

PART 4 - GEOLOGIC REPOSITORY DISPOSAL

4.1. DESIGNATED DISPOSAL UNITS

This Part authorizes the management and disposal of contact-handled (**CH**) and remote-handled (**RH**) transuranic (**TRU**) mixed waste containers in the Underground Hazardous Waste Disposal Units (**Underground HWDUs**) identified herein. Specific facility and process information for the management and disposal of CH and RH TRU mixed waste in the Underground HWDUs is incorporated in Permit Attachment A2 (Geologic Repository).

4.1.1. Underground Hazardous Waste Disposal Units

The Underground HWDUs are located at the WIPP facility approximately 2150 feet (665 meters) below the ground surface within the Salado formation. An Underground HWDU is a single excavated panel, consisting of seven rooms and two access drifts, designated for disposal of TRU mixed waste containers.

The Permittees may dispose TRU mixed waste in the Underground HWDUs, provided the Permittees comply with the following conditions:

4.1.1.1. Disposal Containers

The Permittees shall dispose TRU mixed waste in containers specified in Permit Section 4.3.1.

4.1.1.2. Disposal Locations and Quantities

The Permittees shall dispose TRU mixed waste containers in eight Underground HWDUs, as specified in Table 4.1.1 below and depicted in Permit Attachment A2, Figure A2-1. The Permittees may dispose quantities of TRU mixed waste containers in these locations not to exceed the maximum capacities specified in Table 4.1.1 below. The Permittees may increase these capacities subject to the following conditions:

- i. The Permittees may submit a Class 1 permit modification requiring prior approval of the Secretary in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.42(a)) to increase the CH TRU mixed waste capacity by 35,300 ft³ (1,000 m³) or less, and the RH TRU mixed waste capacities in Panels 5 and 6 to a maximum of 22,950 ft³ (650 m³).

At least 15 calendar days before submittal to NMED, the Permittees shall post a link to the Class 1 permit modification on the WIPP Home Page and inform those on the e-mail notification list.

- ii. Notwithstanding Permit Section 4.1.1.2.i, any Underground HWDU CH TRU waste capacity may be increased by up to 25 percent of the total maximum capacity in Table 4.1.1 by submitting a Class 2 permit modification request in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)).

Table 4.1.1 - Underground HWDUs			
Description¹	Waste Type	Maximum <u>Disposal</u> Unit Capacity²	Final Waste Volume <u>Disposed</u>³
Panel 1	CH TRU	636,000ft ³ (18,000 m ³)	370,800 ft ³ (10,500 m ³)
Panel 2	CH TRU	636,000 ft ³ (18,000 m ³)	635,600 ft ³ (17,998 m ³)
Panel 3	CH TRU	662,150 ft ³ (18,750 m ³)	603,600 ft ³ (17,092 m ³)
Panel 4	CH TRU	662,150 ft ³ (18,750 m ³)	503,500 ft ³ (14,258 m ³)
	RH TRU	12,570 ft ³ (356 m ³)	6,200 ft ³ (176 m ³)
Panel 5	CH TRU	662,150 ft ³ (18,750 m ³)	562,500 ft ³ (15,927 m ³)
	RH TRU	15,720 ft ³ (445 m ³)	8,300 ft ³ (235 m ³)
Panel 6	CH TRU	662,150 ft ³ (18,750 m ³)	510,900 ft ³ (14,468 m ³)
	RH TRU	18,860 ft ³ (534 m ³)	7,500 ft ³ (214 m ³)
Panel 7	CH TRU	662,150 ft ³ (18,750 m ³)	
	RH TRU	22,950 ft ³ (650 m ³)	
Panel 8	CH TRU	662,150 ft ³ (18,750 m ³)	
	RH TRU	22,950 ft ³ (650 m ³)	
<u>Panel 9A</u>	<u>CH TRU</u>	<u>662,150 ft³</u> <u>(18,750 m³)</u>	
	<u>RH TRU</u>	<u>22,950 ft³</u> <u>(650 m³)</u>	
<u>Panel 10A</u>	<u>CH TRU</u>	<u>662,150 ft³</u>	

