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March 1, 2019

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Subject: **Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2019 Q-1**

Ms. Branson:

This letter transmits the subject report as final. The report shows soil vapor data results from Sandia National Laboratories Mixed Waste Landfill collected by the New Mexico Environment Department DOE Oversight Bureau on October 30, 2018.

The enclosed monitoring results were provided to the U.S Department of Energy in draft form on January 28, 2019 for 30-day review and comment. The final monitoring results are provided to DOE, the State of New Mexico and other federal agencies, the NMED website and interested members of the public. If you have any questions, or if you would like copies of the complete data set, please contact me by phone at (505) 383-2070, by email at chris.armijo1@state.nm.us, or by mail to the address in the above letterhead.

Sincerely,

Chris Armijo

Chris Armijo
Environmental Scientist
Sandia Oversight Section

Enclosure: (1) Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2019 Q-1
(2) Table 3-1 Volatile Organic Compounds Results MWL-SV01, 42.5
(3) Table 3-2 Volatile Organic Compounds Results MWL-SV02, 41.5
(4) Table 3-3 Volatile Organic Compounds Results MWL-SV03, 300
(5) Table 3-4 Volatile Organic Compounds Results MWL-SV03, 400
(6) Table 3-5 Volatile Organic Compounds Results MWL-SV04, 300
(7) Table 3-6 Volatile Organic Compounds Results MWL-SV04, 400
(8) Table 3-7 Volatile Organic Compounds Results MWL-SV05, 300
(9) Table 3-8 Volatile Organic Compounds Results MWL-SV05, 400

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File: SGE42. Soil Vapor Monitoring. MWL. FFY 2019 Q-1

DOE Oversight Bureau, New Mexico Environment Department

Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill

Conducted by the
New Mexico Environment Department DOE Oversight Bureau
for FFY 2019 Q-1

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Final Report

3/1/2019

The purpose of this communication is to transmit soil vapor data collected by the New Mexico Environment Department DOE Oversight Bureau from Sandia National Laboratories/New Mexico Mixed Waste Landfill during the first quarter of Federal Fiscal Year (FFY) 2019.

Acknowledgment:
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Introduction

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE-OB or Bureau) has compiled and assessed soil vapor data collected on October 30, 2018. The Bureau collected soil vapor samples from Solid Waste Management Unit (SWMU) 76, Mixed Waste Landfill (MWL) monitoring wells MWL-SV01, MWL-SV02, MWL-SV03, MWL-SV04 and MWL-SV05. Samples were collected using standard Sandia National Laboratories/New Mexico (SNL/NM or Sandia) sampling procedures and equipment in accordance with the MWL Long-Term Monitoring and Maintenance Plan (LTMMP), Appendix D (Soil Vapor Sampling and Analysis Plan). Soil vapor samples were collected in 6-liter SUMMA canisters and analyzed for volatile organic compounds (VOCs) in accordance with EPA method TO-15. The Bureau submitted samples for analysis to an independent analytical laboratory under contract with the NMED.

MWL monitoring wells MWL-SV01 and MWL-SV02 are single port wells at sampling depths approximately 42.5 feet below ground surface (ft. bgs) and 41.5 ft. bgs, respectively. Monitoring wells MWL-SV03, MWL-SV04 and MWL-SV05 are Flexible Liner Underground Technologies (FLUTe™) wells, constructed with multi-ports at sampling depths of approximately Port 1 (50ft bgs), Port 2 (100ft bgs), Port 3 (200ft bgs), Port 4 (300ft bgs), and Port 5 (400ft bgs). Bureau staff collected split samples at the deepest ports (300ft and 400ft bgs) from each multi-port well. Bureau staff also collected field blanks before sampling at each monitoring well and a duplicate sample was collected from monitoring well MWL-SV04 300ft. The well locations are shown in Figure 1.

Split samples were collected in sequence, rather than using the manifold sampling system, designed to collect samples simultaneously. All samples collected from October 2018 were well below established trigger levels for VOCs in soil vapor, as specified in the SNL/NM LTMMP for the MWL.

Data Assessment

Data results are compared to VOC trigger levels listed in the SNL/NM LTMMP for the MWL. Trigger levels for tetrachloroethylene (PCE), trichloroethylene (TCE), and total VOCs in soil vapor at the MWL are 20 parts per million by volume (ppmv) for PCE and TCE, and 25 ppmv for total VOCs. These trigger levels are equivalent to 20,000 parts per billion by volume (ppbv) and 25,000 ppbv, respectively. Trigger levels apply only to samples collected from the deepest sampling port (i.e., 400 feet bgs) in each of the three FLUTe™ multi-port soil vapor monitoring wells (MWL-SV03, MWL-SV04, and MWL-SV05).

