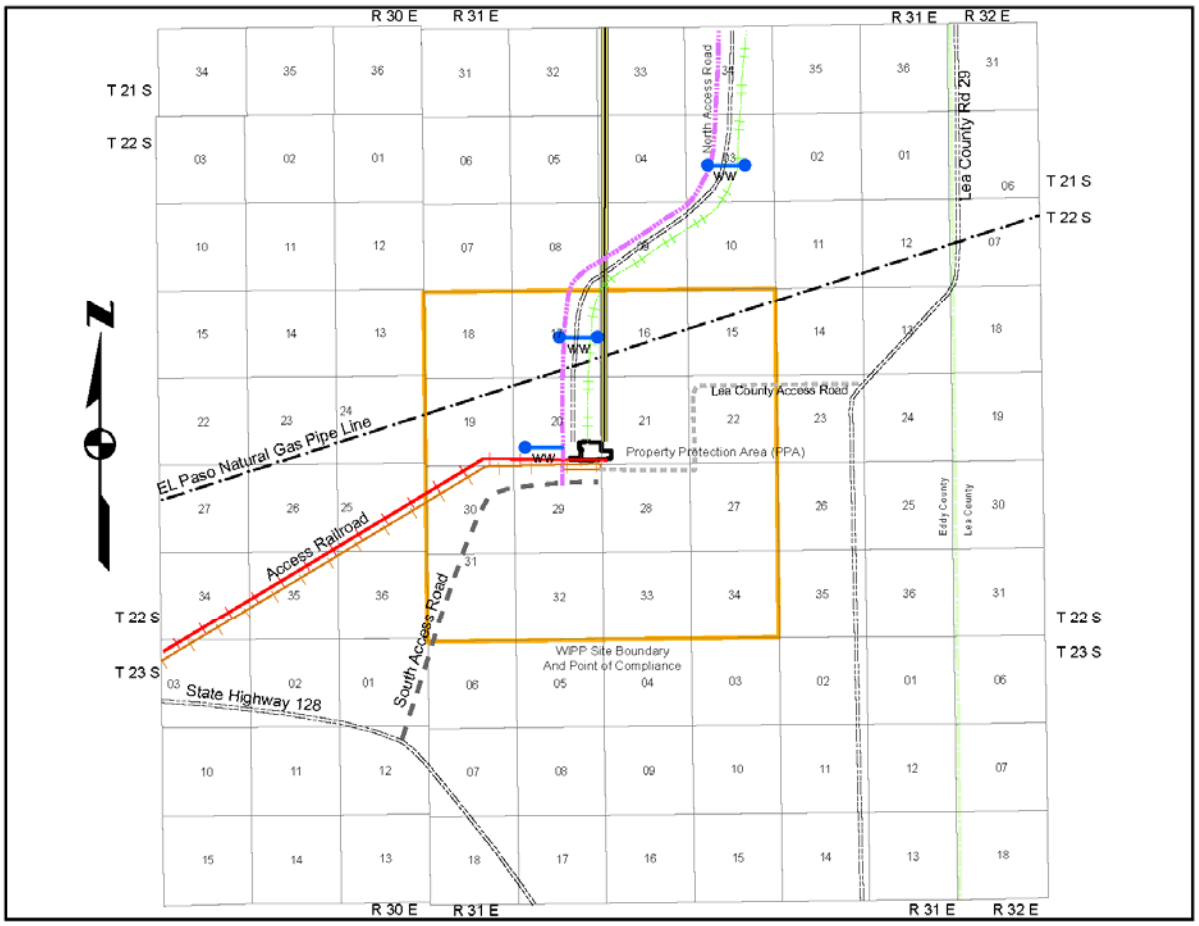


Figure B2-2

Planimetric Map-WIPP Facility Boundaries

LEGEND

- WIPP Site Boundary 10,240 Acres.
- U.S. DOE Right of Way Number NM-53809. For Waterline, 50 Feet Wide. The DOE had Agreed with the City of Carlsbad to Allow the Individuals to Tap this Line Located within the North Access Road Right of Way.
- Stock Water Tanks and Tap Lines Connected to the Main WIPP Waterline.
- Southwestern Public Service Company Right of Way Number NM-43203 for Power 60 Feet Wide.
- General Telephone of the Southwest Right of Way for Telephone Line, 30 Feet Wide, Located within the North access Road Right of Way.
- General Telephone of the Southwest Right of Way Number NM-60174 for Telephone Line, 30 Feet Wide, Located within the Railroad Right of Way.
- U.S. DOE Right of Way Number NM-55675 for North Access Road, 170 Feet Wide.
- El Paso Natural Gas company Right of Way for Gas Pipeline, 30 Feet Wide in Section 16, 50 Feet Wide Elsewhere.
- U.S. DOE Right of Way Number NM-55699 for Access Railroad, 150 Feet Wide.
- U.S. DOE Right of Way for Access Roads Includes Right of Way Number NM-123703 for the South Access Road which is 140 Feet Wide.

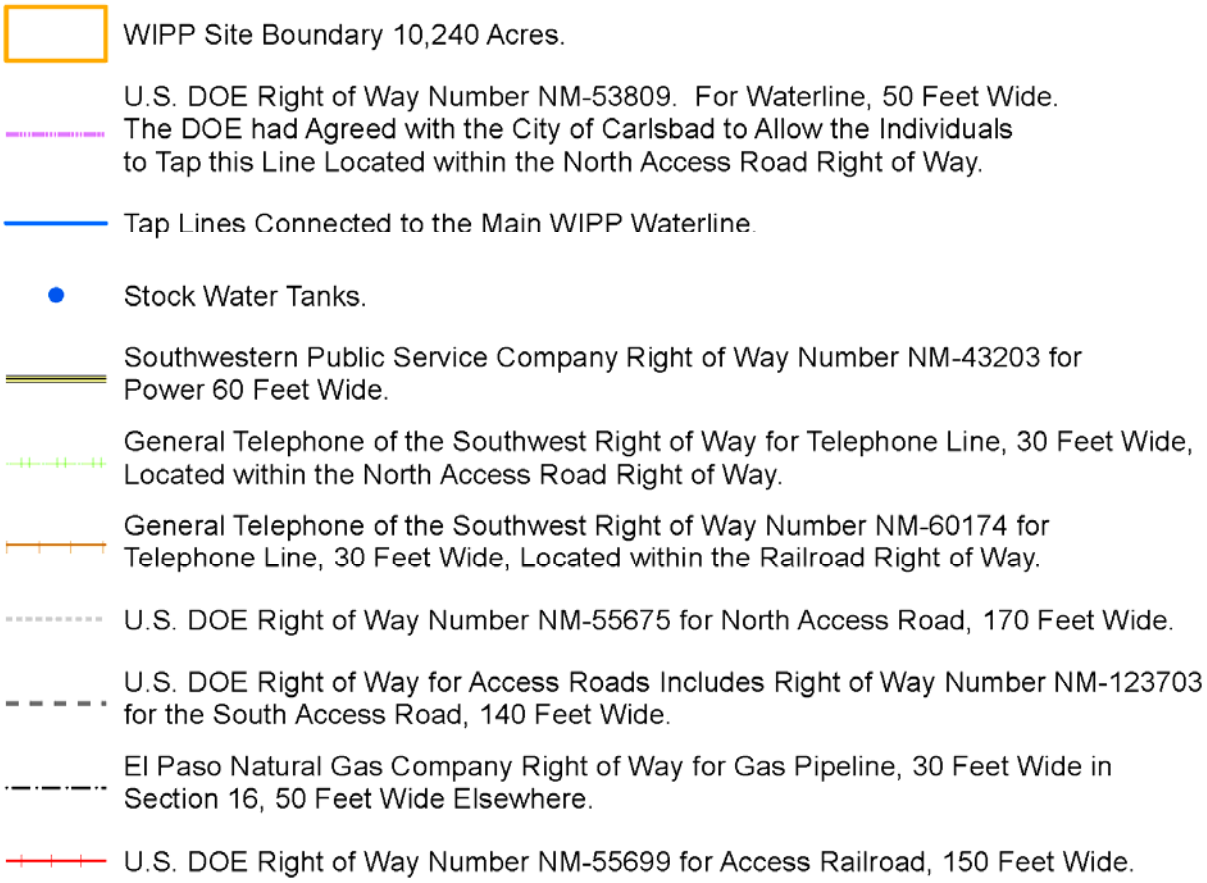
NOTES

1. The Property Protection Area is a fenced area of approximately 35 acres. It contains all surface facilities with the exception of salt storage piles, parking lot, landfill and waste water stabilization lagoons.

2. Zone II overlies the maximum extent of the Area available for underground development.

3. WIPP site boundary (WSB) provides a one mile buffer area around the area available for underground development.

Legend



NOTES

1. The Property Protection Area is a fenced area of approximately 40 acres. It contains all surface facilities with the exception of salt storage piles, parking lot, landfill and waste water stabilization lagoons.

2. WIPP Site Boundary (WSB) provides a one mile buffer area around the area available for underground development

Figure B2-2a

Legend to Figure B2-2

ATTACHMENT D

RCRA CONTINGENCY PLAN

LIST OF FIGURES

Table D-2

Emergency Equipment Maintained at the Waste Isolation Pilot Plant

Equipment	Description and Capabilities	Location
Communications		
Building Fire Alarms	Fire alarm panels, fire alarm transmitter, audible alarm devices (e.g., horns, bells, tones) that provide notification of fires; transmitted to the CMR	Guard and Security Building (Building 458), Water Pumphouse (Building 456), Warehouse/Shops Building(Building 453), Exhaust Shaft Filter Building (Building 413), New Filter Building (**NFB**) (Building 416), Salt Reduction Building (**SRB**) (Building 417), Support Building (Building 451), CMR/Computer Room, Waste Handling Building (Building 411), TRUPACT Maintenance Building (Building 412), Salt Handling (**SH**) Shaft Hoisthouse (Building 384), Auxiliary Warehouse Building (Building 455), Engineering Building (Building 486), Training Building (Building 489), Safety and Emergency Services Facility (Building 452), and surface Hazardous Waste Staging Areas (Buildings 474A and 474B)
Underground Fire Alarms	Fire alarm panels, fire alarm transmitter, and audible/visual alarm devices (e.g., horns, bells, strobes) that provide notification of fires; transmitted to the CMR	Fire detection and control panel locations: Waste Shaft Underground Station, SH Shaft Underground Station, Between E-140 and E-300 in S-2180 Drift, Fuel Station (N150/W170)
Sprinkler Systems	NFPA water-based fire suppression systems	Water Pumphouse (Building 456), Guard and Security Building (Building 458), Waste Handling Building (Building 411, CH Bay, RH Bay, and Overpack Repair Areas only),TRUPACT Maintenance Building (Building 412), Exhaust Shaft Filter Building (Building 413), NFB (Building 416), SRB (Building 417), and surface Hazardous Waste Staging Areas (Buildings 474A and 474B)

Equipment	Description and Capabilities	Location
Emergency Lighting	For employee evacuation, and fire/spill containment; linked to main power supply, and selectively linked to back-up diesel power supply and/or battery-backed power supply	Waste Handling Building (Building 411); TRUPACT Maintenance Building (Building 412), ~~and~~ Exhaust Shaft Filter Building (Building 413) NFB (Building 416), and SRB (Building 417)
Backup Power Sources	A minimum of two diesel generators, and battery-powered uninterruptible power supply (UPS)	~~Generators are east of Safety and Emergency Services Facility (Building 452);~~ Generators are located on the surface. UPS is located at the essential loads
Emergency Eyewash Equipment	For emergency flushing of affected eyes	Waste Handling Building (Building 411, RH Bay, Site Derived Waste Area, Waste Shaft Collar, and Room 108 TRUPACT III only), TRUPACT Maintenance Building (Building 412), Exhaust Shaft Filter Building (Building 413), NFB (Building 416), SRB (Building 417), surface, Hazardous Waste Staging Areas (Building 474A , Waste Oil Retainer Area), and the underground Hazardous Waste Staging Area (S550/E140)

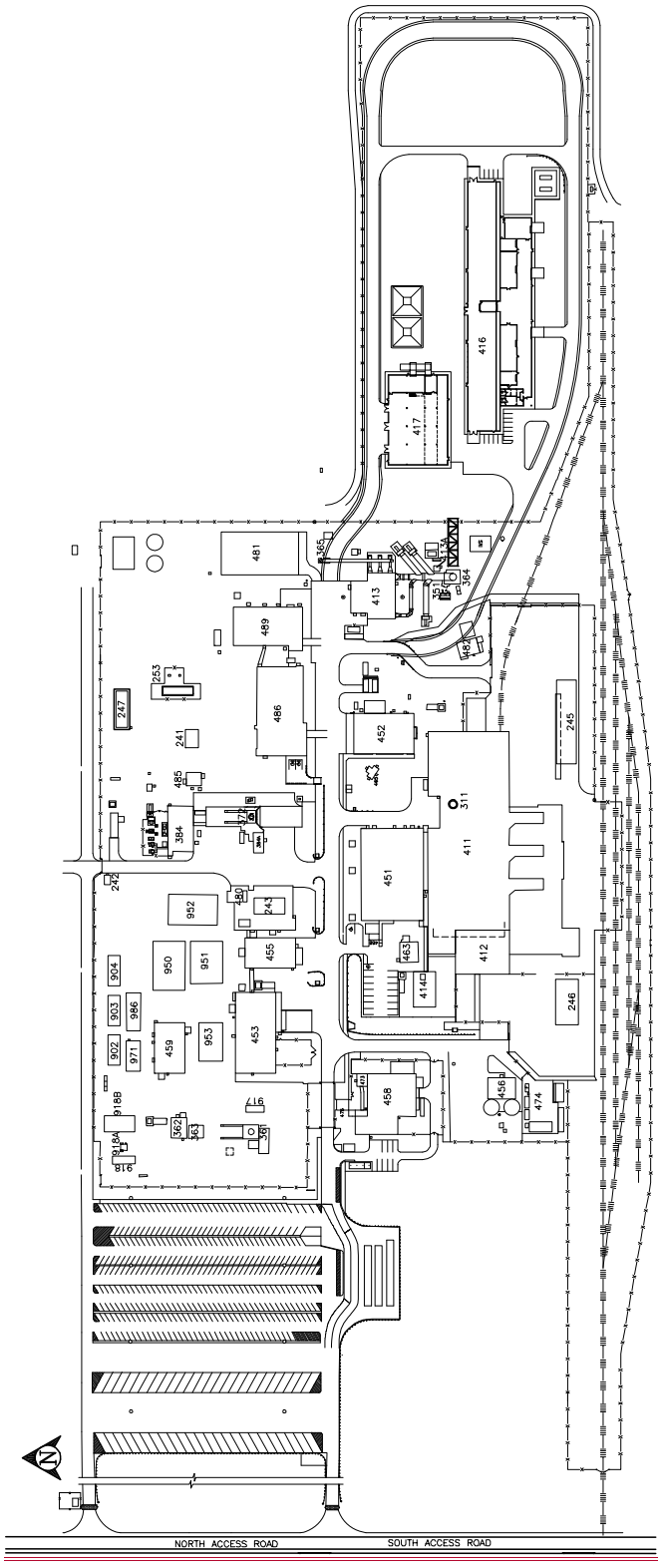


Figure D-1-NFB

WIPP Surface Structures with Building 416

BLDG/ FAC.#	DESCRIPTION	BLDG/ FAC.#	DESCRIPTION	BLDG/ FAC.#	DESCRIPTION
#241	EQUIPMENT SHED	#384A	MINING OPERATIONS	#475	GATEHOUSE
#242	GUARDSHACK	#411	WASTE HANDLING BUILDING	#480	VEHICLE FUEL STATION
#243	SALT HAULING TRUCKS SHELTER	#412	TRUPACT MAINTENANCE BUILDING	#481	WAREHOUSE ANNEX
#245	TRUPACT TRAILER SHELTER	#413	ECHAUST SHAFT FILTER BUILDING	#482	EXHAUST SHAFT HOIST EQUIP. WAREHOUSE
#246	MgO STORAGE SHELTER	#413A	MONITORING STATION A	#485	SULLAIR COMPRESSOR BUILDING
#253	13.8 KV SWITCHGEAR 25p-SWG 15/1	#413B	MONITORING STATION B	#486	ENGINEERING BUILDING
#254.1	AREA SUBSTATION NO. 1 25P-SW15.1	#414	WATER CHILLER FACILITY & BLDG	#489	TRAINING BUILDING
#254.2	AREA SUBSTATION NO. 2 25P-SW15.2	#416	NEW FILTER BUILDING	#H-16	SANDIA TEST WELL
#254.3	AREA SUBSTATION NO. 3 25P-SW15.3	#417	SALT REDUCTION BUILDING	#902	TRAILER
#254.4	AREA SUBSTATION NO. 4 25P-SW15.4	#451	SUPPORT BUILDING	#903	TRAILER
#254.5	AREA SUBSTATION NO. 5 25P-SW15.5	#452	SAFETY & EMERGENCY SERVICES FACILITY	#904	TRAILER
#254.6	AREA SUBSTATION NO. 6 25P-SW15.6	#453	WAREHOUSE/SHOPS BUILDING	#917	AIS MONITORING
#254.7	AREA SUBSTATION NO. 7 25P-SW15.7	#455	AUXILIARY WAREHOUSE BUILDING	#918	VOC TRAILER
#254.8	AREA SUBSTATION NO. 8 25P-SW15.8	#456	WATER PUMPHOUSE	#918A	VOC AIR MONITORING STATION
#254.9	480V SWITCHGEAR (25P-SWGO4/9)	#457N	WATER TANK 25-D-001B	#918B	VOC LAB TRAILER
#255.1	BACK-UP DIESEL GENERATOR #1 25-PE 503	#457S	WATER TANK 25-D-001A	#950	WORK CONTROL TRAILER
#255.2	BACK-UP DIESEL GENERATOR #2 25-PE 504	#458	GUARD AND SECURITY BUILDING	#951	PROCUREMENT/PURCHASING
#256.4	SWITCHBOARD #4 (25P-SBDO4/4)	#459	CORE STORAGE BUILDING	#952	TRAILER
#311	WASTE SHAFT	#463	COMPRESSOR BUILDING	#953	MODULAR OFFICE COMPLEX
#351	EXHAUST SHAFT	#465	AUXILIARY AIR INTAKE	#971	HUMAN RESOURCES TRAILER
#361	AIR INTAKE SHAFT	#468	TELEPHONE HUT	#986	PUBLICATIONS & PROCEDURES TRAILER
#362	AIR INTAKE SHAFT/HOIST HOUSE	#473	ARMORY BUILDING	SWR NO. 6	SWITCHTRACK NO. 6
#363	AIR INTAKE SHAFT/WINCH HOUSE	#474	HAZARDOUS WASTE STORAGE FACILITY	SWR NO. 7, 7A, 7B	SWITCHTRACK NO. 7, 7A, 7B
#364	EFFLUENT MONITORING INSTRUMENT SHED A	#474A	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 7C	SWITCHTRACK NO. 7C
#365	EFFLUENT MONITORING INSTRUMENT SHED B	#474B	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 10	SWITCHTRACK NO. 10
#366	AIR INTAKE SHAFT HEADFRAME	#474C	OIL & GREASE STORAGE BUILDING	SWR NO. 11	SWITCHTRACK NO. 11
#371	SALT HANDLING SHAFT	#474D	GAS BOTTLE STORAGE BUILDING	SWR NO. 12	SWITCHTRACK NO. 12
#372	SALT HANDLING SHAFT HEADFRAME	#474E	HAZARD MATERIAL STORAGE BUILDING	SWR NO. 15	SWITCHTRACK NO. 15
#384	SALT HANDLING SHAFT HOISTHOUSE	#474F	WASTE OIL RETAINER		

Figure D-1a-NFB

Legend to Figure D-1-NFB (Building 416)