		<u>(18,750 m³)</u>	
	<u>RH TRU</u>	<u>22,950 ft³</u> <u>(650 m³)</u>	
<u>Total Disposed in Filled Panels</u>	CH TRU	5,244,900 ft³ (148,500 m³)*	<u>2,676,000 ft³</u> <u>(75,775 m³)</u>
	RH TRU	93,050 ft³ (2,635 m³)*	<u>14,500 ft³</u> <u>(411 m³)</u>
<u>Summation of Disposal Unit Capacity⁴</u>	<u>CH TRU</u>	<u>6,569,200 ft³</u> <u>186,000 m³</u>	<u>**</u>
	<u>RH TRU</u>	<u>138,95 ft³</u> <u>3,935 m³</u>	<u>**</u>

¹ The area of each panel is approximately 124,150 ft² (11,533 m²).

² “Maximum Disposal Unit Capacity” is the maximum volume of TRU mixed waste that may be emplaced in each panel. The maximum repository capacity of “6.2 million cubic feet of transuranic waste” is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended).

³ The total final waste volume disposed cannot exceed the maximum repository capacity (final waste volume disposed) of “6.2 million cubic feet of transuranic waste” is specified in the WIPP Land Withdrawal Act (Pub. L. 102-579, as amended).

⁴ This total is a summation of the listed disposal unit capacity and is for information purposes only and is not a limit or condition.

* Total only applies to the Final Waste Volume Disposed column.

** Total only applies to the Maximum Disposal Unit Capacity column.

4.2. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

4.2.1. Permitted Waste

The Permittees may dispose TRU mixed waste in the Underground HWDUs, provided the Permittees comply with the following conditions:

4.2.1.1. Waste Analysis Plan

The TRU mixed waste shall be characterized to comply with the waste analysis plan specified in Permit Section 2.3.1.

4.2.1.2. TSDF Waste Acceptance Criteria

The TRU mixed waste shall comply with the treatment, storage, and disposal facility (TSDF) waste acceptance criteria specified in Permit Section 2.3.3.

4.2.1.3. Hazardous Waste Numbers

The TRU mixed waste shall contain only hazardous waste numbers specified in Permit Section 2.3.4.

Derived waste may be disposed in the Underground HWDUs as specified in Permit Section 2.3.5.

4.2.2. Prohibited Waste

4.2.2.1. General Prohibition

The Permittees shall not dispose any TRU mixed waste that fails to comply with Permit Section 4.2.1.

4.2.2.2. Specific Prohibition

After this Permit becomes effective, the Permittees shall not dispose non-mixed TRU waste in any Underground HWDU unless such waste is characterized in accordance with the requirements of the WAP specified in Permit Section 2.3.1. The Permittees shall not dispose TRU mixed waste in any Underground HWDU if the Underground HWDU contains non-mixed TRU waste which was disposed of after this Permit became effective and was not characterized in accordance with the requirements of the WAP.

4.3. DISPOSAL CONTAINERS

4.3.1. Acceptable Disposal Containers

The Permittees shall use containers that comply with the requirements for U.S. Department of Transportation shipping container regulations (49 CFR §173 - Shippers - General Requirements for Shipment and Packaging, and 49 CFR §178 - Specifications for Packaging) for disposal of TRU mixed waste at WIPP. The Permittees are prohibited from disposing TRU mixed waste in any container not specified in Permit Attachment A1 (Container Storage), Section A1-1b, as set forth below:

4.3.1.1. Standard 55-gallon (208-liter) Drum

Standard 55-gallon drums are configured as a 7-pack or as an individual unit.

4.3.1.2. Standard Waste Box (SWB)

An SWB is configured as an individual unit.

4.3.1.3. Ten-drum Overpack (TDOP)

A TDOP is configured as an individual unit.

4.3.1.4. 85-gallon (322-liter) Drum

85-gallon drums are configured as a 4-pack or as an individual unit.

4.3.1.5. 100 gallon (379-liter) Drum

100-gallon drums are configured as a 3-pack or as an individual unit.

