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

April 17, 2026

Mr. JohnDavid Nance, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Class 2 Permit Modification Request, Waste Isolation Pilot Plant Hazardous Waste Facility Permit Number: NM4890139088-TSDF

Dear Mr. Nance:

The purpose of this letter is to provide the New Mexico Environment Department Hazardous Waste Bureau with the Class 2 Permit Modification Request for the following items:

- Revise Reporting Frequencies and Specify Reporting Periods Associated with the Volatile Organic Compound Data Summary Report
- Revise Reporting Frequencies, Incorporate Groundwater Surface Elevation Report into Annual Culebra Groundwater Report, and Delineate Reporting Periods Associated with the Water Level Monitoring Programs
- Remove the Mine Ventilation Rate Monitoring Report from Permit Part 4 and Permit Attachment A2, Remove Permit Attachment O

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.

Mr. Michael Gerle, Director, Environmental Regulatory Compliance Division, is your point of contact regarding any technical questions or comments. Mr. Gerle can be reached at (575) 988-5372.

Sincerely,

Mark E. Bollinger
Digitally signed by Mark E. Bollinger
Date: 2026.04.17 12:27:24 -06'00'

Mark Bollinger
Manager
Carlsbad Field Office

RYAN FLYNN (Affiliate)
Digitally signed by RYAN FLYNN (Affiliate)
Date: 2026.04.17 11:36:20 -06'00'

Ken Harrawood
Program Manager
Salado Isolation Mining Contractors, LLC

Enclosure

CBFO:ERCD:MG:RS:26-0164

260413

cc: w/enclosure

J. Lopez, CBFO	*ED
E. Garza, CBFO	ED
M. Hall, CBFO	ED
M. Gerle, CBFO	ED
V. Ballew, CBFO	ED
Z. Lepchitz, CBFO	ED
A. Ward, CBFO	ED
V. Diaz, NMED	ED
A. Donahue, NMED	ED
R. Maestas, NMED	ED
M. McLean, NMED	ED
B. Moffet, NMED	ED
R. Chavez, SIMCO	ED
S. Davis, SIMCO	ED
A. Dunn, SIMCO	ED
R. Flynn, SIMCO	ED
M. Gonzales, SIMCO	ED
M. Jones, SIMCO	ED
R. Salness, SIMCO	ED
J. Settle, SIMCO	ED
S. Strong, SIMCO	ED
A. Waldram, SIMCO	ED
K. Barnhart, SIMCO	ED
M. Cook, LATA	ED
D. Ganaway, LATA	ED
J. Haschets, LATA	ED
M. Lunsford, LATA	ED
M. Serrano, LATA	ED
R. Chavez LATA	ED
J. Nelson, LATA	ED
J. Haschets, LATA	ED
E. Dominguez, LATA	ED
K. Urquidez, LATA	ED
E. Bhakta, SIMCO	ED
B. St. John, SIMCO	ED

*ED denotes electronic distribution

Class 2 Permit Modification Request

Revise Reporting Frequencies and Specify Reporting Periods Associated with the Volatile Organic Compound Data Summary Report

Waste Isolation Pilot Plant
Carlsbad, New Mexico

Hazardous Waste Facility Permit

EPA ID Number NM4890139088-TSDF

April 2026

260413

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
DRVMP	Disposal Room VOC Monitoring Program
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
Permit	WIPP Hazardous Waste Facility Permit
PMR	Permit Modification Request
RVMP	Repository VOC Monitoring Program
TRU	transuranic
TSDF	treatment, storage and disposal facility
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**), NM4890139088-TSDF.

This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Salado Isolation Mining Contractors 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]). This modification provides for the following Permit changes:

- Changes the reporting frequencies from semi-annual to annual for the Volatile Organic Compound (**VOC**) Data Summary Report and specifies the reporting period.

The requested modification to the Permit and related supporting documents are provided in this PMR. The modifications to the text of the Permit have been identified using red text and double underline and a ~~strikeout~~ font for deleted information. 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.

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

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.

The exact changes to Permit text, figures, and tables are described in Appendix A and Appendix B of this PMR. The changes are summarized below and include a brief description of why the change is needed:

- Revised Permit Part 4, *Geologic Repository Disposal,* Section 4.6.2.2, *Reporting Requirements,* change the reporting frequency from semi-annual to annual, and align the reporting period to a calendar year.

- Revised text in Permit Attachment N, *Volatile Organic Compound Monitoring Plan,* Section N-3b, *Analytes to Be Monitored*, to remove the semi-annual requirement.

- Revised text in Permit Attachment N, Section N-3e(2), *Data Evaluation and Reporting for Disposal Room VOC Monitoring,* to remove the semi-annual requirement.

- Revised text in Permit Attachment N, Section N-5e, *Performance and System Audits,* to remove the semi-annual requirement.

Changes are described in Appendix A, *Table of Changes*, with the exact changes identified in Appendix B, *Revised Permit Text*, of this PMR. Appendix A provides a list of updates by Permit section. Appendix B provides the exact modification to the existing Permit language in redline/strikeout.

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 pertains to changes in reporting for the VOC Programs. The 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*

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 modification is needed to revise the frequency for the VOC Data Monitoring Report from semi-annual to annual. This change reduces the Permittees' administrative burden associated with the submittal of semi-annual reports that do not lend themselves to the timely reporting of data. The change to add the period of the data to be reported ("prior calendar year") is needed to correspond with the change of the report from semi-annual to annual. The current permit does not provide a specific period of the data to be reported in the VOC Data Monitoring Report. Table 1 provides a summary of the reporting revisions.

VOC Monitoring Program

Permit Attachment N, *Volatile Organic Compound Monitoring Plan*, describes the implementation of both a Repository VOC Monitoring Program (**RVMP**) and a Disposal Room VOC Monitoring Program (**DRVMP**) at the WIPP facility. The RVMP involves the routine collection of samples twice a week on the surface at two locations. In accordance with Permit Part 4, *Geologic Repository Disposal,* Section 4.6.2, *Repository Volatile Organic Compound Monitoring,* the Permittees use the VOC sampling data to calculate risk to the non-waste surface worker after each sampling event. If the risk to the non-waste surface worker exceeds any of the Permit-prescribed limits, the Permittees must notify the New Mexico Environment Department (**NMED**) in writing within seven calendar days of obtaining validated analytical results. Permit Part 4, Section 4.6.2.4, *Remedial Action,* outlines the steps the Permittees must take if the risk limits are exceeded.