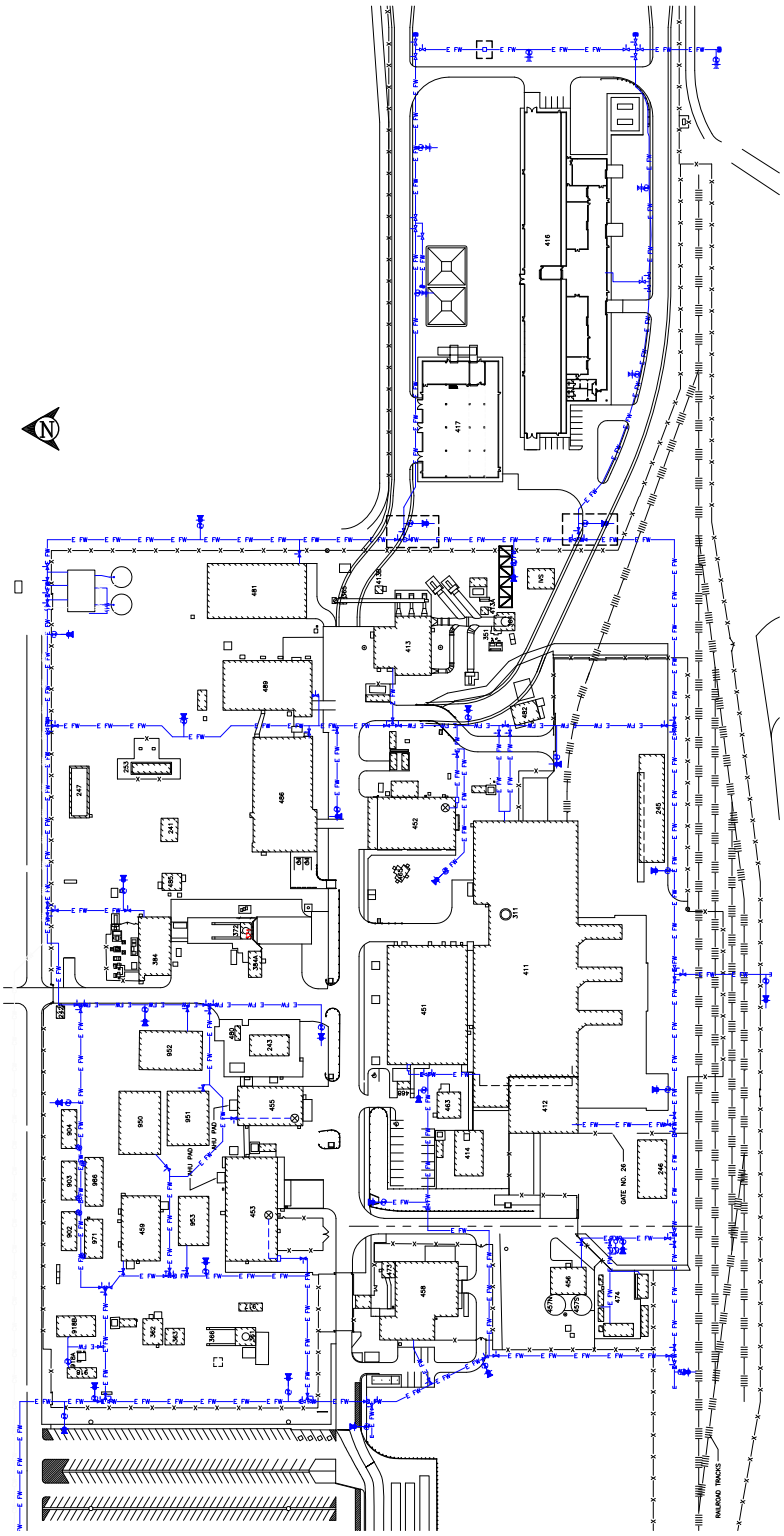


Figure D-5-NFB

Fire-Water Distribution System with Building 416

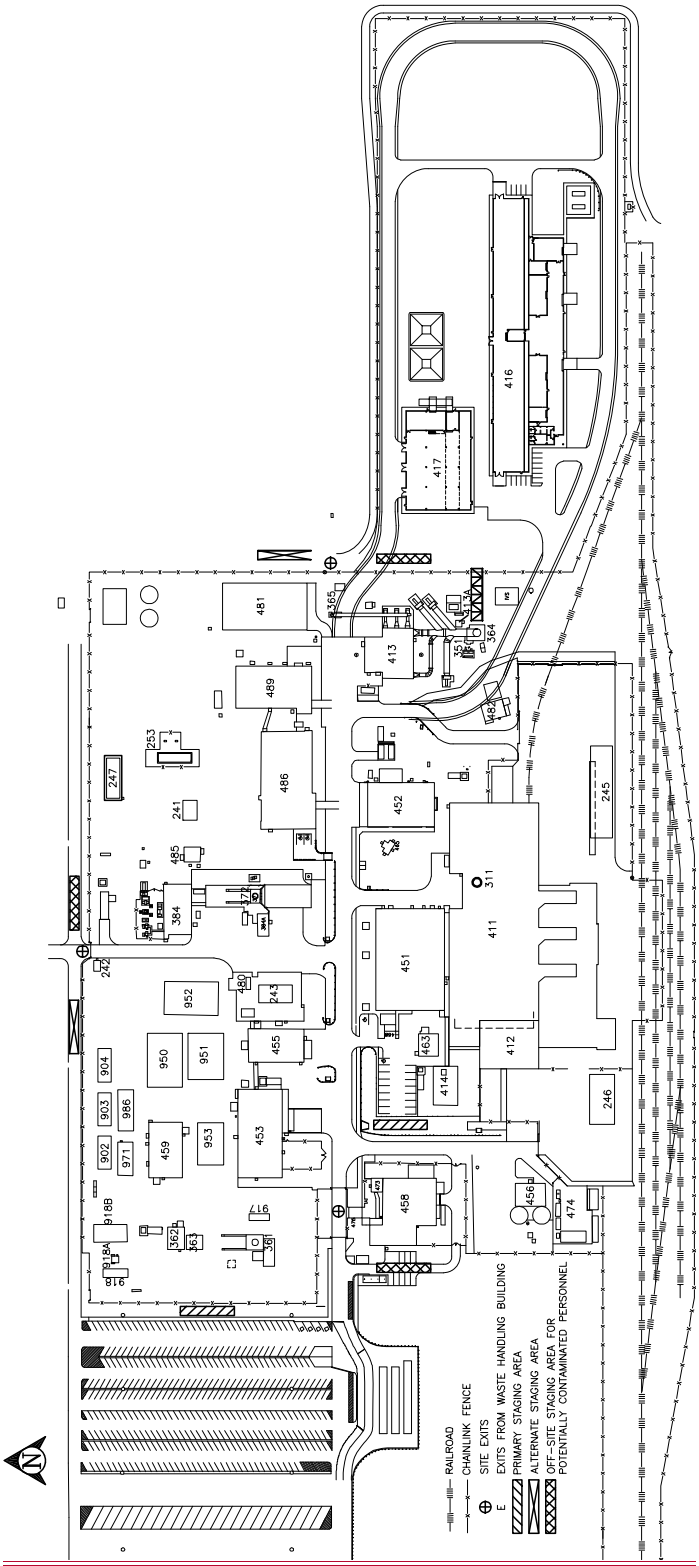


Figure D-6-NFB

WIPP On-Site Assembly Areas and Off-Site Staging Areas with Building 416

ATTACHMENT E

INSPECTION SCHEDULE, PROCESS AND FORMS

Table E-1

Inspection Schedule/Procedures

System/Equipment Name	Responsible Organization	Inspection[a] Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria[h]
~~Ventilation Exhaust~~	~~Maintenance Operations~~	~~Quarterly~~ ~~See List 10~~ ~~Quarterly~~ ~~See List 10~~ ~~Semi-annually~~ ~~See List 10~~	~~IC413000 (700, 860, and 960 Fans)~~ ~~Flow Verification of total mine airflow for fans in service~~ ~~IC041098 (700 Fans)Check for Deterioration[b] and Calibration of Mine Ventilation Rate Monitoring Equipment and flow verification of individual fans~~ ~~IC413005 (860 Fans)~~ ~~IC041087 (960 Fans)~~ ~~Check for Deterioration[b], and Calibration of Mine Ventilation Rate Monitoring Equipment and flow verification of individual fans~~
Waste Handling Cranes	Waste Handling	Preoperational [c] See List 8	WP 05-WH1407 Inspecting for Mechanical Operability[m], Deterioration[b], and Leaks/Spills

ATTACHMENT G

CLOSURE PLAN

Introduction

This Permit Attachment contains the Closure Plan that describes the activities necessary to close the Waste Isolation Pilot Plant (**WIPP**) individual units and facility. Since the current plans for operations extend over several decades, the Permittees will periodically reapply for an operating permit in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.10(h)). Consequently, this Closure Plan describes several types of closures. The first type is panel closure, which involves constructing closures in each of the underground hazardous waste disposal units (**HWDUs**) after they are filled. The second type is partial closure, which can be less than the entire facility and therefore less than an entire unit as described herein for the Waste Handling Building (**WHB**) Unit, ~~and~~ the Parking Area Unit (**PAU**), or Permit-related surface equipment, structures and contaminated soils. The third type of closure is final facility closure at the end of the Disposal Phase, which will entail "clean" closure of all remaining surface storage units and construction of the four shaft seal systems. Finally, in the event a new permit is not issued prior to expiration of an existing permit, a modification to this Closure Plan will be sought to perform contingency closure. Contingency closure defers the final closure of waste management facilities such as the Waste Handling Building Container Storage Unit (**WHB Unit**), the conveyances, the shafts, and the haulage ways because these will be needed to continue operations with non-mixed Transuranic (**TRU**) waste.

G-1 Closure Plan

This Closure Plan is prepared in accordance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264 Subparts G, I, and X), Closure and Post-Closure, Use and Management of Containers, and Miscellaneous Units. The WIPP underground HWDUs, including Panels 1 through 8 on Figure G-1, will be closed under this permit to meet the performance standards in 20.4.1.500 NMAC (incorporating 40 CFR §264.601). The WIPP surface facilities, including Waste Handling Building Container Storage Unit and the Parking Area Container Storage Unit, will be closed in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.178). The Permittees may perform partial closure of the WHB, ~~and~~ PAU HWMUs, or Permit-related surface equipment, structures and contaminated soils prior to final facility closure and certification. For final facility closure, this plan also includes closure of future waste disposal areas including Panels 9 and 10 and closure and sealing of the facility shafts in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.601).

G-1e(2)(c) Dismantling

G-1e(2)(c)(1) Dismantling During Final Closure

Final facility closure will include dismantling of structures on the surface and in the underground. These are items 6 and 7 above and are represented as Activity G in the final facility closure schedule in Figure G-4. During dismantling, priority will be given to contaminated structures and equipment that cannot be decontaminated to assure these are properly disposed of in the remaining open underground HWDU in a timely manner. All such facilities and equipment are

expected to be removed and disposed of 16 months after the initiation of closure. Dismantling of the balance of the facility, including those structures and equipment that are not included in the application and are not used for TRU mixed waste management, is anticipated to take an additional 66 months. It should be noted that the placement of D&D waste into the final underground HWDU may, by necessity, involve the placement of uncontainerized bulk materials such as concrete components, building framing, structural members, disassembled or partially disassembled equipment, or containerized materials in non-standard waste boxes. Such placement will only occur if it can be shown that it is protective of human health and the environment and all items are described in an amendment to the Closure Plan. Identification of bulk items is not possible at this time since their size and quantity will depend on the extent of non-removable contamination.

G-1e(2)(c)(2) Dismantling of Permit-Related Surface Equipment, Structures, and Contaminated Soils During Partial Closure

Partial closure includes dismantling of Permit-related structures and/or equipment and removal of contaminated soils on the surface prior to final closure. During dismantling, priority will be given to structures and equipment contaminated with hazardous waste or hazardous waste constituents that cannot be decontaminated due to the presence of radioactivity to ensure these are properly disposed of at the WIPP facility or at another designated disposal facility in a timely manner. It should be noted that the placement of D&D waste into a WIPP HWDU may, by necessity, involve the placement of uncontainerized bulk materials such as concrete components, building framing, structural members, disassembled or partially disassembled equipment, or containerized materials in non-standard waste boxes. Such placement will only occur if it can be shown that it is protective of human health and the environment and items are described in the operating record. Identification of bulk items is not possible at this time since their size and quantity will depend on the extent of non-removable contamination.

ATTACHMENT G1
APPENDIX G

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section 01010 - Summary of Work

Part 1 – General

1.3 Definitions and Abbreviations

Definitions

Partial closure—The process of either rendering a part of the underground repository inactive and closed according to approved facility closure plans or decontaminating and decommissioning of Permit-related surface equipment, structures, and contaminated soils prior to final facility closure. The partial-closure process is considered complete after partial-closure activities are performed in accordance with approved Resource Conservation and Recovery Act (**RCRA**) partial closure plans.

ATTACHMENT O

WIPP MINE VENTILATION RATE MONITORING PLAN

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ATTACHMENT O

WIPP MINE VENTILATION RATE MONITORING PLAN

O-3 Design and Procedures

This section describes the four basic processes that make up the mine ventilation rate monitoring plan:

- Test and Balance, a periodic re-verification of the satisfactory performance of the entire underground ventilation system and associated components
- Monitoring of active room(s) to ensure a minimum flow of 35,000 scfm whenever waste disposal is taking place and workers are present in the room
- If an active room ventilation rate of 35,000 scfm cannot be met, actions as described in Section O-3b~~c~~(1) shall be taken during waste disposal operations when workers are present.
- ~~Verification of the total mine airflow~~

~~O-3b Total Mine Airflow~~

~~O-3b(1) Monitoring Total Mine Airflow~~

~~The Permittees shall use the Central Monitoring Room Operator's (**CMRO**) Log to monitor total mine airflow. Run-times for the various modes of operation shall be entered into the CMRO Log. For example, if the CMRO Log indicates that the ventilation system was configured for Alternate Mode (one main fan) at 8:00 am, and that this configuration was maintained until 11:30 am, a total of 3.5 hours of run-time in Alternate Mode would be recorded. Run times are recorded to the nearest quarter hour. The CMRO shall record each time when the ventilation system configuration is changed, including periods when there is no ventilation.~~

O-3b~~c~~ Active Room Minimum Airflow

O-3b~~c~~(1) Verification of Active Room Minimum Airflow

Whenever workers are present, the Permittees shall verify the minimum airflow through active room(s) when waste disposal is taking place of 35,000 scfm at the start of each shift, any time there is an operational mode change, or if there is a change in the ventilation system configuration. If an active room ventilation rate of 35,000 scfm cannot be met, measures such as those described below shall be taken during waste disposal operations when workers are present.

Measures to allow waste emplacement in an active room when, under abnormal conditions, 35,000 scfm cannot be achieved will be prescribed in standard operating procedure(s)

described in Section 0-5c. These measures may include, but are not limited to, the following: the adjustment of the volatile organic compound (**VOC**) immediately dangerous to life or health (**IDLH**)-based action levels in the Permit, Section 4.6.3.2 (these adjustments are directly proportional to the actual flow rate that is less than 35,000 scfm); or the use of personal protective equipment (**PPE**) as described in Occupational Safety and Health Administration (**OSHA**) Standard 29 CFR 1910.134.

Implementing measures taken at the WIPP facility regarding the 35,000 scfm ventilation rate and associated details (i.e., date, start time, end time, and reason) will be recorded in the Central Monitoring Room Operator's (**CMRO**) Log and reported to the New Mexico Environment Department (**NMED**) as required by Section O-5a.

O-3b~~c~~(2) Measurement and Calculation of the Active Room Airflow

The Permittees shall measure the airflow rate and use the room cross-sectional area to calculate the volume of air flowing through a disposal room. The measurement of airflow shall use a calibrated anemometer and a moving traverse (McPherson, 1993). Airflow measurements shall be collected at an appropriate location, chosen by the operator to minimize airflow disturbances, near the entrance of each active room. The excavation dimensions at the measurement location are taken and the cross-sectional area is calculated. The flow rate is the product of the air velocity and the cross-section area. The value shall be entered on a log sheet and compared to the required minimum. The format and content of the log sheet may vary, but will always contain the following data and information as applicable:

- Date
- Time
- Ventilation flow rate reading
- If the required minimum ventilation rate was achieved
- If the room was restricted
- If Section O-3b~~c~~(1) measures will be implemented (implementing procedure and revision number, if applicable)
- The reason for waste emplacement under 35,000 scfm ventilation rate, if applicable
- Signature

Working values are in acfm and the conversion to scfm is described in section O-1 above. Measurements shall be collected, recorded, and verified by qualified operators.

The operator shall compare the recorded acfm value with the minimum acfm value provided at the top of the log sheet. The airflow shall be re-checked and recorded whenever there is an operational mode change or a change in ventilation system configuration. Once the ventilation rate has been recorded and verified to be at least the required minimum, personnel access to the room is unrestricted in accordance with normal underground operating procedures. If the required ventilation rate cannot be achieved, or cannot be supported due to operational needs, access to the room shall be restricted. Those periods when active disposal room access is

restricted shall be documented on the log sheet for that active disposal room. Entry to restricted access active rooms for the purpose of establishing normal ventilation or for emplacing waste under the conditions identified in Section O-3b~~c~~(1) is allowed. Such entry shall be documented on the log sheet including a reference to the SOP used.

~~O-3d Verification of Total Mine Airflow~~

~~The Permittees shall perform a verification of the total mine airflow to ensure that rates established by the Test and Balance for various operational modes are reasonably maintained. These checks are identified in Permit Attachment E, Table E-1, and are performed as indicated in Table E-1.~~

O-4 Equipment Calibration and Maintenance

Equipment used for the periodic Test and Balance~~, flow verification checks,~~ and daily verification of active disposal room flow rate shall be calibrated in accordance with appropriate WIPP calibration and data collection procedures. Work performed by subcontractors shall also be calibrated to an equivalent standard. Equipment shall be inspected before each use to ensure that it is functioning properly and that the equipment calibration is current. Maintenance of equipment shall be completed by qualified individuals or by qualified off-site service vendors.

Equipment used to conduct the Test and Balance~~, Verification of Total Mine Airflow,~~ and to determine the airflow through the active disposal room(s) are provided in Table O-~~2~~1.

~~**TABLE O-1**~~

~~**Ventilation Operating Modes and Associated Flow Rates**~~

~~**Mode of Operation**~~	~~**Flow Rate (scfm)**~~ ~~**Nominal Design Values**~~
~~Normal (two main fans)~~	~~425,000~~
~~Alternate (one main fan)~~	~~260,000~~
~~Maintenance Bypass (parallel operation of main fan(s) and filtration Fan(s)~~	~~260,000 to 425,000~~
~~Reduced (two filtration fans)~~	~~120,000~~
~~Minimum (one filtration fan)~~	~~60,000~~
~~Filtration (one filtration fan or one IVS fan)~~	~~60,000 or 23,000~~
~~Filtration (one filtration fan and one IVS fan or two IVS fans)~~	~~83,000 or 43,000~~
~~Filtration (one filtration fan and two IVS fans)~~	~~106,000~~

TABLE O-2~~1~~

Mine Ventilation Rate Testing Equipment

Equipment Used to Conduct Test	**Ventilation Test Performed**		
	Test and Balance	Active Disposal Room(s)	~~Flow Verification Check~~
Calibrated Anemometer	X	X	
Calibrated Differential Pressure Sensor	X		
Pitot Tubes	X		~~X~~
Tubing	X		~~X~~
Temperature Sensing Device	X		~~X~~
Relative Humidity Sensor	X		~~X~~
Calibrated Barometers	X		~~X~~
Electronic Manometer	X		~~X~~

Appendix C
Stack Height Determination for the New Filter Building (NFB) at WIPP

Stack Height Determination
For the
New Filter Building (NFB)
At the
WIPP

Brent Blunt

November 2016

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1. SUMMARY

In accordance with the Clean Air Act, Section 123, Good Engineering Practice (GEP) is "the height necessary to insure that emissions from the stack do not result in excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies and wakes which may be created by the source itself, nearby structures or nearby terrain obstacles." The Environmental Protection Agency (EPA) has provided criteria for GEP determinations in 40 CFR 51.100(v) which defines GEP as the greater of:

1. 65 meters, measured from the ground-level elevation at the base of the stack,
2. $H_g = 2.5H$, if the stack was in existence on January 12, 1979,
3. $H_g = H + 1.5L$, all other stacks,
4. Any stack built prior to December 30, 1970 is grandfathered and is exempt from the GEP stack height requirements.

Where:

- H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,
- H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack,
- L = lessor dimension, height or projected building width, of nearby structure(s).

