



Department of Energy
Carlsbad Field Office
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MAY 29 2015

Mr. John E. Kieling, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87508-6303

Ms. Kathryn Roberts, Director
Resource Protection Division
New Mexico Environment Department
Harold Runnels Building
1190 Saint Francis Drive, Room 4050
Santa Fe, NM 87502-5469

Subject: Monthly Report for the Reporting Period ending April 30, 2015, as required by NMED Administrative Orders dated February 27, 2014, May 12, 2014, and May 20, 2014, as amended by NMED Directives dated August 29, 2014, and December 9, 2014

Dear Mr. Kieling and Ms. Roberts:

The purpose of this letter is to transmit the monthly report for the reporting period ending April 30, 2015, as requested by the February 27, 2014, May 12, 2014, and May 20, 2014, Administrative Orders, issued under the authority of the New Mexico Hazardous Waste Act § 74-4-13 from Ryan Flynn to Messrs. Hellstrom, Franco, Cook, and McQuinn, and as amended by the August 29, 2014, and December 9, 2014, directives from Ryan Flynn to Messrs. Franco and McQuinn. This report is enclosed along with a compact disc containing the electronic version of the report.

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

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

Sincerely,

Original Signatures on File

Jose R. Franco, Manager
Carlsbad Field Office

Robert L. McQuinn, Project Manager
Nuclear Waste Partnership LLC

Enclosure

cc: w/enclosure
R. Maestas, NMED
S. Holmes, NMED
C. Smith, NMED
J. Sales, EPA
CBFO M&RC

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Monthly Status Report for the New Mexico Environment Department Administrative Orders

Reporting Period April 1, 2015, through April 30, 2015

Introduction

On February 5, 2014, a vehicle fire occurred in the Waste Isolation Pilot Plant (WIPP) underground, resulting in temporary suspension of normal operations and waste shipments from generator sites. On February 14, 2014, while the fire investigation was still underway, a continuous air monitor detected airborne radiation in the WIPP underground facility, causing the ventilation exhaust to automatically realign to high efficiency particulate air (HEPA) filtration mode. The ventilation system has been operating in filtration mode since that time. Entries into Panel 7 in the underground have confirmed that at least one container from a nitrate salt bearing waste stream from Los Alamos National Laboratory (LANL) was breached. The independent Technical Assistance Team (TAT) confirmed that one drum in Panel 7, Room 7, from LANL was responsible for the 2014 radiological release. The report concluded that the drum contained chemically incompatible materials, ultimately leading to the release. The *overarching conclusion* is that chemically incompatible contents of Drum 68660 from LANL in combination with physical conditions (e.g., the configuration of the materials in the drum) supported exothermic chemical reactions leading to a thermal runaway; the consequent build-up of gases within the drum displaced the drum lid, venting radioactive materials and hot matter that further reacted with air or other materials outside the drum to cause the damage observed in WIPP Panel 7, Room 7. Shipments of waste to the WIPP facility have been suspended.

During this reporting period, the Department of Energy Office of Environmental Management (EM) released the Accident Investigation Board (AIB) Phase 2 Report related to the February 14, 2014, radiological event. The AIB concluded that the release was caused by an exothermic reaction involving the mixture of organic materials and nitrate salts in one drum that was processed at LANL in December 2013. The AIB also concluded that an underground salt haul truck fire that occurred at WIPP on February 5, 2014, did not cause or contribute to the radiological release event.

The New Mexico Environment Department (NMED) has issued two Administrative Orders (AOs) to address certain activities relative to the WIPP Hazardous Waste Facility Permit (Permit) that cannot be performed because the underground is inaccessible for normal activities. The AOs provide requirements for monitoring and reporting to the NMED concerning the status of recovery from the two events. The first administrative order (AO1) issued on February 27, 2014, addressed above-ground compliance, and required a weekly report to be submitted with regard to surface-related requirements of the Permit. On May 12, 2014, a second administrative order (AO2) was issued to address, in part, Permit-required activities that cannot currently be performed due to restriction on access to the underground. The second administrative order changed the reporting period from weekly to biweekly, with additional information required to supplement the information required by AO1. A directive from the Secretary of the NMED was issued on August 29, 2014, which amended the reporting frequency from biweekly to monthly for reporting required under AO1 and AO2 with the

submittal being due to NMED no later than the 15th of the month for activities conducted during the previous month. A new directive from the Secretary of the NMED was issued on December 9, 2014, which amended the submittal frequency for this report. The new due date for the monthly submittal shall be the last day of the subsequent month for activities conducted during the previous month.

This report serves to fulfill the reporting requirements set forth by AO1 and AO2, as amended by the NMED directives dated August 29, 2014, and December 9, 2014. The following sections combine the information required by both orders, as appropriate, and provide references to the applicable paragraphs from AO1 and AO2.

In accordance with Paragraph 17(a) of AO2, and a subsequent letter from the NMED dated September 24, 2014, the Permittees submitted a revised draft of the underground compliance plan (UCP) on October 30, 2014, for NMED review. Pertinent elements of the WIPP Recovery Plan were integrated into the UCP as these elements pertain to the Permit-related requirements addressed by the AOs. The monthly reports serve to provide a status of recovery-related activities, as outlined in AO1 and AO2. In accordance with Paragraph 18(a) of AO2, subsequent reports will identify new information since the previous reporting period.

1.0 Status of Permit-related surface and underground inspections for this reporting period, as requested per Paragraph 14(a) of AO1 and Paragraphs 18(c) and 18(e)(iii) of AO2, including the accessibility for personnel performing these Permit-required activities per Paragraph 18(e)(i) of AO2 and the status of recovery activities per Paragraph 18(e)(ii) of AO2:

See Attachment 1, *Surface and Underground Inspections*, for the current status of each Permit-required inspection, including accessibility of underground equipment for personnel performing the inspections. This list is taken from Permit Attachment E, Table E-1. The surface and underground inspections required by Table E-1a related to remote-handled (RH) transuranic (TRU) waste are pre-operational. Because the WIPP facility has not been handling RH TRU waste, and there is no RH TRU waste being stored at the WIPP facility at this time, these pre-operational inspections do not currently apply. Inspections and preventative maintenance (PM) are not required for equipment that is out of service. Prior to commencing RH TRU waste handling operations, PMs and/or inspections will be brought into a current/compliant status.

As indicated in Attachment 1, a few underground inspections cannot currently be performed due to the inaccessibility to those portions of the underground where inspections are required. Some inspections are being completed in order to facilitate recovery. In accordance with Paragraph 17(a) of AO2 and an NMED letter dated September 24, 2014, the Permittees were required to submit a revised UCP to the NMED by October 30, 2014. The order requires that the UCP shall include a detailed compliance schedule for those requirements described in Paragraph 13 of AO2. The compliance schedule includes a proposed timeline, including dates, for achieving underground recovery and attaining compliance with these Permit-required activities. Before these activities can resume, however, certain prerequisite activities must be performed in order to establish the safety and habitability of the work areas in the underground. The UCP will be updated as information becomes available, and these updates will be provided to the NMED for review and comment prior to being incorporated. Future updates to the UCP, will be reflected in the monthly reports, as required by Paragraph 18(c) of AO2.

2.0 Status of Permit-related monitoring activities for this reporting period, as requested per Paragraph 14(a) of AO1 and Paragraph 18(c) of AO2, including the accessibility for personnel performing these Permit-required activities per Paragraph 18(e)(i) of AO2 and the status of recovery activities per Paragraph 18(e)(ii) of AO2:

In accordance with Paragraph 17(a) of AO2, the draft UCP was submitted to the NMED by June 26, 2014. On September 24, 2014, the NMED notified the Permittees that review of the draft UCP had been suspended pending the release of the WIPP Recovery Plan. Currently, certain monitoring activities cannot be performed due to the inaccessibility to those portions of the underground where monitoring activities occur. The UCP contains a compliance schedule including a proposed timeline, including dates, for achieving underground recovery and attaining compliance with these Permit-required activities. Before these activities can resume, however, certain prerequisite activities must be performed in order to establish the safety and habitability of the work areas in the underground. A status of these activities, as described in future updates to the UCP, will be reflected in the monthly reports, as required by Paragraph 18(c) of AO2.

Volatile Organic Compound Monitoring

Repository volatile organic compound (VOC) monitoring activities (required by Permit Part 4, Section 4.6.2, including Table 4.6.2.3, and associated requirements in Attachment N) are not currently being performed due to the inaccessibility of those portions of the underground required to perform these activities. Additionally, room-based VOC monitoring activities (required by Permit Part 4, Sections 4.4.3 and 4.6.3, Tables 4.4.1 and 4.6.3.2, and associated requirements in Attachment N) cannot currently be performed due to the inaccessibility of those portions of the underground needed to perform these activities.

Surface VOC monitoring is being conducted in lieu of underground monitoring during re-entry and recovery operations utilizing portable passive air sampling kits. Surface monitoring is being performed to ensure that the Permit environmental performance standards (i.e., carcinogenic and non-carcinogenic risk due to VOC emissions from the disposed waste) for surface-based non-waste workers are met. Samples are being collected twice each week at two locations on site and one location off site. These samples are 24-hour VOC samples collected on the surface near the Building 489 Intake, and north of the Training Building (Building 489 North Air Intake), with an off-site location approximately a mile southeast of the Training Building at location WQSP-4. These samples are used to quantify VOC exposure to a receptor in the Training Building. The samples on-site and at location WQSP-4 are used to quantify background VOC concentrations in the ambient air. Acquisitions in both full-scan and selective ion monitoring (SIM) gas chromatography/mass spectroscopy (GC/MS) mode are acquired to ensure a good quantification. Scan parameters, as seen in SIM mode, provide more averages over a smaller peak width, resulting in superior spectra and less noise; therefore better compound detection and sensitivity with results in parts per trillion (ppt). Full-scan mode monitors the tentatively identified compounds (TIC) over a range of masses and is required for confidence and confirmation of results in parts per billion (ppb). Both modes of GC/MS results are provided (full-scan and SIM). In accordance with Paragraph 19 of AO2, the Permittees began monitoring for trichloroethylene as a target analyte on May 12, 2014.

Disposal room VOC monitoring is not being conducted in the underground as stated above. This does not pose a threat to underground waste workers because waste handling is not underway in the underground, and no emplacement rooms are active. Disposal room monitoring will be restarted prior to resuming waste emplacement activities.

Geomechanical Monitoring

The purpose of geomechanical monitoring is to confirm the structural integrity of the underground repository. Geomechanical monitoring data is transmitted electronically via remote instruments located in Rooms 6 and 7 of Panel 7 in accordance with Permit Part 4, Section 4.6.1, associated requirements in Attachment A2-5b(2), and Attachment E, Table E-2. Not all geomechanical monitoring activities that require the manual reading of underground equipment can be performed due to inaccessible portions of the underground. However, visual inspections of the underground areas during recent re-entries have provided information regarding the stability of the underground and identified those areas that require bolting. Bolting has resumed as part of recovery activities in the underground.

Hydrogen and Methane Monitoring

Hydrogen and methane monitoring activities (required by Permit Part 4, Section 4.6.5 and associated requirements in Attachment N1) cannot currently be performed due to the inaccessibility of those portions of the underground where these activities are performed. This does not pose a threat to underground waste workers because underground activities are not underway in the vicinity of Panels 3 and 4. Hydrogen and methane monitoring will be restarted during recovery.

Mine Ventilation Rate Monitoring

Mine ventilation rate monitoring activities (required by Permit Part 4, Section 4.6.4 and associated requirements of Attachment O) are currently being performed. However, due to reduced air flow in the underground because of operating in filtration mode, the minimum running annual average ventilation rate set forth by the Permit cannot be maintained. The ventilation system has been operating in filtration mode since February 14, 2014, with a flow rate of approximately 60,000 standard cubic feet per minute (SCFM). The calculated running annual average ventilation flow rate as of April 30, 2015, was approximately 59,955 SCFM. Surface VOC monitoring is being used to ensure the reduced flow rate does not pose a threat to the surface non-waste worker.

3.0 Summary of waste shipment information and any other relevant records that document the site of origin, volumes and receipt dates of TRU waste that is currently located at the facility WHB and parking area unit, as requested per Paragraph 14(c) of AO1, and information specifying the deadlines for each individual waste assembly as it relates to AO1, as requested per Paragraph 14(d) of AO1:

Waste is currently being stored in the Waste Handling Building (WHB). Since the submittal of the last monthly report, there has been no additional waste placed in storage in the WHB, and there were no changes to the storage deadlines during this reporting period. Therefore, Attachment 2, *TRU Mixed Waste Currently in Storage at the WIPP*

Facility, and Attachment 4, *Surface and Underground Derived Waste Currently in Storage at the WIPP Facility*, are currently reserved.