The DRVMP involves the routine collection of samples every two weeks in each of the rooms that contain transuranic (**TRU**) mixed waste in the current waste-emplacement panel. In accordance with Permit Part 4, Section 4.6.3, *Disposal Room Volatile Organic Compound Monitoring,* the Permittees compare the measured concentrations of the target compounds to the room-based limits and action levels listed in the appropriate table in Permit Part 4, Section 4.6.3.2, *Notification Requirements.* Should any of the room-based limits or action levels be exceeded, the Permittees must notify the NMED in writing within seven calendar days of obtaining validated analytical results and perform the remedial actions outlined in Permit Part 4, Section 4.6.3.3, *Remedial Action.*

As described above, the routine collection of VOC monitoring data for both the RVMP and the DRVMP lend themselves to ongoing data evaluation and comparison against the Permit-prescribed limits. The Permit specifies the reporting and remedial actions that must be taken by the Permittees should the limits outlined in Permit Part 4, Section 4.6, *Maintenance and Monitoring Requirements,* be exceeded. These notification requirements ensure timely reporting of VOC concentrations that may pose a threat to human health and the environment and remain

unaffected by this PMR. Furthermore, the data that has been provided to the NMED on a semi-annual basis demonstrates minimal change in either repository or disposal room VOC concentrations from reporting period to reporting period.[1]

The Permit does not specifically address the reporting periods for the VOC Data Summary Report; however, they have been January through June (first semi-annual report) and July through December (second semi-annual report), as outlined in Table 1. In addition to changing reporting frequency of VOC monitoring data from semi-annually to annually, this PMR establishes the reporting period of a January through December calendar year for the VOC data. This reporting period is consistent with the Annual Culebra Groundwater Report, thereby simplifying and streamlining the reporting period and frequency for the VOC Data Summary Report as shown in Table 1.

Table 1. Summary of Reporting Changes

Permit-Required Deliverable	Current		Revised	
	Reporting Period	Reporting Frequency	Reporting Period	Reporting Frequency
VOC Data Summary Report	Jan 1 – Jun 30	Semi-annual	Jan 1 – Dec 31	Annual
	Jul 1 – Dec 31			

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 Permit that are affected by this PMR. Where applicable, regulatory citations in this modification request reference Title 20, Chapter 4, Part 1, NMAC, revised December 1, 2018, incorporating CFR 40 CFR Parts 264 and 270. Title 40 CFR §§270.16 through 270.21, §270.62, and §270.63 are not applicable at the WIPP facility. 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.

[1] U.S. Department of Energy, Carlsbad Field Office, *Semi-Annual Volatile Organic Compound Data Summary Report for Reporting Period for January 1 to June 30, 2025,* Waste Isolation Pilot Plant, Carlsbad, New Mexico, October 23, 2025 https://hwbdocuments.env.nm.gov/Waste%20Isolation%20Pilot%20Plant/251030.pdf

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	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 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		✓

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	Yes	No
	§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		✓
§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		✓

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	Yes	No
§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		✓
§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		✓

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	Yes	No
§270.23(a)	§264.601	Detailed unit description	Attachment A2		✓
§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	✓	
	§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
Permit Part 4, Section 4.6.2.2, *Reporting Requirements*	Modified the Permit language from “semi-annually in April and” to “annually in.”
	Added the Permit language “from the prior calendar year” after “VOC Monitoring Plan.”
Permit Attachment N, Section N-3b, *Analytes to Be Monitored*	Removed the Permit Language “Semi-Annual” before VOC Monitoring Report.
Permit Attachment N, Section N-3e(2), *Data Evaluation and Reporting for Disposal Room VOC Monitoring*	Removed the Permit Language “Semi-Annual” before VOC Monitoring Report.
Permit Attachment N, Section N-5e, *Performance and System Audits*	Removed the Permit Language “Semi-Annual” before VOC Monitoring Report.

Appendix B
Revised Permit Text

Revised Permit Text:

PART 4 - GEOLOGIC REPOSITORY DISPOSAL

4.6. MAINTENANCE AND MONITORING REQUIREMENTS

4.6.2. Repository Volatile Organic Compound Monitoring

4.6.2.2. Reporting Requirements

The Permittees shall report to the Secretary ~~semi-annually in April and~~ annually in October the data and analysis of the VOC Monitoring Plan from the prior calendar year.

ATTACHMENT N

VOLATILE ORGANIC COMPOUND MONITORING PLAN

N-3 Monitoring Design

N-3b Analytes to Be Monitored

Information regarding additional requested analytes and TICs detected in the repository and disposal room VOC monitoring programs will be placed in the WIPP Operating Record and reported to the New Mexico Environment Department (**NMED**) in the ~~Semi-Annual~~ VOC Monitoring Report as specified in Permit Part 4, Section 4.6.2.2. As applicable, the Permittees will also report the justification for exclusion of the ARA or TIC from the target analyte list (e.g., the compound does not contribute to more than one percent of the risk; the compound persists in the background samples at similar concentrations). If new targets are required, the Permittees will submit the appropriate permit modification annually (in October) to update Table 4.6.2.3 to include the new analyte and associated recommended U.S. Environmental Protection Agency (**EPA**) risk values for the inhalation unit risk (**IUR**) and reference concentration (**RfC**). Added compounds will be included in the risk assessment described in Section N-3e(1).

N-3e(2) Data Evaluation and Reporting for Disposal Room VOC Monitoring

The Permittees shall submit to the Secretary the ~~Semi-Annual~~ VOC Monitoring Report specified in Permit Section 4.6.2.2 that also includes results from disposal room VOC monitoring.

N-5 Quality Assurance

N-5e Performance and System Audits

Results of proficiency testing will be reported in the ~~Semi-Annual~~ VOC Monitoring Report as specified in Permit Part 4, Section 4.6.2.2.

Class 2 Permit Modification Request

Revise Reporting Frequencies, Incorporate Groundwater Surface Elevation Report into Annual Culebra Groundwater Report, and Delineate Reporting Periods Associated with the Water Level Monitoring Programs

Waste Isolation Pilot Plant
Carlsbad, New Mexico

Hazardous Waste Facility Permit

WIPP Permit Number - NM4890139088-TSDF

April 2026

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Acronyms and Abbreviations

CFR	Code of Federal Regulations
Culebra	Culebra Member of the Rustler Formation
DMP	Detection Monitoring Program
DOE	U.S. Department of Energy
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
Permit	WIPP Hazardous Waste Facility Permit
PMR	Permit Modification Request
TRU	transuranic
TSDF	treatment, storage, and disposal facility
WIPP	Waste Isolation Pilot Plant
WLMP	Water Level Monitoring Program

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**), NM4890139088-TSDF. This PMR is being submitted by the U.S. Department of Energy (**DOE**) and Salado Isolation Mining Contractors 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]). This PMR provides for the following Permit changes:

- Changes the reporting frequencies from semi-annual to annual for the Groundwater Surface Elevation Report

- Aligns the reporting periods for the Groundwater Surface Elevation Report with the, Annual Culebra Groundwater Report to January through December calendar year.

With these changes, the groundwater surface elevation data are incorporated into the Annual Culebra Groundwater Report, thereby eliminating the need for the preparation and submittal of a separate Groundwater Surface Elevation Report.

The PMR involves revisions to the following Permit Parts and Attachments:

- Permit Part 5, *Groundwater Detection Monitoring*
- Permit Attachment L, *WIPP Groundwater Detection Monitoring Program Plan*

The requested modification to the Permit and related supporting documents are provided in this PMR. The modifications to the text of the Permit have been identified using red text and double underline and a ~~strikeout~~ font for deleted information. 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.