4.3.1.6. RH TRU Canister

An RH TRU canister is configured as an individual unit.

4.3.1.7. Standard Large Box 2 (SLB2)

An SLB2 is configured as an individual unit.

4.3.1.8. Shielded Container

Shielded containers are configured as a three-pack.

4.3.2. Condition of Containers

If a container holding TRU mixed waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak prior to disposal in an Underground HWDU, the Permittees shall manage the TRU mixed waste containers specified in Permit Section 4.3.1 as specified in Permit Attachment A1 and in compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.171).

4.4. VOLATILE ORGANIC COMPOUND LIMITS

The Permittees shall limit releases to the air of volatile organic compound waste constituents (VOCs) as specified by the following conditions, as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.601(c)):

4.4.1. Room-Based Limits

The measured concentration of VOCs in any open (active) room and in the immediately adjacent each closed room in active panels within an Underground HWDU shall not exceed the limits specified in Table 4.4.1 below:

Table 4.4.1 - VOC Room-Based Limits	
Compound	VOC Room-Based Concentration Limit (PPMV)
Carbon Tetrachloride	9.625
Chlorobenzene	13000
Chloroform	9.930

1,1-Dichloroethylene	5490
1,2-Dichloroethane	2,400
Methylene Chloride	100000
1,1,2,2-Tetrachloroethane	2,960
Toluene	11000
1,1,1-Trichloroethane	33,700
<u>Trichloroethylene</u>	<u>48,000</u>

There are no maximum concentration limits for other VOCs.

4.4.2. Determination of VOC Room-Based Limits

The Permittees shall confirm the VOC concentration ~~and emission rate limits~~ identified in Permit Section 4.4.1 using the VOC Monitoring Plan specified in Permit Attachment N (Volatile Organic Compound Monitoring Plan). The Permittees shall conduct monitoring of VOCs as specified in Permit Sections 4.6.2 and 4.6.3.

4.4.3. Ongoing Disposal Room VOC Monitoring in Panels 3 Through 8

The Permittees shall continue disposal room VOC monitoring in Room 1 of a filled panel ~~Panels 3 through 8 after completion of waste emplacement~~ until final panel closure unless an ~~the~~ explosion-isolation wall ~~specified in Permit Attachment G1 (Detailed Design Report for an Operation Phase Panel Closure System)~~ is installed in the panel.

4.5. DESIGN, CONSTRUCTION, AND OPERATION REQUIREMENTS

The Permittees shall design, construct, and operate the Underground HWDUs as specified by the following conditions and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.601):

4.5.1. Repository Design

The Permittees shall construct each Underground HWDU in conformance with the requirements specified in Permit Attachment A2 and Permit Attachment A3 (Drawing Number 51-W-214-W, "Underground Facilities Typical Disposal Panel").

4.5.2. Repository Construction

4.5.2.1. Construction Requirements

Subject to Permit Section 4.5.1, the Permittees may excavate the following Underground HWDUs, as depicted in Permit Attachment A2, Figure A2-1, "Repository Horizon", and specified in Section A2-2a(3),

“Subsurface Structures (Underground Hazardous Waste Disposal Units (HWDUs))”:

- ~~Panel 10 (Disposal area access drift)~~
- Panel 2
- ~~Panel 9 (Disposal area access drift)~~
- Panel 3
- Panel 4
- Panel 5
- Panel 6
- Panel 7
- Panel 8
- Panel 9A
- Panel 10A

Prior to disposal of TRU mixed waste in a newly constructed Underground HWDU, the Permittees shall comply with the certification requirements specified in Permit Section 1.7.11.2.

4.5.2.2. Notification Requirements

At least 30 calendar days prior to the projected start date of excavation of each Underground HWDU, the Permittees shall provide written notification to the Secretary stating the projected start date of excavation, along with supporting rationale (e.g., projected waste receipt rate, etc.). The Permittees shall post a link to the notification transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

Prior to disposal of TRU mixed waste in a newly constructed Underground HWDU, the Permittees shall comply with the certification requirements specified in Permit Section 1.5.11.