4.0 Location of any environmental monitoring equipment, including the identification of whether they are stationary, mobile, or permanent. This includes, but is not limited to, VOC monitoring stations, radiological monitoring stations, meteorological monitoring, surface water monitoring, vegetation sampling. The reports shall include dates of deployment and sampling, and all data that has been produced by these monitoring stations for his reporting period, as requested per Paragraph 14(f) of AO1:

See Attachment 3, *Environmental Monitoring*, which includes tables with the locations of environmental monitoring equipment (including identification of stationary, mobile, or permanent equipment) and new data for this reporting period. Aerial photos and diagrams displaying monitoring locations are included. The following briefly describes the monitoring information in Attachment 3, *Environmental Monitoring*.

- VOC monitoring stations – Portable surface monitoring equipment has been deployed since February 25, 2014. Samples are being collected twice each week at the locations indicated in Attachment 3. The results are included in Attachment 3, *Environmental Monitoring*.
- Radiological monitoring – During this reporting period, monitoring results were below minimum detectable concentrations. The results are included in Attachment 3, *Environmental Monitoring*.
 - Groundwater samples – Groundwater samples were obtained on the dates shown in Attachment 3.
 - Soil samples – Soil samples were obtained on the dates shown in Attachment 3.
 - Biota samples – Biota samples were obtained on the dates shown in Attachment 3.

5.0 Updates on activities performed pursuant to the Underground Derived Waste Storage Plan, including a description of any surface and underground derived waste produced, whether the derived waste is mixed or non-mixed, the contents, container type, container location, total container count, and approximate volume of derived waste per container, as requested per Paragraph 14(i) of AO1 and Paragraph 18(d) of AO2:

In accordance with Paragraph 17(b) of AO2, the draft *Underground Derived Waste Storage Plan (UDWSP)* was submitted to the NMED by June 26, 2014, for review and comment. On December 2, 2014, NMED provided comments on the UDWSP and notified the Permittees that the draft UDWSP had been approved. The Permittees addressed the comments, incorporated changes and resubmitted the UDWSP to NMED on January 6, 2015. During this reporting period, no additional derived waste was generated. As recovery efforts progress, any derived waste produced will be reported in Attachment 4, *Surface and Underground Derived Waste Currently in Storage at the WIPP Facility*, which is currently reserved.

6.0 The current status of activities required by the RCRA Contingency Plan, Permit Attachment D, including identification of applicable sections of the Contingency Plan, the schedule for actions required under the Contingency Plan, and any deviations from any Contingency Plan requirements, as requested per Paragraph 18(b) of AO2. Non-applicable sections shall also be identified and explanations shall be provided as to why such sections do not apply:

There has been no change in the status of the RCRA Contingency Plan implementation since the submittal of the last monthly report. Accordingly, Attachment 5, *Status of RCRA Contingency Plan Required Activities*, is currently reserved.

7.0 The monthly report shall include the submission of a list containing all additional requirements placed upon the WIPP by any state or federal agency relating to corrective actions or recovery and as a result of the incidents referenced in Paragraphs 8 and 9 of the May 12, 2014, Administrative Order, including requirements by other segments of DOE, as requested by Paragraph 18(f) of AO2:

During this reporting period, the AIB Phase 2 Report was released, which identified a total of 24 Conclusions (CONs) and 40 Judgments of Need (JONs). A detailed table in Attachment 6, *Corrective Actions Required for Recovery*, lists each CON and JON that was identified by the AIB Phase 2 Report.

8.0 The Permittees shall provide documentation of the “as found” condition of Panel 7, including relevant photographs of the waste, as requested per Paragraph 18(i) of AO2:

During this reporting period, progress was made toward the closure of Panel 7, Room 7. Equipment has been decontaminated and removed from the room. The area where the entrance bulkhead will be installed has been sprayed with water to fix contamination. Fabrication of the bulkhead for the entrance side of Panel 7, Room 7 is complete. Photographs in Attachment 7, *As-Found Condition of Panel 7*, depict work activities in Panel 7, Room 7, which include chain link and brattice cloth installation on the air intake side prior to placing the metal bulkhead. Also, the slider on the exhaust bulkhead in Panel 7, Room 7, is now closed.

9.0 The Permittees shall provide documentation of the “as found” condition of Panel 6 partial closure system, including relevant photographs, as requested per Paragraph 18(j) of AO2:

Photographs of the S-2750 and S-3080 drifts in the area west of W-170 (toward Panel 6) were provided during the last reporting period. Bolting to the entrance of the access drift of Panel 6 is complete and WIPP personnel have completed the installation of the metal bulkhead in the S-2750 drift of Panel 6. Photographs of the bulkhead installation are provided in Attachment 9, *As-Found Condition of Panel 6*. Bolting on the exhaust side of Panel 6 is also complete. Ten feet of mined salt has been placed in the S-3080 drift of Panel 6, and the chain link and brattice cloth has been lowered and anchored in place. Photographs showing work activities in the S-3080 drift of Panel 6 are provided in Attachment 9.

10.0 The Permittees shall provide a status of recovery-related activities relative to the underground per Paragraph 18(e)(ii) of AO2 and a summary of recovery-related work performed in Panel 7, including relevant photographs, as requested per Paragraph 18(k) of AO2:

During this reporting period, DOE EM released the AIB Phase 2 Report. The AIB completed an exhaustive investigation at WIPP and LANL to examine the cause of the radiological release at the WIPP facility and identify managerial controls and safety measures necessary to prevent or minimize the probability or severity of a recurrence of this type of accident. Based on post-event chemical, radiological, and fire forensic analyses, the AIB concluded that the release was caused by an exothermic reaction involving the mixture of organic materials and nitrate salts in one drum that was processed at LANL in December 2013. The AIB also concluded that an underground salt haul truck fire that occurred at WIPP on February 5, 2014, did not cause or contribute to the radiological release event. The AIB findings identify shortcomings within both contractor and federal processes at LANL, WIPP, EM, and the National Nuclear Security Administration.

Consistent with the WIPP Recovery Plan, the focus of underground entries has been on radiological characterization and rollback, geotechnical evaluation, habitability surveys, clean up, electrical and mechanical evaluation of systems, and equipment and repairs as needed to support bolting and initial panel closure activities. During this reporting period, work activities included initial closure of Panel 6 and closure of Panel 7, Room 7. Activities in contaminated areas will be performed using separate equipment and personnel protective equipment. Attachment 8, *Panel 7 Recovery-Related Work*, provides a map of the current status of the WIPP underground rollback areas during this reporting period.

More than 1,750 bolts have been installed in the underground since bolting activities resumed in November 2014, with catch-up bolting approximately 70% complete. Bolting activities are prioritized based on geotechnical inspections and surveys. The number of pieces of diesel equipment that can be operated for roof bolting is limited by the available ventilation in the work area and the minimum ventilation flow rate assigned to each piece of equipment based on Mine Safety and Health Administration air quality requirements. Due to these limitations, ventilation adjustments will have to be made as a prerequisite in each location where bolting equipment will operate to ensure equipment airflow requirements are met.

Also during this reporting period, survey work for the interim ventilation system (IVS) commenced in preparation for excavation at the site. Concrete pads will be poured for the new fan/filter units. Fabrication of the ductwork for the IVS is 90% complete. The IVS will augment the existing underground ventilation system and provide additional airflow for underground operations. Photographs in Attachment 10, *Interim Ventilation System Prep Work*, depict work activities related to IVS.

As the Permittees continue to conduct recovery-related activities, additional descriptions will be provided in subsequent reports.