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

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.

The exact changes to Permit text, figures, and tables are described in Appendix A and Appendix B of this PMR. The changes are summarized below and include a brief description of why the change is needed:

- Revised Permit Part 5, *Groundwater Detection Monitoring,* Section 5.10.2.1, *Data Evaluation Results* to align the reporting period to a calendar year.

- Revised Permit Part 5, Section 5.10.2.2, *Groundwater Surface Elevation Results,* to change the reporting frequency from semi-annual to annual, and align the reporting period to a calendar year.

- Revised Permit Attachment L, *WIPP Groundwater Detection Monitoring Program Plan, Table of Contents*, to reflect the title change to Section L-5c.

- Revised Permit Attachment L, *WIPP Groundwater Detection Monitoring Program Plan,* Section L-4c(1)(ii), *Groundwater Surface Elevation Records and Document Control,* to change the reporting frequency from semi-annual to annual and to be submitted with the Annual Culebra Groundwater Report

- Revised Permit Attachment L, Section L-5c, *Semi-Annual Groundwater Surface Elevation Report and Annual Culebra Groundwater Report,* to update the title of the section and change the reporting frequency from semi-annual to annual.

Changes are described in Appendix A, *Table of Changes*, with the exact changes identified in Appendix B, *Revised Permit Text*, of this PMR. Appendix A provides a list of updates by Permit section. Appendix B provides the exact modification to the existing Permit language in redline/strikeout

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 pertains to changes in reporting for the Water Level Monitoring Program (**WLMP**) and 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*

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 modification is needed to revise the reporting periods and frequencies for the WLMP routine Permit-required deliverables. The changes described in the PMR reduce the Permittees' administrative burden associated with the submittal of semi-annual reports. Significant changes in water level data are required to be evaluated and reported annually therefore semi-annual reporting is not needed. Table 1 provides a summary of the reporting revisions.

Groundwater Detection Monitoring Program

Permit Attachment L details two separate components of the program: the Detection Monitoring Program (**DMP**) and the WLMP. The purpose of the DMP is to provide an indication of any releases of hazardous waste or hazardous waste constituents from the facility that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater. This modification does not change the data reporting requirements of the DMP; these data will continue to be reported to the NMED in the Annual Culebra Groundwater Report.

The purpose of the WLMP is to provide an indication of groundwater flow and direction within the Culebra Member of the Rustler Formation (**Culebra**). The data generated by the WLMP are currently reported semi-annually in the Groundwater Surface Elevation Report.

The semi-annual Groundwater Surface Elevation Report focuses on groundwater surface

elevations, fluid densities (measurements of which are made annually), and the resulting fresh-water heads calculated from field measurements in the WLMP. The semi-annual report also includes annotated hydrographs and trend analyses. Any changes in WLMP well water levels greater than two feet for the calendar year, and a potentiometric surface map of the Culebra are reported in the Annual Culebra Groundwater Report. Permit Attachment L, Section L-4c(1), *Groundwater Surface Elevation Monitoring Methodology,* requires the Permittees to perform certain actions if a cumulative groundwater surface elevation change of more than two feet is detected in any WLMP well over the course of one year which is not attributable to site tests or natural stabilization of the site hydrologic system. In addition to providing a discussion of the origin of the elevation changes in the Annual Culebra Groundwater Report, these actions include notification to the NMED in writing.

Since fluctuations on groundwater are evaluated over the course of a year, this PMR changes the reporting frequency of the groundwater surface elevation results from semi-annually to annually, to be submitted as part the Annual Culebra Groundwater Report. Permit Attachment L already requires the NMED to be notified of surface elevation changes exceeding two feet cumulatively over a year. Furthermore, since groundwater levels do not change significantly over time (i.e., over a one-year period)[1], it is more appropriate to report this data annually.

For the purposes of consistency with the Annual Culebra Groundwater Report, this PMR aligns the reporting period of the groundwater surface elevation measurements with a January through December calendar year. As a result of these changes, a separate Groundwater Surface Elevation Report would no longer be submitted by the Permittees, as noted in Table 1. These changes also necessitate a revision to the title of Permit Attachment L, Section L-5c.

Table 1. Summary of Reporting Changes

Permit-Required Deliverable	Current		Revised	
	Reporting Period	Reporting Frequency	Reporting Period	Reporting Frequency
Groundwater Surface Elevation Report	Mar 1 – Aug 31 Sep 1 – Feb 29	Semi-annual	Jan 1 – Dec 31	Annual*
Annual Culebra Groundwater Report	Jan 1 – Dec 31	Annual	Jan 1 – Dec 31	Annual

* Report to be submitted annually with the Annual Culebra Groundwater Report

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 Permit that are affected by this PMR. Where applicable, regulatory citations in this modification request reference Title 20, Chapter 4, Part 1, NMAC, revised December 1, 2018, incorporating 40 CFR Parts 264 and 270. Title 40

[1] U.S. Department of Energy, *Semi-Annual Groundwater Surface Elevation Report Water Level Monitoring Program Data Collection, September 2021 – February 2022,* Waste Isolation Pilot Plant, Carlsbad, New Mexico, May 4, 2022 https://hwbdocuments.env.nm.gov/Waste%20Isolation%20Pilot%20Plant/220515.pdf

CFR §§270.16 through 270.21, §270.62, and §270.63 are not applicable at the WIPP facility. 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 Permit or 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 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		✓

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	Yes	No
	§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		✓
§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		✓

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	Yes	No
§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		✓
§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		✓

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	Yes	No
§270.23(a)	§264.601	Detailed unit description	Attachment A2		✓
§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	✓	
	§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
Permit Part 5, Section 5.10.2.1, *Data Evaluation Results*	Modified the Permit language from “of each year” to “for the prior calendar year.”
Permit Part 5, Section 5.10.2.2, *Groundwater Surface Elevation Results*	Modified the Permit language from “semiannually by May 31 and” to “annually by.”
	Added the Permit language “for the prior calendar year” after “November 30.”
	Removed the Permit language “November” and “report.”
	Modified the Permit language from “combined” to “submitted.”
Permit Attachment L, *Table of Contents*	Remove “Semi-Annual Groundwater Surface Elevation Report and” from the title of Section L-5c
Permit Attachment L, Section L-4c(1)(ii), *Groundwater Surface Elevation Records and Document Control*	Modified the Permit language from “transmitted to NMED by May 31 and November 30” to “submitted to the NMED with the Annual Culebra Groundwater Report.”
	Modified the Permit language from “Semi-annual groundwater reports” to “The Annual Culebra Groundwater Monitoring Report.”
Permit Attachment L, Section L-5c, *Semi-Annual Groundwater Surface Elevation Report and Annual Culebra Groundwater Report*	Remove “Semi-Annual Groundwater Surface Elevation Report and” from title of section. Change “Semi-annual groundwater” to “Groundwater” in last bullet.