4.5.3. Repository Operation

4.5.3.1. Underground Traffic Flow

The Permittees will shall manage underground traffic in accordance with Permit Attachment A4, “Traffic Patterns,” Section A4-4, “Underground Traffic;” ~~in order to provide adequate separation of traffic and ventilation air when waste is being transported in the underground. The Permittees shall restrict and separate the ventilation and traffic flow areas in the underground TRU mixed waste handling and disposal areas from the ventilation and traffic flow areas for mining and construction~~

~~equipment, except that during waste transport in W-30, ventilation need not be separated north of S-1600.~~

The Permittees shall designate routes for the traffic flow of TRU mixed waste handling equipment and construction equipment as required by Permit Attachment A4 (Traffic Patterns), Section A4-4, "Underground Traffic." These routes will be recorded on a mine map that is posted in a location where persons entering the underground can read it. Whenever the routes are changed, the map will be updated. Maps will be available in facility files until facility closure.

4.5.3.2. Ventilation

The Permittees shall maintain a minimum running annual average mine ventilation exhaust rate of 260,000 standard ft³/min and a minimum active room ventilation rate of 35,000 standard ft³/min 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)).

4.5.3.3. Ventilation Barriers

The Permittees shall construct ventilation barricades in active Underground HWDUs to restrict the flow of mine ventilation air through full disposal rooms, 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)).

4.6. MAINTENANCE AND MONITORING REQUIREMENTS

The Permittees shall maintain and monitor the Underground HWDUs as specified by the following conditions and as required by 20.4.1.500 NMAC (incorporating 40 CFR §§264.601 and 264.602):

4.6.1. Geomechanical Monitoring

4.6.1.1. Implementation of Geomechanical Monitoring Program

The Permittees shall implement a geomechanical monitoring program in each Underground HWDU as specified in Permit Attachment A2, Section A2-5b(2), "Geomechanical Monitoring" and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.602).

4.6.1.2. Reporting Requirements

The Permittees shall submit to the Secretary an annual report in October evaluating the geomechanical monitoring program and shall include geomechanical data collected from each Underground HWDU during the previous year, as specified in Permit Attachment A2, Section A2-5b(2), “Geomechanical Monitoring”, and shall also include a map showing the current status of HWDU mining. ~~The Permittees shall also submit at that time an annual certification by a registered professional engineer certifying the stability of any explosion isolation walls.~~ The Permittees shall post a link to the geomechanical monitoring report transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

4.6.1.3. Notification of Adverse Conditions

When evaluation of the geomechanical monitoring system data identifies a trend towards unstable conditions which requires a decision whether to terminate waste disposal activities in any Underground HWDU, the Permittees shall provide the Secretary with the same report provided to the WIPP Operations Manager within seven calendar days of its issuance, as specified in Permit Attachment A2, Section A2-5b(2)(a), “Description of the Geomechanical Monitoring System”. The Permittees shall post a link to the adverse condition notice transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

4.6.2. Repository Volatile Organic Compound Monitoring

4.6.2.1. Implementation of Repository VOC Monitoring

The Permittees shall implement repository VOC monitoring as specified in Permit Attachment N (Volatile Organic Compound Monitoring Plan) and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.602 and §264.601(c)). The Permittees shall implement repository VOC monitoring until the certified closure of all Underground HWDUs.

4.6.2.2. Reporting Requirements

The Permittees shall report to the Secretary semi-annually in April and October the data and analysis of the VOC Monitoring Plan as specified in Permit Attachment N, Sections N-3b, N-3e, and N-5d.

4.6.2.3. Notification Requirements

The Permittees shall calculate the total carcinogenic and the total non-carcinogenic risk to the surface worker using the methodology in Attachment N after each sampling event for the compounds in Table 4.6.2.3 using the approved EPA risk factors listed in Table 4.6.2.3.

The Permittees shall notify the Secretary in writing, within seven calendar days of obtaining validated analytical results, whenever the total carcinogenic risk to the surface worker exceeds 10^{-5} or the total non-carcinogenic risk as measured by the hazard index exceeds 1.0 concentration of any VOC specified in Table 4.4.1 exceeds the concentration of concern specified in Table 4.6.2.3 below.