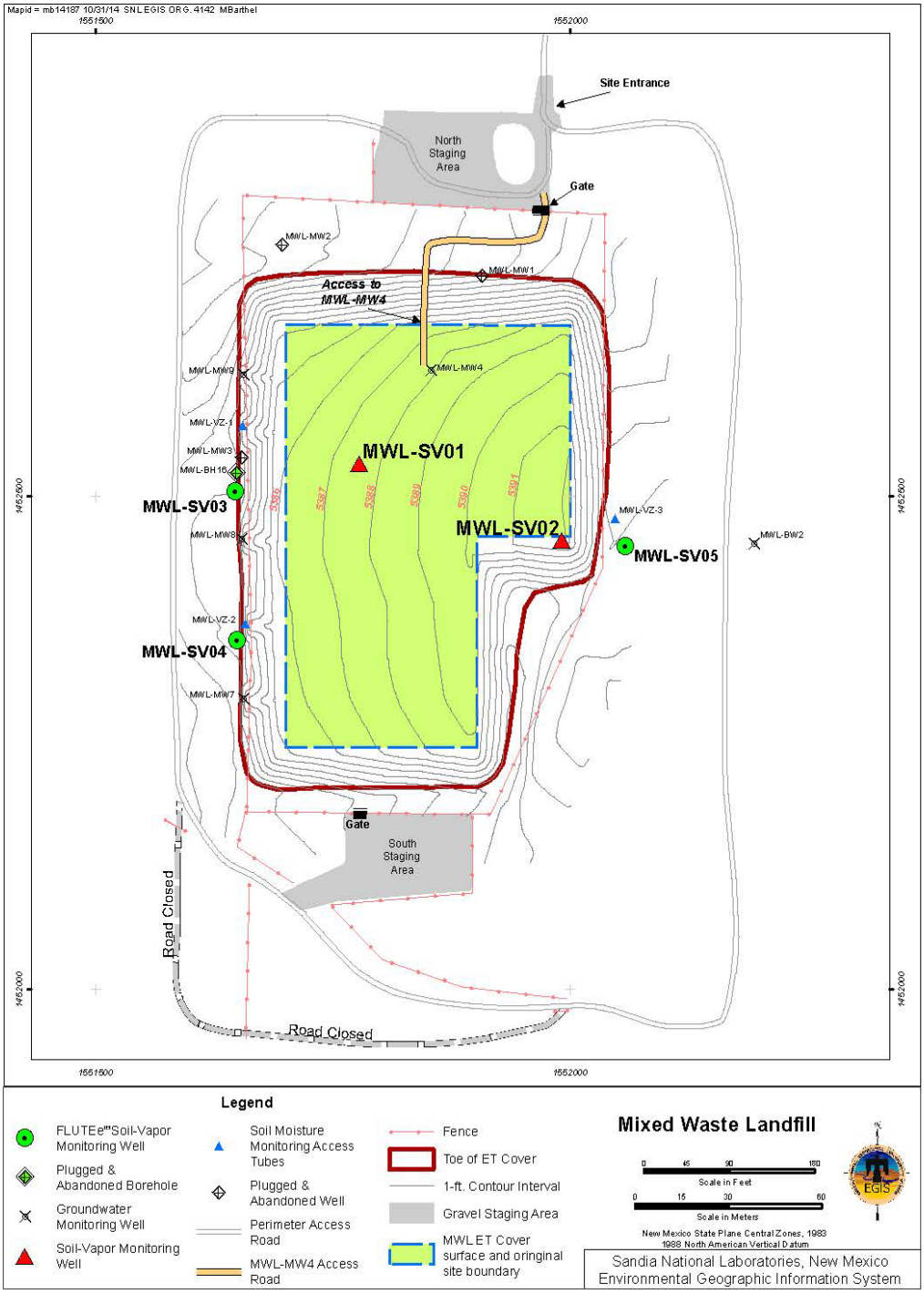

Figure 1
Mixed Waste Landfill Soil-Vapor Monitoring Well Locations

Results

Analytical results for VOCs are presented in Table 3-1 through Table 3-8. All samples were analyzed for VOCs in accordance with EPA method TO-15. A total of sixteen (16) compounds were detected above the laboratory method detection limit (MDL) in samples collected during October 2018. Below is a summary of the detected compounds.

Benzene	Dichloroethene[cis-1,2-]
Butanone[2-]	Methylene Chloride
Carbon Disulfide	Tetrachloroethene
Carbon Tetrachloride	Toluene
Chloroform	Trichloro-1,2,2-trifluoroethane[1,1,2-]
Dichlorodifluoromethane	Trichloroethane[1,1,1-]
Dichloroethane[1,1-]	Trichloroethene
Dichloroethene[1,1-]	Trichlorofluoromethane

PCE concentrations ranged from 65 ppbv at (MWL-SV02- 41.5) to 320 ppbv at (MWL-SV03-400). TCE concentrations ranged from 34 ppbv at (MWL-SV01-42.5) to 160 ppbv at (MWL-SV03-400). Total VOCs ranged from 196.3 ppbv at (MWL-SV04-400) to 571.86 ppbv at (MWL-SV03-400). PCE, TCE and total VOCs concentrations for each sample are summarized below in Table 1.

Table 1
Summary of PCE,TCE and Total VOCs Concentrations, October 2018

MWL Well ID & Depth	Port Number	Tetrachlorethene (PCE) (ppbv)	Trichloroethene (TCE) (ppbv)	Total VOCs (ppbv)
MWL-SV01 42.5	Single Port	180	34	363.8
MWL-SV02 41.5	Single Port	65	53	554.5
MWL-SV03-300	Port 4	210	130	525.34
MWL-SV03-400	Port 5	320	160	571.86
MWL-SV04-300	Port 4	93	54	256.94
MWL-SV04-300-Dup	Port 4	81	54	243.14
MWL-SV04-400	Port 5	74	37	196.3
MWL-SV05-300	Port 4	99	97	394.5
MWL-SV05-400	Port 5	66	54	233.45
Trigger Level[a]		20,000	20,000	25,000

Note: [a]= The trigger levels only apply to samples collected from 400ft ports (SNL/NM March 2012).

Conclusions

The DOE-OB collected soil vapor samples from monitoring wells MWL-SV01, MWL-SV02, MWL-SV03, MWL-SV04 and MWL-SV05. Bureau staff collected split samples at the deepest ports (300ft and 400ft bgs) from each multi-port well. A duplicate sample was collected from MWL-SV04-300. The soil vapor samples collected by DOE-OB during October 2018 were measured at levels well below the trigger levels listed in the SNL/NM LTMMP for the MWL.

PCE, TCE and total VOCs concentrations from 2014-2018 are presented in Tables 2-1, 2-2 and 2-3. The soil vapor concentrations measured by the analytical laboratories were well below the LTMMP trigger levels during all sampling events.

The DOE-OB will continue to independently monitor soil vapor at the MWL during future SNL/NM semi-annual sampling events and report data results to DOE.