Appendix B
Revised Permit Text

Revised Permit Text:

PART 5 - GROUNDWATER DETECTION MONITORING

5.10. RECORDKEEPING AND REPORTING

5.10.2. Submittal of Results

5.10.2.1. Data Evaluation Results

The Permittees shall submit to the Secretary the analytical results required by Permit Sections 5.5 and 5.9.2, and the results of the statistical analyses required by Permit Section 5.9.3, in the Annual Culebra Groundwater Report by November 30 ~~of each~~for the prior calendar year as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.97(j)).

5.10.2.2. Groundwater Surface Elevation Results

The Permittees shall submit to the Secretary groundwater surface elevation data specified in Permit Section 5.7. This submittal shall include both groundwater surface elevations calculated from field measurements and fresh-water head elevations calculated as specified in Permit Attachment L, Section L-4c(1). Water level data shall be reported ~~semiannually by May 31 and~~annually by November 30 for the prior calendar year. The ~~November~~ water level data ~~report~~ shall be ~~combined~~ submitted with the Annual Culebra Groundwater Report specified in Permit Part 5.10.2.1.

ATTACHMENT L

WIPP GROUNDWATER DETECTION MONITORING PROGRAM PLAN

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L-4 Monitoring Program Description

L-4c(1)(ii) Groundwater Surface Elevation Records and Document Control

A check print will be made of the work sheet printout. The check print will be used to verify that data taken in the field was properly reported on the database printout. A minimum of 10 percent of the spreadsheet calculations will be randomly verified on the check print to ensure that calculations are being performed correctly. If errors are found, the work sheet will be corrected. Groundwater surface elevation data and equivalent freshwater heads for the Culebra wells in Table L-4 will be ~~transmitted to NMED by May 31 and November 30~~submitted to the NMED with the Annual Culebra Groundwater Report. ~~Semi-annual groundwater reports~~ The Annual Culebra Groundwater ~~Monitoring~~ Report will also include annotated hydrographs and trend analysis.

L-5 Reporting

L-5c ~~Semi-Annual Groundwater Surface Elevation Report and~~ Annual Culebra Groundwater Report

Data collected from this DMP will be reported to NMED as specified in Permit Part 5 in the Annual Culebra Groundwater Report. The report will include all applicable information that may affect the comparison of background groundwater quality and groundwater surface elevation data through time. This information will include but is not limited to:

- ~~Semi-annual groundwater~~Groundwater surface elevation results will be reported as specified in Permit Part 5, Condition 5.10.2.2.

Class 2 Permit Modification Request

Remove the Mine Ventilation Rate Monitoring Report from Permit Part 4 and Permit Attachment A2

Remove Permit Attachment O

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP Permit Number - NM4890139088-TSDF

April 2026

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Acronyms, Abbreviations and Units

acfm	actual cubic feet per minute
CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
MVRMR	Mine Ventilation Rate Monitoring Report
NMED	New Mexico Environment Department
NMAC	New Mexico Administrative Code
Permit	Waste Isolation Pilot Plant Hazardous Waste Facility Permit
Permittees	U.S. Department of Energy and Salado Isolation Mining Contractors LLC
PMR	Permit Modification Request
scfm	standard cubic feet per minute
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 Salado Isolation Mining Contractors 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:

- Remove the Mine Ventilation Rate Monitoring Report from Permit Part 4 and Permit Attachment A2
- Remove Permit Attachment O

No changes in monitoring are being made. 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 modifications to the text of the Permit are identified using red text and double underline and a ~~strikeout~~ font for deleted information. 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.

The exact changes to Permit text, figures, and tables are described in Appendix A and Appendix B of this PMR. The changes are summarized below and include a brief description of why the change is needed:

- Revised *WIPP Hazardous Waste Facility Permit - Table of Contents*, to reflect the removal of Section 4.6.4, *Mine Ventilation Rate Monitoring*.
- Revised *List of Attachments*, to reflect the removal of Permit Attachment O.
- Revised Permit Part 4, *Geologic Repository Disposal, Table of Contents*, to reflect the removal of Section 4.6.4, *Mine Ventilation Rate Monitoring*.
- Revised Permit Part 4, Section 4.5.3.2, *Ventilation,* to describe actions to be taken are in the WIPP standard operating procedures and no longer in Permit Attachment O. Also revised to include the notification requirement for waste emplacement taking place below 35,000 scfm. This notification requirement is being moved from Permit Attachment O to this section.
- Revised Permit Part 4, Section 4.6.4, *Mine Ventilation Rate Monitoring*, to remove the section.

- Revised Permit Attachment A2, Section A2-2a(3), *Subsurface Structures*, to add descriptive text and a reference to the Mine Safety Health Administration (**MSHA**) regulations at 30 CFR Part 57 to delineate the regulations applicable to mine ventilation at the WIPP and also replace references from Permit Attachment O to WIPP standard operating procedures. Also, added descriptive language to describe the mine ventilation monitoring procedure for Test and Balance. This is being moved from previous text in Permit Attachment O.

- Revised Permit Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan,* to delete the attachment.

Changes are described in Appendix A, *Table of Changes*, with the exact changes identified in Appendix B, *Revised Permit Text*, of this PMR. Appendix A provides a list of updates by Permit section. Appendix B provides the exact modification to the existing Permit language in redline/strikeout. Appendix C is a crosswalk of exact text from Permit Attachment O with a brief explanation of why these changes were made and where they were moved, if applicable.

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*

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 modification is needed to remove the requirement for the MVRMR, and also remove Permit Attachment O. The changes described reduce the Permittees' administrative burden associated with the submittal of reports that do not lend themselves to the timely reporting of data. Timely reporting is achieved through existing permit conditions, as described below.

The annual MVRMR presents the results of mine ventilation rate monitoring data analysis. The data are obtained as part of a regular monitoring program and are used to provide a monthly analysis of the mine ventilation rate.

The Permittees are currently required to provide a report to the New Mexico Environment Department (**NMED**) if waste emplacement takes place below the minimum required airflow in an active disposal room. The Permit requires the Permittees measure the minimum airflow through active room(s) waste disposal is taking place to assure it is at least 35,000 standard cubic feet per minute (**scfm**). These measurements take place 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 during underground waste handling activities. These measurements are documented through the use of standard operating procedures which direct the Permittees to measure and document the disposal room ventilation flow rate. If the Permittees determine it is necessary to emplace waste below the required ventilation rate specified in Permit Part 4, Section 4.5.3.2, the Permittees are required to report this activity to the NMED within 15 calendar days. These early notification requirements are being retained. The requirement to measure the flow rate through the active room at the start of each shift is in WIPP SOPs.