The Permittees shall calculate the running annual average carcinogenic and non-carcinogenic risk to the surface worker using the methodology in Attachment N after each sampling event for the compounds in Table 4.6.2.3 using the approved EPA risk factors listed in Table 4.6.2.3.

The Permittees shall notify the Secretary in writing, within seven calendar days of obtaining validated analytical results, whenever the running annual average concentration (calculated after each sampling event) total carcinogenic risk to the surface worker exceeds 10^{-5} or the total non-carcinogenic risk as measured by the hazard index exceeds 1.0 for any VOC specified in Table 4.4.1 exceeds the concentration of concern specified in Table 4.6.2.3 below.

The Permittees shall post a link to any exceedance notice transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

The Permittees shall review EPA risk factors and the tentatively identified compound list annually and update Tables 4.4.1, 4.6.2.3 and 4.6.3.2 as needed as a Class 1 permit modification notification whenever new analytes are identified to be added to the target analyte list through the tentatively identified compound process in Attachment N or whenever the EPA updates the risk factors shown in update Table 4.6.2.3 whenever the EPA updates the risk factors.

Table 4.6.2.3 - VOC Toxicity Values Concentrations of Concern

Compound	<u>Recommended EPA Risk Factors</u> Drift E-300 Concentration	
	<u>Carcinogenic IUR</u> <u>(ug/m³)⁻¹ug/m³</u>	<u>Non-carcinogenic RfC</u> <u>(mg/m³)ppbv</u>
Carbon Tetrachloride	<u>6.0×10⁻⁶</u> 6040	<u>1.0×10⁻¹</u> 960
Chlorobenzene	1015	220
Chloroform	<u>2.3×10⁻⁵</u> 890	<u>9.8×10⁻²</u> 180
1,1-Dichloroethylene	410	100
1,2-Dichloroethane	<u>2.6×10⁻⁵</u> 175	<u>7.0×10⁻³</u> 45
Methylene Chloride	6700	1930
1,1,2,2-Tetrachloroethane	<u>5.8×10⁻⁵</u> 350	<u>N/A</u> 50
Toluene	715	190
1,1,1-Trichloroethane	<u>N/A</u> 3200	<u>5.0</u> 590
<u>Trichloroethylene</u>	<u>4.1×10⁻⁶</u>	<u>2.0×10⁻³</u>

IUR = Inhalation Unit Risk (EPA recommended value)

RfC = Reference Concentration (EPA recommended value)

N/A = not applicable (No EPA recommended value available)

4.6.2.4. Remedial Action

If the running annual average for the total carcinogenic risk due to releases of concentration for a VOCs specified in Table 4.6.2.3-4.4.1 exceeds 10⁻⁵ or if the running annual average for the total non-carcinogenic hazard index due to releases of VOCs specified in Table 4.6.2.3 exceeds 1.0 the concentration of concern specified in Table 4.6.2.3, the Permittees shall cease disposal in the active CH disposal room and install ventilation barriers as specified in Permit Section 4.5.3.3. Alternatively, prior to reaching the action level, the Permittees can may propose an alternative remedial action to the Secretary for ensuring no individuals are exposed to concentrations in excess of the limits. The Permittees may implement such plans in lieu of closing the active room only after approval by the Secretary.

If the running annual average for the total carcinogenic risk due to releases of concentration for a VOCs specified in Table 4.6.2.3-4.4.1 exceeds 10⁻⁵ or if the running annual average for the total non-carcinogenic hazard index due to releases of VOCs specified in Table

4.6.2.3 exceeds 1.0 ~~the concentration of concern specified in Table 4.6.2.3~~ for six consecutive months, the Permittees shall close the affected Underground HWDU as specified in Permit Section 4.9.1. Alternatively, prior to reaching the action level, the Permittees can may propose an alternative remedial action to the Secretary for ensuring no individuals are exposed to concentrations in excess of the limits. The Permittees may implement such plans in lieu of closing the active HWDU only after approval by the Secretary.