This estimated stack height can be increased or decreased based on other factors such as plume rise, downwash, and building wake effects. The American Meteorological Society/U.S. Environmental Protection Agency (USEPA) Regulatory (AERMOD) model is an acceptable method to evaluate plume rise, downwash and building wake effects. AERMOD is used in the following evaluation to establish the stack height for the New Filter Building (NFB). A stack height of 100 feet above grade has been selected as the best height for the NFB stack for normal operatons.

2. ANALYSIS

Wind passing over and around buildings creates a complicated dispersion pattern (see Figure 1). A recirculation cavity and zones of high turbulence are created on the building roof with a roof cavity region produced downwind of the structure. These regions may trap effluent material and produce high ground- or roof-level concentrations. Models that neglect turbulence effects near structures will usually underestimate pollutant concentrations on building roofs or near buildings. Air-intake vents may be located downwind on building roofs or near the ground; therefore, an estimation of pollutant concentrations on or near a structure is important in determining expected pollutant levels.

The goal of this determination is to establish a stack height that will not impact any structures at the Waste Isolation Pilot Plant (WIPP). This goal would include existing structures, as well as those associated with the NFB.

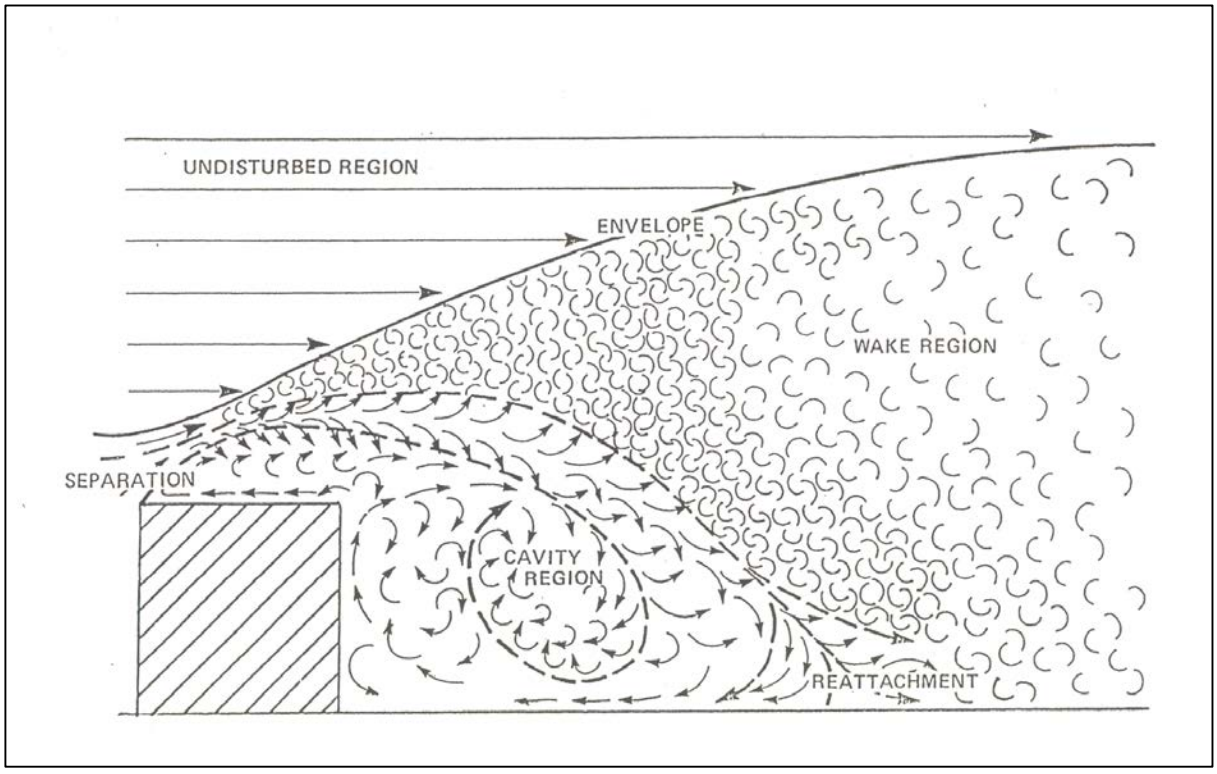

Figure 1. Building wake effects (EPA 1985)

2.1. Meteorological Data

To support the review of the Nuclear Waste Partnership LLC (NWP) above-ground VOC monitoring plan, URS conducted air dispersion modeling of emissions from the repository vent stack at the WIPP in 2014 using the AERMOD model (URS 2014). Five years (2009 – 2013) of meteorological data were processed using on-site data provided by NWP. Because this meteorological data is mainly composed of site-specific data collected at the facility, it best represents the conditions at the WIPP above-ground facility. To allow for a comparison by WIPP personnel of the results of modeling the NFB stack to that of Station B, the same five-year meteorological file has been used for this evaluation.

Figure 2 shows the wind rose for WIPP based on this five-year meteorological data file. The percentages show the fraction of the time the wind blows from a specified direction.

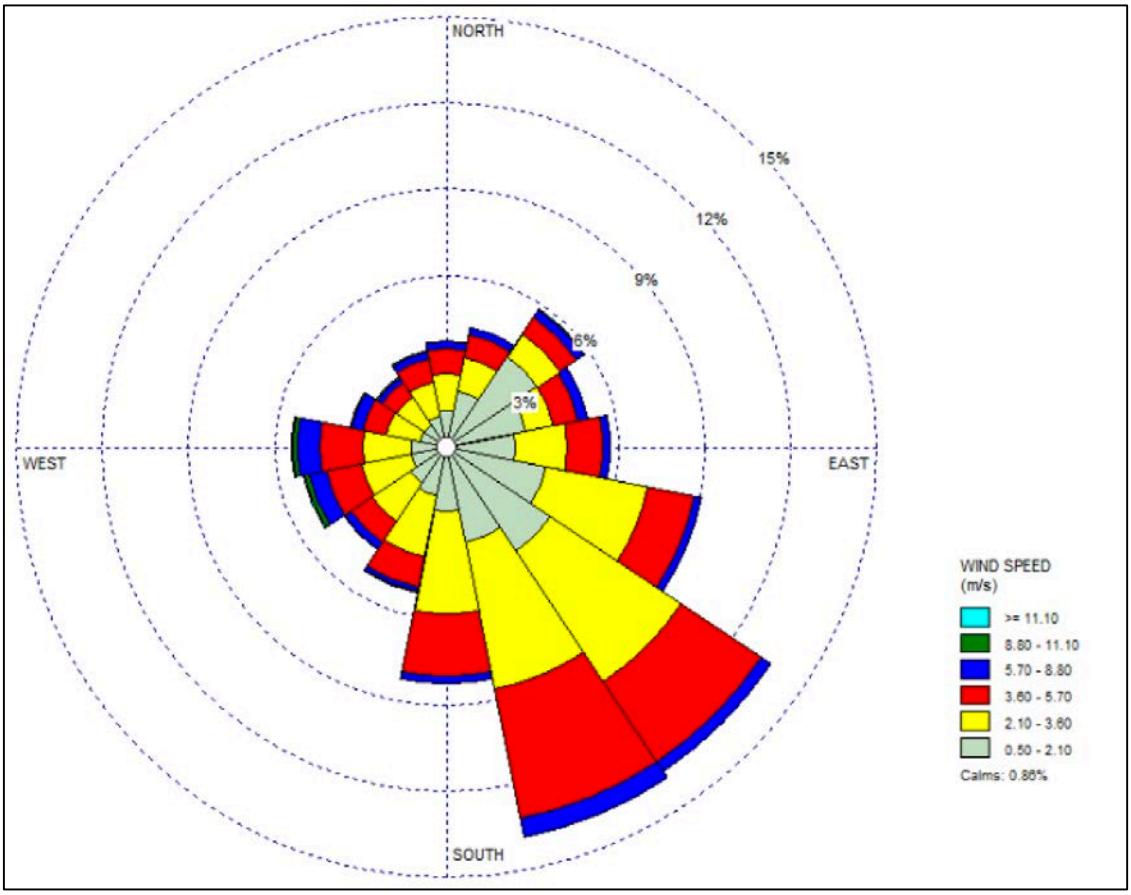

Figure 2. Wind rose for WIPP (2009 - 2013)

2.2. General 2 ½ Times Rule Application

To minimize the adverse impact of nearby buildings, EPA developed the following formulation for GEP stack height (EPA 1981), often referred to as the "2 ½ times rule,":

$$H_g = H + 1.5L$$

Where:

H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack,
L = lessor dimension, height or projected building width (PBW), of nearby structure(s).

The PBW is the maximum length of a building that could affect air flow around and over the structure.

When a stack is within a buildings Structure Influence Zone (SIZ), building downwash needs to be considered. A building is considered sufficiently close to a stack to cause wake effects when the distance between the stack and the nearest part of the building is less than or equal to five (5) times the lesser of the building height or the projected width of the building. A generalize depiction of the SIZ is presented below as Figure 3.

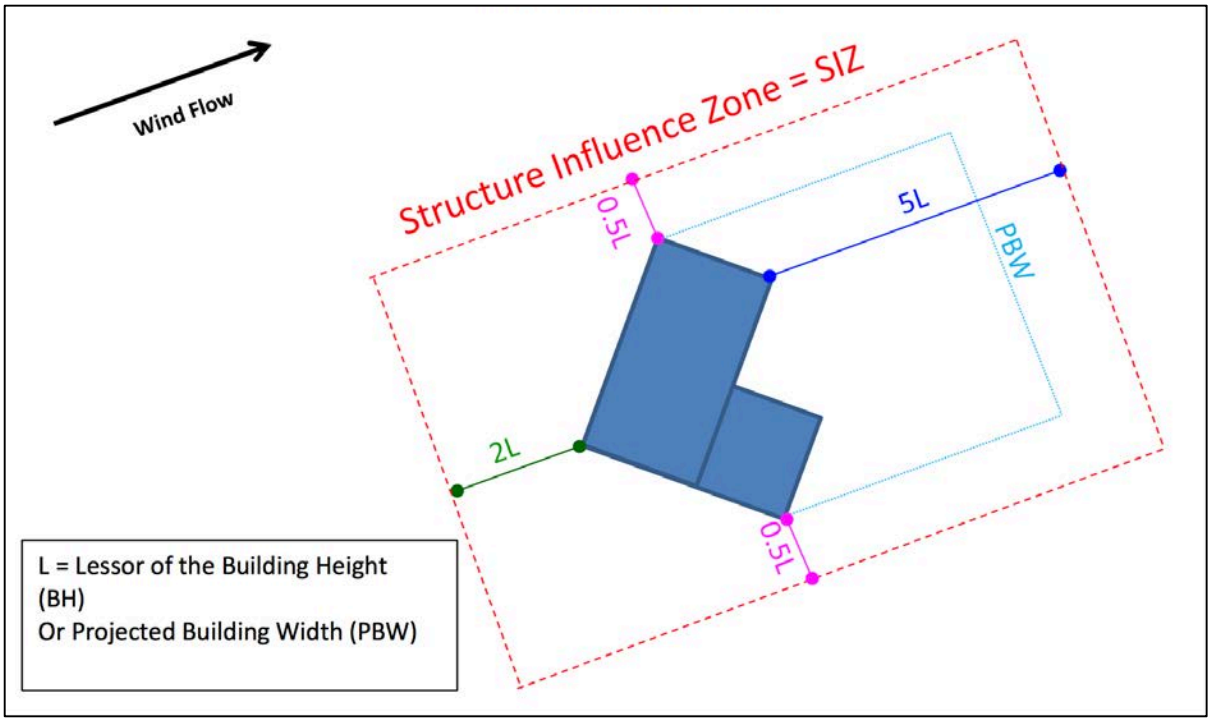

Figure 3. Building downwash structure influence zone

The SIZ for the buildings near the NFB stack are depicted in Figure 4, which is a screenshot from the AERMOD software. The only structure with a SIZ effecting the NFB stack is the NFB itself. In this case both the main building and the penthouse will affect the plume from the NFB stack.

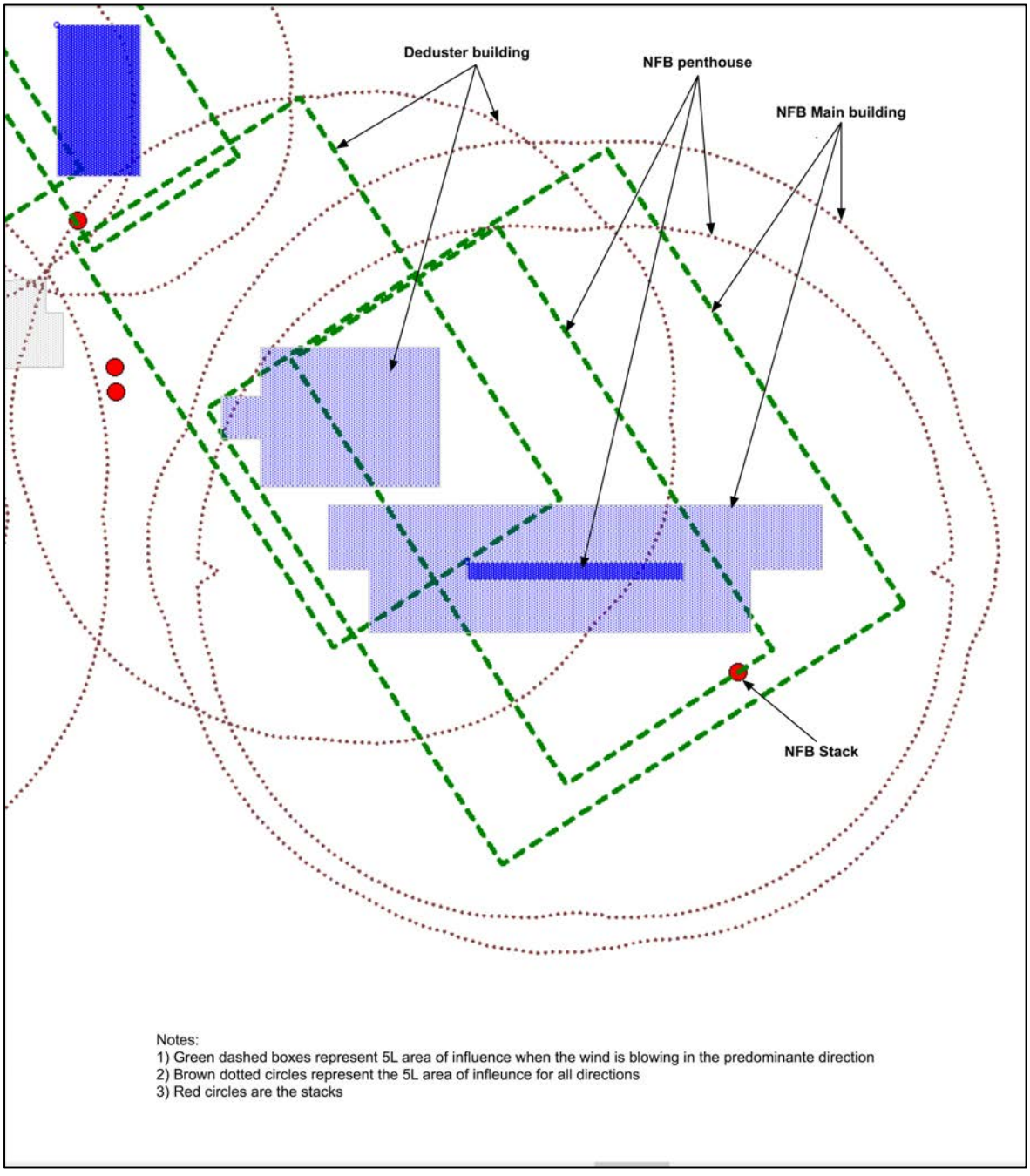

Figure 4. Structure influence zones for the NFB stack

NFB Stack Height Determination

The EPA developed the Building Profile Information Program (BPIP) with Plume Rise Model Enhancement (PRIME) as a preprocessor tool for AERMOD. The use of BPIP-PRIME provides a consistent method for determining building wake effects on a source. The output from BPIP-PRIME run as an AERMOD preprocessor for indicates that the NFB penthouse is the primary building influencing the NBF stack. The Penthouse building height (BH) is 53 feet and the projected building width (PBW) is 94.1 feet when the wind is blowing from 110 degrees. Substituting into the Good Engineering Practice stack height equation, where L is the less of the BH or PBW, in this case L = 53 feet:

$$H_g = H + 1.5L$$

$$H_g = 53\ feet + (1.5)(53\ feet)$$

$$H_g = 132.5\ feet$$

2.3. Stack Height based on Plume Contours

It is important to note that GEP does not limit the physical height of the stack, but limits the credit that can be given for that portion of the stack that exceeds GEP when establishing emission limits. This also means that a shorter stack is allowed. Therefore, further consideration of plume rise, building wake effects, and plume pathway using the EPA AERMOD software will be used to determine if a stack height less than 132.5 feet is justifiable.

Version 15181 of the US EPA AERMOD software was used to model plume pathways and the location of the highest annual average concentration from the NFB. A five-year meteorological file (years 2009-2013) was used in the modeling. The model was run with stack heights of 75, 100, and 125 feet and at flowrates of 125,000 cfm, 250,000 cfm and 560,000 cfm. An arbitrary release rate of 1 pound per hour was used to generate plume isopleths which are presented below in Figure 5 through Figure 13.

At a flowrate of 560,000 cfm the maximum ambient air concentration due to the NFB stack emissions is outside the site boundary for all three stack heights.

At a flowrate of 250,000 cfm the stack height needs to be 100-foot or more for the maximum ambient concentration to occur at a location outside the site boundary and to not impact site buildings. For the 75-foot stack at the 250,000-cfm flowrate the maximum ambient concentration occurs in the switchyard area and then the plume path continues across the corner of the WIPP site, impacting the Training building. Such a plume path would indicate that at some flowrate between 250,000 and 560,000 cfm that the maximum ambient concentration would impact the Training building.

At a flowrate of 125,000 cfm the stack height needs to be 125-foot or more for the maximum ambient concentration to occur at a location outside the site boundary and to not impact site

buildings. For the 100-foot stack at the 125,000-cfm flowrate the maximum ambient concentration occurs in the switchyard area and then the plume path continues across the corner of the WIPP site, impacting the training building. 75-foot stack at the 125,000-cfm flowrate the maximum ambient concentration occurs next to the Deduster building and then the plume path continues across the corner of the WIPP site, impacting the training building. In this case both the Deduster building and the Training building are impacted at the maximum ambient concentration, at some flowrate between 125,000 and 560,000 cfm.

To further refine the impacts of a 100-foot stack height, an additional run with AERMOD was produced for a flowrate of 220,000 cfm. The isopleth for this condition is presented as Figure 14. At the 220,000-cfm flowrate, the plume just clears the WIPP site boundary. With a 100-foot tall stack, any flowrate less than 220,000 cfm will have some impact on the on-site facilities.

If is anticipated that the NFB will have limited operations with flowrates less than 220,000 cfm. That being the case, a stack height of 100 feet will be acceptable. Should operations of the NFB at the lower flowrates be anticipated to occur frequently, then a 125-foot stack height would be indicated based on plume path and ambient air isopleths.