Therefore, the NMED is notified within 15 days of when the minimum flow rate requirement cannot be met, which is much sooner than in the annual report and is redundant. The annual MVRMR was originally intended to document compliance with the minimum running annual average mine ventilation exhaust rate limit that was previously in the Permit and the minimum active room ventilation flow rate limit. The minimum running annual average mine ventilation exhaust rate limit was removed in a Class 2 PMR submitted on September 8, 2015, and approved by the NMED on January 8, 2016. The 15-day reporting requirement for the minimum active room ventilation flow rate limit was added to the Permit in 2016 as described below. This change is needed to remove an unnecessary reporting requirement rendered moot by previous changes to the Permit. Furthermore, the annual MVRMR provides active room ventilation rate information months after respective emplacements operations have terminated. Therefore, the information provided in this report is outdated and not necessary by the time it is reported. There have been no instances of emplacing waste less than 35,000 scfm in the active room to report to the NMED and it is unlikely that this will occur in the future in light of the New Filter Building now online substantially increased underground airflow. The notification requirements in Permit Part 4, Section 4.5.3.2, provide current and useful information to the NMED, should specific conditions arise.

The Permittees are consolidating pertinent text from Permit Attachment O into Permit Part 4 and Permit Attachment A2. Permit Part 4, Section 4.5.3.2, requires a minimum active room ventilation rate of 35,000 scfm in each active room when waste disposal is taking place and workers are present in the room. These requirements are duplicated in Permit Attachment O. This is necessary to consolidate the Permit text and provide an unambiguous description regarding how the Permittees meet the requirement in Permit Part 4, Section 4.5.3.2. Through this consolidation, the remaining text is being removed since it is no longer relevant to meeting a Permit requirement. This is noted in Appendix C.

Permit Attachment O was originally formulated to describe the process for complying with the running annual average mine ventilation exhaust rate limits in the Permit. These limits were removed in a Class 2 PMR submitted on September 8, 2015, and approved by the NMED on January 8, 2016. Furthermore, the Permittees revised the Permit to allow waste disposal operations to occur below the minimum active room ventilation rate of 35,000 scfm in a Class 2 PMR submitted on June 3, 2016, and approved by the NMED on September 19, 2016. These Permit revisions significantly revised the ventilation requirements in the Permit rendering most of the detail in Permit Attachment O redundant and unnecessary. Since Permit Attachment O is the last attachment of the Permit, it is being removed entirely, rather than being reserved.

In regard to providing a summary of the results of the test and balance to the NMED, the test and balance will be performed on a frequency established by the Permittees based on mine operation practice, at intervals no longer than 18 months. Test and balance is meant to check flows under various underground configurations against predicted flows. The requirement to measure the minimum airflow through active room(s) when waste disposal is taking place to assure it is at least 35,000 scfm renders performing and submitting the test and balance reports to the NMED pursuant to the Permit moot. The operation of the ventilation system in an underground mine is governed by the Mine Safety and Health Administration regulations and the need for the requirement to be included in the Permit is no longer required. The report from the test and balance will be retained in the WIPP facility files for examination by the NMED, upon request.

The Permittees are not removing the requirements for collecting the data provided in this report. Data will continue to be collected and evaluated as required by the Permit. Records related to ventilation data will continue to be maintained in facility files, in accordance with the Permit.

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 Permit that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised December 1, 2018, incorporating 40 CFR Parts 264 and 270. Title 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 Permit or 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		✓

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	Yes	No
	§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 A3		✓
§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		✓

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	Yes	No
§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		✓
§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		✓

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	Yes	No
	§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 meteorologic assessments	Part 5 Attachment L		✓
§270.23(c)	§264.601	Potential exposure pathways	Part 4 Attachment A2 Attachment N Attachment O		✓
§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
WIPP Hazardous Waste Facility Permit – Table of Contents, *List of Parts*	Removed section 4.6.4.
WIPP Hazardous Waste Facility Permit – Table of Contents, *List of Attachments*	Removed Attachment O
Permit Part 4, *Table of Contents*	Removed section 4.6.4.
Permit Part 4, Section 4.5.3.2, *Ventilation*	Modified the Permit language from "…actions as described in Permit Attachment O shall be taken during waste disposal operations when workers are present." to "…actions as described in WIPP standard operating procedures shall be taken."
	Added the Permit language "The Permittees shall notify NMED by e-mail within 15 calendar days of commencement of waste emplacement operations taking place below 35,000 scfm. The notification shall include the date, start time, end time, reason and implementing measure taken, as applicable. If the Permittees have not completed the waste emplacement activity by the time of this notification, a follow-up email shall be provided within 15 calendar days to notify NMED of the end of the waste emplacement activity and other relevant information not previously provided."
Permit Part 4, Section 4.6.4, *Mine Ventilation Rate Monitoring*	Removed section.
Permit Attachment A2, Section A2-2a(3), *Subsurface Structures*	Added the following Permit language: "This underground ventilation system consists of a network of fans that move air through the underground. The underground ventilation system is operated in accordance with the MSHA regulations in 30 CFR Part 57 and is configured based on the operational needs of the WIPP facility, to conform with Federal mine safety codes and to meet the requirement in Permit Part 4, Section 4.5.3.2."
	Added the following Permit language "The Permittees verify the minimum airflow(s) through active rooms when waste disposal is taking place of 35,000 scfm, per WIPP standard operating procedures (SOPs)
	Modified the Permit language from "Permit Attachment O" to "WIPP SOPs, as well as notification requirements described in Permit Part 4, Section 4.5.3.2."
	Added the following Permit language: "The Permittees verify underground ventilation system performance by conducting a periodic Test and Balance. The Test and Balance is a comprehensive series of measurements and adjustments designed to assure that the system is operating within acceptable design parameters. The Test and Balance process culminates in a final report which is retained on site. The Test and Balance is conducted on a frequency that is sufficient to account for changes in the mine configuration and at intervals no longer than 18 months."
Permit Attachment O, *WIPP Mine Ventilation Rate Monitoring Plan*	Removed attachment.

Appendix B
Revised Permit Text

Revised Permit Text:

WIPP Hazardous Waste Facility Permit - Table of Contents

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  - 4.6.1.1 Implementation of Geomechanical Monitoring Program
  - 4.6.1.2 Reporting Requirements
  - 4.6.1.3 Notification of Adverse Conditions
- 4.6.2 Repository Volatile Organic Compound Monitoring
  - 4.6.2.1 Implementation of Repository VOC Monitoring
  - 4.6.2.2 Reporting Requirements
  - 4.6.2.3 Notification Requirements
  - 4.6.2.4 Remedial Action
- 4.6.3 Disposal Room Volatile Organic Compound Monitoring
  - 4.6.3.1 Implementation of Disposal Room VOC Monitoring
  - 4.6.3.2 Notification Requirements
  - 4.6.3.3 Remedial Action
- ~~4.6.4 Mine Ventilation Rate Monitoring~~
  - ~~4.6.4.1 Implementation of Mine Ventilation Rate Monitoring Plan~~
  - ~~4.6.4.2 Reporting Requirements~~
  - ~~4.6.4.3 Notification Requirements~~