Table 2-1 NMED DOE-OB PCE Concentrations
NMED DOE-OB Soil Vapor Data Results from the MWL 2014-2018

MWL Well ID & Sample Port Depth[b]	PCE Concentrations (ppbv)								
	Sep 2014[c]	Apr 2015[c]	Oct 2015[c]	Apr 2016[c]	Oct 2016[c]	May 2017[c]	Oct 2017[c]	Apr 2018[c]	Oct 2018[c]
MWL-SV01-42.5	460	NA	NA	NA	NA	360	320	260	180
MWL-SV02-41.5	69	NA	NA	NA	NA	54	53	43	65
MWL-SV03-300	200	270	190	240	260	240	250	140	210
MWL-SV03-400	350	330	310	340	350	260	310	240	320
MWL-SV04-300	61	86	85	98	130	83	61	60	93
MWL-SV04-400	67	93	88	90	110	79	100	68	74
MWL-SV05-300	70	76	46	91	150	89	86	70	99
MWL-SV05-400	71	74	71	94	94	69	74	63	66
Trigger Level[a]	20,000								

Notes:
[a] The trigger levels only apply to samples collected from 400ft ports (SNL/NM March 2012).
[b] Port depth is the last number in the Well ID, and is in feet below ground surface.
[c] If a duplicate sample was collected, then maximum concentration of the environmental-duplicate sample pair is shown.
NA = No data available. No samples were collected during this sampling event.

Table 2-2 NMED DOE-OB TCE Concentrations
NMED DOE-OB Soil Vapor Data Results from the MWL 2014-2018

MWL Well ID & Sample Port Depth[b]	TCE Concentrations (ppbv)								
	Sep 2014[c]	Apr 2015[c]	Oct 2015[c]	Apr 2016[c]	Oct 2016[c]	May 2017[c]	Oct 2017[c]	Apr 2018[c]	Oct 2018[c]
MWL-SV01-42.5	110	NA	NA	NA	NA	75	67	61	34
MWL-SV02-41.5	68	NA	NA	NA	NA	52	51	45	53
MWL-SV03-300	120	150	140	160	180	140	190	97	130
MWL-SV03-400	200	210	210	200	230	120	180	130	160
MWL-SV04-300	33	58	59	82	68	50	42	38	54
MWL-SV04-400	40	58	67	68	56	32	54	34	37
MWL-SV05-300	73	72	66	81	150	110	110	81	97
MWL-SV05-400	56	62	60	71	75	40	67	44	54
Trigger Level[a]	20,000								

Notes:
[a] The trigger levels only apply to samples collected from 400ft ports (SNL/NM March 2012).
[b] Port depth is the last number in the Well ID, and is in feet below ground surface.
[c] If a duplicate sample was collected, then maximum concentration of the environmental-duplicate sample pair is shown.
NA = No data available. No samples were collected during this sampling event.

Table 2-3 NMED DOE-OB Total VOCs Concentrations
NMED DOE-OB Soil Vapor Data Results from the MWL 2014-2018

MWL Well ID & Sample Port Depth[b]	Total VOCs Concentrations (ppbv)								
	Sep 2014[c]	Apr 2015[c]	Oct 2015[c]	Apr 2016[c]	Oct 2016[c]	May 2017[c]	Oct 2017[c]	Apr 2018[c]	Oct 2018[c]
MWL-SV01-42.5	833.7	NA	NA	NA	NA	838.76	780.64	605.3	363.8
MWL-SV02-41.5	515.5	NA	NA	NA	NA	607.78	648.72	477.9	554.5
MWL-SV03-300	460.6	554.9	493.6	576.8	649.67	593.58	709.38	396.33	525.34
MWL-SV03-400	825.4	685.3	661.5	678.6	681.73	437	587.86	473.04	571.86
MWL-SV04-300	158.7	237.9	252.4	269.7	320.64	2275.6	227.67	210.52	256.94
MWL-SV04-400	147.5	228.9	220.5	234.6	285.08	265.86	295.34	187.40	196.3
MWL-SV05-300	282.8	289.9	272.2	335.3	534.19	495.2	472.68	383.7	394.5
MWL-SV05-400	802	235.8	241.2	249.7	310.66	192.71	242.63	207.03	233.45
Trigger Level[a]	25,000								

Notes:
[a] The trigger levels only apply to samples collected from 400ft ports (SNL/NM March 2012).
[b] Port depth is the last number in the Well ID and is in feet below ground surface.
[c] If a duplicate sample was collected, then maximum concentration of the environmental-duplicate sample pair is shown.
NA = No data available. No samples were collected during this sampling event.

References

Sandia National Laboratories, New Mexico Environmental Restoration Operations. Long-Term Monitoring and Maintenance Plan for the Mixed Waste Landfill, March 2012.

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2014 Q-4

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2015 Q-3

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2016 Q-1

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2016 Q-3

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2017 Q-1

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2017 Q-3

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-1

Data Submittal for Soil Vapor Monitoring at Sandia National Laboratories/New Mexico Mixed Waste Landfill Conducted by the New Mexico Environment Department DOE Oversight Bureau for FFY 2018 Q-3