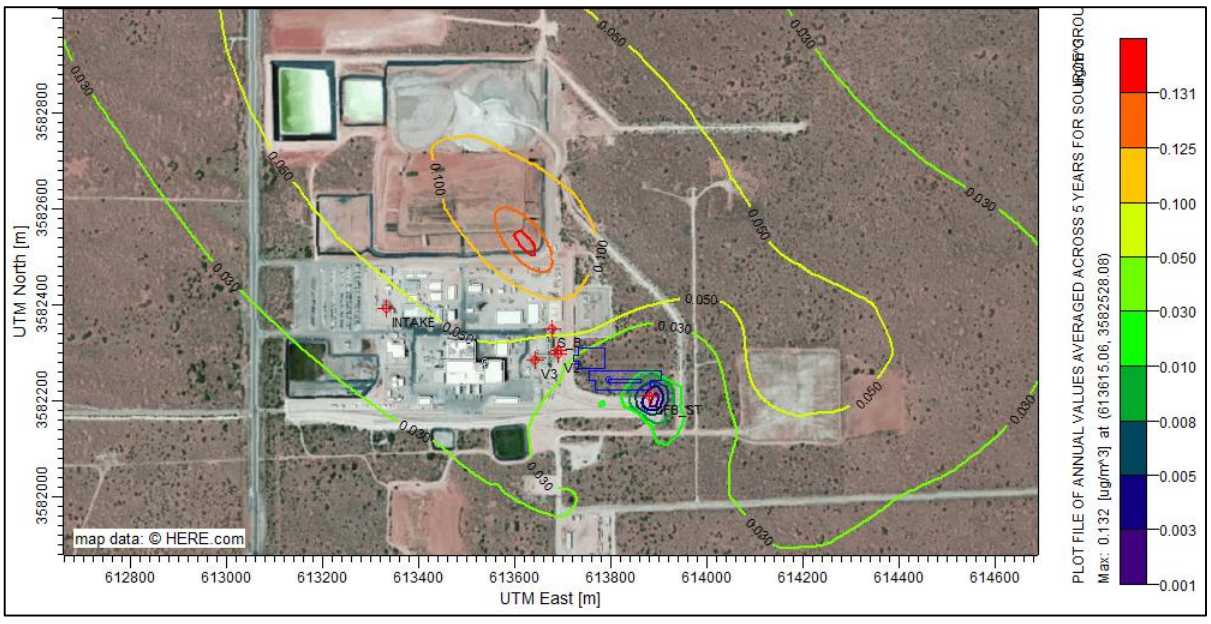

Figure 5. Plume Contours: 75-foot high stack at 560,000 cfm flowrate

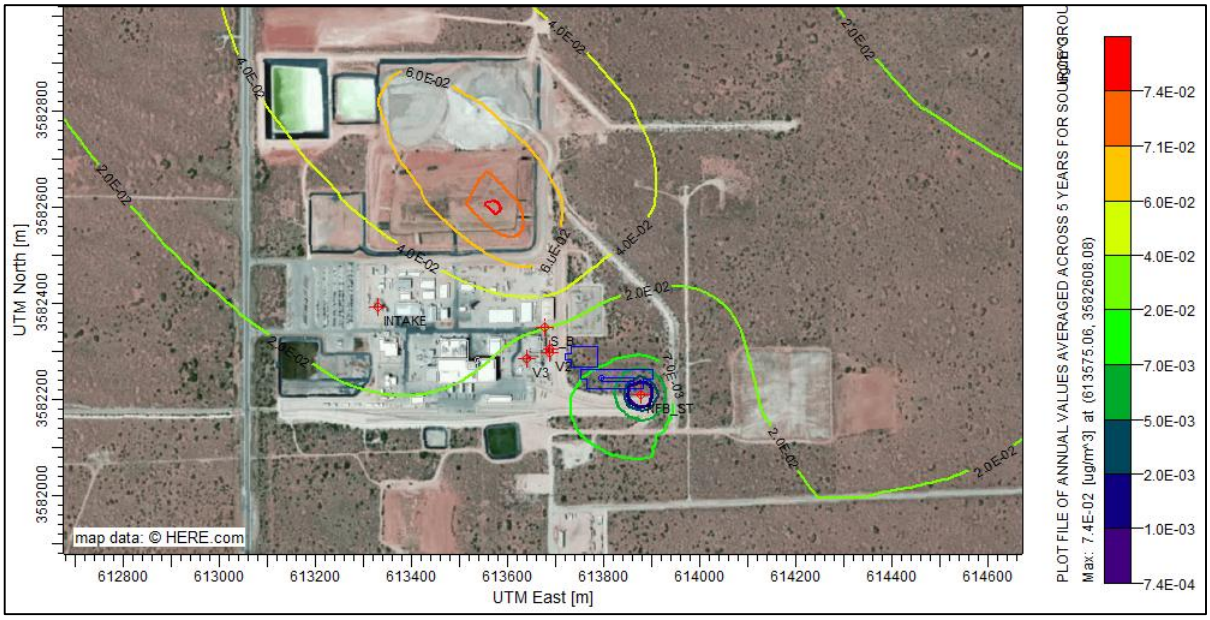

Figure 6. Plume Contours: 100-foot high stack at 560,000 cfm flowrate

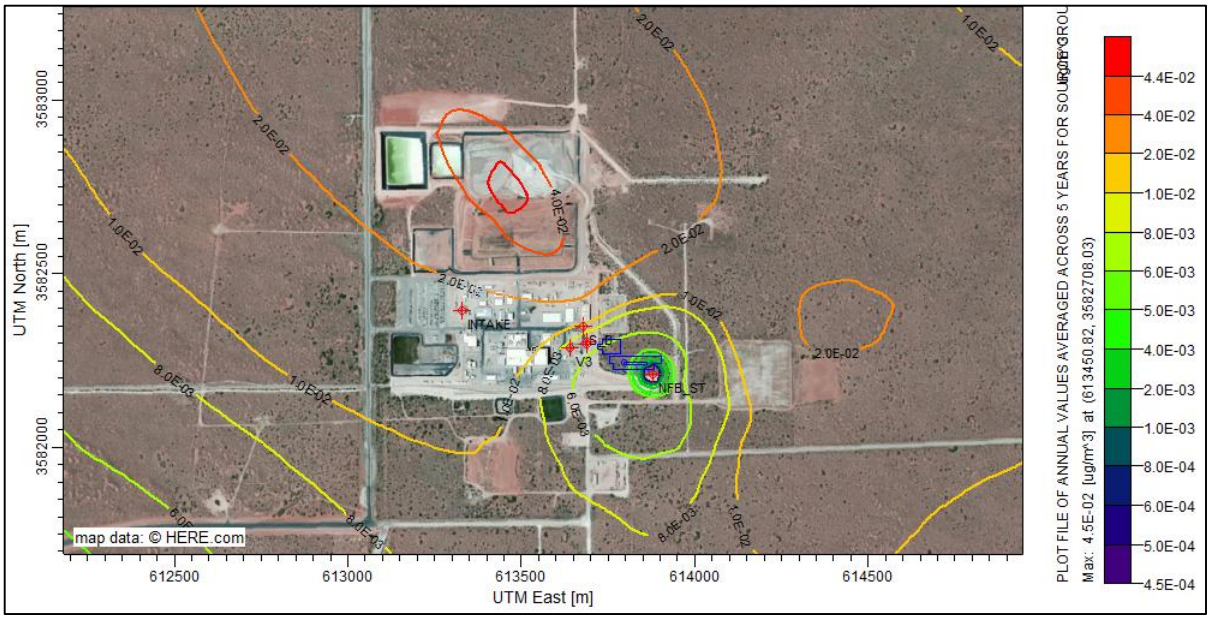

Figure 7. Plume Contours: 125-foot high stack at 560,000 cfm flowrate

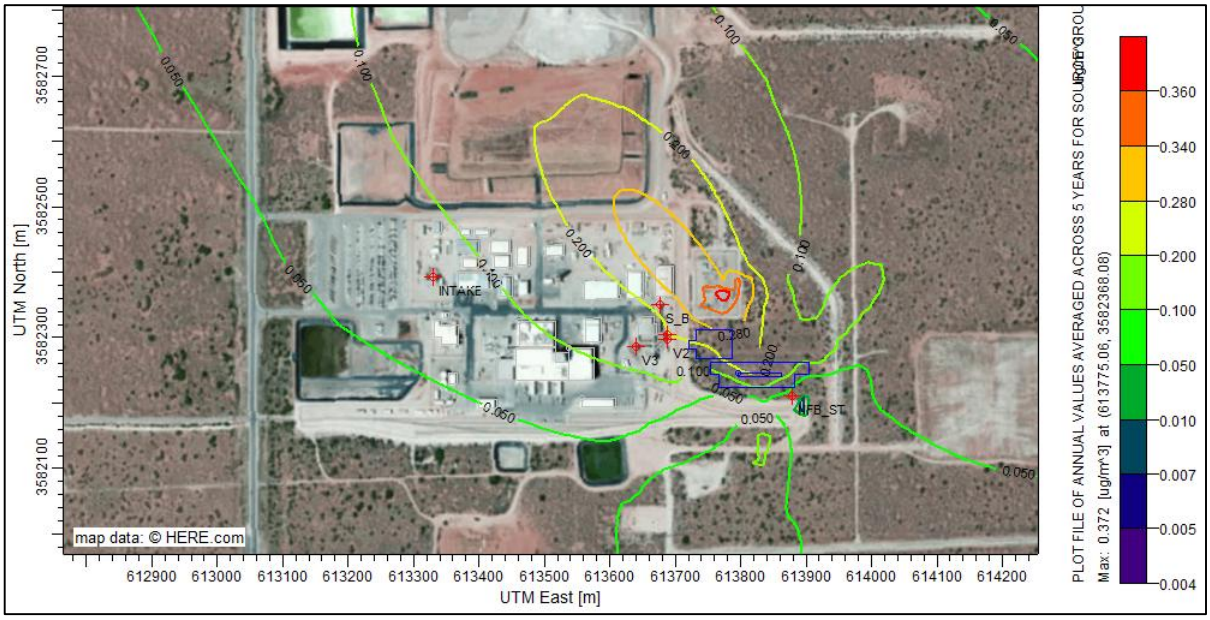

Figure 8. Plume Contours: 75-foot high stack at 250,000 cfm flowrate

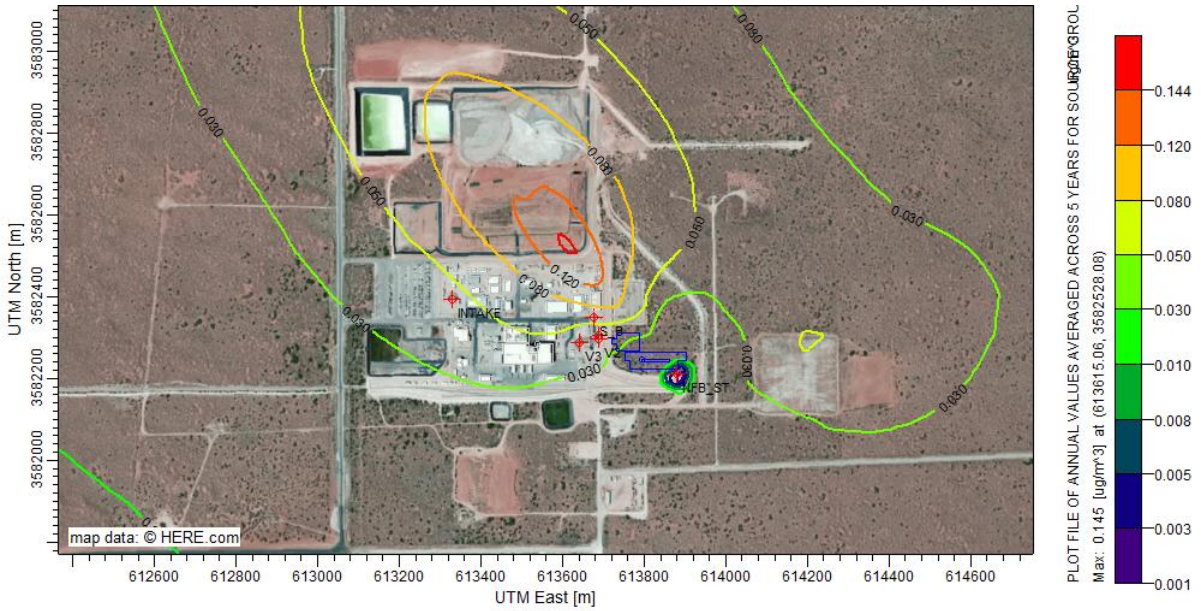

Figure 9. Plume Contours: 100-foot high stack at 250,000 cfm flowrate

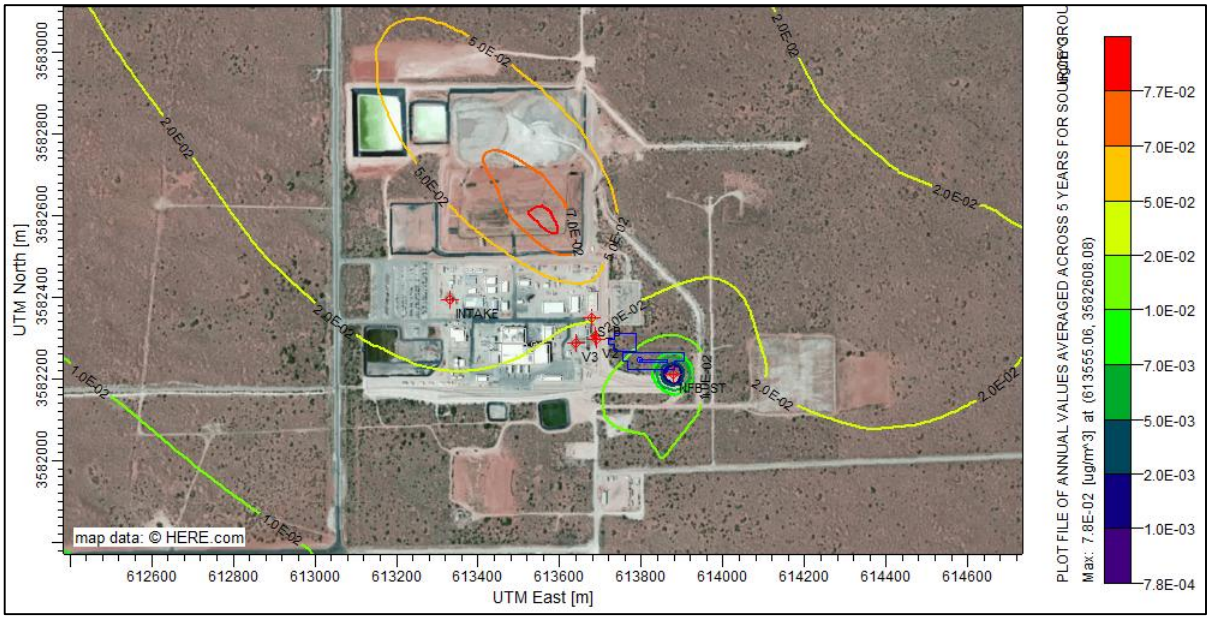

Figure 10. Plume Contours: 125-foot high stack at 250,000 cfm flowrate

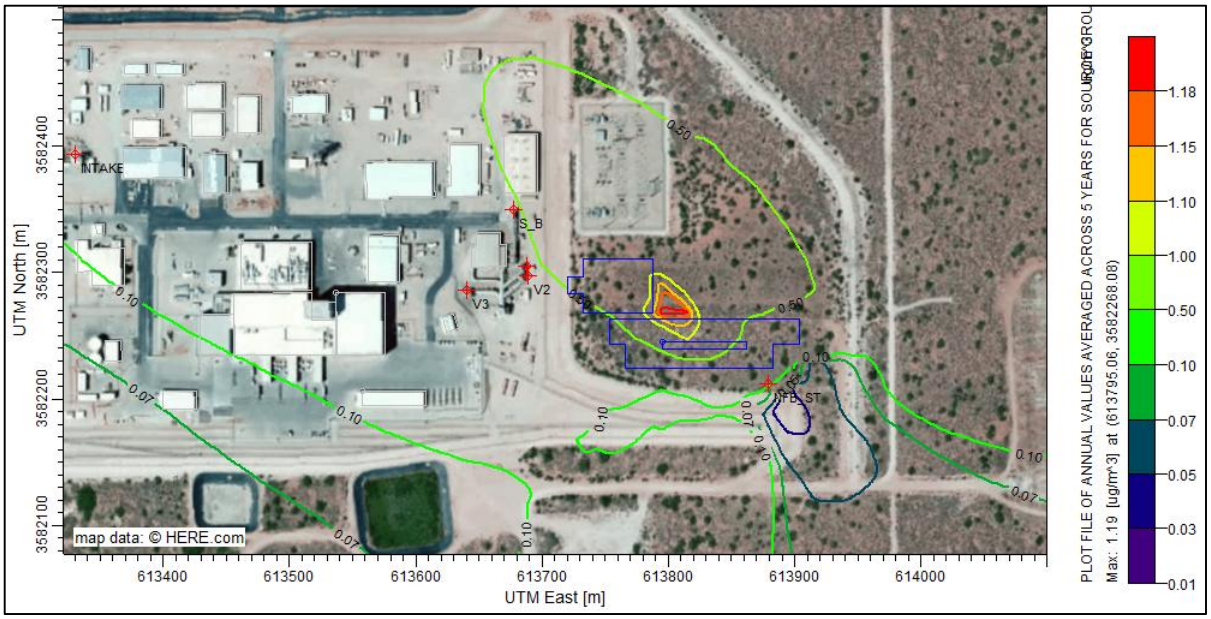

Figure 11. Plume Contours: 75-foot high stack at 125,000 cfm flowrate

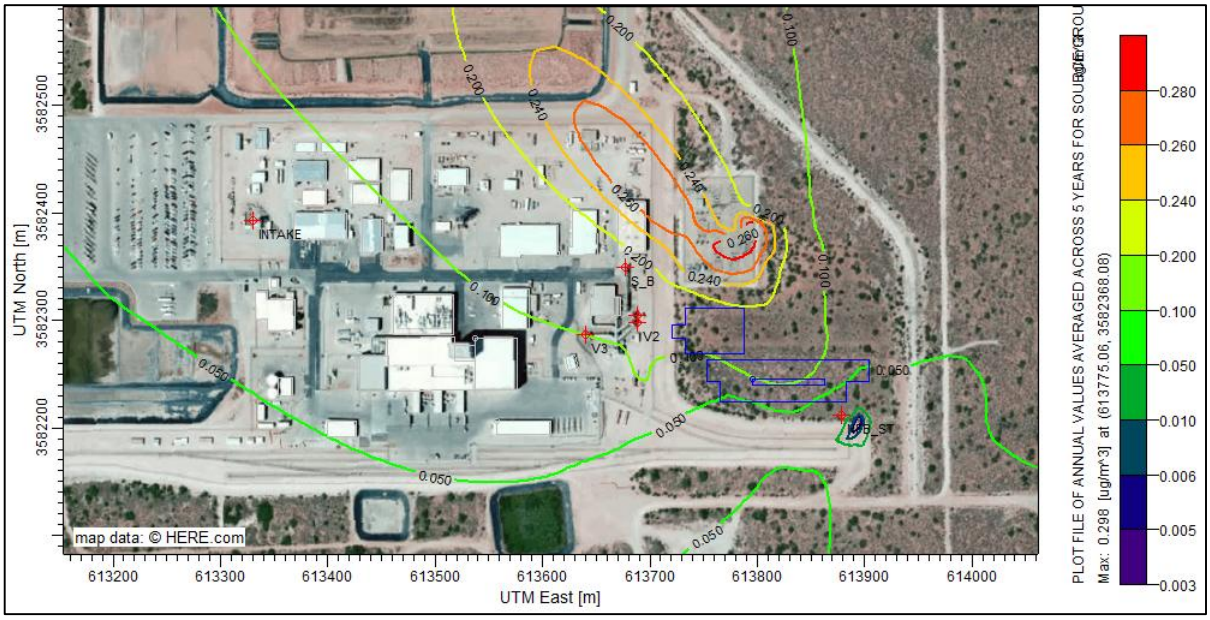

Figure 12. Plume Contours: 100-foot high stack at 125,000 cfm flowrate

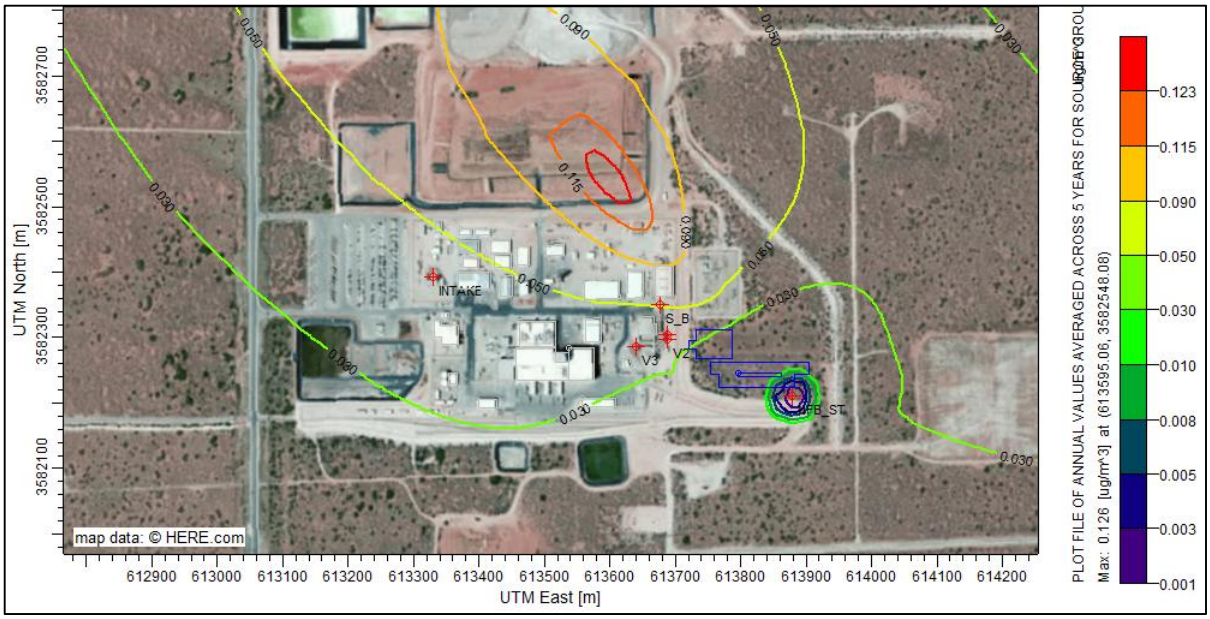

Figure 13. Plume Contours: 125-foot high stack at 125,000 cfm flowrate

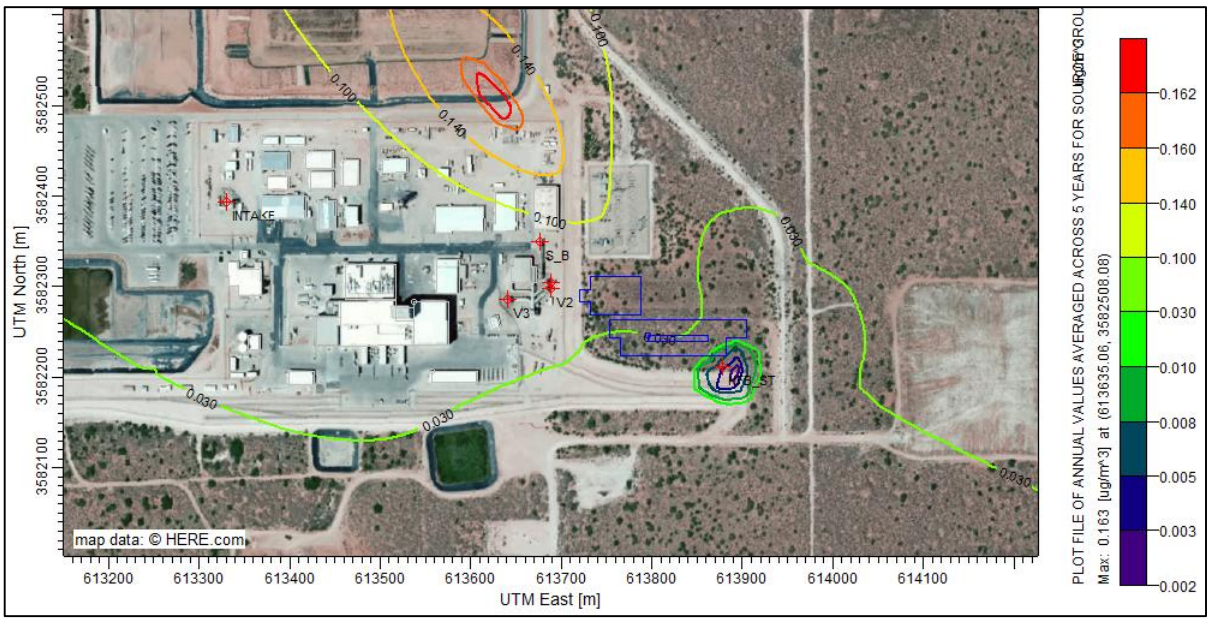

Figure 14. Plume Contours: 100-foot high stack at 200,000 cfm flowrate

3. CONCLUSIONS

Using the EPA criteria for GEP stack height determinations in 40 CFR 51.100(v), an initial stack height for a stack built after January 12, 1979 would be 65 meters or 213 feet. However, that is a maximum height, which can be refined with the "2 ½ times rule" and even further refined with air dispersion modeling.

Based on the "2 ½ times rule" a stack height of 132.5 feet would be required for the NFB stack. However, with consideration of plume rise, building wake effects and typical meteorological conditions at the WIPP using the EPA AERMOD software, a height of 100 feet is justified for typical operations with a stack flowrate greater than 250,000 cfm. Should the facility be operated for extended periods with a lower flowrate, near 125,000 cfm, then a stack height of 125 feet might be appropriate.

Air dispersion modeling can be used to show that the plume is not adversely impacted by building wake effects and that excessive concentrations of any air pollutant in the immediate vicinity of the source as a result of atmospheric downwash, eddies and wakes artificially high air concentrations are not produced. The plume isopleths presented in this document show that at a height of 100 feet that these effects are mitigated for normal operations. Therefore, a proposed stack height of 100 feet would qualify as a Good Engineering Practice stack height.

4. REFERENECES

EPA 1985, Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations), Environmental Protection Agency, EPA-450/4-80-023R, June 1985.

URS 2014, Air Quality Analysis for the DOE Waste Isolation Pilot Plant (WIPP) Repository Vent Stack Modeling, URS, Austin, TX, 2014

Appendix D
Volatile Organic Compound (VOC) Modeling Assessment

Air Quality Analysis for the DOE Waste Isolation Pilot Plant (WIPP) Repository Vent Stack Modeling

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and

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August 11, 2017

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1.0 INTRODUCTION

A new exhaust filter building is being designed as part of the WIPP Permanent Ventilation System (PVS). Construction of this building will change the current exhaust point location, stack height and maximum flow rate from the WIPP underground. The WIPP Repository VOC monitoring program is established based on the location of the maximally exposed non-waste on site surface worker.

AECOM updated previous atmospheric dispersion modeling (AECOM, September 2014) to determine the impacts of the new exhaust point location, stack height, and flow rate on the location of the maximally exposed on-site surface worker. This modeling has potential implications for the appropriate location for above-ground VOC monitoring. In addition, the modeling addressed potential off-site impacts related to the release and dispersion of VOCs. This report summarizes the methodology used to perform the air dispersion modeling and documents the modeling results.

2.0 MODELING METHODOLOGY

To support the review of the NWP above-ground VOC monitoring plan, AECOM conducted air dispersion modeling of emissions from the proposed repository vent stack at the Waste Isolation Pilot Plant (WIPP) facility. The analysis used the American Meteorological Society/ U.S. Environmental Protection Agency Regulatory (AERMOD) model (Version 16216r).

Three scenarios were examined in the modeling exercise to identify the location and relative magnitude of maximum onsite and offsite impacts under alternate conditions involving various flow rates. Table 2-1 lists the source release parameters used in this modeling exercise for all scenarios.

Table 2-1. Source Input Parameters

Source ID	Source Description	Easting (X)	Northing (Y)	Emission Rate (lb/hr)	Temperature (F)	Stack Diameter (ft)	Stack Height (ft)	Flow Rate (scfm)	Exit Velocity (m/s)	Scenario
V1	Repository Vent Stack	613887	3582209	1.0	ambient	14	125	125,000	4.13	1
								280,000	9.24	2
								560,000	18.48	3

Five years of meteorological data were processed using on-site data provided by NWP. Because these are site-specific data collected at the facility, they best represent the conditions at the WIPP above-ground facility. USEPA's preference for site-specific meteorological data is documented in USEPA's Guideline on Air Quality Models 40 CFR Part 51 (https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf) (EPA, 2016). Section 8.3.1.2 (b) states:

> The use of 5 years of NWS [National Weather Service] meteorological data or at least l year of site specific data is required. If one year or more (including partial years), up to five years, of site specific data is available, these data are preferred for use in air quality analyses.