List of Attachments

- A General Facility Description and Process Information
  - A1 Container Storage
  - A2 Geologic Repository
  - A3 Traffic Patterns
- B Hazardous Waste Permit Application Part A
- C Waste Analysis Plan
  - C1 Waste Characterization Sampling Methods
  - C2 (Reserved)
  - C3 Quality Assurance Objectives and Data Validation Techniques for Waste Characterization Methods
  - C4 TRU Mixed Waste Characterization Using Acceptable Knowledge
  - C5 Quality Assurance Project Plan Requirements
  - C6 Audit and Surveillance Program
  - C7 TRU Waste Confirmation
- D RCRA Contingency Plan
- E Inspection Schedule, Process and Forms
- F Facility Personnel Permit Training Program
- G Closure Plan
  - G1 WIPP Panel Closure Design Description and Specifications
    - G1-A Technical Specifications
    - G1-B Drawings
  - G2 Shaft Sealing System Compliance Submittal Design Report
    - G2-A Material Specification
    - G2-B Shaft Sealing Construction Procedures
    - G2-E Design Drawings
  - G3 Radiological Surveys to Indicate Potential Hazardous Waste Releases
- H Post-Closure Plan
  - H1 Active Institutional Controls During Post-closure
- I Compliance Schedule (Reserved)
- J Hazardous Waste Management Unit Tables
- K Solid Waste Management Unit (SWMU) and Area of Concern (AOC) Tables
- L WIPP Groundwater Detection Monitoring Program Plan
- M Figures
- N Volatile Organic Compound Monitoring Plan
- ~~O WIPP Mine Ventilation Rate Monitoring Plan~~

PART 4 - GEOLOGIC REPOSITORY DISPOSAL

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4.5 DESIGN, CONSTRUCTION, AND OPERATION REQUIREMENTS

4.5.3 Repository Operation

4.5.3.2 Ventilation

The Permittees shall maintain a minimum active room ventilation rate of 35,000 standard ft^3/min (scfm) in each active room when waste disposal is taking place and workers are present in the room, as specified in Permit Attachment A2, Section A2-2a(3), “Subsurface Structures (Underground Ventilation System Description),” and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.601(c)). If an active room ventilation rate of 35,000 scfm cannot be met, actions as described in WIPP standard operating procedures ~~Permit Attachment O~~ shall be taken ~~during waste disposal operations when workers are present~~. The Permittees shall notify NMED by e-mail within 15 calendar days of commencement of waste emplacement operations taking place below 35,000 scfm. The notification shall include the date, start time, end time, reason and implementing measure taken, as applicable. If the Permittees have not completed the waste emplacement activity by the time of this notification, a follow-up email shall be provided within 15 calendar days to notify NMED of the end of the waste emplacement activity and other relevant information not previously provided.

4.6 MAINTENANCE AND MONITORING REQUIREMENTS

~~4.6.4 Mine Ventilation Rate Monitoring~~

~~4.6.4.1 Implementation of Mine Ventilation Rate Monitoring Plan~~

~~The Permittees shall implement the Mine Ventilation Rate Monitoring Plan specified in Permit Attachment O (WIPP Mine Ventilation Rate Monitoring Plan) until the certified closure of all Underground HWDUs and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.602 and §264.601(c)).~~

~~4.6.4.2 Reporting Requirements~~

~~The Permittees shall report to the Secretary annually in October the results of the data and analysis of the Mine Ventilation Rate Monitoring Plan.~~

~~4.6.4.3 Notification Requirements~~

~~The Permittees shall evaluate compliance with the minimum active room ventilation rate specified in Permit Section 4.5.3.2 on a monthly basis. The Permittees shall report to the Secretary in the annual report specified in Permit Section 4.6.4.2 whenever the evaluation of the mine ventilation monitoring program data identifies that the ventilation rate specified in the Permit Section 4.5.3.2 has not been achieved.~~

ATTACHMENT A2

GEOLOGIC REPOSITORY

A2-2 Geologic Repository Design and Process Description

A2-2a(3) Subsurface Structures

Underground Facilities Ventilation System

This underground ventilation system consists of a network of fans that move air through the underground. The underground ventilation system is operated in accordance with the MSHA regulations in 30 CFR Part 57 and is configured based on the operational needs of the WIPP facility to conform with Federal mine safety codes and to meet the requirement in Permit Part 4, Section 4.5.3.2.

The underground facilities ventilation system provides a safe and suitable environment for underground operations during normal WIPP facility operations. The underground system is designed to provide control of potential airborne contaminants in the event of an accidental release or an underground fire.

Underground Ventilation System Description

Air is routed into a panel from the intake side. Air is routed through the individual rooms within a panel using any of the following flow control devices: underground bulkheads, brattice-cloth barricades, bulkheads with doors or air regulators. Bulkheads are constructed by erecting framing of rectangular steel tubing and screwing galvanized sheet metal to the framing. Bulkhead members use telescoping extensions that are attached to framing and the salt which adjust to creep. Flexible flashing attached to the bulkhead on one side and the salt on the other completes the bulkhead installation. Where controlled airflow is required, a louver-style damper or a slide-gate (sliding panel) regulator is installed on the bulkhead. Personnel access is available through most bulkheads, and vehicular access is possible through selected bulkheads. Vehicle doors in the panel areas are not equipped with warning bells or strobe lights since these doors are to be used for limited periodic maintenance activities in the return air path. Flow is also controlled using brattice-cloth barricades. These consist of chain link fence that is bolted to the salt or attached to a structural member and covered with brattice cloth; and are used in instances where the only flow control requirement is to block the air. A brattice-cloth air barricade is shown in Figure M-52. Ventilation is maintained only in active rooms within a panel until waste emplacement activities are completed and the panel-closure system is installed. The air is routed simultaneously through the active rooms within the panel. The filled rooms are isolated from the ventilation system, while the active rooms that are actively being filled receive a minimum of 35,000 scfm of air when workers are present to assure worker safety. The Permittees verify the minimum airflow(s) through active rooms when waste disposal is taking place of 35,000 scfm, per WIPP standard operating procedures (SOPs) If an active room ventilation rate of 35,000 scfm cannot be met, actions as described in WIPP SOPs, as well as

notification requirements described in Permit Part 4, Section 4.5.3.2, ~~Permit Attachment O~~ shall be taken during waste disposal operations when workers are present. After the rooms within a panel are filled, the panel will be closed using a closure system described Permit Attachment G and Permit Attachment G1.

Once a disposal room is filled and is no longer needed for emplacement activities, it will be barricaded against entry and isolated from the mine ventilation system. This may be accomplished by any of the following: by removing the air regulator bulkhead, closing bulkhead doors, constructing chain link/brattice-cloth barricades and, if necessary, constructing bulkheads at each end. A typical bulkhead is shown in Permit Attachment G1, Appendix G1-B. There is no requirement for air for these rooms since personnel and/or equipment will not be in these areas.

The ventilation path for the waste disposal side is separated from the construction (e.g., mining) side by means of air locks, bulkheads, and salt pillars. A pressure differential is maintained between the construction side and the waste disposal side to ensure that any leakage is towards the disposal side. The pressure differential is produced by the surface fans in conjunction with the underground air regulators.