Table 3-1

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV01 sampled at a depth of approximately 42.5 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV01-42.5 30-Oct-18	Acetone	26	50	26	U
	Benzene	0.71	2	0.71	U
	Benzyl Chloride	1.2	2	1.2	U
	Bromodichloromethane	0.94	2	0.94	U
	Bromoform	0.86	2	0.86	U
	Bromomethane	0.62	2	0.62	U
	Butanone[2-]	2	5	2	U
	Carbon Disulfide	1.2	5	1.2	U
	Carbon Tetrachloride	0.24	2	0.24	U
	Chlorobenzene	0.4	2	0.4	U
	Chlorodibromomethane	0.71	2	0.71	U
	Chloroethane	2.1	5	2.1	U
	Chloroform	5.8	2	0.52	
	Chloromethane	2.5	5	2.5	U
	Dibromoethane[1,2-]	0.69	2	0.69	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.68	2	0.68	U
	Dichlorobenzene[1,2-]	0.71	2	0.71	U
	Dichlorobenzene[1,3-]	0.82	2	0.82	U
	Dichlorobenzene[1,4-]	0.65	2	0.65	U
	Dichlorodifluoromethane	34	5	2	
	Dichloroethane[1,1-]	0.26	2	0.26	U
	Dichloroethane[1,2-]	0.63	2	0.63	U
	Dichloroethene[1,1-]	0.34	2	0.34	U
	Dichloroethene[cis-1,2-]	0.37	2	0.37	U
	Dichloroethene[trans-1,2-]	0.74	2	0.74	U
	Dichloropropane[1,2-]	1.2	2	1.2	U
	Dichloropropene[cis-1,3-]	0.98	2	0.98	U
	Dichloropropene[trans-1,3-]	1.2	2	1.2	U
	Ethylbenzene	0.73	2	0.73	U
	Ethyltoluene[4-]	0.69	2	0.69	U
	Hexachlorobutadiene	0.82	2	0.82	U

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-1

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV01 sampled at a depth of approximately 42.5 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV01-42.5 30-Oct-18	Hexanone[2-]	4.2	5	4.2	U
	Methyl-2-pentanone[4-]	3.6	5	3.6	U
	Methylene Chloride	2	5	2	U
	Styrene	0.86	2	0.86	U
	Tetrachloroethane[1,1,2,2-]	0.76	2	0.76	U
	Tetrachloroethene	180	2	0.29	
	Toluene	0.69	2	0.69	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	24	2	0.31	
	Trichlorobenzene[1,2,4-]	2.4	5	2.4	U
	Trichloroethane[1,1,1-]	14	2	0.68	
	Trichloroethane[1,1,2-]	0.78	2	0.78	U
	Trichloroethene	34	2	0.3	
	Trichlorofluoromethane	72	2	0.62	
	Trimethylbenzene[1,2,4-]	0.8	2	0.8	U
	Trimethylbenzene[1,3,5-]	0.58	2	0.58	U
	Vinyl acetate	23	50	23	U
	Vinyl Chloride	0.41	2	0.41	U
	Xylene[1,2-]	0.71	2	0.71	U
	Xylene[1,3-]+Xylene[1,4-]	0.7	5	0.7	U
	Total VOCs	363.8	NA	NA	

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-2

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV02 sampled at a depth of approximately 41.5 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV02-41.5 30-Oct-18	Acetone	26	50	26	U
	Benzene	0.71	2	0.71	U
	Benzyl Chloride	1.2	2	1.2	U
	Bromodichloromethane	0.94	2	0.94	U
	Bromoform	0.86	2	0.86	U
	Bromomethane	0.62	2	0.62	U
	Butanone[2-]	2	5	2	U
	Carbon Disulfide	1.2	5	1.2	U
	Carbon Tetrachloride	0.24	2	0.24	U
	Chlorobenzene	0.4	2	0.4	U
	Chlorodibromomethane	0.71	2	0.71	U
	Chloroethane	2.1	5	2.1	U
	Chloroform	2.3	2	0.52	
	Chloromethane	2.5	5	2.5	U
	Dibromoethane[1,2-]	0.69	2	0.69	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.68	2	0.68	U
	Dichlorobenzene[1,2-]	0.71	2	0.71	U
	Dichlorobenzene[1,3-]	0.82	2	0.82	U
	Dichlorobenzene[1,4-]	0.65	2	0.65	U
	Dichlorodifluoromethane	65	5	2	
	Dichloroethane[1,1-]	0.26	2	0.26	U
	Dichloroethane[1,2-]	0.63	2	0.63	U
	Dichloroethene[1,1-]	7.2	2	0.34	
	Dichloroethene[cis-1,2-]	0.37	2	0.37	U
	Dichloroethene[trans-1,2-]	0.74	2	0.74	U
	Dichloropropane[1,2-]	1.2	2	1.2	U
	Dichloropropene[cis-1,3-]	0.98	2	0.98	U
	Dichloropropene[trans-1,3-]	1.2	2	1.2	U
	Ethylbenzene	0.73	2	0.73	U
	Ethyltoluene[4-]	0.69	2	0.69	U
	Hexachlorobutadiene	0.82	2	0.82	U

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-2

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV02 sampled at a depth of approximately 41.5 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV02-41.5 30-Oct-18	Hexanone[2-]	4.2	5	4.2	U
	Methyl-2-pentanone[4-]	3.6	5	3.6	U
	Methylene Chloride	2	5	2	U
	Styrene	0.86	2	0.86	U
	Tetrachloroethane[1,1,2,2-]	0.76	2	0.76	U
	Tetrachloroethene	65	2	0.29	
	Toluene	0.69	2	0.69	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	31	2	0.31	
	Trichlorobenzene[1,2,4-]	2.4	5	2.4	U
	Trichloroethane[1,1,1-]	61	2	0.68	
	Trichloroethane[1,1,2-]	0.78	2	0.78	U
	Trichloroethene	53	2	0.3	
	Trichlorofluoromethane	270	2	0.62	
	Trimethylbenzene[1,2,4-]	0.8	2	0.8	U
	Trimethylbenzene[1,3,5-]	0.58	2	0.58	U
	Vinyl acetate	23	50	23	U
	Vinyl Chloride	0.41	2	0.41	U
	Xylene[1,2-]	0.71	2	0.71	U
	Xylene[1,3-]+Xylene[1,4-]	0.7	5	0.7	U
	Total VOCs	554.5	NA	NA	

