

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 2018 Q-1**

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Final Report

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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) 2018.

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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 26, 2017. 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 (LTMMMP), 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, by Test America Laboratories-South Burlington. Test America Laboratories is 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 depths of 300ft bgs and 400ft bgs from each multi-port well. Bureau staff also collected a field blank before sampling at MWL-SV04 and a duplicate sample was collected from monitoring well MWL-SV04 300ft bgs. 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 2017 were well below established trigger levels for VOCs in soil vapor, as specified in the SNL/NM LTMMMP for the MWL.

Data Assessment

Data results are compared to VOC trigger levels listed in the SNL/NM LTMMMP 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).

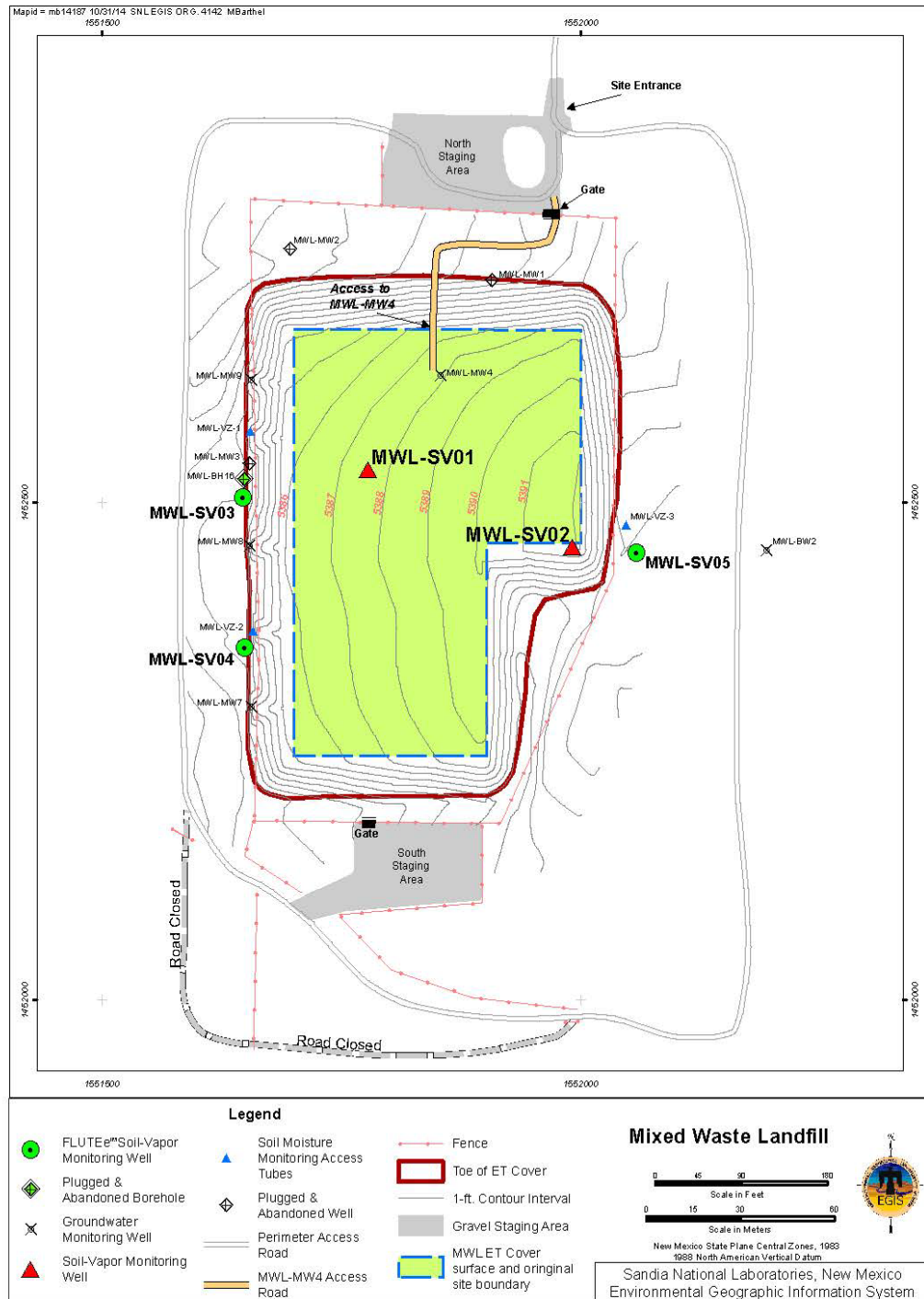


Figure 1
Mixed Waste Landfill Soil-Vapor Monitoring Well Locations

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 26 compounds were detected above the laboratory method detection limit (MDL) in samples collected during October 2017. Below is a summary of the detected compounds.