The Permittees verify underground ventilation system performance by conducting a periodic Test and Balance. The Test and Balance is a comprehensive series of measurements and adjustments designed to assure that the system is operating within acceptable design parameters. The Test and Balance process culminates in a final report which is retained on site. The Test and Balance is conducted on a frequency that is sufficient to account for changes in the mine configuration, and at intervals no longer than 18 months.

~~ATTACHMENT O~~

~~WIPP MINE VENTILATION RATE MONITORING PLAN~~

Appendix C
Permit Attachment O – Crosswalk of Changes

Appendix C
Permit Attachment O - Crosswalk of Changes

Section	Current Permit Attachment O text	Rationale for removing text
O-1	Definitions Compliance with the mine ventilation requirements set forth in Permit Part 4 and Permit Attachment A2 requires the use and definition of the following terms: **Actual cubic feet per minute** (**acfm**)**:** The volume of air passing a fixed point in an excavation, normally determined as the product of the cross section of the excavation and the mean velocity of the air. **Standard cubic feet per minute** (**scfm**)**:** The actual cubic feet per minute passing a fixed point adjusted to standard conditions. In the Imperial measurement system, the standard condition for pressure is 14.7 pounds per square inch (**psi**) (sea level) and the standard condition for temperature is 492 degrees Rankine (freezing point of water or 32 degrees Fahrenheit). The greatest difference between acfm and scfm occurs in the summer when the pressure at the repository horizon is about 14.2 psi and the temperature is about 560 degrees Rankine (100 degrees Fahrenheit). Then 1 scfm x (560/492) x (14.7/14.2) = 1.2 acfm A reasonably conservative conversion factor, therefore, is 1.2. Using this factor, 35,000 scfm is very nearly 35,000 x 1.2 or 42,000 acfm. **Restricted Access:** If the required ventilation rate in an active disposal room when waste disposal is taking place cannot be achieved or cannot be supported due to operational needs, access is restricted by the use of barriers, signs and postings, or individuals stationed at the entrance to the active disposal room when ventilation rates are below 35,000 scfm unless measures as described in Section O-3b(1) are implemented. Note: As provided in Section O-3b(2) entry to restricted access active rooms for the purpose of establishing normal ventilation is allowed. **Shift:** Those work shifts when there is normal access to the Waste Isolation Pilot Plant (**WIPP**) underground.	These definitions are not required. Therefore, these definitions were not moved to Permit Part 4 or Permit Attachment A2. Furthermore, the conversion from scfm to acfm in this section was useful when there was a minimum mine ventilation rate to compare surface flow rate measurements to underground measurements. With the elimination of minimum running annual average mine ventilation flow rate, this conversion is no longer needed. The other definitions are self-explanatory and are not needed.

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	Worker: Anyone who has unescorted access to the WIPP underground.	
O-2	Objective The objective of this plan is to describe how the ventilation requirements in the Permit will be met. This plan achieves this objective and documents the process by which the Permittees demonstrate compliance with the ventilation requirements by: • Maintaining a minimum of 35,000 scfm of air through the active rooms when waste disposal is taking place and when workers are present in the rooms • If an active room ventilation rate of 35,000 scfm cannot be met, actions as described in Section O-3b(1) shall be taken during waste disposal operations when workers are present.	This requirement is currently in Permit Part 4, Section 4.5.3.2. The Permittees modified the language to point to WIPP standard operating procedures instead of Permit Attachment O.
O-3	Design and Procedures This section describes the three 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 disposal 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 disposal room ventilation rate of 35,000 scfm cannot be met, actions as described in Section O-3b(1) shall be taken during waste disposal operations when workers are present	See below
O-3a	Test and Balance	
O-3a(1)	Test and Balance Process The WIPP underground ventilation system and the underground ventilation modes of operation are described in Permit Attachment A2, Section A2-2a(3). The Permittees shall verify underground ventilation system performance by conducting a periodic Test and Balance. The Test and Balance is a comprehensive series of measurements and adjustments designed to ensure that the system is operating within acceptable design parameters. The Test and Balance is an appropriate method of verifying system flow because it provides	Descriptive language regarding test and balance was moved to Permit Attachment A2, Section A2-2a(3). Details for test and balance are in WIPP standard operating procedures and McPherson, 2009. Therefore, the details are not required.

	consistent results based on good engineering practices. The testing of underground ventilation systems is described in McPherson, 2009. Once completed, the Test and Balance data become the baseline for underground ventilation system operation until the next Test and Balance is performed. The “Test” portion of the process shall involve measuring the pressure drop and air quantity of every underground entry excluding alcoves or other dead end drifts. In addition, the tests shall verify resistance curves for each of the main regulators, measure shaft resistance, and measure main fan pressure and quantity. This is done at the highest achievable airflow to facilitate accurate measurements. From these measurements the frictional resistance of the system is determined. Pressure shall be measured using the gage and tube method, which measures the pressure drop between two points using a calibrated pressure recording device and pitot tubes. Pressure drops across the shafts shall be measured by either calibrated barometers at the top and bottom of shafts or the gage and tube method. Airflow shall be measured using a calibrated anemometer to take a full entry traverse between system junctions. Fan pressure shall be measured using a calibrated pressure recording device and pitot tube to determine both static and velocity pressure components. Multiple measurements shall be taken at each field location to ensure accurate results. Consecutive field values must fall within ±5% to be acceptable. These data shall be verified during the testing process by checking that: • the sum of airflows entering and leaving a junction is equal to zero; and, • the sum of pressure drops around any closed loop is equal to zero. Once the measurements are taken, data shall be used to calculate the resistance of every underground drift, as well as shafts and regulators using Atkinson’s Square Law $P=R \times Q2$	

	where the pressure drop of an entry (P) is equal to a resistance (R) times the square of the quantity of air flowing (Q) through the circuit. The “Balance” portion of the process shall involve adjusting the settings of the system fans and regulators to achieve the desired airflow distribution in all parts of the facility for each mode of operation. The system baseline settings for the current Balance shall be established from the previous Test and Balance. Adjustments shall then be made to account for changes in system resistance due to excavation, convergence due to salt creep, approved system modifications, or operational changes. The Permittees shall use an appropriate ventilation simulator to process Test and Balance field data. The simulator uses the Hardy-Cross Iteration Method (McPherson, 2009) to reduce field data into a balanced ventilation network, including the appropriate regulator settings necessary to achieve proper airflow distribution for the various operating modes. Once balanced, the same simulator shall be used to evaluate changes such as future repository development and potential system modification before they are implemented. The Test and Balance process culminates in a final report which is retained on site. Following receipt of the Test and Balance Report, the Permittees shall revise the WIPP surface and underground ventilation system procedures to incorporate any required changes to the ventilation system configuration. The Test and Balance data shall be used to adjust the operating range of fan controls, waste tower pressure, auxiliary air intake tunnel regulator settings, underground regulator settings, and door configurations. The model data and procedure changes shall be used to establish normal configuration settings to achieve the desired airflow in the underground. These settings shall then be modified by operations personnel throughout the year to compensate for system fluctuations caused by seasonal changes in psychrometric properties, and to meet specific operational needs. This ensures that the facility is operated at the design airflow rate for each ventilation mode	
O-3a(2)	Test and Balance Schedule The Test and Balance is generally conducted on a 12- to 18-month interval, but in no case shall the interval between consecutive Test and Balance	The Test and Balance frequency was added to Permit Attachment A2, Section A2-2a(3).