These data were supplemented with surface data from the National Weather Service (NWS) station in Carlsbad, NM (Station 93033). Upper air data were collected from the NWS station located in El Paso, TX (Station 3020). Please note that there is an upper-air meteorological data station in Midland, Texas that is closer to the WIPP facility than El Paso. However, the data capture from the Midland monitor is less complete than the data from El Paso. Filling in upper air data can be difficult and inaccurate; therefore, the El Paso station was selected for this evaluation. All data were processed using AERMET (Version 16216r).

The analysis processed meteorological data using the default ADJ_U* option to adjust u* (surface friction velocity) for low wind/stable conditions. This previously had been a BETA option for processing National Weather Service (NWS) surface meteorology. But, beginning with version 16216r, the ADJ_U* option is no longer a BETA option and is now the default approach.

The modeling analysis included consideration of building downwash effects, wherein the potential for emission discharges to become caught in the turbulent wakes of structures was evaluated. The analysis used Building Profile Input Program (BPIP-Prime) (Version 04274) to generate wind direction-specific downwash dimensions from downwash structures. AERMOD considers direction-specific downwash using the PRIME algorithm as evaluated in the BPIP-Prime program. Although downwash was ran for the modeling scenarios, the stack is located away from any potential structure that could influence the dispersion. Therefore, downwash did not have any effect on the results.

Terrain data (elevations and hill heights) were collected using AERMOD's terrain preprocessor, AERMAP (Version 11103). National Elevation Data (NED) files are uploaded to the processor, which then produces elevations and hill heights for all sources, buildings, and receptors.

A receptor grid was placed across the entire property with receptor spacing (density) dependent on distance from the source. Two additional discrete receptors were added to calculate impacts at the locations of the two closest residences, Smith Ranch and Mills Ranch (see Figure 2-1).

Figure 2-1. Locations of Nearest Sensitive Receptors (Residences)

3.0 MODELING RESULTS AND CONCLUSIONS

Modeling was performed using a generic unit emission rate approach. Impacts are in units of micrograms per meter cubed ($\mu g/m^3$) of ambient concentration per lb/hour of emissions (which will differ for each VOC). The modeling results identify the location of maximum onsite and offsite impact and provide the relative magnitude of impact at receptor locations. However, the modeled impacts (in units of $\mu g/m^3$ per lb/hr) are not directly comparable to surface air monitoring results. To be comparable, the results need to be multiplied by the average emission rate for each VOC in lb/hour from the vent stack.

Table 3-1 lists modeled onsite maximum impacts for each modeling scenario (varying flow rates). Figures 3-1 through 3-3 contain impact contours and the location of maximum on-site impact for each scenario. Key findings are that:

- In general, as the flow rate is increased, the predicted annual concentrations decrease;
- The locations of the highest impacted receptors move slightly further to the north (away from the vent) when the flow rate increases; and
- The 2017 modeling shows maximum impacts have moved somewhat compared with the 2014 modeling for similar exhaust flows. This is to be expected, given the change in location of the stack.

Table 3-2 lists modeled maximum impact concentrations at the property boundary. Figure 3-4 is a visual representation of the location of these impacts. The magnitudes of the concentrations at residences are as much as 50X smaller than the concentrations at the maximum affected onsite receptor. These concentrations are also similarly affected by changes in flow rate.

Table 3-1. Maximum Onsite Annual Generic Unit Impacts

Scenario	Flow Rate (scfm)	Stack Height (ft)	Easting (m)	Northing (m)	Max Onsite Modeled Impact ($\mu g/m^3$ per lb/hr)
1	125,00	125	613887	3582209	0.170
2	280,000	125	613887	3582209	0.098
3	560,000	125	613887	3582209	0.076

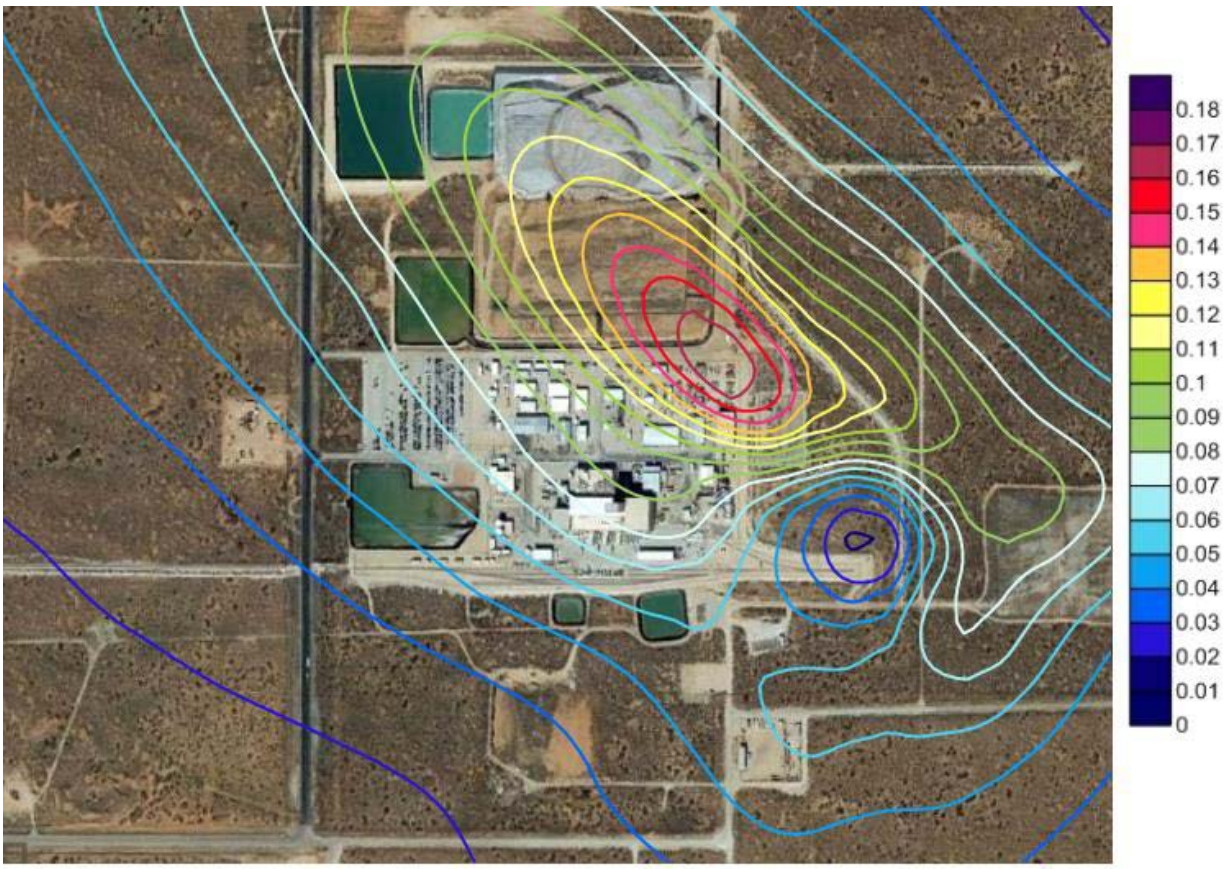


Figure 3-1. Annual Unit Impact Concentrations with 125,000 scfm Flow Rate (µg/m^3 per lb/hr)

Figure 3-2. Annual Unit Impact Concentrations with 280,000 scfm Flow Rate (µg/m^3 per lb/hr)

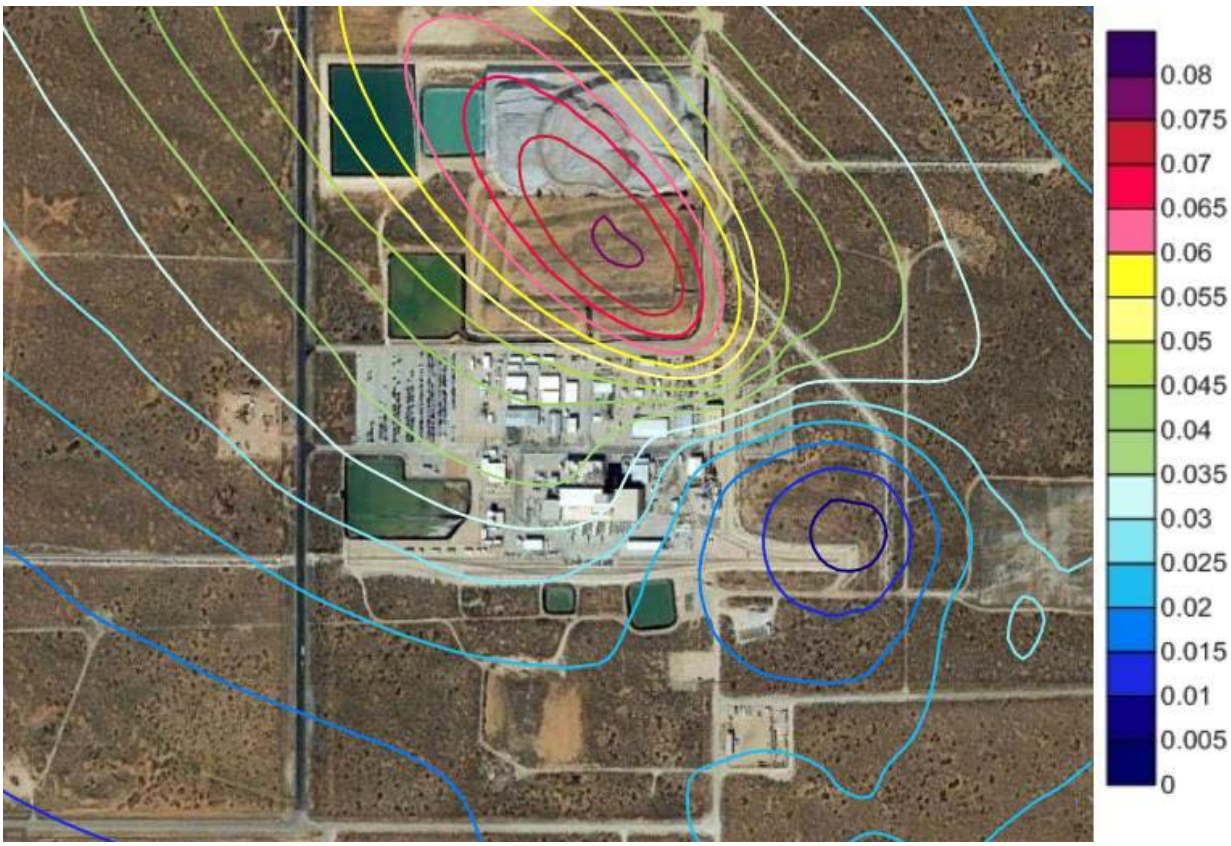


Figure 3-3. Annual Unit Impact Concentrations with 560,000 scfm Flow Rate (µg/m^3 per lb/hr)

Table 3-2. Maximum Annual Unit Impacts at Property Boundary and Residences

Scenario	Flow Rate (scfm)	Stack Height (ft)	Property Boundary Impact ($\mu g/m^3$ per lb/hr)	Smith Ranch Impact ($\mu g/m^3$ per lb/hr)	Mills Ranch Impact ($\mu g/m^3$ per lb/hr)
1	125,000	125	0.0209	0.0028	0.0022
2	280,000	125	0.0175	0.0026	0.0019
3	560,000	125	0.0172	0.0026	0.0019

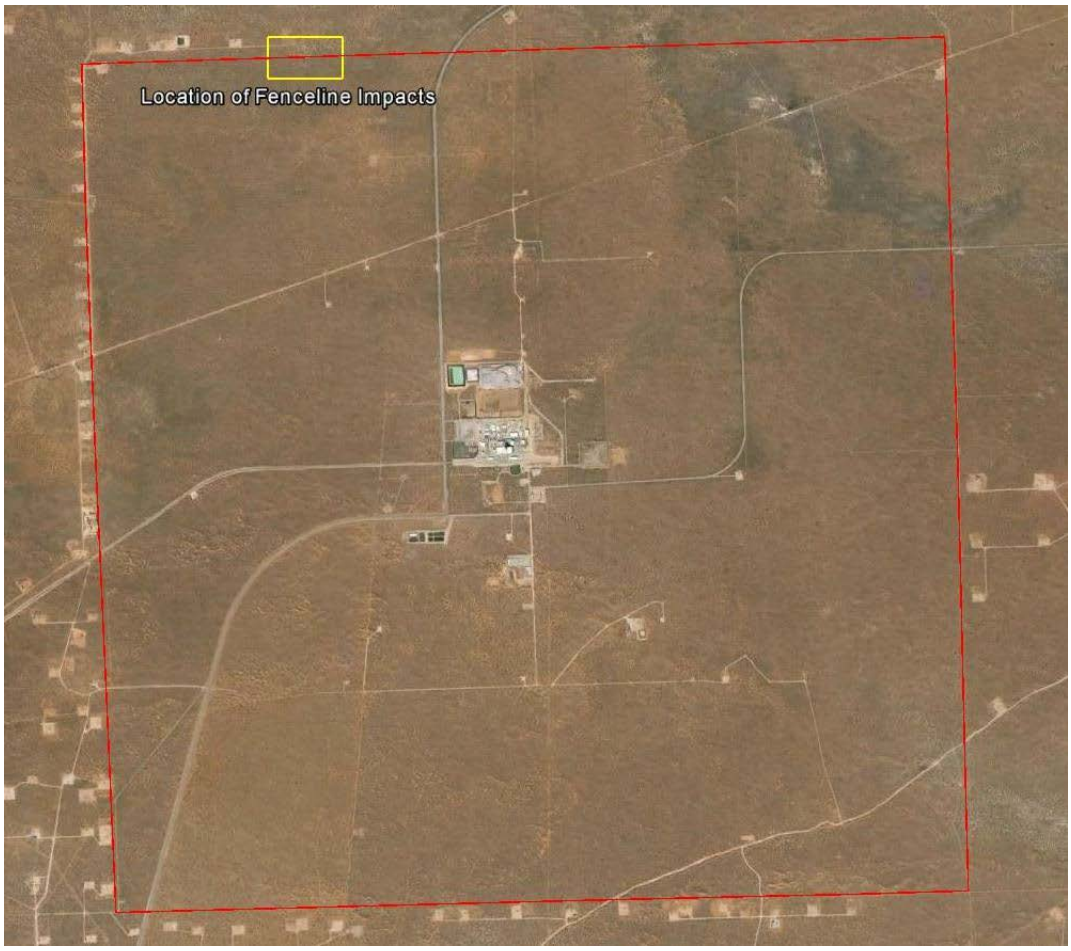


Figure 3-4. Location of Maximum Property Boundary Impacts for All Scenarios

An additional analysis was performed to determine the relationship between 24-hour average impact concentrations and individual 1-hour average concentrations over the course of a 24-hour period at the point of maximum annual onsite impact. Using this information, an employee's exposure during the period of a typical work shift may be compared to the average 24-hour exposure. Figures 3-5 through 3-10 graph this relationship by two different methods:

1. Averages Approach: Over the five-year period evaluated, all model predicted 24-hour average concentrations were averaged together to produce a single value (the straight red line). Model predicted 1-hour average concentrations for the five-year period were averaged together by hour of day, i.e., all 2:00 hours were averaged, all 3:00 hours were averaged, etc.
2. Maximums Approach: The same methodology as mentioned above was used, except the maximum (rather than the average) 24-hour average concentration and the respective maximum 1-hour average concentrations were plotted.