Acetone	Ethylbenzene
Benzene	Methyl-2-pentanone[4-]
Butanone[2-]	Methylene Chloride
Carbon Disulfide	Styrene
Carbon Tetrachloride	Tetrachloroethene
Chlorobenzene	Toluene
Chloroform	Trichloro-1,2,2-trifluoroethane[1,1,2-]
Dichlorobenzene[1,4-]	Trichloroethane[1,1,1-]
Dichlorodifluoromethane	Trichloroethene
Dichloroethane[1,1-]	Trichlorofluoromethane
Dichloroethene[1,1-]	Trimethylbenzene[1,2,4-]
Dichloroethene[cis-1,2-]	Xylene[1,2-]
Dichloropropene[trans-1,3-]	Xylene[1,3-]+Xylene[1,4-]

PCE concentrations ranged from 53 ppbv at (MWL-SV02-41.5) to 320 ppbv at (MWL-SV01-42.5). TCE concentrations ranged from 41 ppbv at (MWL-SV04-300) to 190 ppbv at (MWL-SV03-300). Total VOCs ranged from 209.66 ppbv at (MWL-SV04-300, duplicate) to 780.64 ppbv at (MWL-SV01-42.5). PCE, TCE and total VOCs concentrations for each sample are summarized in Table 1.

Table 1
Summary of PCE, TCE and Total VOCs Concentrations, October 2017

MWL Well ID & Depth	Port Number	Tetrachlorethene (PCE) (ppbv)	Trichloroethene (TCE) (ppbv)	Total VOCs (ppbv)
MWL-SV01 42.5	Single Port	320	67	780.64
MWL-SV02 41.5	Single Port	53	51	648.72
MWL-SV03-300	Port 4	250	190	709.38
MWL-SV03-400	Port 5	310	180	587.86
MWL-SV04-300	Port 4	61	41	227.67
MWL-SV04-300-DUP	Port 4	56	42	209.66
MWL-SV04-400	Port 5	100	54	295.34
MWL-SV05-300	Port 4	86	110	472.68
MWL-SV05-400	Port 5	74	67	242.63
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 samples in sequence with SNL/NM samples at depths of 300ft bgs and 400ft bgs from each multi-port well. A duplicate sample was collected at MWL-SV04 300ft bgs. The soil vapor samples collected by DOE-OB during October 2017 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 2014-2017 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 2014-2017

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
MWL-SV01-42.5	460	NA	NA	NA	NA	360	320
MWL-SV02-41.5	69	NA	NA	NA	NA	54	53
MWL-SV03-300	200	270	190	240	260	240	250
MWL-SV03-400	350	330	310	340	350	260	310
MWL-SV04-300	61	86	85	98	130	83	61
MWL-SV04-400	67	93	88	90	110	79	100
MWL-SV05-300	70	76	46	91	150	89	86
MWL-SV05-400	71	74	71	94	94	69	74
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 2014-2017

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
MWL-SV01-42.5	110	NA	NA	NA	NA	75	67
MWL-SV02-41.5	68	NA	NA	NA	NA	52	51
MWL-SV03-300	120	150	140	160	180	140	190
MWL-SV03-400	200	210	210	200	230	120	180
MWL-SV04-300	33	58	59	82	68	50	42
MWL-SV04-400	40	58	67	68	56	32	54
MWL-SV05-300	73	72	66	81	150	110	110
MWL-SV05-400	56	62	60	71	75	40	67
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 2014-2017**

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
MWL-SV01-42.5	833.7	NA	NA	NA	NA	838.76	780.64
MWL-SV02-41.5	515.5	NA	NA	NA	NA	607.78	648.72
MWL-SV03-300	460.6	554.9	493.6	576.8	649.67	593.58	709.38
MWL-SV03-400	825.4	685.3	661.5	678.6	681.73	437	587.86
MWL-SV04-300	158.7	237.9	252.4	269.7	320.64	2275.6	227.67
MWL-SV04-400	147.5	228.9	220.5	234.6	285.08	265.86	295.34
MWL-SV05-300	282.8	289.9	272.2	335.3	534.19	495.2	472.68
MWL-SV05-400	802	235.8	241.2	249.7	310.66	192.71	242.63
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.