Attachment 1
Surface and Underground Inspections

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Air Intake Shaft Hoist	Underground Operations	Preoperational	WP 04-HO1004 Inspecting for Deterioration, Safety Equipment, Communication Systems, and Mechanical Operability in accordance with Mine Safety and Health Administration (MSHA) requirements	Current	4/29/15	N/A	
Exhaust Shaft	Underground Operations	Quarterly	PM041099 Inspecting for Deterioration and Leaks/Spills	Not Current	12/31/13	N/A	Shaft is not accessible due to the fire and radiological events, and inspections cannot be performed.
Salt Handling Shaft Hoist	Underground Operations	Preoperational	WP 04-HO1002 Inspecting for Deterioration, Safety Equipment, Communication Systems, and Mechanical Operability in accordance with MSHA requirements	Current	4/30/15	N/A	
Self-Rescuers	Underground Operations	Quarterly	WP 04-AU1026 Inspecting for Deterioration and Functionality in accordance with MSHA requirements	Current	3/31/15	N/A	
Underground Openings—Roof Bolts and Travelways	Underground Operations	Weekly	WP 04-AU1007 Inspecting for Deterioration	Current	4/30/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Waste Hoist	Underground Operations	Preoperational	WP 04-HO1003 Inspecting for Deterioration, Safety Equipment, Communication Systems, and Mechanical Operability, Leaks/Spills, in accordance with MSHA requirements	Current	4/30/15	N/A	Hoist is operational for conveyance of equipment and emergency egress.
Explosion-Isolation Walls	Underground Operations	Quarterly	Integrity and Deterioration of Accessible Areas	Current	2/4/15	N/A	Inaccessible area due to ground control. Bolting required for entry.
Bulkhead in Filled Panels	Underground Operations	Monthly	Integrity and Deterioration of Accessible Areas	Not Current	2/4/15	N/A	Inaccessible area due to ground control. Bolting required for entry.
MSHA Air Quality Monitor	Maintenance/ Underground Operations	Daily	WP 12-IH1828 Inspecting for Air Quality Monitoring Equipment Functional Check	Current	4/30/15	N/A	
Ambulances (Surface) and related emergency supplies and equipment	Emergency Services	Weekly	12-FP0030 Inspecting for Mechanical Operability, Deterioration, and Required Equipment	Current	4/26/15	N/A	
Ambulances (Underground) and related emergency supplies and equipment	Emergency Services	Weekly	12-FP0030 Inspecting for Mechanical Operability, Deterioration, and Required Equipment	Current	4/25/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Fire Detection and Alarm System (Underground)	Emergency Services	Semiannually	12-FP0027 Inspecting for Deterioration, Operability of indicator lights and, underground fuel station dry chemical suppression system. Inspection is per NFPA 17	Current	1/8/15	N/A	
Fire Extinguishers (Surface)	Emergency Services	Monthly	12-FP0036 Inspecting for Deterioration, Leaks/Spills, Expiration, seals, fullness, and pressure	Current	4/30/15	N/A	
Fire Extinguishers (Underground)	Emergency Services	Monthly	12-FP0036 Inspecting for Deterioration, Leaks/Spills, Expiration, seals, fullness, and pressure	Current	4/30/15	N/A	
Fire Hoses	Emergency Services	Annually (minimum)	12-FP0031 Inspecting for Deterioration and Leaks/Spills	Current	2/28/15	N/A	
Fire Hydrants	Emergency Services	Semiannual/ annually	12-FP0034 Inspecting for Deterioration and Leaks/Spills	Current	3/28/15: (Semiannual) 7/15/14: (Annual)	N/A	
Fire Pumps	Emergency Services	Weekly/ annually	WP 12-FP0026 Inspecting for Deterioration, Leaks/Spills, valves, and panel lights	Current	4/27/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Fire Sprinkler Systems	Emergency Services	Monthly/ quarterly	WP 12-FP0025 Inspecting for Deterioration, Leaks/Spills, static pressures, and removable strainers	Current	4/27/15, 4/28/15, 4/29/15	N/A	A series of building fire sprinkler systems are inspected on a weekly basis so that a complete system inspection is accomplished on a monthly basis.
Fire and Emergency Response Trucks (Seagrave Fire Apparatus, Fire Suppression Truck)	Emergency Services	Weekly	12-FP0033 Inspecting for Mechanical Operability, Deterioration, Leaks/Spills, and Required Equipment	Current	4/30/15	N/A	The Emergency One Apparatus was replaced with a fire suppression truck. The first inspection completed in April.
Fire and Emergency Response Trucks (Underground Rescue Truck)	Emergency Services	Weekly	12-FP0030 and 12-FP0033 Inspecting for Mechanical Operability, Deterioration, Leaks/Spills, and Required Equipment	Not Current	2/8/14	N/A	As the underground rescue truck is returned to service as part of the recovery, the Permit required inspections will be scheduled and performed and the inspection dates will be noted in this table.
Hazardous Material Response Equipment	Emergency Services	Weekly	12-FP0033 Inspecting for Mechanical Operability, Deterioration, and Required Equipment	Current	4/28/15	N/A	
Miners First Aid Station	Emergency Services	Quarterly	12-FP0035 Inspecting for Required Equipment	Current	4/1/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Personal Protective Equipment (not otherwise contained in emergency vehicles or issued to individuals): —Self-Contained Breathing Apparatus	Emergency Services	Weekly	12-FP0029 Inspecting for Deterioration and Pressure	Current	4/25/15	N/A	
Rescue Truck (Surface)	Emergency Services	Weekly	12-FP0030 and 12-FP0033 Inspecting for Mechanical Operability, Deterioration, Leaks/Spills, and Required Equipment	Current	4/30/15	N/A	
Vehicle Siren (Surface Vehicles)	Emergency Services	Weekly	Functional Test included with inspection of the Ambulances, Fire Trucks, and Rescue Trucks	Current	4/30/15	N/A	
Vehicle Siren (Underground Vehicles)	Emergency Services	Weekly	Functional Test included with inspection of the Ambulances, Fire Trucks, and Rescue Trucks	Current/ Underground Ambulance Only	4/25/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use) ¹	Comments
Adjustable Center of Gravity Lift Fixture	Waste Handling	Preoperational	WP 05-WH1410 Inspecting for Mechanical Operability and Deterioration	Current	3/25/15 (41-T-037) 10/23/14 (41-T-038) 4/19/15 (41-T-032) 4/13/15 (41-T-036)	N/A	
Contact-Handled (CH) TRU Underground Transporter	Waste Handling	Preoperational	WP 05-WH1603 Inspecting for Mechanical Operability, Deterioration, and area around transporter clear of obstacles	Current	2/5/14	When waste disposal operations resume	Equipment not in use due to the fire and radiological events.
Conveyance Loading Car	Waste Handling	Preoperational	WP 05-1406 Inspecting for Mechanical Operability, Deterioration, path clear of obstacles and guards in the proper place	Current	12/15/14 (41-H-018)	When waste disposal operations resume	Equipment not in use due to the fire and radiological events. The preoperational inspection was completed for training purposes only. Inspection was not intended for daily operations.
Facility Transfer Vehicle	Waste Handling	Preoperational	WP 05-WH1204 Inspecting for Mechanical Operability, Deterioration, path clear of obstacles, and guards in the proper place	Current	4/22/15 (41-H-020A) 3/27/15 (41-H-020B)	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use) ¹	Comments
Forklifts Used for Waste Handling (Electric and Diesel forklifts, Push-Pull Attachment) on Surface	Waste Handling	Preoperational	WP 05-WH1201, WP 05-WH1207, WP 05-WH1401, WP 05-WH1402, WP 05-WH1403, and WP 05-WH1412 Inspecting for Mechanical Operability, Deterioration, and On board fire suppression system	Current	4/15/15 (41-H-009) 4/15/15 (41-H-013) 4/20/15 (41-H-051) 8/9/14 (41-T-051) 4/30/15 (41-H-012D) 4/17/15 (41-H-012E) 2/21/15 (74-H-010B)	N/A	
Forklifts Used for Waste Handling (Electric and Diesel forklifts, Push-Pull Attachment) in Underground	Waste Handling	Preoperational	WP 05-WH1201, WP 05-WH1207, WP 05-WH1401, WP 05-WH1402, WP 05-WH1403, and WP 05-WH1412 Inspecting for Mechanical Operability, Deterioration, and On board fire suppression system	Current	4/19/15 (52-H-126)	When waste disposal operations resume	One 6-ton forklift in the underground is now in service in Panel 7. Other forklifts are not in use due to the fire and radiological event.
Surface TRU Mixed Waste Handling Area	Waste Handling	Preoperational or Weekly	WP 05-WH1101 Inspecting for Deterioration, Leaks/Spills, Required Aisle Space, Posted Warnings, Communication Systems, Container Condition, and Floor coating integrity	Current	4/29/15 (Weekly)	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
TRU Mixed Waste Decontamination Equipment	Waste Handling	Annually	WP 05-WH1101 Inspecting for Required Equipment	Current	12/30/14	N/A	
Underground TRU Mixed Waste Disposal Area	Waste Handling	Preoperational	WP 05-WH1810 Inspecting for Deterioration, Leaks/Spills, mine pager phones, equipment, unobstructed access, signs, debris, and ventilation	Current	2/5/14	When waste disposal operations resume	Waste handling operations are suspended therefore preoperational inspections are not being performed.
TDOP Upender	Waste Handling	Preoperational	WP 05-WH1010 Inspecting for Mechanical Operability and Deterioration	Current	10/9/13	When waste disposal operations resume	No change. This is a pre-operational inspection and is not needed for daily operations.
Waste Handling Cranes	Waste Handling	Preoperational	WP 05-WH1407 Inspecting for Mechanical Operability, Deterioration, and Leaks/Spills	Current	1/6/15 (41-T-151A) 4/15/14 (41-T-151B) 4/19/15 (41-T-151D)	N/A	There are four cranes, but the pre-operational inspections were only performed on the cranes listed. The other crane will be inspected prior to use.
Push-Pull Attachment (Surface)	Waste Handling	Preoperational	WP 05-WH1401 Inspecting for Damage and Deterioration	Current	4/15/15 (41-T-160A) 2/21/15 (41-T-160B)	N/A	
Push-Pull Attachment (Underground)	Waste Handling	Preoperational	WP 05-WH1401 Inspecting for Damage and Deterioration	Current	2/5/14	When waste disposal operations resume	Equipment not in use due to the fire and radiological events.

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use) ¹	Comments
Trailer Jockey	Waste Handling	Preoperational	WP 05-WH1405 Inspecting for Mechanical Operability and Deterioration	Current	3/26/15 (41-H-151B) 4/30/15 (41-H-151A) 12/02/14 (41-H-046)	N/A	There are three trailer jockeys. Inspections are only performed if the equipment is used on the shift.
Bolting Robot	Waste Handling	Preoperational	WP 05-WH1203 Mechanical Operability	Current	6/29/12	When waste disposal operations resume	Equipment is currently out of service.
Yard Transfer Vehicle	Waste Handling	Preoperational	WP 05-WH1205 Mechanical Operability, clear of obstacles and Guards in proper place	Current	7/29/14 (41-H-021A) 4/28/15 (41-H-021B)	N/A	
Payload Transfer Station	Waste Handling	Preoperational	WP 05-WH1208 Mechanical Operability, Deterioration, and Guards in proper place	Current	2/15/15 (41-Z-041)	N/A	
Monorail Hoist	Waste Handling	Preoperational	WP 05-WH1202 Mechanical Operability, and leaks/spills	Current	4/01/15 (41-H-027)	N/A	
Bolting Station	Waste Handling	Preoperational	WP 05-WH1203 Mechanical Operability, Deterioration, and Guards in proper place	Current	3/23/15 (41-T-053A) (41-T-054A)	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use) ¹	Comments
Backup Power Supply Diesel Generators	Facility Operations	Monthly	WP 04-ED1301 Inspecting for Mechanical Operability and Leaks/Spills by starting and operating both generators. Results of this inspection are logged in accordance with WP 04-AD3008.	Current	4/26/15 (#1) 4/26/15 (#2)	N/A	
Central Monitoring System (CMS)	Facility Operations	Continuous	Automatic Self-Checking	Current	4/30/15	N/A	
Mine Pager Phones (between surface and underground)	Facility Operations	Monthly	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations	Current	4/30/15	N/A	
Mine Pager Phones (underground)	Facility Operations	Monthly	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations	Current	4/30/15	N/A	
Public Address (and Intercom System) on Surface	Facility Operations	Monthly	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations Systems operated in test mode	Current	4/30/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Public Address (and Intercom System) in Underground	Facility Operations	Monthly	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations Systems operated in test mode	Current	4/30/15	N/A	
Radio Equipment	Facility Operations	Daily	Radios are operated daily and are repaired upon failure	Current	4/30/15	N/A	
Uninterruptible Power Supply (Central UPS)	Facility Operations	Daily	WP 04-ED1542 Inspecting for Mechanical Operability and Deterioration with no malfunction alarms. Results of this inspection are logged in accordance with WP 04- AD3008.	Current	4/30/15	N/A	
Water Tank Level	Facility Operations	Daily	SDD-WD00 Inspecting for Deterioration, and water levels. Results of this inspection are logged in accordance with WP 04-AD3008.	Current	4/30/15	N/A	
Facility Inspections (Water Diversion Berms)	Facility Engineering	Annually	WP 10-WC3008 Inspecting for Damage, Impediments to water flow, and Deterioration	Current	9/7/14	N/A	
Eye Wash and Shower Equipment (Surface)	Equipment Custodian	Weekly	WP 12-IS1832 Inspecting for Deterioration	Current	4/26/15-4/30/15	N/A	

System / Equipment Name	Responsible Organization	Inspection Frequency	Procedure Number and Inspection Criteria	Inspection Status (Current/ Not Current)	Date of Last Inspection	Proposed Start Date (if Not Current or Equipment Not in Use)¹	Comments
Eye Wash and Shower Equipment (Underground)	Equipment Custodian	Weekly	WP 12-IS1832 Inspecting for Deterioration	Current	4/26/15	N/A	
Perimeter Fence, Gates, Signs	Security	Daily	PF0-008 Inspecting for Deterioration and Posted Warnings	Current	4/30/15	N/A	
Underground— Geomechanical Instrumentation System (GIS)	Geotechnical Engineering	Monthly	WP 07-EU1301 Inspecting for Deterioration	Current	4/28/15	N/A	Complete at accessible areas.
Ventilation Exhaust	Maintenance Operations	Quarterly	IC041098 Check for Deterioration and Calibration of Mine Ventilation Rate Monitoring Equipment	Not Current	41F30703 Fan A (11/9/13) 41F30704 Fan B (5/20/13) 41F30702 Fan C (12/18/13)	N/A	The 700 horsepower fans are not in use because underground ventilation system is operating in filtration mode.

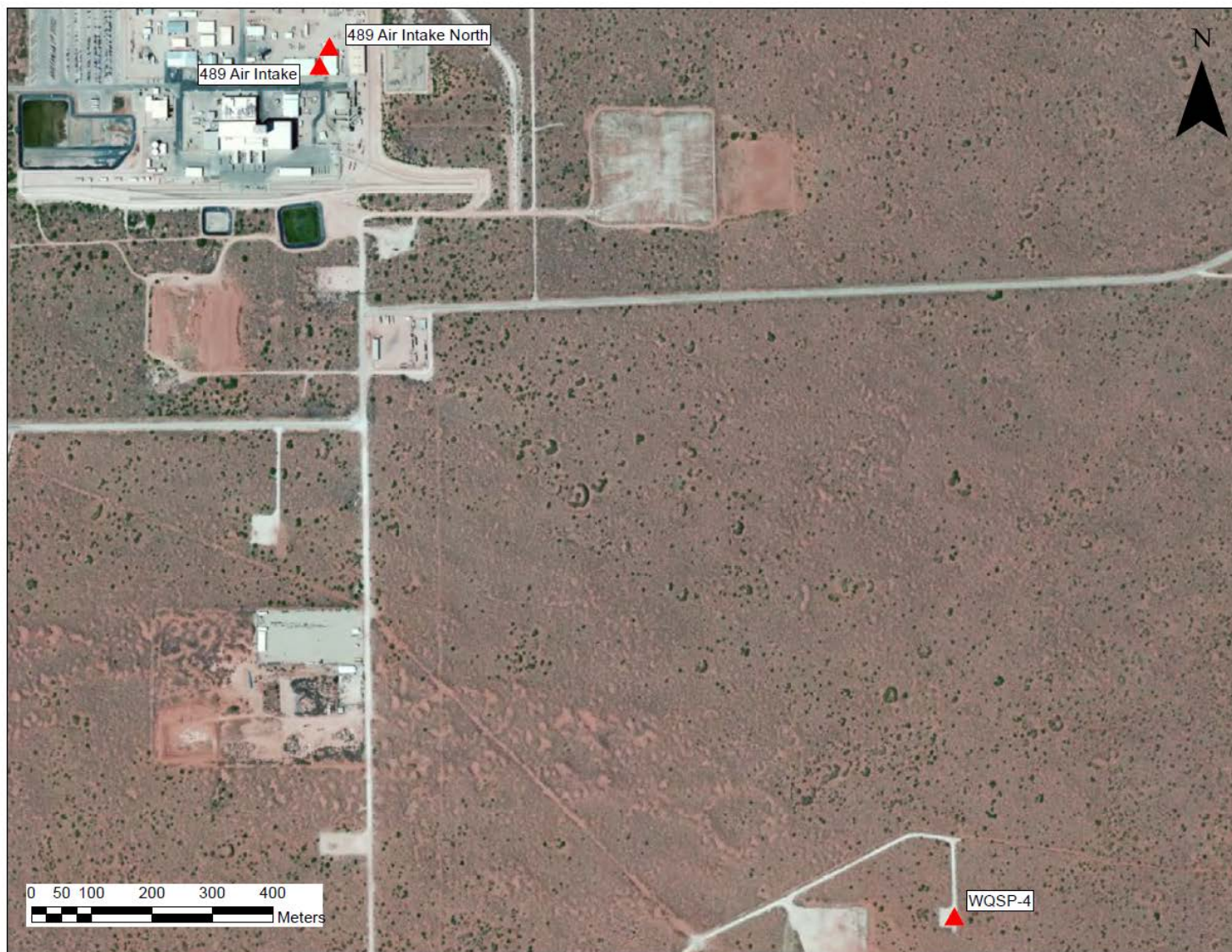
¹ Inspection proposed start date of first quarter of calendar year 2016, is an estimate from the WIPP Recovery Plan. Inspections may be initiated prior to 3/31/16 as work zones are released in the underground. Therefore, 3/31/16 is a "placeholder," and proposed start dates may be revised as recovery work progresses.