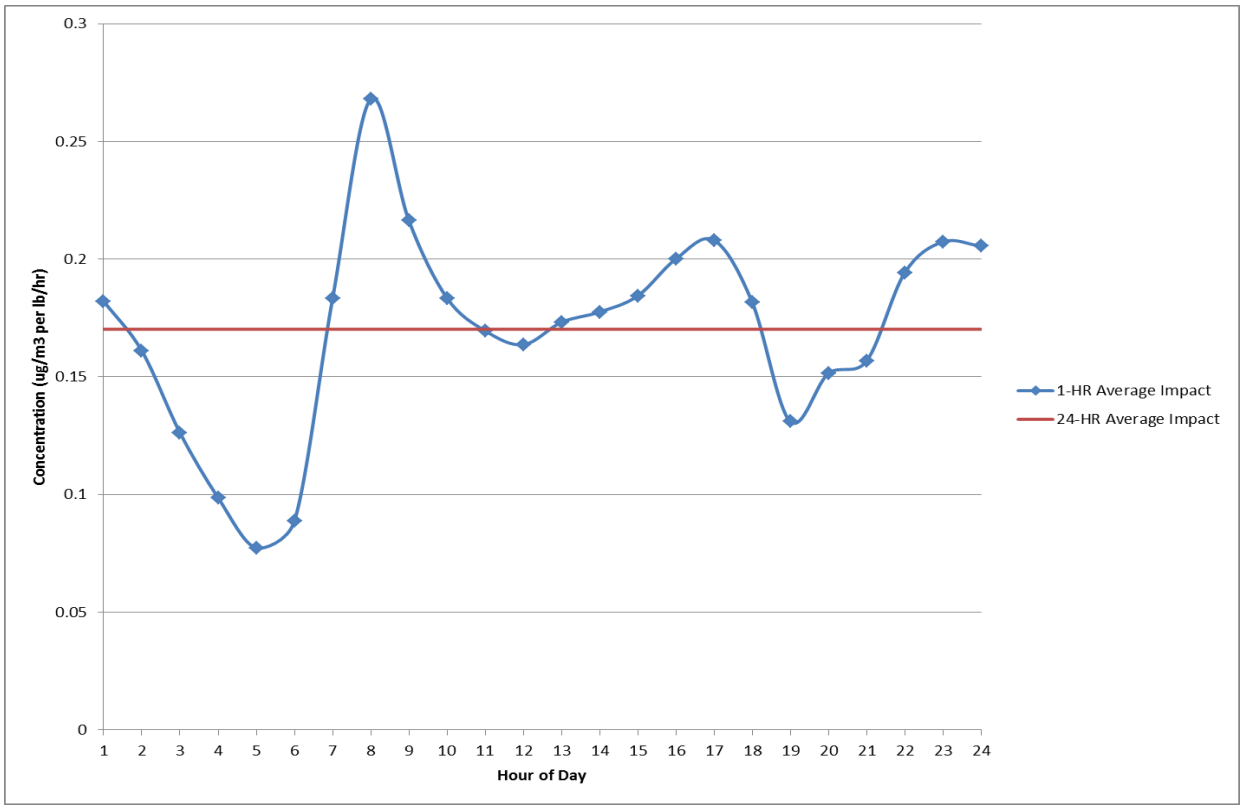


Figure 3-5. 1-HR Average Modeled Impacts by Hour of Day vs. 24-HR Average Modeled Impacts – 125,000 scfm Flow

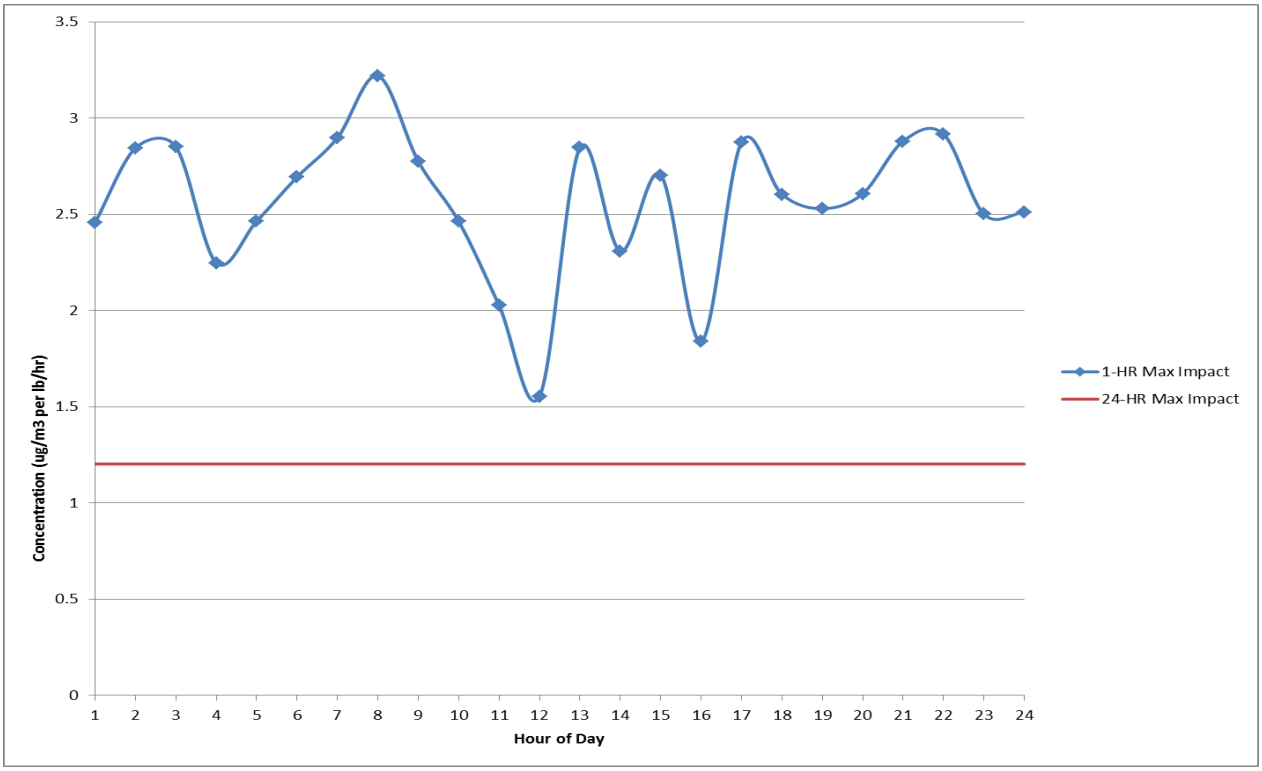


Figure 3-6. 1-HR Max Modeled Impact by Hour of Day vs. 24-HR Max Modeled Impact – 125,000 scfm Flow

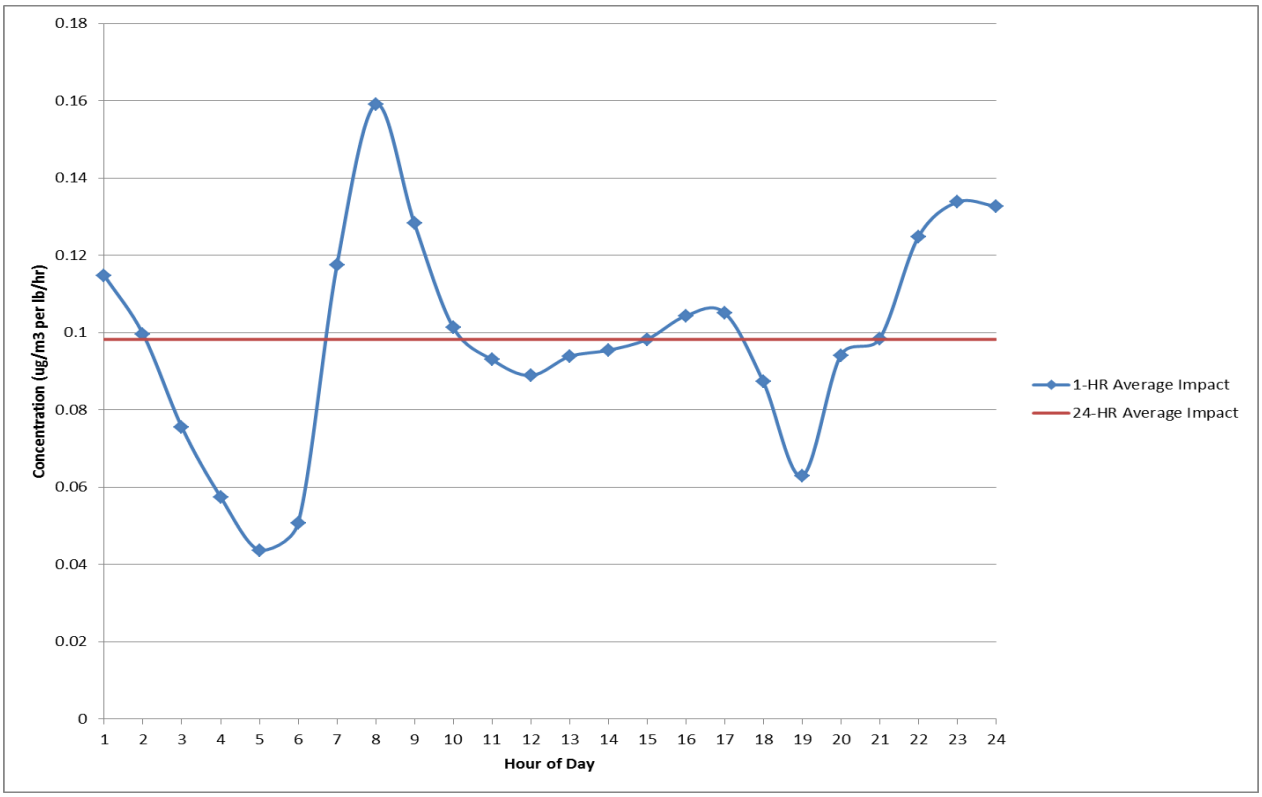


Figure 3-7. 1-HR Average Modeled Impacts by Hour of Day vs. 24-HR Average Modeled Impacts – 280,000 scfm Flow

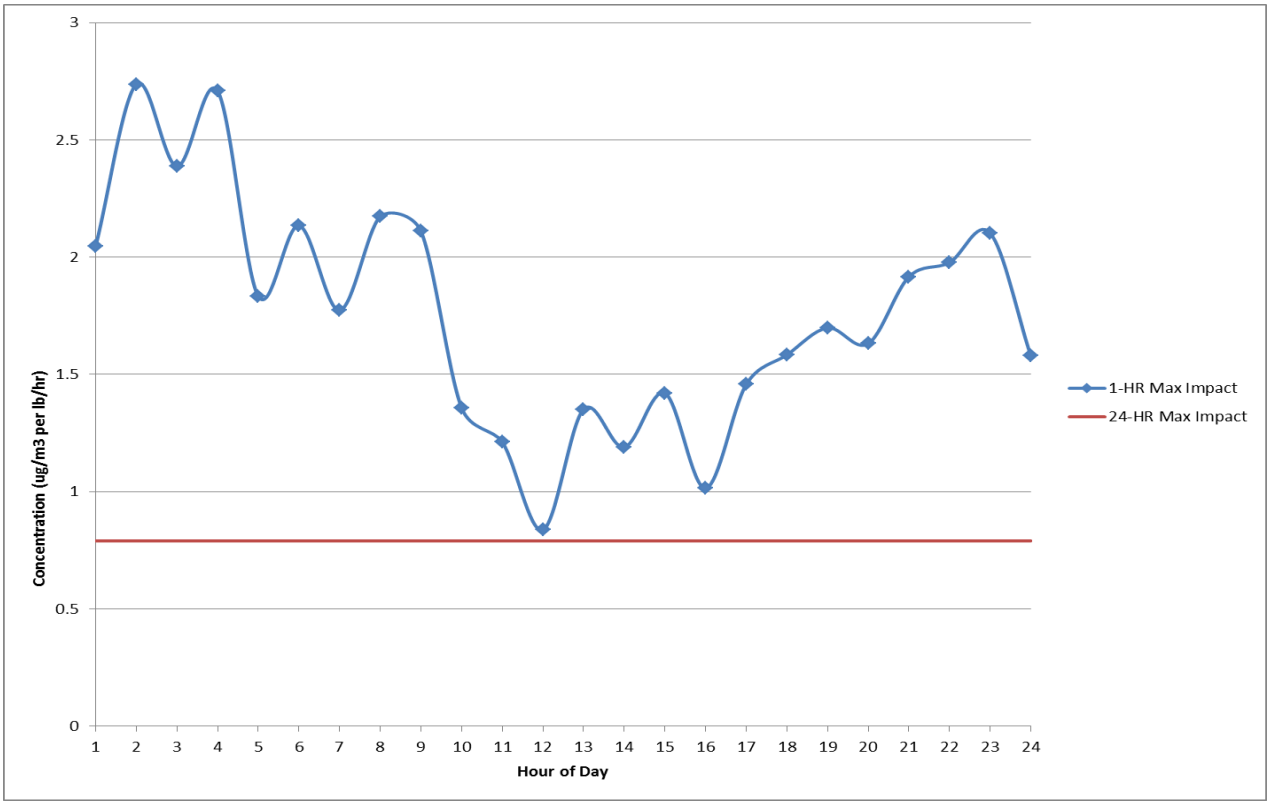


Figure 3-8. 1-HR Max Modeled Impacts by Hour of Day vs. 24-HR Max Modeled Impacts – 280,000 scfm Flow

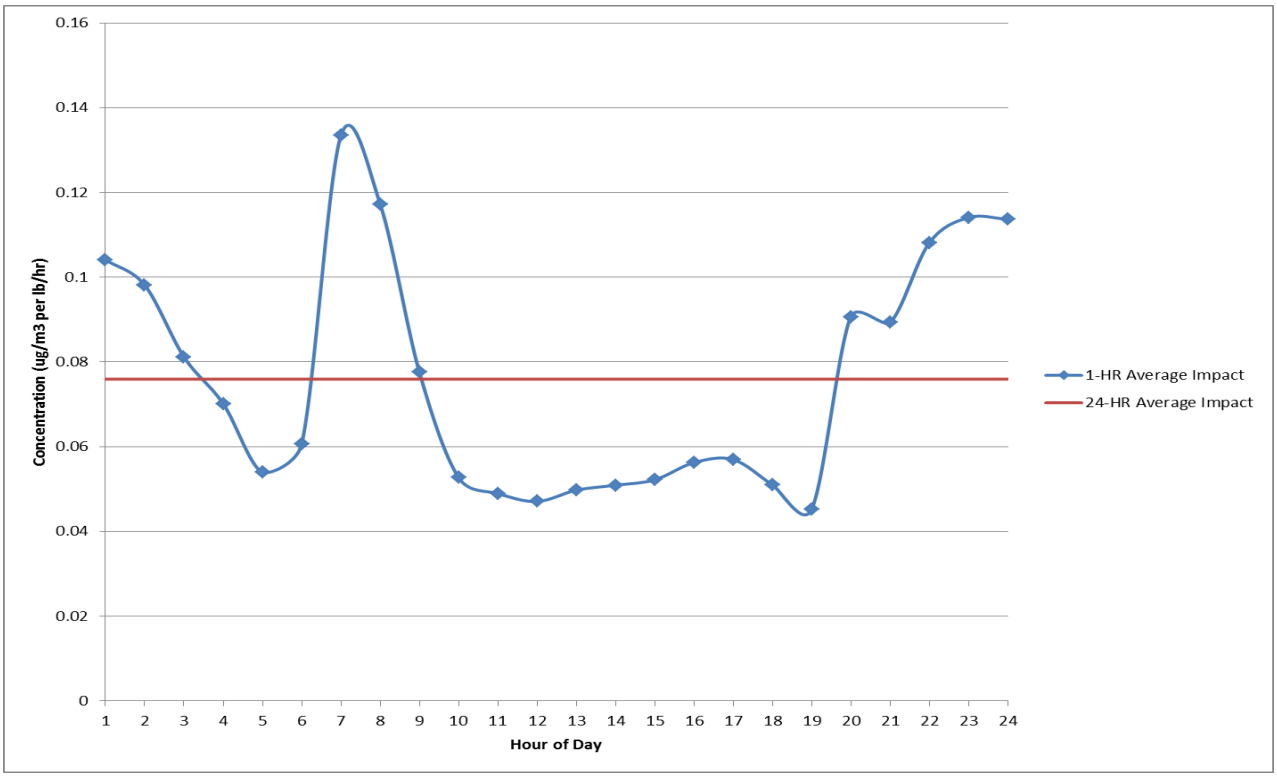


Figure 3-9. 1-HR Average Modeled Impacts by Hour of Day vs. 24-HR Average Modeled Impacts – 560,000 scfm Flow