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-3

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV03 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV03-300 30-Oct-18	Acetone	26	50	26	U
	Benzene	0.71	2	0.71	U
	Benzyl Chloride	1.2	2	1.2	U
	Bromodichloromethane	0.94	2	0.94	U
	Bromoform	0.86	2	0.86	U
	Bromomethane	0.62	2	0.62	U
	Butanone[2-]	2	5	2	U
	Carbon Disulfide	1.2	5	1.2	U
	Carbon Tetrachloride	0.77	2	0.24	J
	Chlorobenzene	0.4	2	0.4	U
	Chlorodibromomethane	0.71	2	0.71	U
	Chloroethane	2.1	5	2.1	U
	Chloroform	0.52	2	0.52	U
	Chloromethane	2.5	5	2.5	U
	Dibromoethane[1,2-]	0.69	2	0.69	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.68	2	0.68	U
	Dichlorobenzene[1,2-]	0.71	2	0.71	U
	Dichlorobenzene[1,3-]	0.82	2	0.82	U
	Dichlorobenzene[1,4-]	0.65	2	0.65	U
	Dichlorodifluoromethane	38	5	2	
	Dichloroethane[1,1-]	1.6	2	0.26	J
	Dichloroethane[1,2-]	0.63	2	0.63	U
	Dichloroethene[1,1-]	17	2	0.34	
	Dichloroethene[cis-1,2-]	0.97	2	0.37	J
	Dichloroethene[trans-1,2-]	0.74	2	0.74	U
	Dichloropropane[1,2-]	1.2	2	1.2	U
	Dichloropropene[cis-1,3-]	0.98	2	0.98	U
	Dichloropropene[trans-1,3-]	1.2	2	1.2	U
	Ethylbenzene	0.73	2	0.73	U
	Ethyltoluene[4-]	0.69	2	0.69	U
	Hexachlorobutadiene	0.82	2	0.82	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-3

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV03 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV03-300 30-Oct-18	Hexanone[2-]	4.2	5	4.2	U
	Methyl-2-pentanone[4-]	3.6	5	3.6	U
	Methylene Chloride	2	5	2	U
	Styrene	0.86	2	0.86	U
	Tetrachloroethane[1,1,2,2-]	0.76	2	0.76	U
	Tetrachloroethene	210	2	0.29	
	Toluene	0.69	2	0.69	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	110	2	0.31	
	Trichlorobenzene[1,2,4-]	2.4	5	2.4	U
	Trichloroethane[1,1,1-]	0.68	2	0.68	U
	Trichloroethane[1,1,2-]	0.78	2	0.78	U
	Trichloroethene	130	2	0.3	
	Trichlorofluoromethane	17	2	0.62	
	Trimethylbenzene[1,2,4-]	0.8	2	0.8	U
	Trimethylbenzene[1,3,5-]	0.58	2	0.58	U
	Vinyl acetate	23	50	23	U
	Vinyl Chloride	0.41	2	0.41	U
	Xylene[1,2-]	0.71	2	0.71	U
	Xylene[1,3-]+Xylene[1,4-]	0.7	5	0.7	U
	Total VOCs	525.34	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-4

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV03 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV03-400 30-Oct-18	Acetone	26	50	26	U
	Benzene	0.71	2	0.71	U
	Benzyl Chloride	1.2	2	1.2	U
	Bromodichloromethane	0.94	2	0.94	U
	Bromoform	0.86	2	0.86	U
	Bromomethane	0.62	2	0.62	U
	Butanone[2-]	2	5	2	U
	Carbon Disulfide	1.2	5	1.2	U
	Carbon Tetrachloride	0.24	2	0.24	U
	Chlorobenzene	0.4	2	0.4	U
	Chlorodibromomethane	0.71	2	0.71	U
	Chloroethane	2.1	5	2.1	U
	Chloroform	1	2	0.52	J
	Chloromethane	2.5	5	2.5	U
	Dibromoethane[1,2-]	0.69	2	0.69	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.68	2	0.68	U
	Dichlorobenzene[1,2-]	0.71	2	0.71	U
	Dichlorobenzene[1,3-]	0.82	2	0.82	U
	Dichlorobenzene[1,4-]	0.65	2	0.65	U
	Dichlorodifluoromethane	17	5	2	
	Dichloroethane[1,1-]	0.26	2	0.26	U
	Dichloroethane[1,2-]	0.63	2	0.63	U
	Dichloroethene[1,1-]	13	2	0.34	
	Dichloroethene[cis-1,2-]	1.1	2	0.37	J
	Dichloroethene[trans-1,2-]	0.74	2	0.74	U
	Dichloropropane[1,2-]	1.2	2	1.2	U
	Dichloropropene[cis-1,3-]	0.98	2	0.98	U
	Dichloropropene[trans-1,3-]	1.2	2	1.2	U
	Ethylbenzene	0.73	2	0.73	U
	Ethyltoluene[4-]	0.69	2	0.69	U
	Hexachlorobutadiene	0.82	2	0.82	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-4

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV03 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV03-400 30-Oct-18	Hexanone[2-]	4.2	5	4.2	U
	Methyl-2-pentanone[4-]	3.6	5	3.6	U
	Methylene Chloride	2	5	2	U
	Styrene	0.86	2	0.86	U
	Tetrachloroethane[1,1,2,2-]	0.76	2	0.76	U
	Tetrachloroethene	320	2	0.29	
	Toluene	0.76	2	0.69	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	47	2	0.31	
	Trichlorobenzene[1,2,4-]	2.4	5	2.4	U
	Trichloroethane[1,1,1-]	0.68	2	0.68	U
	Trichloroethane[1,1,2-]	0.78	2	0.78	U
	Trichloroethene	160	2	0.3	
	Trichlorofluoromethane	12	2	0.62	
	Trimethylbenzene[1,2,4-]	0.8	2	0.8	U
	Trimethylbenzene[1,3,5-]	0.58	2	0.58	U
	Vinyl acetate	23	50	23	U
	Vinyl Chloride	0.41	2	0.41	U
	Xylene[1,2-]	0.71	2	0.71	U
	Xylene[1,3-]+Xylene[1,4-]	0.7	5	0.7	U
	Total VOCs	571.86	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-5