For any remedial action taken under this Permit Section, the Permittees shall submit to the Secretary written quarterly status reports, beginning 30 calendar days after the Permittees submit the initial notification in Permit Section 4.6.2.3 which resulted in the remedial action. The quarterly status report shall analyze the cause of exceedance, describe the implementation and results of the remedial action, and describe measures taken to prevent future exceedances. The Permittees shall submit such reports until the Secretary determines the remedial action has been completed in accordance with all applicable requirements of this Permit.

4.6.3. Disposal Room Volatile Organic Compound Monitoring

4.6.3.1. Implementation of Disposal Room VOC Monitoring

The Permittees shall implement disposal room VOC monitoring as specified in Permit Attachment N and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.602 and §264.601(c)).

4.6.3.2. Notification Requirements

The Permittees shall notify the Secretary in accordance with Permit Attachment N, Section N-3e(2) ~~writing, within seven calendar days of obtaining validated analytical results,~~ whenever the concentration of any VOC specified in Table 4.4.1 ~~in any closed room in an active panel or in~~ any active open room or the immediately adjacent closed room exceeds the action levels specified in Table 4.6.3.2 below. The Permittees shall post a link to the exceedance notice transmittal letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.

Table 4.6.3.2 - Action Levels for Disposal Room Monitoring		
Compound	50% Action Level for VOC Constituents of Concern in <u>Active Open or Immediately Adjacent</u> Any-Closed Room, ppmv	95% Action Level for VOC Constituents of Concern in Active Open or Immediately Adjacent Closed Room, ppmv
Carbon Tetrachloride	4,813	9,145
Chlorobenzene	6,500	12,350
Chloroform	4,965	9,433
1,1-Dichloroethylene	2,745	5,215
1,2-Dichloroethane	1,200	2,280
Methylene Chloride	50,000	95,000
1,1,2,2-Tetrachloroethane	1,480	2,812
Toluene	5,500	10,450
1,1,1-Trichloroethane	16,850	32,015
<u>Trichloroethylene</u>	<u>24,000</u>	<u>45,600</u>

4.6.3.3. Remedial Action

Upon receiving validated analytical results that indicate one or more of the VOCs specified in Table 4.4.1 in any active open room or the immediately adjacent closed room of the closed rooms in an active panel has reached the “50% Action Level” in Table 4.6.3.2, the sampling frequency for such ~~closed~~ rooms will increase to once per week. The once per week sampling will continue either until the concentrations ~~in the closed room(s)~~ fall below the “50% Action Level” in Table 4.6.3.2, or until closure of Room 1 of the panel, whichever occurs first. If one or more of the VOCs in Table 4.4.1 in ~~the~~ any active open room or immediately adjacent closed room reaches the “95% Action Level” in Table 4.6.3.2, another sample will be taken to confirm the existence of such a condition. If the second sample confirms that one or more of VOCs in any active open room or the immediately adjacent closed room have reached the “95% Action Level” in Table 4.6.3.2, the active open room will be abandoned, ventilation barriers will be installed as specified in Permit Section 4.5.3.3, waste emplacement will proceed in the next open room, and monitoring of the subject closed room will continue at a frequency of once per week until commencement of panel closure. Prior to reaching the 95% Action Level in any active open room or the

immediately adjacent disposal room, the Permittees may propose an alternative remedial action to implement in the event the 95% Action Level is reached. This alternative remedial action must be approved by the Secretary prior to implementation.

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 calculate the running annual average mine ventilation exhaust rate on a monthly basis. In addition, 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 rates specified in the Permit Section 4.5.3.2 have not been achieved.