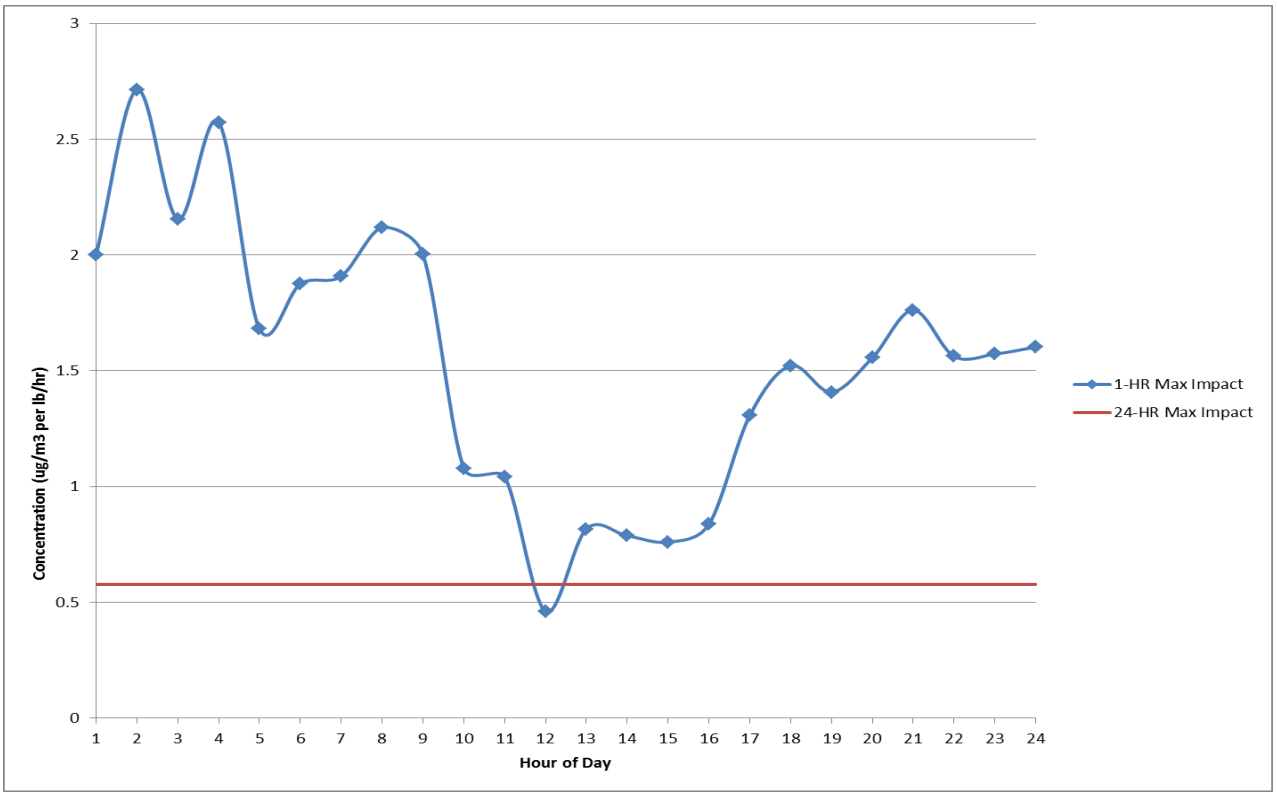


Figure 3-10. 1-HR Max Modeled Impacts by Hour of Day vs. 24-HR Max Modeled Impacts – 560,000 scfm Flow

4.0 REFERENCES

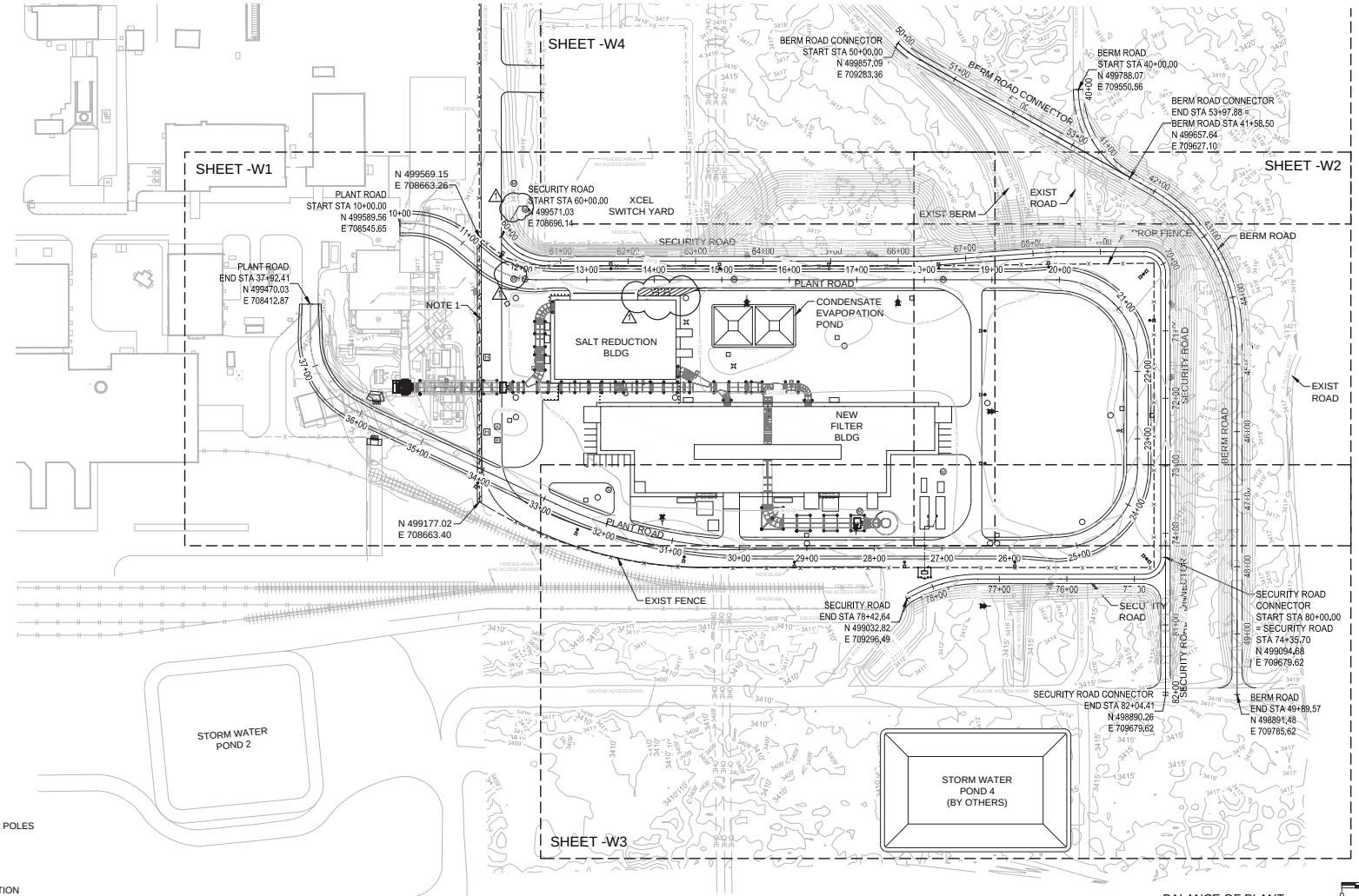
EPA, 1997 Addendum to ISC3User's Guide, The PRIME Plume Rise and Building *Downwash Model*. Schulman, L.L., D.G. Strimaitis, and J.S. Scire, 1997. Prepared for the Electric Power Research Institute, Palo Alto, CA., Earth Tech Document A287. A-99-05, II-A-12)

EPA, 2004 *USER'S GUIDE FOR THE AMS/EPA REGULATORY MODEL –AERMOD.* EPA Publication No. EPA-454/B-03-001. Environmental Protection Agency, Research Triangle Park, NC., September 2004

EPA, 2016 User's Guide for the AMS/EPA Regulatory Model – AERMOD . U.S. Environmental Protection Agency, Research Triangle Park, NC.

AECOM, 2014. Air Quality Analysis for the DOE Waste Isolation Pilot Plant (WIPP) Repository Vent Stack Modeling, Prepared for Washington TRU Solutions/U.S. DOE. September 2014.

Appendix E
WIPP New Filter Building (NFB) Design Drawings and Illustrations



PLAN
SCALE: 1"=80'

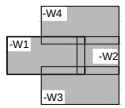
LEGENDS:

- MAJOR CONTOURS
- MINOR CONTOURS
- OVERHEAD ELECTRICAL WITH POLES
- FENCELINE
- RAILROAD TRACKS
- POTABLE WATER TIE IN LOCATION
- SANITARY WASTEWATER FORCE MAIN TIE IN LOCATION
- FIRE HYDRANT
- CATCH BASIN
- STORM DRAINAGE MANHOLE
- UNDERGROUND FIBER OPTIC HAND HOLE
- SANITARY MANHOLE
- ELECTRICAL MANHOLE
- LIGHT POLE
- LIMIT OF FENCE REMOVAL

NOTES:

1. REMOVE EXIST FENCE PRIOR TO COMPLETING ROADWAY CONSTRUCTION. COORDINATE WITH DRAWING 416-C-021-W2 STAGE 8.
2. FOR SITE PART PLANS SEE DWGS 416-C-004-W1 THRU 416-C-004-W4.

KEY PLAN



JAMES A. BARRACK, JR. NEW MEXICO 23704 PROFESSIONAL ENGINEER
09/05/17
PROFESSIONAL SEAL

CB&I FEDERAL SERVICES, LLC
2410 CHERAHALA BLVD
KNOXVILLE, TN 37932
(865) 560-7800

SCALE: 1"=80'
0 80 160 FEET

BALANCE OF PLANT

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0	ISSUED FOR CONSTRUCTION	VN 5/31/17	JB 5/31/17	N/A	EJ 09JUN17	WJG CMW 6/13/17	R SEIBERT 6/13/17

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DFTR:
COG:
CM:

INDEX CODE NUMBER

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THIS DRAWING IS UP-TO-DATE AND LATEST REVISION VERIFIED WITH THE FOLLOWING OUTSTANDING ENGINEERING CHANGE ORDERS:

SIGNATURE AND DATE:

THIS DRAWING OBSOLETE FIVE DAYS FROM THIS DATE.

CARLSBAD FIELD OFFICE

NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with BWXT and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

SITE OVERALL PLAN

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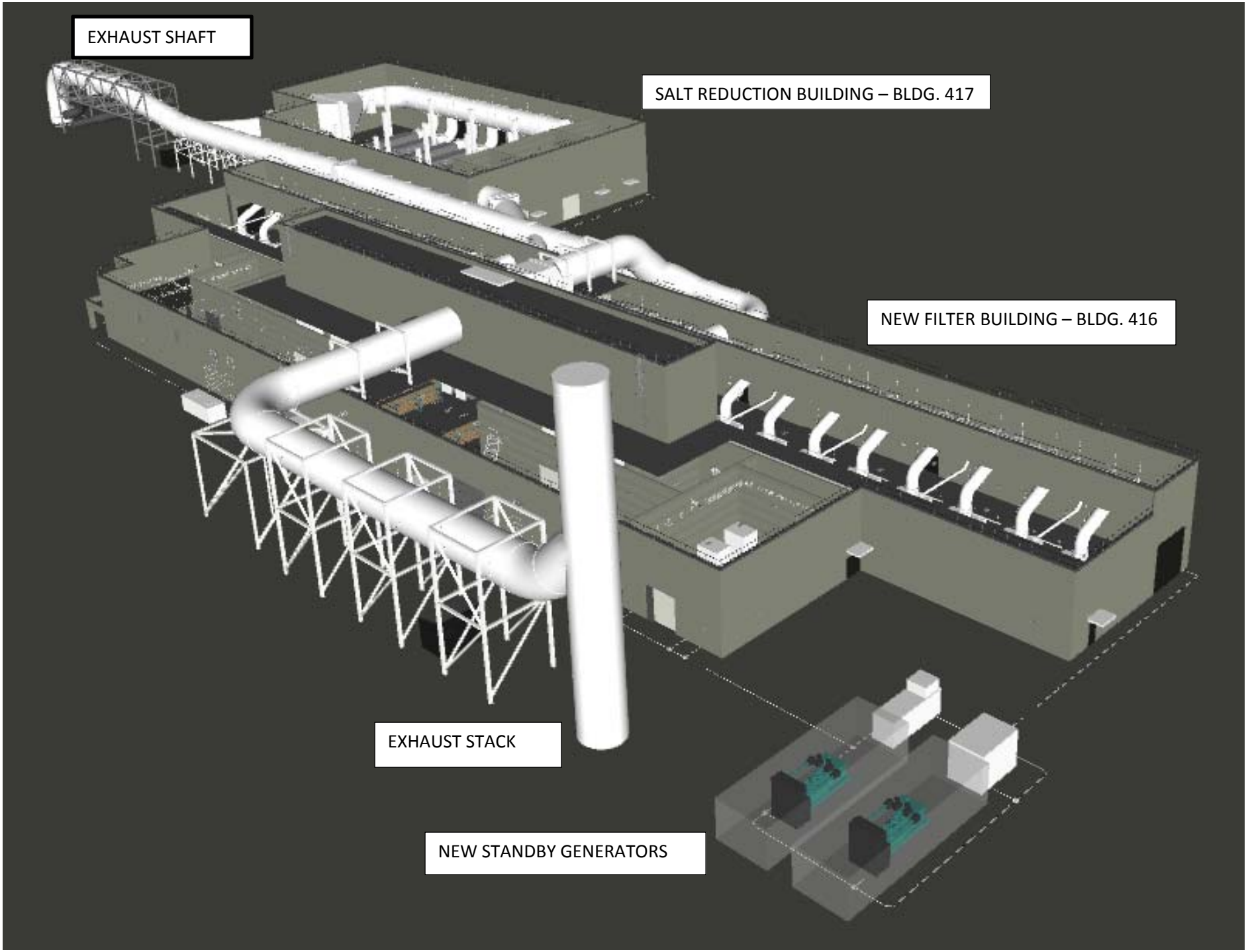
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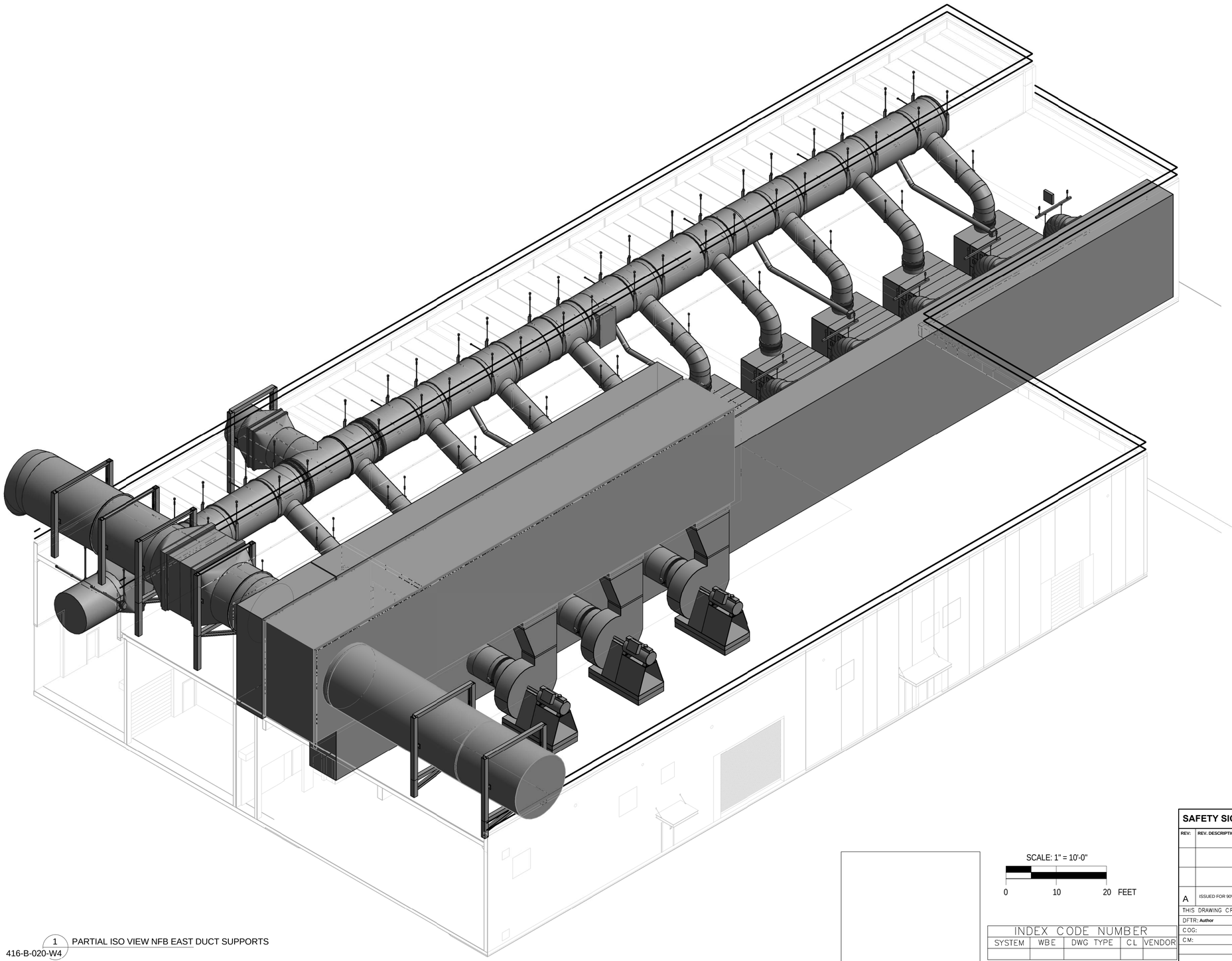
NEW FILTER BUILDING – BLDG. 416
EXHAUST STACK
NEW STANDBY GENERATORS



1 PARTIAL ISO VIEW NFB EAST DUCT SUPPORTS
416-B-020-W4

SCALE: 1" = 10'-0"
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PROFESSIONAL SEAL

CB&I FEDERAL SERVICES, LLC
2410 CHERAHALA BLVD
KNOXVILLE, TN 37932
(865) 560-7800

INDEX CODE NUMBER				
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SIGNATURE AND DATE:

THIS DRAWING OBSOLETE FIVE DAYS FROM THIS DATE.