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-300 30-Oct-18	Acetone	7.7	15	7.7	U
	Benzene	0.21	0.6	0.21	U
	Benzyl Chloride	0.36	0.6	0.36	U
	Bromodichloromethane	0.28	0.6	0.28	U
	Bromoform	0.26	0.6	0.26	U
	Bromomethane	0.18	0.6	0.18	U
	Butanone[2-]	0.6	1.5	0.6	U
	Carbon Disulfide	0.36	1.5	0.36	U
	Carbon Tetrachloride	0.24	0.6	0.072	J
	Chlorobenzene	0.12	0.6	0.12	U
	Chlorodibromomethane	0.21	0.6	0.21	U
	Chloroethane	0.63	1.5	0.63	U
	Chloroform	0.15	0.6	0.15	U
	Chloromethane	0.75	1.5	0.75	U
	Dibromoethane[1,2-]	0.21	0.6	0.21	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.2	0.6	0.2	U
	Dichlorobenzene[1,2-]	0.21	0.6	0.21	U
	Dichlorobenzene[1,3-]	0.24	0.6	0.24	U
	Dichlorobenzene[1,4-]	0.19	0.6	0.19	U
	Dichlorodifluoromethane	25	1.5	0.6	
	Dichloroethane[1,1-]	0.25	0.6	0.077	J
	Dichloroethane[1,2-]	0.19	0.6	0.19	U
	Dichloroethene[1,1-]	9.9	0.6	0.1	
	Dichloroethene[cis-1,2-]	0.11	0.6	0.11	U
	Dichloroethene[trans-1,2-]	0.22	0.6	0.22	U
	Dichloropropane[1,2-]	0.36	0.6	0.36	U
	Dichloropropene[cis-1,3-]	0.29	0.6	0.29	U
	Dichloropropene[trans-1,3-]	0.36	0.6	0.36	U
	Ethylbenzene	0.22	0.6	0.22	U
	Ethyltoluene[4-]	0.21	0.6	0.21	U
	Hexachlorobutadiene	0.24	0.6	0.24	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-5

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-300 30-Oct-18	Hexanone[2-]	1.3	1.5	1.3	U
	Methyl-2-pentanone[4-]	1.1	1.5	1.1	U
	Methylene Chloride	0.6	1.5	0.6	U
	Styrene	0.26	0.6	0.26	U
	Tetrachloroethane[1,1,2,2-]	0.23	0.6	0.23	U
	Tetrachloroethene	93	0.6	0.086	
	Toluene	0.24	0.6	0.21	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	61	0.6	0.092	
	Trichlorobenzene[1,2,4-]	0.72	1.5	0.72	U
	Trichloroethane[1,1,1-]	0.31	0.6	0.2	J
	Trichloroethane[1,1,2-]	0.23	0.6	0.23	U
	Trichloroethene	54	0.6	0.089	
	Trichlorofluoromethane	13	0.6	0.18	
	Trimethylbenzene[1,2,4-]	0.24	0.6	0.24	U
	Trimethylbenzene[1,3,5-]	0.17	0.6	0.17	U
	Vinyl acetate	6.9	15	6.9	U
	Vinyl Chloride	0.12	0.6	0.12	U
	Xylene[1,2-]	0.21	0.6	0.21	U
	Xylene[1,3-]+Xylene[1,4-]	0.21	1.5	0.21	U
	Total VOCs	256.94	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-5

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-300 30-Oct-18 (Duplicate)	Acetone	7.7	15	7.7	U
	Benzene	0.21	0.6	0.21	U
	Benzyl Chloride	0.36	0.6	0.36	U
	Bromodichloromethane	0.28	0.6	0.28	U
	Bromoform	0.26	0.6	0.26	U
	Bromomethane	0.18	0.6	0.18	U
	Butanone[2-]	0.68	1.5	0.6	J
	Carbon Disulfide	0.8	1.5	0.36	J
	Carbon Tetrachloride	0.24	0.6	0.072	J
	Chlorobenzene	0.12	0.6	0.12	U
	Chlorodibromomethane	0.21	0.6	0.21	U
	Chloroethane	0.63	1.5	0.63	U
	Chloroform	0.15	0.6	0.15	U
	Chloromethane	0.75	1.5	0.75	U
	Dibromoethane[1,2-]	0.21	0.6	0.21	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.2	0.6	0.2	U
	Dichlorobenzene[1,2-]	0.21	0.6	0.21	U
	Dichlorobenzene[1,3-]	0.24	0.6	0.24	U
	Dichlorobenzene[1,4-]	0.19	0.6	0.19	U
	Dichlorodifluoromethane	23	1.5	0.6	
	Dichloroethane[1,1-]	0.077	0.6	0.077	U
	Dichloroethane[1,2-]	0.19	0.6	0.19	U
	Dichloroethene[1,1-]	9.9	0.6	0.1	
	Dichloroethene[cis-1,2-]	0.11	0.6	0.11	U
	Dichloroethene[trans-1,2-]	0.22	0.6	0.22	U
	Dichloropropane[1,2-]	0.36	0.6	0.36	U
	Dichloropropene[cis-1,3-]	0.29	0.6	0.29	U
	Dichloropropene[trans-1,3-]	0.36	0.6	0.36	U
	Ethylbenzene	0.22	0.6	0.22	U
	Ethyltoluene[4-]	0.21	0.6	0.21	U
	Hexachlorobutadiene	0.24	0.6	0.24	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-5