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2014 Q-4

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2015 Q-3

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2016 Q-1

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2016 Q-3

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2017 Q-1

Soil Vapor Monitoring at SNL/NM MWL Conducted by NMED DOE OB for FFY 2017 Q-3

Table 3-1

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	15	60	15	U
	Benzene	0.33	2.4	0.33	U
	Benzyl Chloride	0.8	2.4	0.8	U
	Bromodichloromethane	0.7	2.4	0.7	U
	Bromoform	0.42	2.4	0.42	U
	Bromomethane	0.43	2.4	0.43	U
	Butanone[2-]	1.3	6	1.3	U
	Carbon Disulfide	0.33	6	0.33	U
	Carbon Tetrachloride	0.24	2.4	0.13	J
	Chlorobenzene	0.3	2.4	0.3	U
	Chlorodibromomethane	0.2	2.4	0.2	U
	Chloroethane	1.5	6	1.5	U
	Chloroform	13	2.4	0.3	
	Chloromethane	1.9	6	1.9	U
	Dibromoethane[1,2-]	0.27	2.4	0.27	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.49	2.4	0.49	U
	Dichlorobenzene[1,2-]	0.54	2.4	0.54	U
	Dichlorobenzene[1,3-]	0.6	2.4	0.6	U
	Dichlorobenzene[1,4-]	0.75	2.4	0.75	U
	Dichlorodifluoromethane	91	6	0.56	
	Dichloroethane[1,1-]	2.2	2.4	0.2	J
	Dichloroethane[1,2-]	0.4	2.4	0.4	U
	Dichloroethene[1,1-]	6.9	2.4	0.42	
	Dichloroethene[cis-1,2-]	1.3	2.4	0.35	J
	Dichloroethene[trans-1,2-]	0.6	2.4	0.6	U
	Dichloropropane[1,2-]	0.42	2.4	0.42	U
	Dichloropropene[cis-1,3-]	0.43	2.4	0.43	U
	Dichloropropene[trans-1,3-]	0.45	2.4	0.45	U
	Ethylbenzene	0.4	2.4	0.4	U
	Ethyltoluene[4-]	0.48	2.4	0.48	U
	Hexachlorobutadiene	0.76	2.4	0.76	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 3-1

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	1	6	1	U
	Methyl-2-pentanone[4-]	0.77	6	0.77	U
	Methylene Chloride	0.81	6	0.81	U
	Styrene	0.42	2.4	0.42	U
	Tetrachloroethane[1,1,2,2-]	0.31	2.4	0.31	U
	Tetrachloroethene	320	2.4	0.12	
	Toluene	0.42	2.4	0.42	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	71	2.4	0.32	
	Trichlorobenzene[1,2,4-]	2.3	6	2.3	U
	Trichloroethane[1,1,1-]	38	2.4	0.31	
	Trichloroethane[1,1,2-]	0.2	2.4	0.2	U
	Trichloroethene	67	2.4	0.11	
	Trichlorofluoromethane	170	2.4	0.37	
	Trimethylbenzene[1,2,4-]	0.68	2.4	0.68	U
	Trimethylbenzene[1,3,5-]	0.48	2.4	0.48	U
	Vinyl acetate	24	60	24	U
	Vinyl Chloride	0.21	2.4	0.21	U
	Xylene[1,2-]	0.48	2.4	0.48	U
	Xylene[1,3-]+Xylene[1,4-]	0.92	6	0.92	U
	Total Organics	780.64	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 3-2