Attachment 2
TRU Mixed Waste Currently in Storage at the WIPP Facility (reserved)

Attachment 3 Environmental Monitoring

Attachment 3 contains the following environmental monitoring data:

- VOC Monitoring
- Radiological Monitoring
 - Groundwater samples
 - Soil samples
 - Biota samples



VOC Sampling Locations



VOC Sampling Locations (cont.)

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Toluene	108-88-3	PPBV	0.3	0.18 J
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Butane	106-97-8	PPBV		5.82 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		2.295 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Cyclohexane, methyl-	108-87-2	PPBV		0.36 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Cyclopentane, methyl-	96-37-7	PPBV		0.375 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Dichlorodifluoromethane	75-71-8	PPBV		0.48 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Isobutane	75-28-5	PPBV		3.42 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Pentane	109-66-0	PPBV		2.565 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Pentane, 2-methyl-	107-83-5	PPBV		0.585 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Propane	74-98-6	PPBV		5.715 NJ
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	63.03 J

Qualifiers:

J = Estimated value; below laboratory's method reporting limit (MRL), but above method detection limit (MDL).

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R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	110.87 J
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	6.95 J
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Toluene	108-88-3	PPTV	150	193.86
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Chloroform	67-66-3	PPTV	150	15.93 J
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	28.05 J
CEMRC	2/25/2015	3/6/2015	9207	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	8.22 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	0.135 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.3	0.165 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Butane	106-97-8	PPBV		4.815 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		1.92 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.345 NJ

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		2.835 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Pentane	109-66-0	PPBV		2.22 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		0.555 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Propane	74-98-6	PPBV		4.62 NJ
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	150	62.87 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	131.04 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	11.19 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Toluene	108-88-3	PPTV	150	167.64
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	150	18.17 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	17.31 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	24.12 J
CEMRC	2/25/2015	3/6/2015	9205	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	21.9 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U

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Notes:

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Butane	106-97-8	PPBV		4.92 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		1.96 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Isobutane	75-28-5	PPBV		2.86 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Pentane	109-66-0	PPBV		2.22 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		0.5 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Propane	74-98-6	PPBV		5.54 NJ
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	200	53.26 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	126.72 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	12.08 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Toluene	108-88-3	PPTV	200	146.64 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Chloroform	67-66-3	PPTV	200	17.32 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	24.22 J
CEMRC	2/25/2015	3/6/2015	9206	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	20.2 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	U

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Notes:

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Toluene	108-88-3	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Butane	106-97-8	PPBV		3.735 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		1.59 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Dichlorodifluoromethane	75-71-8	PPBV		0.39 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Isobutane	75-28-5	PPBV		2.13 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Pentane	109-66-0	PPBV		1.635 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Propane	74-98-6	PPBV		3.585 NJ
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	59.97 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	97.1 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Toluene	108-88-3	PPTV	150	137.76 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Chloroform	67-66-3	PPTV	150	13.08 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	22.49 J
CEMRC	2/26/2015	3/6/2015	9210	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Butane	106-97-8	PPBV		3.98 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		1.7 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.4 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		2.24 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Pentane	109-66-0	PPBV		1.68 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Propane	74-98-6	PPBV		4.22 NJ
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	200	60.92 J
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	109.7 J

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Toluene	108-88-3	PPTV	200	132.72 J
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	200	13.38 J
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	22.2 J
CEMRC	2/26/2015	3/6/2015	9208	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Butane	106-97-8	PPBV		3.56 NJ
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		1.6 NJ
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Isobutane	75-28-5	PPBV		2.02 NJ
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Pentane	109-66-0	PPBV		1.48 NJ

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Propane	74-98-6	PPBV		3.78 NJ
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	200	58.92 J
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	109.86 J
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	12 J
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Toluene	108-88-3	PPTV	200	117.84 J
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Chloroform	67-66-3	PPTV	200	13.4 J
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	U
CEMRC	2/26/2015	3/6/2015	9209	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	12.04 J
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Toluene	108-88-3	PPBV	0.4	0.78
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.4	U

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Butane	106-97-8	PPBV		9.58 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		4.06 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Cyclohexane, methyl-	108-87-2	PPBV		1.38 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Cyclopentane, methyl-	96-37-7	PPBV		1.36 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Cyclopropane, ethyl-	1191-96-4	PPBV		0.5 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Heptane	142-82-5	PPBV		0.6 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Isobutane	75-28-5	PPBV		5.3 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Pentane	109-66-0	PPBV		5.26 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Pentane, 2-methyl-	107-83-5	PPBV		1.66 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Pentane, 3-methyl-	96-14-0	PPBV		0.88 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Propane	74-98-6	PPBV		8.38 NJ
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Methylene Chloride	75-09-2	PPTV	200	46.16 J
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	200	95.58 J
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	200	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Toluene	108-88-3	PPTV	200	829.86
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Chloroform	67-66-3	PPTV	200	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	200	49.64 J
CEMRC	3/4/2015	3/19/2015	9213	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	200	U

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	0.24 J
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.3	0.855
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Benzene	71-43-2	PPBV		0.39 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Butane	106-97-8	PPBV		7.575 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		3.3 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		1.2 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		1.29 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Cyclopropane, ethyl-	1191-96-4	PPBV		0.48 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Heptane	142-82-5	PPBV		0.54 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		4.155 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Pentane	109-66-0	PPBV		4.29 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.35 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Pentane, 3-methyl-	96-14-0	PPBV		0.75 NJ
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Propane	74-98-6	PPBV		6.48 NJ

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	150	58.32 J
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	238.37
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	31.83 J
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Toluene	108-88-3	PPTV	150	883.29
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	150	26.99 J
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	45.03 J
CEMRC	3/4/2015	3/19/2015	9211	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	74.63 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	0.135 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.3	0.795
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Benzene	71-43-2	PPBV		0.36 NJ

Qualifiers:

J = Estimated value; below laboratory's method reporting limit (MRL), but above method detection limit (MDL).

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NJ = Presumptive evidence of the presence of the compound at an estimated quantity; only used for tentatively identified compounds (TICs).

R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Butane	106-97-8	PPBV		7.515 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		3.36 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		1.17 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		1.275 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Cyclopropane, ethyl-	1191-96-4	PPBV		0.42 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Heptane	142-82-5	PPBV		0.525 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Isobutane	75-28-5	PPBV		4.065 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Pentane	109-66-0	PPBV		4.17 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.335 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Pentane, 3-methyl-	96-14-0	PPBV		0.735 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Propane	74-98-6	PPBV		5.865 NJ
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	150	52.91 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	141.68 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	13.37 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Toluene	108-88-3	PPTV	150	801.65
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Chloroform	67-66-3	PPTV	150	18.72 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	44.04 J
CEMRC	3/4/2015	3/19/2015	9212	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	31.08 J

Qualifiers:

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	0.09 J
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Toluene	108-88-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Butane	106-97-8	PPBV		2.115 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		1.02 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Dichlorodifluoromethane	75-71-8	PPBV		0.375 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Isobutane	75-28-5	PPBV		1.185 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Pentane	109-66-0	PPBV		0.96 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Propane	74-98-6	PPBV		2.085 NJ
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	60.39 J
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	94.44 J
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Toluene	108-88-3	PPTV	150	90.8 J

Qualifiers:

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Chloroform	67-66-3	PPTV	150	14.87 J
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9216	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	0.135 J
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Butane	106-97-8	PPBV		2.205 NJ
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		1.05 NJ
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.465 NJ
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		1.245 NJ
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Pentane	109-66-0	PPBV		0.96 NJ
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Propane	74-98-6	PPBV		2.25 NJ

Qualifiers:

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	150	70.01 J
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	128.48 J
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Toluene	108-88-3	PPTV	150	89.37 J
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	150	15.89 J
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9214	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Butane	106-97-8	PPBV		2.175 NJ
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.42 NJ

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Isobutane	75-28-5	PPBV		1.215 NJ
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Pentane	109-66-0	PPBV		0.945 NJ
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Propane	74-98-6	PPBV		2.235 NJ
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Trichloromonofluoromethane	75-69-4	PPBV		0.39 NJ
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	150	68.55 J
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	125.64 J
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Toluene	108-88-3	PPTV	150	80.19 J
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Chloroform	67-66-3	PPTV	150	15.21 J
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	20.57 J
CEMRC	3/5/2015	3/19/2015	9215	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Toluene	108-88-3	PPBV	0.3	0.63 R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U,R

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	3.945 R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Benzene	71-43-2	PPBV		0.36 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Bromofluorobenzene, p-, m-, o-	460-00-4, 1073-06-9, 1072-85-1	PPBV		12.135 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Butane	106-97-8	PPBV		8.49 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		3.735 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Cyclohexane, methyl-	108-87-2	PPBV		1.065 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Cyclopentane, methyl-	96-37-7	PPBV		1.125 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Cyclopropane, ethyl-	1191-96-4	PPBV		0.405 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Heptane	142-82-5	PPBV		0.465 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Isobutane	75-28-5	PPBV		4.62 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Nonanal	124-19-6	PPBV		0.42 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Pentane	109-66-0	PPBV		4.245 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Pentane, 2-methyl-	107-83-5	PPBV		1.29 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Pentane, 3-methyl-	96-14-0	PPBV		0.675 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Propane	74-98-6	PPBV		6.48 NJ,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	54.51 J,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	88.76 J,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U,R

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Toluene	108-88-3	PPTV	150	644.55 R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Chloroform	67-66-3	PPTV	150	12.69 J,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	40.55 J,R
CEMRC	3/11/2015	3/20/2015	9219	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	3763.71 R
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.4	0.82
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	1.54
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Butane	106-97-8	PPBV		10 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		4.52 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		1.44 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		1.58 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Cyclopropane, ethyl-	1191-96-4	PPBV		0.56 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Heptane	142-82-5	PPBV		0.68 NJ

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		5.3 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Pentane	109-66-0	PPBV		5.24 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.66 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Pentane, 3-methyl-	96-14-0	PPBV		0.88 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Propane	74-98-6	PPBV		8.42 NJ
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	200	51.8 J
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	131.46 J
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	13.32 J
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Toluene	108-88-3	PPTV	200	861.22
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	200	17.18 J
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	50.34 J
CEMRC	3/11/2015	3/20/2015	9217	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	1503.12
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	0.3
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.3	0.855
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.3	U

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	0.12 J
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Benzene	71-43-2	PPBV		0.36 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Butane	106-97-8	PPBV		8.55 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		3.645 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		1.395 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		1.44 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Cyclopropane, ethyl-	1191-96-4	PPBV		0.48 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Heptane	142-82-5	PPBV		0.66 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Isobutane	75-28-5	PPBV		4.575 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Nonanal	124-19-6	PPBV		0.48 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Pentane	109-66-0	PPBV		4.455 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.425 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Pentane, 3-methyl-	96-14-0	PPBV		0.78 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Propane	74-98-6	PPBV		6.75 NJ
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	150	54.2 J
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	297.6
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	57 J
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Toluene	108-88-3	PPTV	150	911.07

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Chloroform	67-66-3	PPTV	150	25.02 J
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	48.36 J
CEMRC	3/11/2015	3/20/2015	9218	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	120.11 J
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Toluene	108-88-3	PPBV	0.4	0.54
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Butane	106-97-8	PPBV		8.8 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		3.76 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Cyclohexane, methyl-	108-87-2	PPBV		0.94 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Cyclopentane, methyl-	96-37-7	PPBV		0.82 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Isobutane	75-28-5	PPBV		4.62 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Pentane	109-66-0	PPBV		4.3 NJ

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Pentane, 2-methyl-	107-83-5	PPBV		1.24 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Propane	74-98-6	PPBV		7.72 NJ
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Methylene Chloride	75-09-2	PPTV	200	50.88 J
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	200	89.56 J
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Toluene	108-88-3	PPTV	200	578.06
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Chloroform	67-66-3	PPTV	200	12.1 J
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	200	34.92 J
CEMRC	3/12/2015	3/20/2015	9222	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	0.18 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.4	0.52
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U

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Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Butane	106-97-8	PPBV		9.06 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		3.9 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		0.94 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		0.9 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		4.86 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Nonanal	124-19-6	PPBV		0.48 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Pentane	109-66-0	PPBV		4.34 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.2 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Propane	74-98-6	PPBV		8.52 NJ
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	200	54.6 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	167.66 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	17.36 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Toluene	108-88-3	PPTV	200	543.74
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	200	19.04 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	33.6 J
CEMRC	3/12/2015	3/20/2015	9220	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	42.96 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U

Qualifiers:

J = Estimated value; below laboratory's method reporting limit (MRL), but above method detection limit (MDL).