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-300 30-Oct-18 (Duplicate)	Hexanone[2-]	1.3	1.5	1.3	U
	Methyl-2-pentanone[4-]	1.1	1.5	1.1	U
	Methylene Chloride	0.6	1.5	0.6	U
	Styrene	0.26	0.6	0.26	U
	Tetrachloroethane[1,1,2,2-]	0.23	0.6	0.23	U
	Tetrachloroethene	81	0.6	0.086	
	Toluene	0.26	0.6	0.21	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	61	0.6	0.092	
	Trichlorobenzene[1,2,4-]	0.72	1.5	0.72	U
	Trichloroethane[1,1,1-]	0.26	0.6	0.2	J
	Trichloroethane[1,1,2-]	0.23	0.6	0.23	U
	Trichloroethene	54	0.6	0.089	
	Trichlorofluoromethane	12	0.6	0.18	
	Trimethylbenzene[1,2,4-]	0.24	0.6	0.24	U
	Trimethylbenzene[1,3,5-]	0.17	0.6	0.17	U
	Vinyl acetate	6.9	15	6.9	U
	Vinyl Chloride	0.12	0.6	0.12	U
	Xylene[1,2-]	0.21	0.6	0.21	U
	Xylene[1,3-]+Xylene[1,4-]	0.21	1.5	0.21	U
	Total VOCs	243.14	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-6

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-400 30-Oct-18	Acetone	7.7	15	7.7	U
	Benzene	0.56	0.6	0.21	J
	Benzyl Chloride	0.36	0.6	0.36	U
	Bromodichloromethane	0.28	0.6	0.28	U
	Bromoform	0.26	0.6	0.26	U
	Bromomethane	0.18	0.6	0.18	U
	Butanone[2-]	0.6	1.5	0.6	U
	Carbon Disulfide	0.86	1.5	0.36	J
	Carbon Tetrachloride	0.085	0.6	0.072	J
	Chlorobenzene	0.12	0.6	0.12	U
	Chlorodibromomethane	0.21	0.6	0.21	U
	Chloroethane	0.63	1.5	0.63	U
	Chloroform	0.15	0.6	0.15	U
	Chloromethane	0.75	1.5	0.75	U
	Dibromoethane[1,2-]	0.21	0.6	0.21	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.2	0.6	0.2	U
	Dichlorobenzene[1,2-]	0.21	0.6	0.21	U
	Dichlorobenzene[1,3-]	0.24	0.6	0.24	U
	Dichlorobenzene[1,4-]	0.19	0.6	0.19	U
	Dichlorodifluoromethane	17	1.5	0.6	
	Dichloroethane[1,1-]	0.096	0.6	0.077	J
	Dichloroethane[1,2-]	0.19	0.6	0.19	U
	Dichloroethene[1,1-]	5.7	0.6	0.1	
	Dichloroethene[cis-1,2-]	0.11	0.6	0.11	U
	Dichloroethene[trans-1,2-]	0.22	0.6	0.22	U
	Dichloropropane[1,2-]	0.36	0.6	0.36	U
	Dichloropropene[cis-1,3-]	0.29	0.6	0.29	U
	Dichloropropene[trans-1,3-]	0.36	0.6	0.36	U
	Ethylbenzene	0.22	0.6	0.22	U
	Ethyltoluene[4-]	0.21	0.6	0.21	U
	Hexachlorobutadiene	0.24	0.6	0.24	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-6

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV04 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV04-400 30-Oct-18	Hexanone[2-]	1.3	1.5	1.3	U
	Methyl-2-pentanone[4-]	1.1	1.5	1.1	U
	Methylene Chloride	0.6	1.5	0.6	U
	Styrene	0.26	0.6	0.26	U
	Tetrachloroethane[1,1,2,2-]	0.23	0.6	0.23	U
	Tetrachloroethene	74	0.6	0.086	
	Toluene	0.21	0.6	0.21	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	50	0.6	0.092	
	Trichlorobenzene[1,2,4-]	0.72	1.5	0.72	U
	Trichloroethane[1,1,1-]	0.2	0.6	0.2	U
	Trichloroethane[1,1,2-]	0.23	0.6	0.23	U
	Trichloroethene	37	0.6	0.089	
	Trichlorofluoromethane	11	0.6	0.18	
	Trimethylbenzene[1,2,4-]	0.24	0.6	0.24	U
	Trimethylbenzene[1,3,5-]	0.17	0.6	0.17	U
	Vinyl acetate	6.9	15	6.9	U
	Vinyl Chloride	0.12	0.6	0.12	U
	Xylene[1,2-]	0.21	0.6	0.21	U
	Xylene[1,3-]+Xylene[1,4-]	0.21	1.5	0.21	U
	Total VOCs	196.3	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-7

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV05 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV05-300 10-Oct-18	Acetone	7.7	15	7.7	U
	Benzene	0.21	0.6	0.21	U
	Benzyl Chloride	0.36	0.6	0.36	U
	Bromodichloromethane	0.28	0.6	0.28	U
	Bromoform	0.26	0.6	0.26	U
	Bromomethane	0.18	0.6	0.18	U
	Butanone[2-]	0.6	1.5	0.6	U
	Carbon Disulfide	0.36	1.5	0.36	U
	Carbon Tetrachloride	0.86	0.6	0.072	
	Chlorobenzene	0.12	0.6	0.12	U
	Chlorodibromomethane	0.21	0.6	0.21	U
	Chloroethane	0.63	1.5	0.63	U
	Chloroform	0.6	0.6	0.15	
	Chloromethane	0.75	1.5	0.75	U
	Dibromoethane[1,2-]	0.21	0.6	0.21	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.2	0.6	0.2	U
	Dichlorobenzene[1,2-]	0.21	0.6	0.21	U
	Dichlorobenzene[1,3-]	0.24	0.6	0.24	U
	Dichlorobenzene[1,4-]	0.19	0.6	0.19	U
	Dichlorodifluoromethane	38	1.5	0.6	
	Dichloroethane[1,1-]	1.2	0.6	0.077	
	Dichloroethane[1,2-]	0.19	0.6	0.19	U
	Dichloroethene[1,1-]	24	0.6	0.1	
	Dichloroethene[cis-1,2-]	0.78	0.6	0.11	
	Dichloroethene[trans-1,2-]	0.22	0.6	0.22	U
	Dichloropropane[1,2-]	0.36	0.6	0.36	U
	Dichloropropene[cis-1,3-]	0.29	0.6	0.29	U
	Dichloropropene[trans-1,3-]	0.36	0.6	0.36	U
	Ethylbenzene	0.22	0.6	0.22	U
	Ethyltoluene[4-]	0.21	0.6	0.21	U
	Hexachlorobutadiene	0.24	0.6	0.24	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-7