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	17	64	17	U
	Benzene	0.36	2.5	0.36	U
	Benzyl Chloride	0.85	2.5	0.85	U
	Bromodichloromethane	0.75	2.5	0.75	U
	Bromoform	0.44	2.5	0.44	U
	Bromomethane	0.46	2.5	0.46	U
	Butanone[2-]	1.4	6.4	1.4	U
	Carbon Disulfide	0.36	6.4	0.36	U
	Carbon Tetrachloride	0.23	2.5	0.14	J
	Chlorobenzene	0.32	2.5	0.32	U
	Chlorodibromomethane	0.22	2.5	0.22	U
	Chloroethane	1.7	6.4	1.7	U
	Chloroform	2.6	2.5	0.32	
	Chloromethane	2	6.4	2	U
	Dibromoethane[1,2-]	0.29	2.5	0.29	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.52	2.5	0.52	U
	Dichlorobenzene[1,2-]	0.57	2.5	0.57	U
	Dichlorobenzene[1,3-]	0.64	2.5	0.64	U
	Dichlorobenzene[1,4-]	0.8	2.5	0.8	U
	Dichlorodifluoromethane	100	6.4	0.6	
	Dichloroethane[1,1-]	2.1	2.5	0.22	J
	Dichloroethane[1,2-]	0.43	2.5	0.43	U
	Dichloroethene[1,1-]	11	2.5	0.44	
	Dichloroethene[cis-1,2-]	0.79	2.5	0.37	J
	Dichloroethene[trans-1,2-]	0.64	2.5	0.64	U
	Dichloropropane[1,2-]	0.44	2.5	0.44	U
	Dichloropropene[cis-1,3-]	0.46	2.5	0.46	U
	Dichloropropene[trans-1,3-]	0.48	2.5	0.48	U
	Ethylbenzene	0.43	2.5	0.43	U
	Ethyltoluene[4-]	0.51	2.5	0.51	U
	Hexachlorobutadiene	0.81	2.5	0.81	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 3-2

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	1.1	6.4	1.1	U
	Methyl-2-pentanone[4-]	0.83	6.4	0.83	U
	Methylene Chloride	0.86	6.4	0.86	U
	Styrene	0.44	2.5	0.44	U
	Tetrachloroethane[1,1,2,2-]	0.33	2.5	0.33	U
	Tetrachloroethene	53	2.5	0.12	
	Toluene	0.44	2.5	0.44	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	51	2.5	0.34	
	Trichlorobenzene[1,2,4-]	2.4	6.4	2.4	U
	Trichloroethane[1,1,1-]	77	2.5	0.33	
	Trichloroethane[1,1,2-]	0.22	2.5	0.22	U
	Trichloroethene	51	2.5	0.12	
	Trichlorofluoromethane	300	2.5	0.39	
	Trimethylbenzene[1,2,4-]	0.72	2.5	0.72	U
	Trimethylbenzene[1,3,5-]	0.51	2.5	0.51	U
	Vinyl acetate	25	64	25	U
	Vinyl Chloride	0.23	2.5	0.23	U
	Xylene[1,2-]	0.51	2.5	0.51	U
	Xylene[1,3-]+Xylene[1,4-]	0.98	6.4	0.98	U
	Total Organics	648.72	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 3-3