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R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	0.56
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.4	0.52
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	0.18 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Butane	106-97-8	PPBV		8.96 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		3.96 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		0.9 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		0.86 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Isobutane	75-28-5	PPBV		4.74 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Pentane	109-66-0	PPBV		4.3 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		1.18 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Propane	74-98-6	PPBV		8.42 NJ
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	200	61.9 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	561.28
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	99.96 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Toluene	108-88-3	PPTV	200	534.74

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Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Chloroform	67-66-3	PPTV	200	47.08 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	37.04 J
CEMRC	3/12/2015	3/20/2015	9221	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	191.32 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Toluene	108-88-3	PPBV	0.3	0.18 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Acetone	67-64-1	PPBV		0.405 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Butane	106-97-8	PPBV		2.595 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Dichlorodifluoromethane	75-71-8	PPBV		0.375 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Isobutane	75-28-5	PPBV		1.47 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Pentane	109-66-0	PPBV		1.305 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Propane	74-98-6	PPBV		2.565 NJ

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Trichloromonofluoromethane	75-69-4	PPBV		0.315 NJ
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	57.53 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	104.93 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Toluene	108-88-3	PPTV	150	190.65
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Chloroform	67-66-3	PPTV	150	13.59 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	21.21 J
CEMRC	3/18/2015	3/25/2015	9225	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.4	0.2 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U

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Notes:

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Acetone	67-64-1	PPBV		0.44 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Butane	106-97-8	PPBV		2.52 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.4 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		1.54 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Pentane	109-66-0	PPBV		1.22 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Propane	74-98-6	PPBV		2.6 NJ
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	200	63.14 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	105.56 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Toluene	108-88-3	PPTV	200	198.52 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	200	16.48 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	26 J
CEMRC	3/18/2015	3/25/2015	9223	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	10.7 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.4	U

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Butane	106-97-8	PPBV		2.48 NJ
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Dichlorodifluoromethane	75-71-8	PPBV		0.4 NJ
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Isobutane	75-28-5	PPBV		1.4 NJ
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Pentane	109-66-0	PPBV		1.2 NJ
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Propane	74-98-6	PPBV		2.62 NJ
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	200	62.52 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	169.66 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	17.58 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Toluene	108-88-3	PPTV	200	174.02 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Chloroform	67-66-3	PPTV	200	19.78 J
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	U
CEMRC	3/18/2015	3/25/2015	9224	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	30.22 J

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Toluene	108-88-3	PPBV	0.3	0.345
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Trichloroethylene (1)	79-01-6	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Butane	106-97-8	PPBV		6.45 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Butane, 2-methyl-	78-78-4	PPBV		2.85 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Cyclopentane, methyl-	96-37-7	PPBV		0.63 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Heptane	142-82-5	PPBV		0.315 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Isobutane	75-28-5	PPBV		3.615 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Pentane	109-66-0	PPBV		3.48 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Pentane, 2-methyl-	107-83-5	PPBV		0.96 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Propane	74-98-6	PPBV		5.4 NJ
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Methylene Chloride	75-09-2	PPTV	150	54.71 J
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Carbon Tetrachloride	56-23-5	PPTV	150	101.57 J
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1,1-Trichloroethane	71-55-6	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Chlorobenzene	108-90-7	PPTV	150	U

Qualifiers:

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NJ = Presumptive evidence of the presence of the compound at an estimated quantity; only used for tentatively identified compounds (TICs).

R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Toluene	108-88-3	PPTV	150	365.61
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Chloroform	67-66-3	PPTV	150	12.83 J
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	1,2-Dichloroethane	107-06-2	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9228	WQSP-4	Trichloroethylene (1)	79-01-6	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.4	0.38 J
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Toluene	108-88-3	PPBV	0.4	0.34 J
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Chloroform	67-66-3	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.4	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Butane	106-97-8	PPBV		7.28 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Butane, 2-methyl-	78-78-4	PPBV		2.98 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		0.68 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Isobutane	75-28-5	PPBV		4 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Pentane	109-66-0	PPBV		3.8 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		0.96 NJ

Qualifiers:

J = Estimated value; below laboratory's method reporting limit (MRL), but above method detection limit (MDL).

U = Compound not detected above the MDL.

NJ = Presumptive evidence of the presence of the compound at an estimated quantity; only used for tentatively identified compounds (TICs).

R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Propane	74-98-6	PPBV		7 NJ
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Methylene Chloride	75-09-2	PPTV	200	57.08 J
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Carbon Tetrachloride	56-23-5	PPTV	200	373.66
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	200	51.3 J
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Chlorobenzene	108-90-7	PPTV	200	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Toluene	108-88-3	PPTV	200	343.58
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Chloroform	67-66-3	PPTV	200	37.64 J
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	200	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	200	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	1,2-Dichloroethane	107-06-2	PPTV	200	U
CEMRC	3/19/2015	3/25/2015	9226	Building 489 North Air Intake	Trichloroethylene (1)	79-01-6	PPTV	200	101.52 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Methylene Chloride	75-09-2	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Chlorobenzene	108-90-7	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Toluene	108-88-3	PPBV	0.3	0.315
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Chloroform	67-66-3	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPBV	0.3	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPBV	0.3	0.315

Qualifiers:

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R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.

Validated VOC Monitoring Data – Surface Sampling at the WIPP

analytical services by Carlsbad Environmental Monitoring & Research Center (CEMRC)

Lab	Sample Date	Analysis Date	Sample ID	Location	Compound	CAS	UNITS	MRL*	Concentration
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Acetone	67-64-1	PPBV		1.26 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Butane	106-97-8	PPBV		6.045 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Butane, 2-methyl-	78-78-4	PPBV		2.4 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Cyclohexane, methyl-	108-87-2	PPBV		0.6 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Cyclopentane, methyl-	96-37-7	PPBV		0.63 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Cyclotrisiloxane, hexamethyl-	541-05-9	PPBV		0.42 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Hexanal	66-25-1	PPBV		0.45 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Isobutane	75-28-5	PPBV		3.945 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Pentane	109-66-0	PPBV		3.21 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Pentane, 2-methyl-	107-83-5	PPBV		0.885 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Propane	74-98-6	PPBV		5.28 NJ
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Methylene Chloride	75-09-2	PPTV	150	55.35 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Carbon Tetrachloride	56-23-5	PPTV	150	123 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1,1-Trichloroethane	71-55-6	PPTV	150	14.06 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Chlorobenzene	108-90-7	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Toluene	108-88-3	PPTV	150	332.94
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Chloroform	67-66-3	PPTV	150	38.31 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1-Dichloroethylene	75-35-4	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,1,2,2-Tetrachloroethane	79-34-5	PPTV	150	U
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	1,2-Dichloroethane	107-06-2	PPTV	150	30.39 J
CEMRC	3/19/2015	3/25/2015	9227	Building 489 Air Intake	Trichloroethylene (1)	79-01-6	PPTV	150	319.97

Qualifiers:

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R = Sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample. This qualifier may also be used for data anomalies.

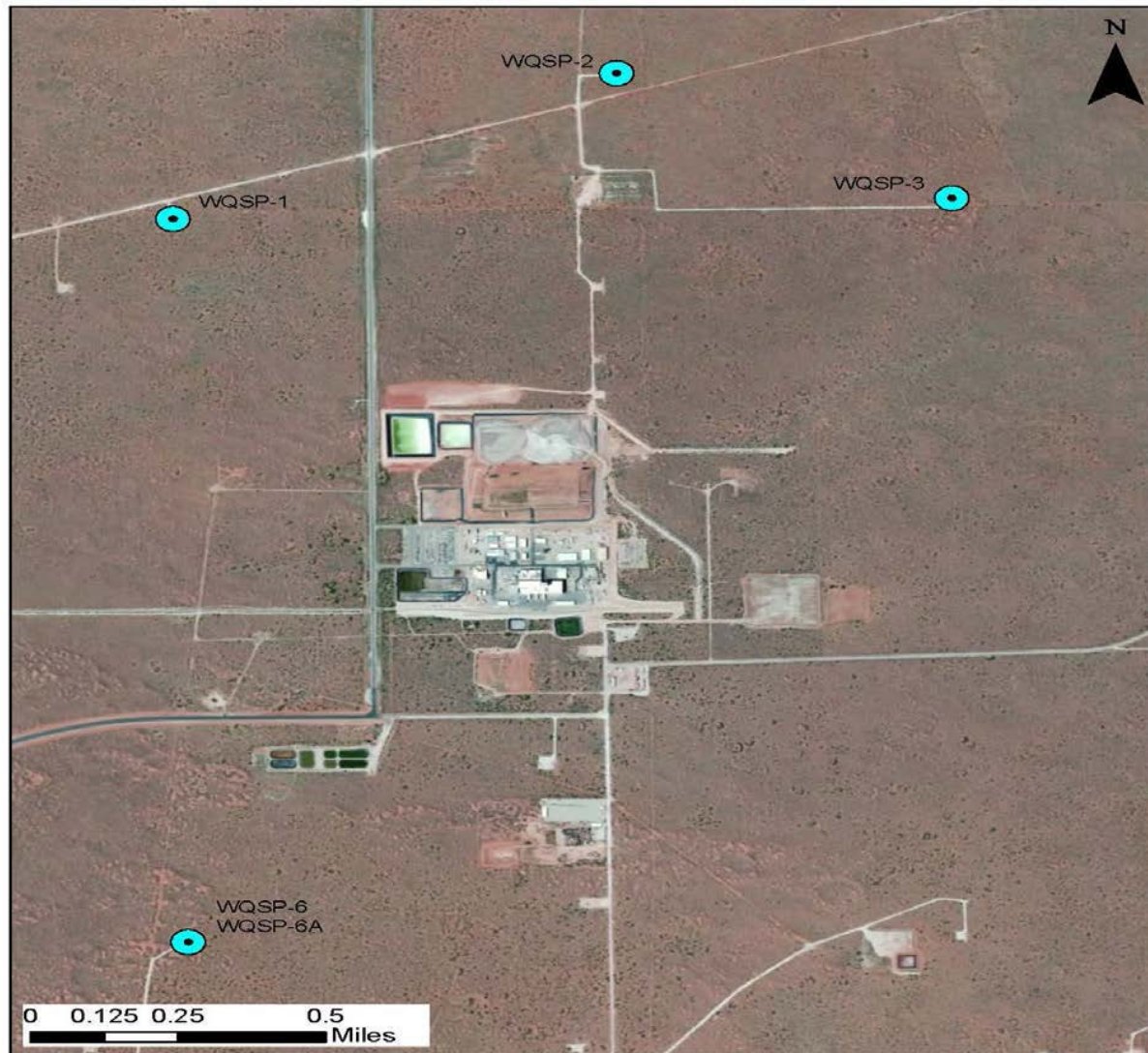
Notes:

(1) Starting with samples collected on or after May 12, 2014, trichloroethylene (TCE) is a target analyte in compliance with Administrative Order dated 5/12/2014. For samples collected before 5/12/2014, TCE is an additional requested analyte; not a Permit-prescribed target analyte but included in the laboratory quantitative analysis.