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV05 sampled at a depth of approximately 300 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV05-300 30-Oct-18	Hexanone[2-]	1.3	1.5	1.3	U
	Methyl-2-pentanone[4-]	1.1	1.5	1.1	U
	Methylene Chloride	0.6	1.5	0.6	U
	Styrene	0.26	0.6	0.26	U
	Tetrachloroethane[1,1,2,2-]	0.23	0.6	0.23	U
	Tetrachloroethene	99	0.6	0.086	
	Toluene	0.24	0.6	0.21	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	99	0.6	0.092	
	Trichlorobenzene[1,2,4-]	0.72	1.5	0.72	U
	Trichloroethane[1,1,1-]	0.82	0.6	0.2	
	Trichloroethane[1,1,2-]	0.23	0.6	0.23	U
	Trichloroethene	97	0.6	0.089	
	Trichlorofluoromethane	33	0.6	0.18	
	Trimethylbenzene[1,2,4-]	0.24	0.6	0.24	U
	Trimethylbenzene[1,3,5-]	0.17	0.6	0.17	U
	Vinyl acetate	6.9	15	6.9	U
	Vinyl Chloride	0.12	0.6	0.12	U
	Xylene[1,2-]	0.21	0.6	0.21	U
	Xylene[1,3-]+Xylene[1,4-]	0.21	1.5	0.21	U
	Total VOCs	394.5	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-8

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV05 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV05-400 30-Oct-18	Acetone	5.2	10	5.2	U
	Benzene	0.39	0.4	0.14	J
	Benzyl Chloride	0.24	0.4	0.24	U
	Bromodichloromethane	0.19	0.4	0.19	U
	Bromoform	0.17	0.4	0.17	U
	Bromomethane	0.12	0.4	0.12	U
	Butanone[2-]	0.4	1	0.4	U
	Carbon Disulfide	0.24	1	0.24	U
	Carbon Tetrachloride	0.48	0.4	0.048	
	Chlorobenzene	0.08	0.4	0.08	U
	Chlorodibromomethane	0.14	0.4	0.14	U
	Chloroethane	0.42	1	0.42	U
	Chloroform	0.4	0.4	0.1	
	Chloromethane	0.5	1	0.5	U
	Dibromoethane[1,2-]	0.14	0.4	0.14	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.14	0.4	0.14	U
	Dichlorobenzene[1,2-]	0.14	0.4	0.14	U
	Dichlorobenzene[1,3-]	0.16	0.4	0.16	U
	Dichlorobenzene[1,4-]	0.13	0.4	0.13	U
	Dichlorodifluoromethane	20	1	0.4	
	Dichloroethane[1,1-]	1	0.4	0.052	
	Dichloroethane[1,2-]	0.13	0.4	0.13	U
	Dichloroethene[1,1-]	13	0.4	0.068	
	Dichloroethene[cis-1,2-]	0.29	0.4	0.074	J
	Dichloroethene[trans-1,2-]	0.15	0.4	0.15	U
	Dichloropropane[1,2-]	0.24	0.4	0.24	U
	Dichloropropene[cis-1,3-]	0.2	0.4	0.2	U
	Dichloropropene[trans-1,3-]	0.24	0.4	0.24	U
	Ethylbenzene	0.15	0.4	0.15	U
	Ethyltoluene[4-]	0.14	0.4	0.14	U
	Hexachlorobutadiene	0.16	0.4	0.16	U

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.

Table 3-8

Soil Vapor Quality Results: Volatile Organic Compounds (EPA Method TO-15)

Sandia National Laboratories/New Mexico Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2018

MWL-SV05 sampled at a depth of approximately 400 feet below ground surface

Trigger levels are 20,000 ppbv for PCE and TCE and 25,000 ppbv for total VOCs in samples collected from 400ft ports.

Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Laboratory Detection Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
MWL-SV05-400 30-Oct-18	Hexanone[2-]	0.84	1	0.84	U
	Methyl-2-pentanone[4-]	0.72	1	0.72	U
	Methylene Chloride	0.49	1	0.4	J
	Styrene	0.17	0.4	0.17	U
	Tetrachloroethane[1,1,2,2-]	0.15	0.4	0.15	U
	Tetrachloroethene	66	0.4	0.058	
	Toluene	2	0.4	0.14	
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	43	0.4	0.062	
	Trichlorobenzene[1,2,4-]	0.48	1	0.48	U
	Trichloroethane[1,1,1-]	1.4	0.4	0.14	
	Trichloroethane[1,1,2-]	0.16	0.4	0.16	U
	Trichloroethene	54	0.4	0.06	
	Trichlorofluoromethane	31	0.4	0.12	
	Trimethylbenzene[1,2,4-]	0.16	0.4	0.16	U
	Trimethylbenzene[1,3,5-]	0.12	0.4	0.12	U
	Vinyl acetate	4.6	10	4.6	U
	Vinyl Chloride	0.082	0.4	0.082	U
	Xylene[1,2-]	0.14	0.4	0.14	U
	Xylene[1,3-]+Xylene[1,4-]	0.14	1	0.14	U
	Total VOCs	233.45	NA	NA	

J = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

NA = Not applicable

U = Indicates the analyte was analyzed for but not detected.