4.6.5. Hydrogen and Methane Monitoring

4.6.5.1. Implementation of Hydrogen and Methane Monitoring

~~The Permittees shall implement the Hydrogen and Methane Monitoring Plan specified in Permit Attachment N1 (Hydrogen and Methane Monitoring Plan).~~

4.6.5.2. Reporting Requirements

~~The Permittees shall report to the Secretary semi-annually in April and October the data and analysis of the Hydrogen and Methane Monitoring Plan.~~

4.6.5.3. Notification Requirements

~~The Permittees shall notify the Secretary in writing, within seven calendar days of obtaining validated analytical results, whenever the concentration of hydrogen or methane in a filled panel exceeds the action levels specified in Table 4.6.5.3 below.~~

~~The Permittees shall post a link to the notification letter on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11.~~

Compound	Action Level 1	Action Level 2
Hydrogen	4,000 ppm	8,000 ppm
Methane	5,000 ppm	10,000 ppm

4.6.5.4. Remedial Action

~~Upon receiving validated analytical results that indicate at least one compound exceeded “Action Level 1” in Table 4.6.5.3, the sampling frequency in that filled panel will increase to once per week. Upon receiving validated analytical results that indicate at least one compound exceeded “Action Level 2” in Table 4.6.5.3 in two consecutive weekly samples, the Permittees shall install in that panel the explosion isolation wall specified in Permit Attachment G1.~~

4.6.5.5. Sampling Line Loss

~~The Permittees shall notify the Secretary in writing within seven calendar days of the discovery of loss of sampling line(s). The Permittees shall evaluate any loss of sampling lines as described in Permit Attachment N1, Section N1-5b, “Sample Tubing”, and shall notify the Secretary in writing within seven calendar days the results of such evaluation. The Permittees shall also post a link to such notification letters on the WIPP Home Page and inform those on the e-mail notification list as specified in Permit Section 1.11~~

4.7. INSPECTION SCHEDULES AND PROCEDURES

The Permittees shall inspect the Underground HWDUs at least weekly, as specified in Permit Attachment E (Inspection Schedule, Process and Forms), Tables E-1 and E-1a, and as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.15). The Permittees shall perform these inspections to detect malfunctions, signs of deterioration, operator errors, discharges, or any other factors which

have caused or may cause a release of hazardous wastes or hazardous waste constituents to the environment or which may compromise the ability of any Underground HWDU to comply with the environmental performance standards in 20.4.1.500 NMAC (incorporating 40 CFR §264.601).

4.8. RECORDKEEPING

4.8.1. Underground HWDU Location Map

The Permittees shall maintain, in the operating record, a map containing the exact location and dimensions of each Underground HWDU with respect to permanently surveyed benchmarks.

4.8.2. Disposal Waste Type and Location

The Permittees shall maintain, in the operating record, a record identifying the types and quantities of TRU mixed waste in each Underground HWDU and the disposal location of each container or container assembly (e.g., a 7-pack of standard 55-gallons drums) within each Underground HWDU, using the following fields from the WWIS data dictionary:

1. Panel Number
2. Room Number or Drift Number
3. Row Number (for CH TRU mixed waste) or Borehole Number (for RH TRU mixed waste)
4. Column Number (for CH TRU mixed waste)
5. Column Height (for CH TRU mixed waste)
6. Container Type Code
7. Container Identification Number
8. Manifest Document Number
9. Disposal Date

The Permittees shall also maintain, in the operating record, a map or diagram depicting the location and quantity of each waste. The map or diagram shall include a cross reference to specific manifest document numbers, if the waste was accompanied by a manifest, as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.73(b)(2)).

4.8.3. Ventilation Rates

The Permittees shall maintain, in the operating record, a record identifying any non-conformance to the ventilation rates specified in Permit Section 4.5.3.2.

PERMIT ATTACHMENTS

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

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

Permit Attachment A3 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Underground Facilities Typical Disposal Panel” – Drawing Number 51-W-214-W, Appendix M3).

Permit Attachment A4 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Traffic Patterns” – Chapter G).

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

Permit Attachment G1, “WIPP Panel Closure (WPC) Description and Specifications.” (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Detailed Design Report for an Operation Phase Panel Closure System” – Appendix H).

Permit Attachment N (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Volatile Organic Compound Monitoring Plan” - Chapter N).

~~Permit Attachment N1 (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “Hydrogen and Methane Monitoring Plan” – Appendix N1)~~

Permit Attachment O (as modified from WIPP Hazardous Waste Facility Permit Amended Renewal Application, “WIPP Mine Ventilation Rate Monitoring Plan” - Chapter Q).

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