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* A value will not appear in the MRL column for TICs.



Groundwater Sampling Locations

Environmental Monitoring & Hydrology Groundwater Sampling

April 30, 2015

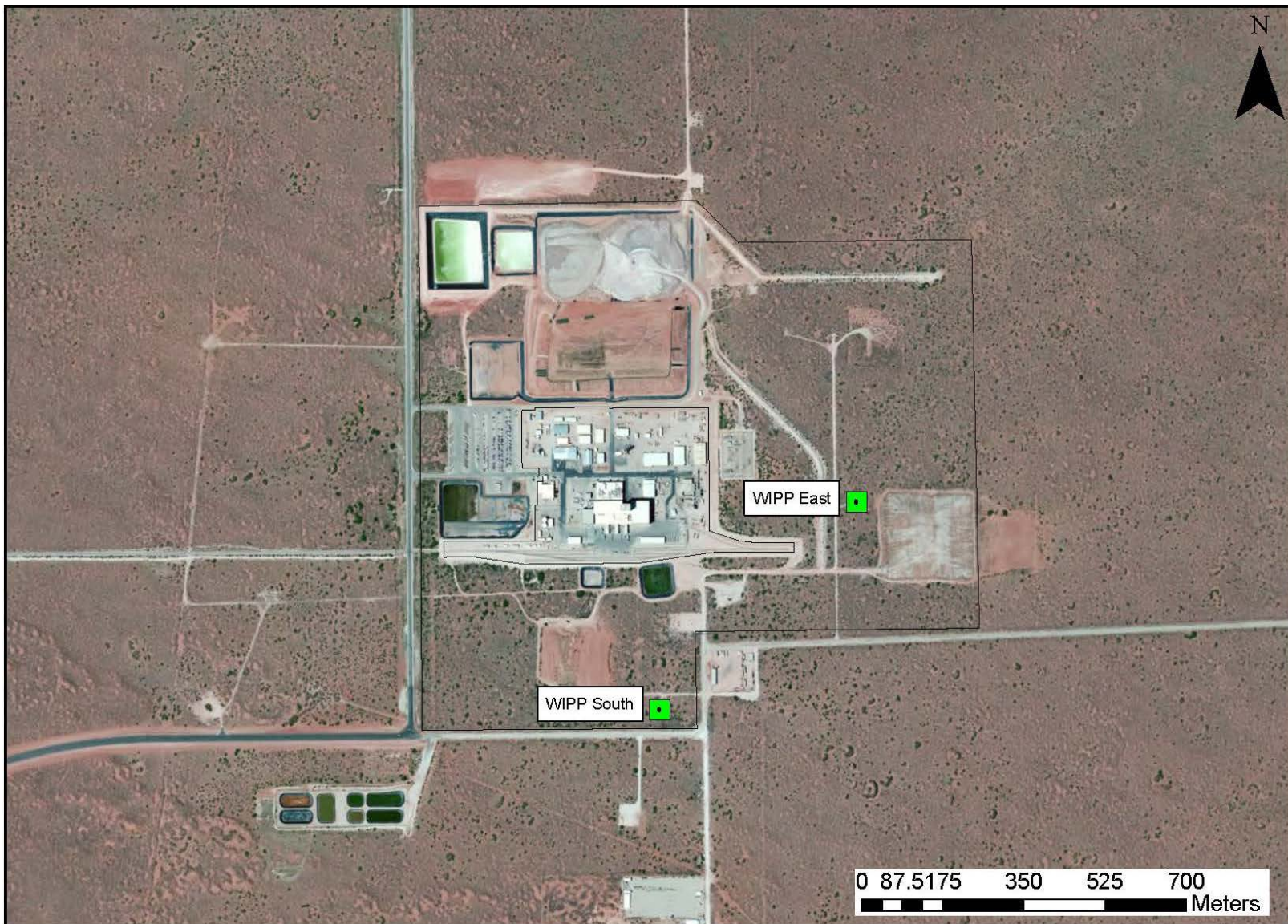
Location	Sample ID Number	Sample Date	WIPP Labs Radiochemistry		
			Am-241 (dpm/L)	Pu-238 (dpm/L)	Pu-239/240 (dpm/L)
WQSP-1	GW-WQ1-C-R37-N8	3/11/2015	Below MDC	Below MDC	Below MDC
WQSP-1 (Duplicate)	GW-WQ1-C-R37-N8D	3/11/2015	Below MDC	Below MDC	Below MDC
Field Blank	GW-BU1-C-R37-N9	3/11/2015	Below MDC	Below MDC	Below MDC

MDC ranges are:

MDC Am-241 (dpm/L): 4.21E-02 to 8.64E-02

MDC Pu-238 (dpm/L): 3.01E-02 to 5.96E-02

MDC Pu-239/240 (dpm/L): 2.59E-02 to 8.56E-02



Soil Sampling Locations

Environmental Monitoring & Hydrology Soil Sampling

April 30, 2015

Location/Depth	Sample ID Number	Sample Date	WIPP Labs Radiochemistry		
			Am-241 (dpm/g)	Pu-238 (dpm/g)	Pu-239/240 (dpm/g)
WIPP Far Field Surface Sample (0-2 cm)	SS-WFF-20150212-1.1	2/12/2015	Below MDC	Below MDC	Below MDC
WIPP Far Field Intermediate Sample (2-5 cm)	SI-WFF-20150212-1.1	2/12/2015	Below MDC	Below MDC	Below MDC
WIPP Far Field Deep Sample (5-10 cm)	SD-WFF-20150212-1.1	2/12/2015	Below MDC	Below MDC	Below MDC
WIPP East Surface Sample (0-2 cm)	SS-WEE-20150216-1.1	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP East Intermediate Sample (2-5 cm)	SI-WEE-20150216-1.1	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP East Deep Sample (5-10 cm)	SD-WEE-20150216-1.1	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Surface Sample (0-2 cm)	SS-WSS-20150216-1.2	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Intermediate Sample (2-5 cm)	SI-WSS-20150216-1.2	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Deep Sample (5-10 cm)	SD-WSS-20150216-1.2	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Surface Sample (0-2 cm) (Duplicate)	SS-WSS-20150216-2.2	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Intermediate Sample (2-5 cm) (Duplicate)	SI-WSS-20150216-2.2	2/16/2015	Below MDC	Below MDC	Below MDC
WIPP South Deep Sample (5-10 cm) (Duplicate)	SD-WSS-20150216-2.2	2/16/2015	Below MDC	Below MDC	Below MDC

MDC ranges are:

MDC Am-241 (dpm/g): 2.62E-02 to 4.94E-02

MDC Pu-238 (dpm/g): 1.61E-02 to 2.96E-02

MDC Pu-239/240 (dpm/g): 1.46E-02 to 3.54E-02

Environmental Monitoring & Hydrology Biota Sampling – Fauna

April 30, 2015

Tissue Type/Location	Sample ID Number	Sample Date	WIPP Labs Radiochemistry		
			Am-241 (dpm/g)	Pu-238 (dpm/g)	Pu-239/240 (dpm/g)
Biotic Deer/Sample of Opportunity	BD-SOO-20150129-1.2	1/29/2015	Below MDC	Below MDC	Below MDC
Biotic Deer/Sample of Opportunity (Dup)	BD-SOO-20150129-2.2	1/29/2015	Below MDC	Below MDC	Below MDC
Biotic Quail/WIPP North	BQ-WNN-20150206-1.2	2/6/2015	Below MDC	Below MDC	Below MDC
Biotic Quail/WIPP North (Dup)	BQ-WNN-20150206-2.2	2/6/2015	Below MDC	Below MDC	Below MDC

MDCs ranges are:

MDC Am-241 (dpm/g): 2.01E-02 to 5.01E-02

MDC Pu-238 (dpm/g): 1.27E-02 to 2.60E-02

MDC Pu-239/240 (dpm/g): 8.64E-03 to 2.52E-02

Attachment 4
Surface and Underground Derived Waste Currently in Storage at the WIPP Facility
(reserved)

Attachment 5
Status of RCRA Contingency Plan Required Activities (reserved)

Attachment 6
Corrective Actions Required for Recovery

The table below summarizes the conclusions (CONs) and judgments of need (JONs) determined by the AIB from the Phase 2 Report. The conclusions are derived from the analytical results performed during the accident investigation for determining what happened and why it happened.

Conclusion (CON)	Judgment of Need (JON)
<p>CON 1: Implementation of the characterization processes established in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP), Attachment C, Waste Analysis Plan (WAP) was not fully consistent with the criteria in 40 CFR 261.21, <i>Characteristic of Ignitability</i>. Specifically, characterization processes should have identified LA-MIN02-V.001 as ignitable because:</p> <ul style="list-style-type: none"> • It is an oxidizer; and • Addition of the organic absorbent created conditions that made the waste capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burning so vigorously and persistently that it creates a hazard. 	<p>JON 1: The National Transuranic (TRU) Program needs to re-evaluate and strengthen the flow down of requirements regarding the compilation of Acceptable Knowledge (AK) in order to more clearly demonstrate that the WIPP HWFP, Attachment C, WAP waste characteristics prohibitions and chemical compatibility requirements are met consistent with 40 CFR 261.21.</p>
<p>CON 2: Execution of the National Transuranic (TRU) Program certification audit process for the LANL waste generator activities where Central Characterization Program (CCP) performs TRU waste characterization and certification failed to include key elements of waste packaging and characterization processes. In part, this was attributed to a lack of clear roles and responsibilities; and expectations. Specific elements include:</p> <ul style="list-style-type: none"> • Waste Characterization, Reduction, and Repackaging Facility (WCRRF) glovebox treatment and repackaging operations; • Ensuring that TRU waste accepted for management and disposal at WIPP complies with the WIPP Hazardous Waste Facility Permit (HWFP), applicable laws, and regulations described in the Waste Acceptance Criteria (WAC); and • Verification that Los Alamos National Security, LLC (LANS) prepared implementation documentation and programs to meet the requirements and criteria of the WIPP WAC and that the CCP maintained an accurate and compliant Acceptable Knowledge Summary Report for the LA-MIN02-V.001 waste stream. 	<p>JON 2: The National TRU Program needs to re-evaluate and strengthen the certification audit process across the Department of Energy (DOE) complex at all generator sites to include:</p> <ul style="list-style-type: none"> • Evaluation of waste generator repackaging operations that prepare TRU waste for characterization; • Implementation of waste generator site processes as they relate to TRU waste management; • Verification that changes to processes are correctly incorporated into acceptable knowledge summary reports; • Verification of effective implementation documentation and programs to ensure that waste generator activities comply with the generator site Resource Conservation and Recovery Act (RCRA) permit; and • Evaluation of local site office oversight of TRU waste operations.