SAFETY SIGNIFICANT

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THIS DRAWING CREATED BY ENGINEERING CHANGE ORDER (ECO): WO:

DFTR: **Author**
COG:
CM:

CARLSBAD FIELD OFFICE

NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with BWXT and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

PVS DUCT SUPPORTS ISO VIEW - NEW FILTER BUILDING EAST

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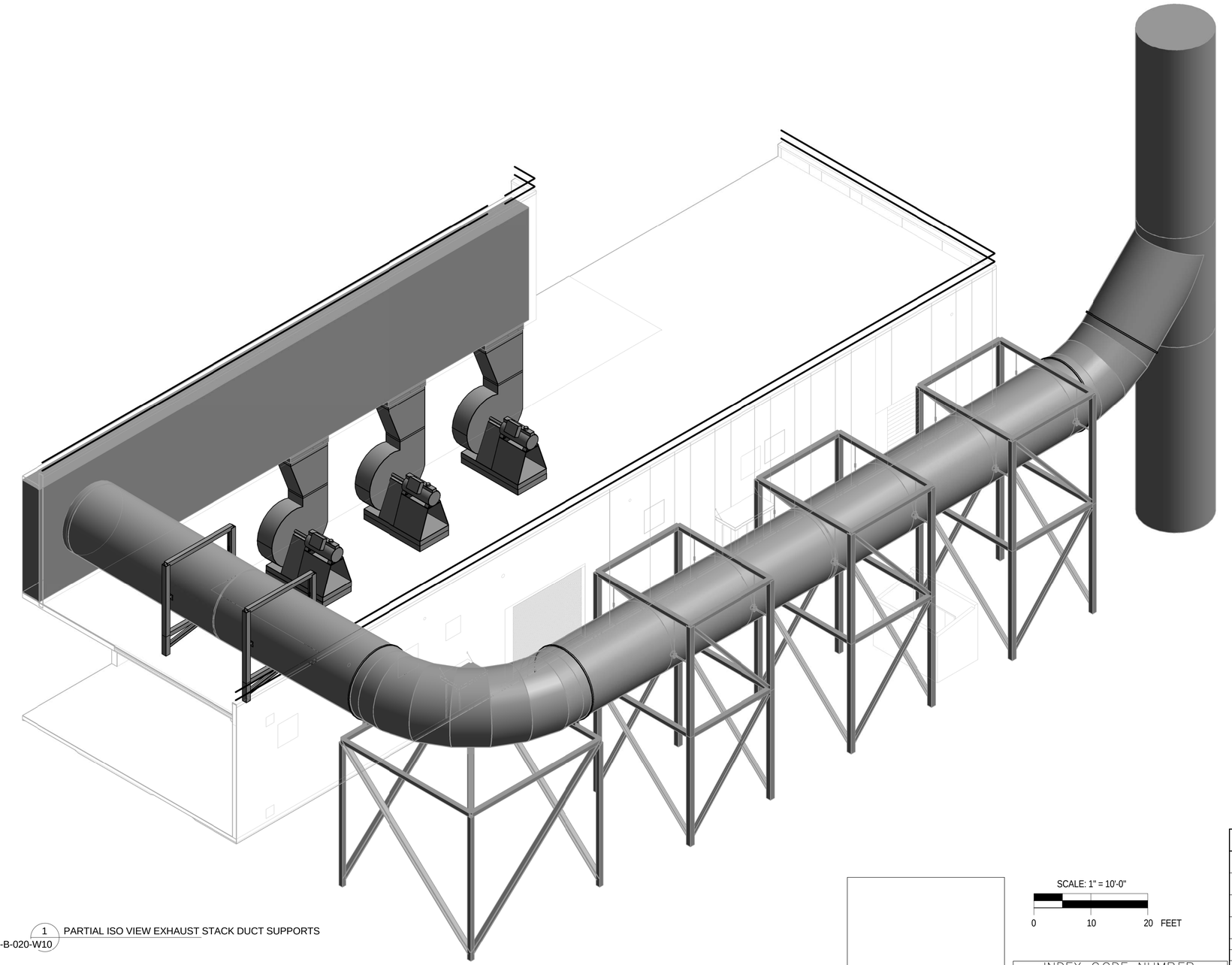
THIS DRAWING TAKEN FROM: N/A
VENDOR: N/A



1 PARTIAL ISO VIEW EXHAUST STACK DUCT SUPPORTS
416-B-020-W10

SCALE: 1" = 10'-0"
0 10 20 FEET

PROFESSIONAL SEAL

CB&I FEDERAL SERVICES, LLC
2410 CHERAHALA BLVD
KNOXVILLE, TN 37932
(865) 560-7800

INDEX CODE NUMBER

SYSTEM	WBE	DWG TYPE	CL	VENDOR

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SIGNATURE AND DATE:

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SAFETY SIGNIFICANT

REV:	REV. DESCRIPTION	PREPARER	REVIEWER/ CHECKER	RESP. ENG/ LEAD ENG.	DESIGN VERIFIER	ADDITIONAL REVIEWERS	PROJECT ENGINEER
A	ISSUED FOR 90% DESIGN REVIEW	RJK 02/16/17	BEB 02/16/17	PDW 02/17/17	RD 2/17/17		RA Berry 02/17/2017

THIS DRAWING CREATED BY ENGINEERING CHANGE ORDER (ECO): WO:

DFTR: **Author**
COG:
CM:

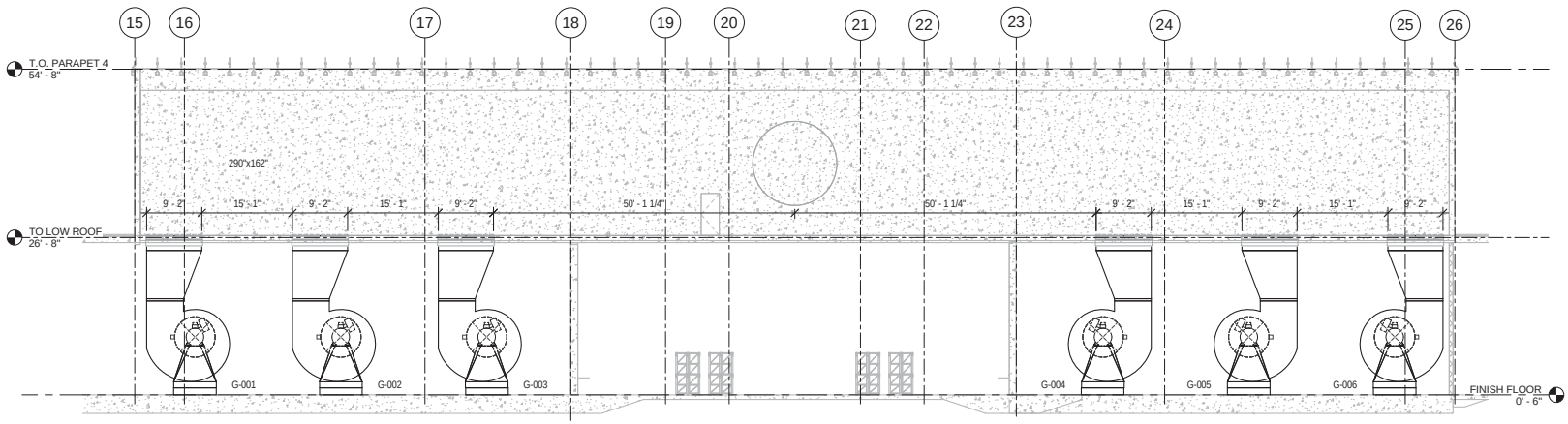
CARLSBAD FIELD OFFICE

NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with BWXT and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

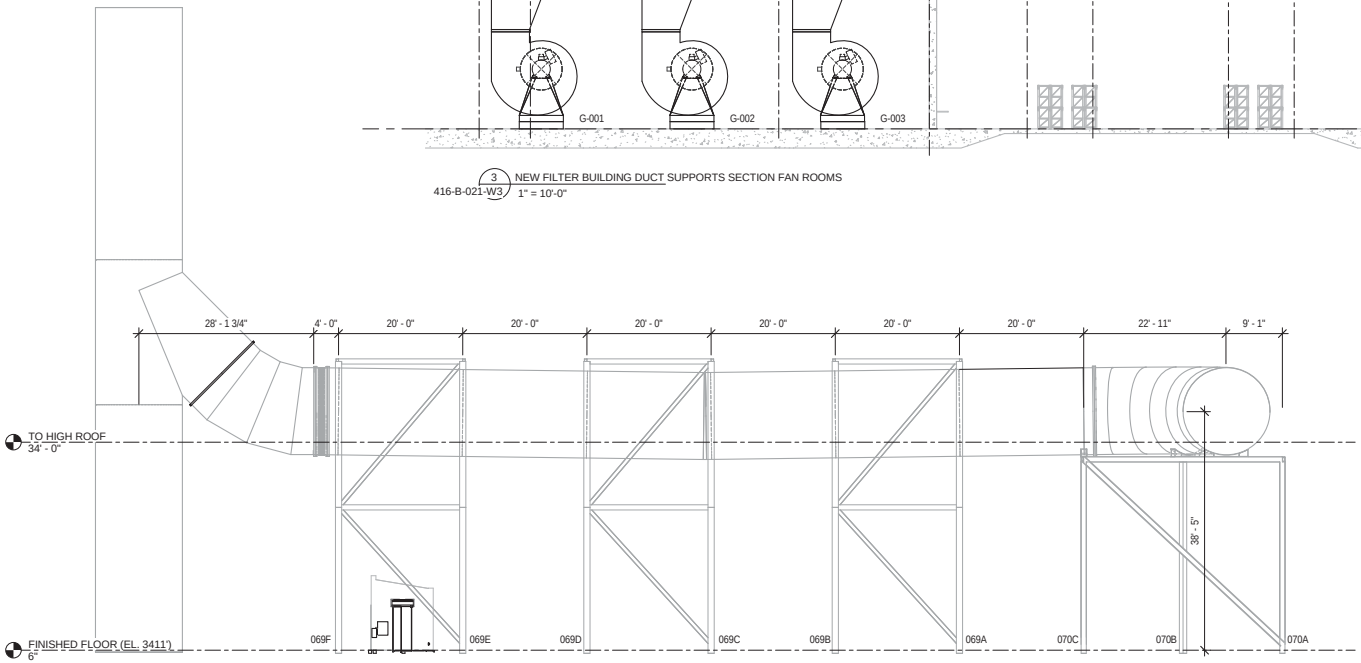
PVS DUCT SUPPORTS ISO VIEW - NEW FILTER BUILDING TO EXHAUST STACK

SCALE:	SIZE	SYS	DWG NO	REV
INTERPRET DWG PER ANSI Y14	D		416-B-020-W10	A

THIS DRAWING TAKEN FROM: N/A
VENDOR: N/A



3 NEW FILTER BUILDING DUCT SUPPORTS SECTION FAN ROOMS
416-B-021-W3 1" = 10'-0"



1 EXHAUST STACK DUCT SUPPORTS SECTION
416-B-021-W3 1" = 10'-0"

GENERAL NOTES:

1. Support tag numbers on plan and section views correspond to detail sheet numbers. Multiple detail sheets describing the same support are described by multiple W#'s. Multiple supports of the same type are described using an ascending alphabetical suffix.

BRUCE E. BRUNSDON NEW MEXICO 23711 PROFESSIONAL ENGINEER
6/6/17
PROFESSIONAL SEAL

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(865) 560-7800

SCALE: 1" = 10'-0"
0 10 20 FEET

INDEX CODE NUMBER				
SYSTEM	WBE	DWG TYPE	CL	VENDOR
VU01				

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REV.	REV. DESCRIPTION	PREPARER	REVIEWER/ CHECKER	RESP. ENGR LEAD ENG.	DESIGN VERIFIER	ADDITIONAL REVIEWERS	PROJECT ENGINEER
0	ISSUED FOR CONSTRUCTION	RJK 5/23/17	BAF 5/23/17	BEB 6/6/17	BAF 5/23/17	NR	6/14/17

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DFTR: RJK
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CM:

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NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with EM&T and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

PVS DUCT SUPPORT LOCATIONS SECTIONS - SHEET 3

SCALE: 1" = 10'-0"
INTERPRET DWG PER ANSI Y14
SIZE D | SYS | DWG NO 416-B-021-W3 | REV 0

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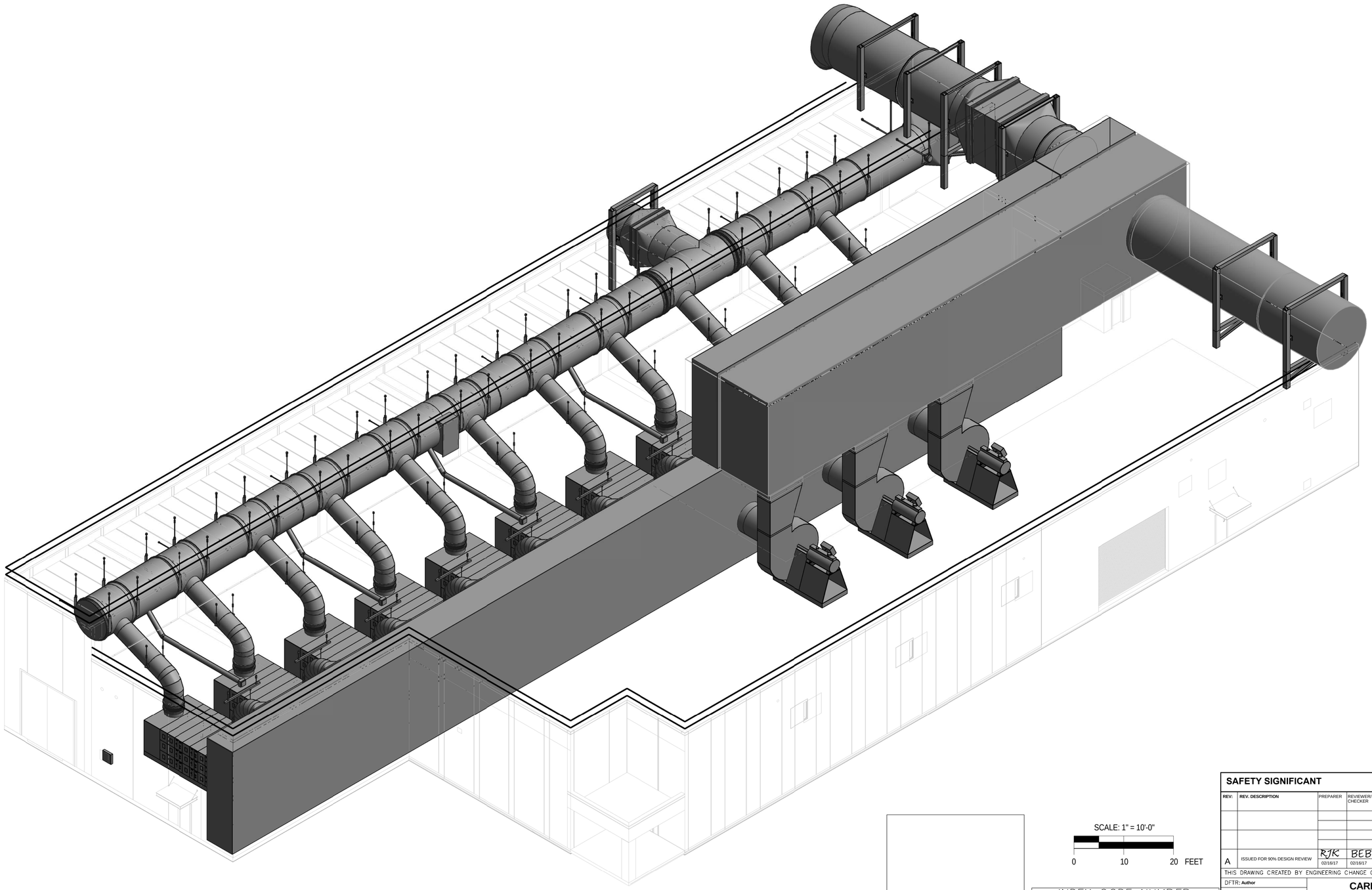
VENDOR: N/A



1
416-B-020-W6
PARTIAL ISO VIEW NFB WEST DUCT SUPPORTS

PROFESSIONAL SEAL

CB&I FEDERAL SERVICES, LLC
2410 CHERAHALA BLVD
KNOXVILLE, TN 37932
(865) 560-7800

SCALE: 1" = 10'-0"

0 10 20 FEET

INDEX CODE NUMBER				
SYSTEM	WBE	DWG TYPE	CL	VENDOR

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REV:	REV. DESCRIPTION	PREPARER	REVIEWER/ CHECKER	RESP. ENG/ LEAD ENG.	DESIGN VERIFIER	ADDITIONAL REVIEWERS	PROJECT ENGINEER
A	ISSUED FOR 90% DESIGN REVIEW	RJK 02/16/17	BEB 02/16/17	PDW 02/17/17	RD 2/17/17		RA Berry 02/17/2017

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DFTR: Author
COG:
CM:

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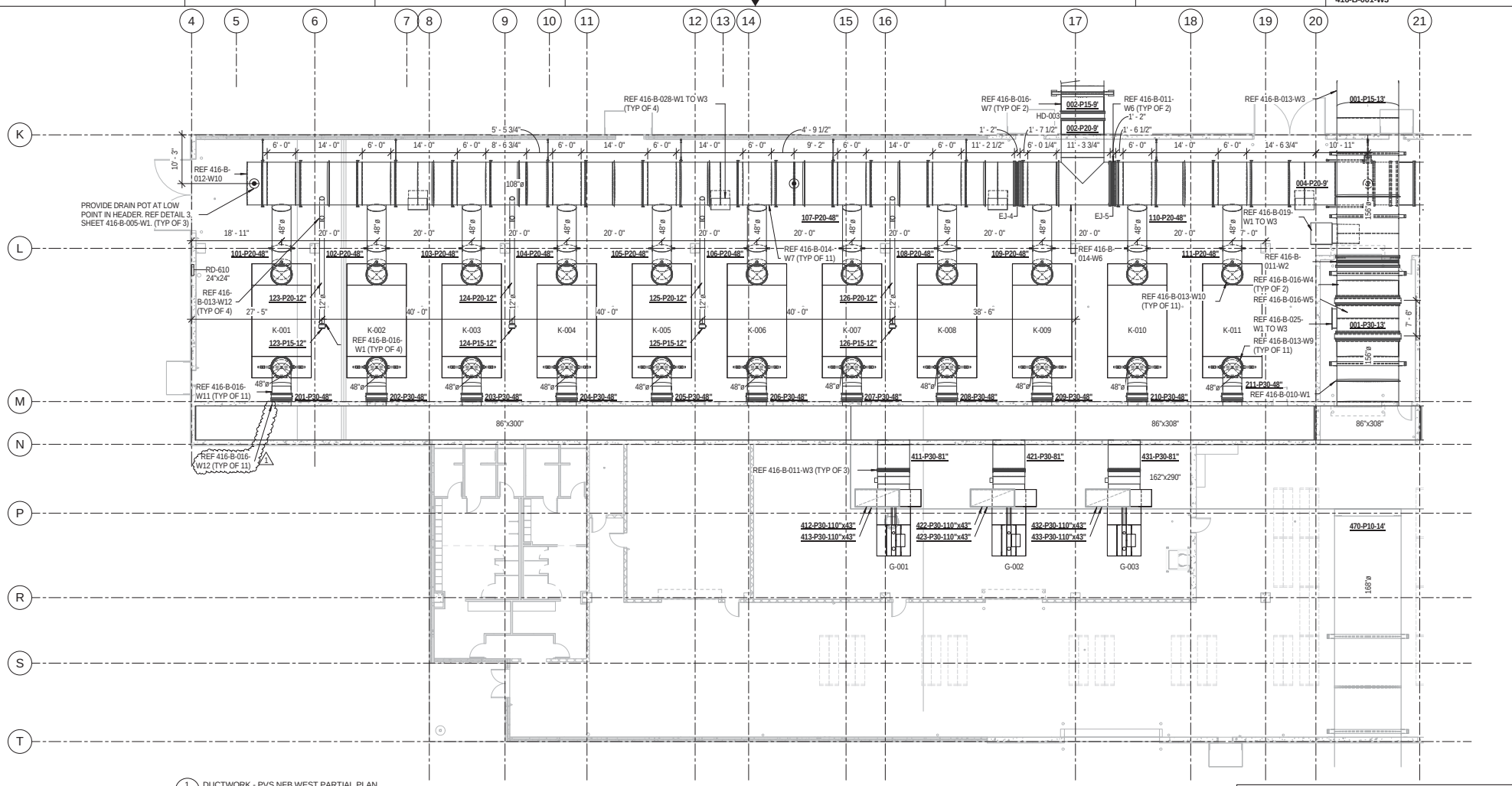
NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with BWXT and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

PVS DUCT SUPPORTS ISO VIEW - NEW FILTER BUILDING WEST

SCALE:	SIZE	SYS	DWG NO	REV
INTERPRET DWG PER ANSI Y14	D		416-B-020-W6	A

THIS DRAWING TAKEN FROM: N/A
VENDOR: N/A



1 DUCTWORK - PVS NFB WEST PARTIAL PLAN
416-B-001-W3 1" = 10'-0"

GENERAL NOTES:

1. REFER TO SHEET 416-A-003-W2 FOR LOCATIONS OF INJECTION PORTS, SAMPLE PORTS, LEAK TEST PORTS, AND VENTS. PROVIDE SEPARATION BETWEEN COMPONENTS AS REQUIRED BY INSTRUMENT MANUFACTURER.

PETER D. WELLS NEW MEXICO 23684 PROFESSIONAL ENGINEER 7/31/17
PROFESSIONAL SEAL

CB&I FEDERAL SERVICES, LLC
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(865) 560-7800

SCALE: 1" = 10'-0"
0 10 20 FEET

INDEX CODE NUMBER				
SYSTEM	WBE	DWG TYPE	CL	VENDOR
VU01				

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SAFETY SIGNIFICANT

REV.	REV. DESCRIPTION	PREPARER	REVIEWER/ CHECKER	RESP. ENG/ LEAD ENG.	DESIGN VERIFIER	ADDITIONAL REVIEWERS	PROJECT ENGINEER
1	ADDED REFERENCE	RJK 7/25/17	PDW 7/26/17	PDW 7/26/17	RD 7/26/17	TJR	R.A. Berry 7/26/17
0	ISSUED FOR CONSTRUCTION	RJK 06/06/17	PDW 06/08/17	PDW 06/08/17	RD 06/12/17	NRR	RA BERRY 06/13/17

THIS DRAWING CREATED BY ENGINEERING CHANGE ORDER (ECO): WO:

DFTR: RJK
COG:
CM:

CARLSBAD FIELD OFFICE

NWP Nuclear Waste Partnership LLC
An AECOM-led Partnership with BWXT and AREVA
Waste Isolation Pilot Plant Carlsbad, New Mexico

PVS DUCTWORK PARTIAL PLAN - NEW FILTER BUILDING WEST

SCALE: 1" = 10'-0" | SIZE: D | SYS | DWG NO: 416-B-001-W3 | REV: 1
INTERPRET DWG PER ANSI Y14

THIS DRAWING TAKEN FROM: N/A
VENDOR: N/A