	performances exceed 18 months. This interval is sufficient to account for changes in the mine configuration since over this period the ventilated volume changes very little. Maintenance of ventilation control structures (e.g., bulkheads) occurs periodically to ensure the ventilation structure performs as expected. Historic test and balance results confirm that changes between test and balances fall within anticipated values	
O-3b	Active Room Minimum Airflow	
O-3b(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) (SOPs) described in Section O-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 - based action levels in Permit Part 4, 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 Code of Federal Regulations (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	This requirement to maintain 35,000 scfm airflow through the active rooms is in Permit Part 4, Section 4.5.3.2. Measures taken to allow waste emplacement when 35,000 scfm cannot be met are documented in WIPP Standard Operating Procedures. Language from Permit Attachment O was added to Permit Attachment A2, Section A2-2a(3). Flow verification is in WIPP standard operating procedures.
O-3b(2)	Measurement and Calculation of the Active Disposal Room Airflow The Permittees shall measure the airflow rate and use the disposal room cross-sectional area to calculate the volume of air flowing through a disposal room.	See O-3a(1) above.

	The measurement of airflow shall use a calibrated anemometer and a moving traverse (McPherson, 2009). Airflow measurements shall be collected at an appropriate location, chosen by the operator to minimize airflow disturbances, near the entrance of each active disposal 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(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. During waste disposal operations, 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(1) is allowed. Such entry shall be documented on the log sheet including a reference to the SOP used.	
O-4	Equipment Calibration and Maintenance The list of equipment used to conduct the Test and Balance and to determine the airflow through the active disposal room(s) is provided in Table O-1. Equipment shall be calibrated, as appropriate, in accordance with WIPP facility 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	Not required by RCRA regulations to list test and balance equipment. Furthermore, this detail is in WIPP standard operating procedures and McPherson.
O-5	Reporting and Recordkeeping	
O-5a	Reporting The Permittees shall submit an annual report to NMED presenting the results of the data and analysis of the Mine Ventilation Rate Monitoring Plan. In the years that the Test and Balance is performed, the Permittees will provide a summary of the results in the annual report. The Permittees shall evaluate compliance with the minimum ventilation rate for an active room specified in Permit Part 4, Section 4.5.3.2 on a monthly basis. The Permittees shall report to the Secretary in the annual report specified in Permit Part 4, Section 4.6.4.2 whenever the evaluation of the mine ventilation monitoring program data identifies that the ventilation rate specified in Permit Part 4, Section 4.5.3.2 has not been achieved. The Permittees will identify the implementing measures as described in Section O-3b(1) used to allow waste handling activities to proceed when the 35,000 scfm ventilation rate is not	Requirement removed since removing MVRMR. Notification language moved to Permit Part 4, Section 4.5.3.2.

	achieved. These implementing measures and associated details (i.e., date, start time, end time, and reason) will be reported to NMED in the annual Mine Ventilation Rate Monitoring Report required by this section. The Permittees shall also notify NMED by e-mail within 15 calendar days of commencement of waste emplacement operations taking place below 35,000 scfm. The notification shall include the date, start time, end time, reason and implementing measure taken, as applicable. If the Permittees have not completed the waste emplacement activity by the time of this notification, a follow-up e-mail shall be provided within 15 calendar days to notify NMED of the end of the waste emplacement activity and other relevant information not previously provided	
O-5b	Recordkeeping The Permittees shall retain the following information in the Operating Record: • The CMRO Log documenting the ventilation system operating mode. • Active disposal room log sheet documenting the ventilation flow rate readings and applicable information listed in Section O-3b(2). These records will be maintained in the facility Operating Record until closure of the WIPP facility.	Record management is delineated in WIPP standard operating procedures and Operating Record requirements are delineated in Permit Part 2, Section 2.14.1.
O-5c	Standard Operating Procedure Applicable to Abnormal Operating Conditions for Active Room Ventilation Flow Rate The abnormal operating conditions procedure provides instructions necessary to evaluate VOC concentrations in an adjacent filled room prior to commencing waste emplacement operations in an active disposal room when workers are present at a reduced active room ventilation flow rate. Abnormal conditions that may prevent 35,000 scfm from being met, may include, but are not limited to, barometric pressure changes, maintenance activities, and equipment malfunctions. VOC data in the adjacent filled room are collected and analyzed in accordance with Permit Part 4, Section 4.6.3. Adjusted VOC action levels are prescribed at a maximum of 5,000 scfm increments (e.g., 30,000 scfm, 25,000 scfm, 20,000 scfm, 15,000 scfm, and 10,000 scfm) to provide a means of	These provisions are included in WIPP abnormal operating procedures. No need for this detail.

	assessment. When the measured flow rates fall between the increment values in the SOP, the lower flow rate is used for determining the adjusted VOC action level. The validated VOC monitoring data are compared to the action levels prescribed in the standard operating procedure and a decision flow path is provided to the Facility Shift Manager, or designee, to determine applicable actions. These actions include, but are not limited to, commencing waste emplacement operations at a reduced active room ventilation flow rate based on the adjusted VOC action levels, commencing waste emplacement operations at a reduced active room ventilation flow rate with the use of PPE as described in OSHA standard 29 CFR 1910.134, or restricting access to the active disposal room until the ventilation flow rate requirements of Permit Part 4, Section 4.5.3.2 are met. As stated in the abnormal operating conditions procedure, implementing measures taken at the WIPP facility are recorded in the CMRO Log and reported to NMED as required by Section O-5a.	
O-6	Quality Assurance Quality assurance associated with the Mine Ventilation Rate Monitoring Plan shall comply with the requirements of the WIPP Quality Assurance Program Description (QAPD). The Permittees shall verify the qualification of personnel conducting ventilation flow measurements. The instrumentation used for monitoring active disposal rooms shall be calibrated in accordance with the applicable provisions of the WIPP procedures. The ventilation simulation software programs shall be controlled in accordance with the WIPP QAPD and WIPP computer software quality assurance plans. Data generated by this plan, as well as records, and procedures to support this plan shall be maintained and managed in accordance with the WIPP QAPD. Nonconformance or conditions adverse to quality as identified in performance of this plan will be addressed and corrected as necessary in accordance with applicable WIPP Quality Assurance procedures	Work at WIPP is performed pursuant to the QAPD. No need for this statement, Training requirements are delineated in WIPP standard operating procedures. No need for this detail.
O-7	References McPherson, Malcolm J. 2009. Subsurface Ventilation Engineering. 2nd. Fresno, California: Mine Ventilation Services Inc	Referenced in WIPP Standard Operating Procedures

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