Conclusion (CON)	Judgment of Need (JON)
<p>CON 3: The National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) oversight activities were ineffective in identifying weaknesses in the execution of waste packaging, characterization, and certification of transuranic (TRU) waste at Los Alamos National Laboratory (LANL).</p>	<p>JON 3: NA-LA oversight of characterization and certification of TRU waste sites needs to be improved to include:</p> <ul style="list-style-type: none"> • Waste Characterization, Reduction, and Repackaging Facility (WCRRF) repackaging operations that prepare TRU waste for characterization; • Implementation of waste generator site processes as they relate to TRU waste management; and • Verification that waste generator activities comply with the generator site Resource Conservation and Recovery Act (RCRA) permit.
<p>CON 4: Carlsbad Field Office (CBFO) oversight activities associated with the characterization and certification of transuranic (TRU) waste were ineffective in identifying programmatic weaknesses through the execution of certification audits and surveillances at LANL.</p>	<p>JON 4: The CBFO oversight of characterization and certification of TRU waste sites needs to be improved to include:</p> <ul style="list-style-type: none"> • Waste generator repackaging operations that prepare TRU waste for characterization; • Implementation of waste generator site processes as they relate to TRU waste management; • Verification of effective implementation documentation and programs to ensure that waste generator activities comply with the generator site Resource Conservation and Recovery Act (RCRA) permit; and • Evaluation of local site office oversight of TRU waste operations. <p>JON 5: CBFO needs to evaluate and restructure their organization such that objective oversight of the National TRU Program is evident and effective in ensuring that waste generator sites comply with requirements including appropriate separation of CBFO line management and oversight functions and responsibilities.</p> <p>JON 6: Department of Energy Headquarters needs to review expectations documented in existing National TRU Program policy directives and take action necessary to clearly assert that CBFO, as the manager of the WIPP repository, has the authority to conduct oversight of waste generator site programs and processes necessary to provide assurance that any activities that could impact characterization and certification of waste are verified to be compliant.</p>

Conclusion (CON)	Judgment of Need (JON)
<p>CON 5: Implementation of requirements listed in CCP-PO-001, <i>CCP Transuranic Waste Characterization Quality Assurance Project Plan</i>, did not ensure that waste characterization methods and Acceptable Knowledge (AK) were effective in preventing the shipment of corrosive, ignitable, or reactive wastes.</p>	<p>JON 7: The Central Characterization Program (CCP) needs to improve implementation of requirements in CCP-PO-001 such that characterization methods are able to ensure that all WIPP Waste Acceptance Criteria (WAC) requirements are met.</p>
<p>CON 6: The preparation, review and approval of CCP-AK-LANL-006, <i>Acceptable Knowledge (AK)</i> summary report revisions by the Central Characterization Program (CCP) was not effective in identifying the potential impact of adding incompatible secondary waste items to the LA-MIN02-V.001 waste stream, in part due to poor communications between LANS and CCP.</p>	<p>JON 8: The CCP needs to improve the level of rigor in reviewing and approving AK summary reports for compliance with requirements.</p>
<p>CON 7: Los Alamos National Security, LLC (LANS) did not adequately evaluate the impact on the WIPP Waste Acceptance Criteria (WAC) or effectively control the addition of secondary job waste into transuranic (TRU) waste containers.</p>	<p>JON 9: LANS needs to improve the level of rigor in evaluating and controlling the addition of secondary job waste into TRU waste containers.</p>
<p>CON 8: Los Alamos National Security, LLC (LANS) did not adequately incorporate upper tier requirements into the development of repackaging activities in the Waste Characterization, Reduction and Packaging Facility (WCRRF). Specifically:</p> <ul style="list-style-type: none"> • The Carlsbad Field Office (CBFO) directed controls contained in the LANL-CO white paper based on the Energetic Materials Research and Testing Center (EMRTC) Report RF 10-13; and • The requirements associated with the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit (HWFP): <ul style="list-style-type: none"> - Nitrate salt-bearing wastes did not fully meet the LANL HWFP “special requirements” for managing ignitable wastes, including segregation and separation, and use of non-sparking tools; - Did not comply with the LANL HWFP requirement that the nitrate salt-bearing waste drums be labeled with all applicable Environmental Protection Agency (EPA) hazardous waste numbers; 	<p>JON 10: LANS needs to strengthen the processes that ensure the flow down of upper tier requirements into their implementing procedures such that execution of work is compliant.</p> <p>JON 11: CBFO needs to conduct an extent of condition review of other waste generator sites to determine the adequacy of the flow down into the operating procedures and implementation of RCRA requirements contained in the WIPP Waste Acceptance Criteria (WAC) and hazardous waste permits regarding the treatment and repackaging of TRU waste.</p>

Conclusion (CON)	Judgment of Need (JON)
<ul style="list-style-type: none"> - Placed incompatible wastes and materials in the same container and did not impose special precautions; - Did not label the nitrate salt-bearing waste prior to transport and remediation at the WCRRF; and - Did not label the unremediated nitrate salt-bearing waste drums which contained liquids as Resource Conservation and Recovery Act (RCRA) corrosive. 	
<p>CON 9: The preparation, review and approval of CCP-AK-LANL-006, Acceptable Knowledge (AK) summary report revisions by the Central Characterization Program (CCP) was not effective in identifying the potential impact of changes to EP-WCRR-WO-DOP-233 Glovebox Operations, on the LA-MIN02-V.001 waste stream, in part due to poor communications between LANS and CCP.</p>	<p>JON 12: The CCP needs to reevaluate and strengthen the process used to conduct review and approval of source documents that have an impact on AK.</p>
<p>CON 10: Los Alamos National Security, LLC (LANS) failed to provide sound technical basis for decisions regarding repackaging procedures and processes for the LA-MIN02-V.001 waste stream.</p>	<p>JON 13: LANS needs to strengthen documentation to include a detailed technical basis to justify decisions made regarding change control for procedures and processes for the LA-MIN02-V.001 waste stream.</p>
<p>CON 11: Los Alamos National Security, LLC (LANS) did not utilize a formal engineering change control process to develop modifications to repackaging activities in the Waste Characterization, Reduction and Packaging Facility (WCRRF).</p>	<p>JON 14: LANS needs to implement an effective engineering change control process that includes defensible technical bases to justify process modifications.</p>
<p>CON 12: Los Alamos National Security, LLC (LANS) failed to ensure that there was sufficient detail provided in the Waste Characterization, Reduction, and Repackaging Facility (WCRRF) glovebox procedure to ensure safe, consistent, and compliant repackaging of waste and accurate documentation of the contents of the waste drums in the records.</p>	<p>JON 15: LANS needs to revise the WCRRF glovebox operations procedure to contain the necessary level of detail to ensure safe, consistent, and compliant remediation of nitrate salt bearing waste.</p> <p>JON 16: The glovebox operations procedure needs to be revised to require operators to document critical process steps in a quality record (e.g., initial pH, absorbent added, neutralizer used, adjusted pH).</p> <p>JON 17: Operators need to be adequately trained on the revised glovebox operations procedure.</p>

Conclusion (CON)	Judgment of Need (JON)
<p>CON 13: Available data indicated that oxidation was occurring in the Standard Waste Box (SWB) where sibling drum 68685 was stored, along with other similarly remediated waste drums.</p>	<p>JON 18: Los Alamos National Security (LANS) needs to investigate and determine the cause for oxidation in sibling drum 68685 and take action to mitigate the condition as well as prevent future nitrate salt bearing waste drums (remediated and unremediated) from oxidizing.</p>
<p>CON 14: The Waste Characterization, Reduction, and Repackaging Facility (WCRRF) Basis for Interim Operation (BIO) did not thoroughly describe or evaluate nitrate salt processing or waste storage activities.</p>	<p>JON 19: The WCRRF BIO needs to be revised to include more specificity in description of nitrate salt processing activities and then update the hazard analysis to include identification of all hazards and their evaluations.</p> <p>JON 20: LANS needs to review the Area G BIO in light of changes made to the WCRRF BIO and update accordingly.</p> <p>JON 21: LANS needs to conduct an extent of condition review for issues that are similar to nitrate salt bearing waste processing in WCRRF and Area G.</p>
<p>CON 15: The Los Alamos National Security, LLC (LANS) Unreviewed Safety Question (USQ) process was ineffective in ensuring that important procedure changes related to processing of nitrate salts were adequately evaluated for impacts to the safety basis.</p>	<p>JON 22: LANS needs to ensure that USQ evaluators are organizationally independent of line management.</p> <p>JON 23: LANS needs to conduct retraining of USQ process evaluators/approvers focused on implementation of the Unreviewed Safety Question Determination (USQD) process consistent with DOE Guide 424.1-1B, Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements.</p> <p>JON 24: The National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) needs to assess the LANS USQ program.</p>
<p>CON 16: The Los Alamos National Security, LLC (LANS) contractor assurance system was not effective in identifying weaknesses in the process for developing/changing procedures, analyzing and controlling hazards, performing work to repackage nitrate salt bearing wastes, and feedback mechanisms which resulted in the production and shipping of noncompliant waste drums to the Waste Isolation Pilot Plant and Waste Control Specialists, LLC (WCS).</p>	<p>JON 25: LANS Environmental and Waste Management Operations (EWMO) needs to develop and implement a fully integrated contractor assurance system that provides DOE and LANS confidence that work is performed compliantly, risks are identified, and control systems are effective and efficient.</p> <p>Specific areas to be addressed include:</p> <ul style="list-style-type: none"> • Ensuring adequate scope and associated depth and breadth of self-assessments, independent assessments and management assessments; • Clarifying the oversight role of LANS EWMO with regard to subcontractors and waste processing/packaging operations;

Conclusion (CON)	Judgment of Need (JON)
	<ul style="list-style-type: none"> • Ensuring required environmental program oversight i.e., the Resource Conservation and Recovery Act (RCRA) (hazardous waste determination, upper tier requirements flow down into implementing procedures, waste determination, records); • Including the necessary rigor in implementation of the change control process (review and approval by subject matter experts); • Verifying that requirements are flowed down into implementing procedures (e.g., RCRA requirements, TRU Waste Authorized Methods for Payload Control, etc.); and • Evaluating and responding to feedback from Waste Characterization, Reduction, and Repackaging Facility (WCRRF) operations by LANS senior management (e.g., notification of reactions in the glovebox).
<p>CON 17: The National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) oversight was ineffective in identifying weaknesses that contributed to this event.</p>	<p>JON 26: NA-LA needs to strengthen its oversight of Los Alamos National Security, LLC (LANS) Environmental and Waste Management Operations (EWMO) to ensure that:</p> <ul style="list-style-type: none"> • Resource Conservation and Recovery Act (RCRA) oversight is performed; • Focus is placed on operational oversight in addition to budget/financial oversight; • On the ground operational oversight expands beyond that performed by the facility representatives to include adequate subject matter expertise; • NA-LA performs oversight of contractor activities related to waste certification in accordance with the WIPP Waste Acceptance Criteria (WAC); • Roles and responsibilities for oversight of Waste Characterization, Reduction, and Repackaging Facility (WCRRF) operations are made clear; • Staffing shortages are addressed, including: <ul style="list-style-type: none"> - Facility representatives, short three full-time equivalencies (FTEs); - Senior technical safety manager, short two FTEs; - The staffing reduction in environmental compliance, down from five to three FTEs since 2011; and - Senior technical advisor position has been vacant since 2008.

Conclusion (CON)	Judgment of Need (JON)
	<ul style="list-style-type: none"> Formal verification that there is an effective LANS Contractor Assurance System (CAS) in place for environmental compliance. <p>JON 27: NA-LA needs to verify that LANS has developed and implemented a CAS compliant with DOE Order 226.1B, <i>Implementation of Department of Energy Oversight Policy</i>.</p>
<p>CON 18: The federal roles, responsibilities and execution for oversight of the activities between the generator site transuranic (TRU) waste program (LANL) and the TRU Waste Central Characterization Program (CCP) were inadequate.</p>	<p>JON 28: The National TRU Program needs to clarify NA-LA and Carlsbad Field Office (CBFO) expectations and oversight roles and responsibilities between the generator site TRU waste program (LANL) and the TRU waste CCP.</p> <p>JON 29: NA-LA and CBFO needs to perform effective federal oversight of CCP review and approval of waste management operating procedures/process changes (e.g., WCRRF glovebox operating procedure).</p> <p>JON 30: Department of Energy Headquarters and CBFO need to conduct an extent of condition review of the overall federal oversight across the Department of Energy complex in all three key segments of the National TRU Program: the Generator Site TRU Waste Program, TRU Waste Certification Program, and the Disposal System Program (WIPP).</p>
<p>CON 19: Department of Energy (DOE) Headquarters did not perform DOE O 435.1, <i>Radioactive Waste Management</i>, oversight activities for implementation of requirements associated with the operational performance within the National Transuranic (TRU) Program.</p>	<p>JON 31: DOE Headquarters needs to develop and implement a DOE O 435.1 comprehensive oversight program for National TRU Program activities.</p>
<p>CON 20: Los Alamos National Security, LLC (LANS) existing processes governing the preparation, review, and approval of Environmental Programs procedures did not contain sufficient guidance related to hazard analysis and subject matter expert review necessary to ensure safe, consistent, and compliant execution of waste processing.</p>	<p>JON 32: LANS needs to review and revise EP-DIR-AP-10007, <i>Environmental Programs Procedure Preparation, Revision, Review, Approval, and Use</i>, to ensure that all procedures and procedure revisions contain:</p> <ul style="list-style-type: none"> The necessary level of detail to ensure the safe, consistent, and compliant performance of work, including process steps, materials, and material substitutions; Explicit requirements and criteria regarding inclusion of appropriate subject matter experts and their review and concurrence with new and revised procedures; and Requirements that a job hazard analysis is appropriately amended when new activities such as nitrate salt remediation that could introduce new hazards are incorporated into

Conclusion (CON)	Judgment of Need (JON)
<p>CON 21: The WIPP Fire Hazard Analysis (FHA) was ineffective in identifying and analyzing the potential for a fire starting within the waste array, as well as the potential for fire propagation within the array.</p>	<p>existing processes.</p> <p>JON 33: Nuclear Waste Partnership LLC (NWP) needs to re-evaluate the quantities, type, and form of exposed combustible emplacement materials used in the waste array and take action to minimize the fire ignition and propagation risks (e.g., eliminate unnecessary materials, and include fire retardant additives).</p> <p>JON 34: NWP needs to revise the waste array emplacement strategy to include criteria that limit the risk of fire propagation within the array, to include limiting the quantity of radiological waste that is at-risk from a single fire or explosion event.</p> <p>JON 35: NWP needs to revise the FHA to identify and address all credible fire and explosion scenarios initiated within the waste array underground.</p> <p>JON 36: NWP needs to reevaluate and revise the WIPP FHA to better characterize the fire risks associated with transuranic (TRU) waste packaging during handling and storage. This needs to include reevaluation of actions detailed in the WIPP Recovery Plan.</p> <p>JON 37: The Office of Environmental Management Headquarters needs to ensure that waste generator site's FHAs adequately characterize the fire risks associated with TRU waste packaging during handling and storage.</p>
<p>CON 22: EnergySolutions, LLC (ES) operators and supervisors were not adequately trained and qualified to process waste with regard to identification and control of incompatible materials.</p>	<p>JON 38: LANS needs to evaluate and strengthen the operator and supervisor training programs of LANS and their subcontractors to ensure adequate understanding of basic chemistry interactions and associated controls.</p>
<p>CON 23: Los Alamos National Security, LLC (LANS), EnergySolutions, LLC (ES) and National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) allowed the safety culture at the Los Alamos National Laboratory (LANL) to deteriorate within pockets of the organization as evidenced by the workers' feedback that they did not feel comfortable identifying issues that may adversely affect management direction, delay mission-related objectives, or otherwise affect cost or schedule. In addition, management failed to effectively respond to workers' issues regarding unexpected conditions, i.e., generation of smoke and foaming, encountered during waste processing activities.</p>	<p>JON 39: LANS and NA-LA need to develop and implement a more rigorous, effective integrated safety management system that embraces and implements the attributes of DOE G 450.4-1C, <i>Integrated Safety Management Guide</i>, including but not limited to:</p> <ul style="list-style-type: none"> • Demonstrated leadership in risk-informed, conservative decision making; • Improved learning through error reporting and effective resolution of problems; • Line management encouraging a questioning attitude without fear of reprisal and following through to resolve issues identified by the workforce.

Conclusion (CON)	Judgment of Need (JON)
<p>CON 24: Questioning attitudes were not welcomed by management and many issues and hazards did not appear to be readily recognized by site personnel.</p>	<p>Consideration should also be given to some additional contract incentive associated with leading a culture change that fosters the desired work environment. The Los Alamos National Security, LLC (LANS), Energy <i>Solutions</i>, LLC (ES) and National Nuclear Security Administration (NNSA) Los Alamos Field Office (NA-LA) stop work related processes need to ensure that response to issues raised by workers are based on sound, technical justification.</p> <p>JON 40: Department of Energy Headquarters needs to engage safety culture expertise to provide training and mentoring to LANS, ES, and NA-LA management on the principles of a strong safety culture and take appropriate corrective action based on the outcome.</p>

Attachment 7
As-Found Condition of Panel 7



Closure Work Activities for Panel 7, Room 7 – Placing Chain-link and Brattice Cloth



Closure Work Activities for Panel 7, Room 7 – Placing Chain-link and Brattice Cloth

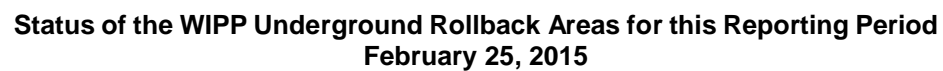


Closure Work Activities for Panel 7, Room 7 – Placing Chain-link and Brattice Cloth



Closure Work Activities for Panel 7, Room 7 – Placing Chain-link and Brattice Cloth

Attachment 8
Panel 7 Recovery-Related Work



Attachment 9
As-Found Condition of Panel 6



As-Found Condition of Panel 6, S-2750 Drift



S-2750 Panel 6 Initial Closure – Bulkhead Installation in Progress



S-2750 Panel 6 Initial Closure – Bulkhead Installation Completed



S-3080 Panel 6 Initial Closure – Substantial Barrier Construction



S-3080 Panel 6 Initial Closure – Substantial Barrier Construction



S-3080 Panel 6 Initial Closure – Substantial Barrier Completed

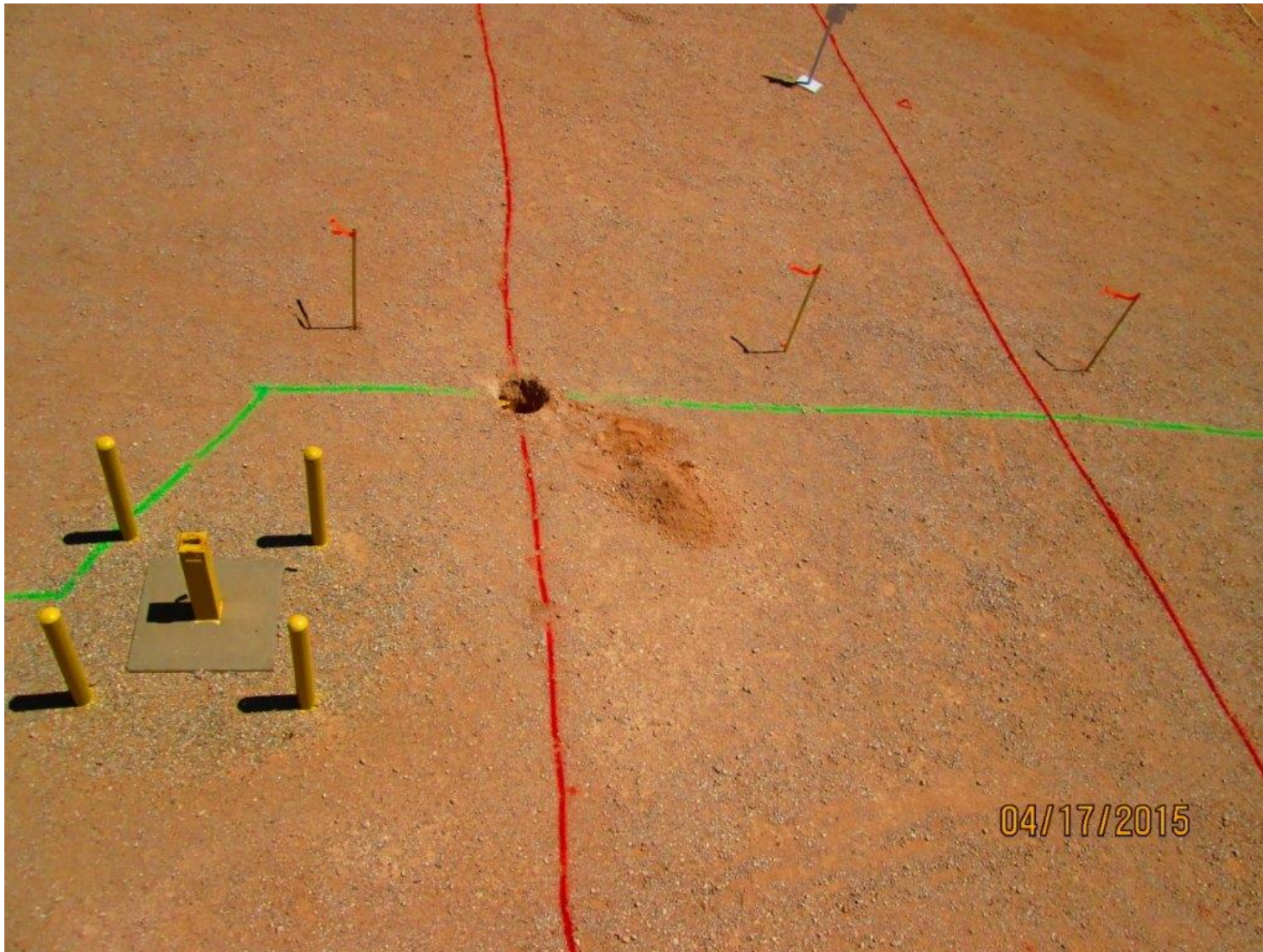
Attachment 10
Interim Ventilation System Prep Work



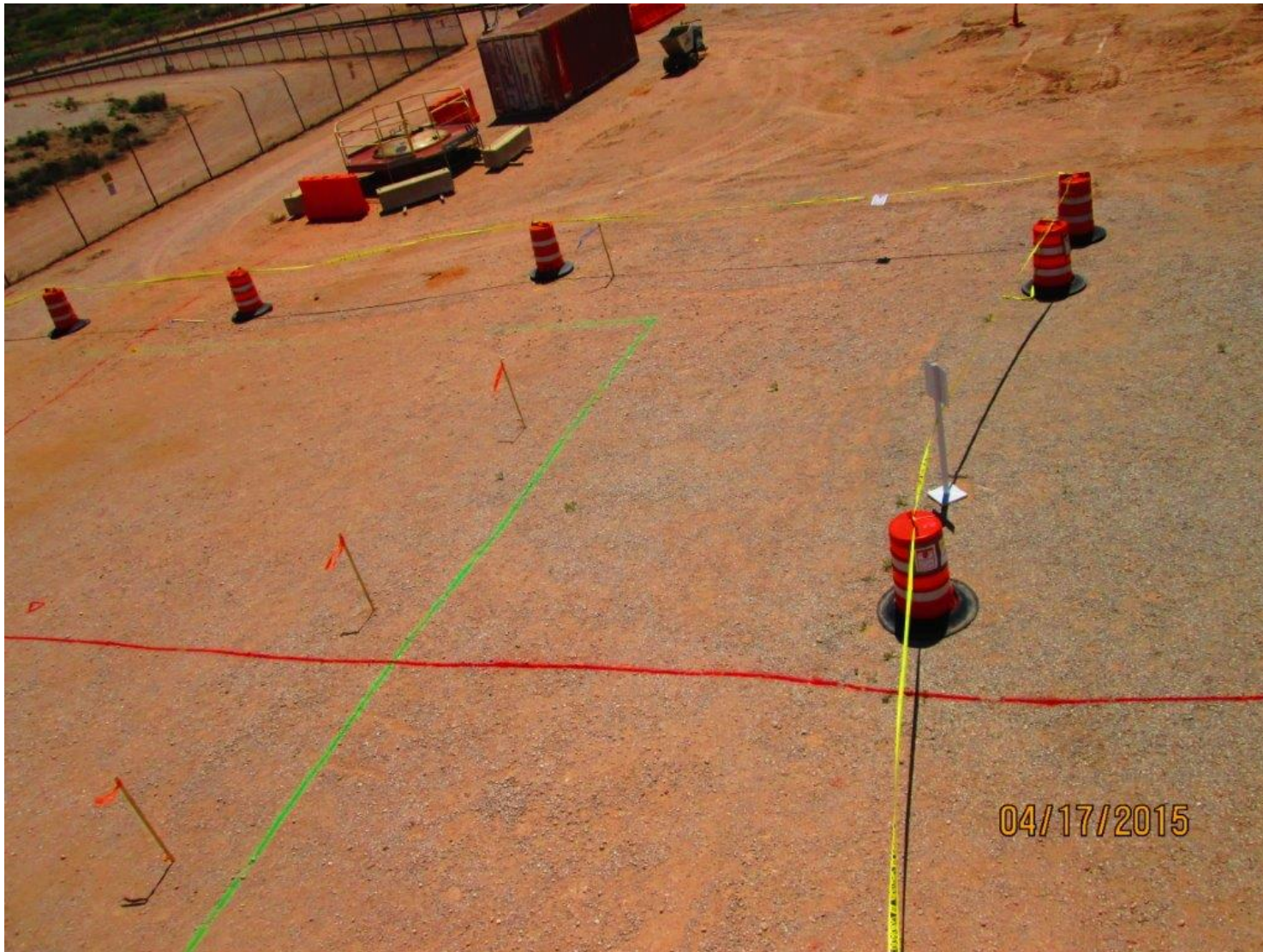
Interim Ventilation System – Survey and Site Preparation Work



Interim Ventilation System – Survey and Site Preparation Work



Interim Ventilation System – Survey and Site Preparation Work



Interim Ventilation System – Survey and Site Preparation Work