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	9.1	35	9.1	U
	Benzene	0.36	1.4	0.2	J
	Benzyl Chloride	0.47	1.4	0.47	U
	Bromodichloromethane	0.41	1.4	0.41	U
	Bromoform	0.24	1.4	0.24	U
	Bromomethane	0.25	1.4	0.25	U
	Butanone[2-]	0.77	3.5	0.77	U
	Carbon Disulfide	0.2	3.5	0.2	U
	Carbon Tetrachloride	0.41	1.4	0.077	J
	Chlorobenzene	0.17	1.4	0.17	U
	Chlorodibromomethane	0.12	1.4	0.12	U
	Chloroethane	0.91	3.5	0.91	U
	Chloroform	1.2	1.4	0.17	J
	Chloromethane	1.1	3.5	1.1	U
	Dibromoethane[1,2-]	0.16	1.4	0.16	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.29	1.4	0.29	U
	Dichlorobenzene[1,2-]	0.31	1.4	0.31	U
	Dichlorobenzene[1,3-]	0.35	1.4	0.35	U
	Dichlorobenzene[1,4-]	0.44	1.4	0.44	U
	Dichlorodifluoromethane	56	3.5	0.33	
	Dichloroethane[1,1-]	2.8	1.4	0.12	
	Dichloroethane[1,2-]	0.24	1.4	0.24	U
	Dichloroethene[1,1-]	24	1.4	0.24	
	Dichloroethene[cis-1,2-]	2	1.4	0.2	
	Dichloroethene[trans-1,2-]	0.35	1.4	0.35	U
	Dichloropropane[1,2-]	0.24	1.4	0.24	U
	Dichloropropene[cis-1,3-]	0.25	1.4	0.25	U
	Dichloropropene[trans-1,3-]	0.26	1.4	0.26	U
	Ethylbenzene	0.24	1.4	0.24	U
	Ethyltoluene[4-]	0.28	1.4	0.28	U
	Hexachlorobutadiene	0.45	1.4	0.45	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	0.6	3.5	0.6	U
	Methyl-2-pentanone[4-]	0.45	3.5	0.45	U
	Methylene Chloride	1.3	3.5	0.47	J
	Styrene	0.24	1.4	0.24	U
	Tetrachloroethane[1,1,2,2-]	0.18	1.4	0.18	U
	Tetrachloroethene	250	1.4	0.068	
	Toluene	0.31	1.4	0.24	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	160	1.4	0.19	
	Trichlorobenzene[1,2,4-]	1.3	3.5	1.3	U
	Trichloroethane[1,1,1-]	0.18	1.4	0.18	U
	Trichloroethane[1,1,2-]	0.12	1.4	0.12	U
	Trichloroethene	190	1.4	0.063	
	Trichlorofluoromethane	21	1.4	0.22	
	Trimethylbenzene[1,2,4-]	0.4	1.4	0.4	U
	Trimethylbenzene[1,3,5-]	0.28	1.4	0.28	U
	Vinyl acetate	14	35	14	U
	Vinyl Chloride	0.13	1.4	0.13	U
	Xylene[1,2-]	0.28	1.4	0.28	U
	Xylene[1,3-]+Xylene[1,4-]	0.54	3.5	0.54	U
	Total Organics	709.38	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	14	54	14	U
	Benzene	0.51	2.2	0.3	J
	Benzyl Chloride	0.73	2.2	0.73	U
	Bromodichloromethane	0.64	2.2	0.64	U
	Bromoform	0.38	2.2	0.38	U
	Bromomethane	0.39	2.2	0.39	U
	Butanone[2-]	1.8	5.4	1.2	J
	Carbon Disulfide	0.3	5.4	0.3	U
	Carbon Tetrachloride	0.28	2.2	0.12	J
	Chlorobenzene	0.27	2.2	0.27	U
	Chlorodibromomethane	0.18	2.2	0.18	U
	Chloroethane	1.4	5.4	1.4	U
	Chloroform	1.2	2.2	0.27	J
	Chloromethane	1.7	5.4	1.7	U
	Dibromoethane[1,2-]	0.25	2.2	0.25	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.44	2.2	0.44	U
	Dichlorobenzene[1,2-]	0.49	2.2	0.49	U
	Dichlorobenzene[1,3-]	0.54	2.2	0.54	U
	Dichlorobenzene[1,4-]	0.68	2.2	0.68	U
	Dichlorodifluoromethane	16	5.4	0.51	
	Dichloroethane[1,1-]	3.4	2.2	0.18	
	Dichloroethane[1,2-]	0.37	2.2	0.37	U
	Dichloroethene[1,1-]	15	2.2	0.38	
	Dichloroethene[cis-1,2-]	2.1	2.2	0.31	J
	Dichloroethene[trans-1,2-]	0.54	2.2	0.54	U
	Dichloropropane[1,2-]	0.38	2.2	0.38	U
	Dichloropropene[cis-1,3-]	0.39	2.2	0.39	U
	Dichloropropene[trans-1,3-]	0.41	2.2	0.41	U
	Ethylbenzene	0.37	2.2	0.37	U
	Ethyltoluene[4-]	0.43	2.2	0.43	U
	Hexachlorobutadiene	0.69	2.2	0.69	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	0.93	5.4	0.93	U
	Methyl-2-pentanone[4-]	0.7	5.4	0.7	U
	Methylene Chloride	1.6	5.4	0.74	J
	Styrene	0.38	2.2	0.38	U
	Tetrachloroethane[1,1,2,2-]	0.28	2.2	0.28	U
	Tetrachloroethene	310	2.2	0.11	
	Toluene	0.57	2.2	0.38	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	47	2.2	0.29	
	Trichlorobenzene[1,2,4-]	2.1	5.4	2.1	U
	Trichloroethane[1,1,1-]	0.28	2.2	0.28	U
	Trichloroethane[1,1,2-]	0.18	2.2	0.18	U
	Trichloroethene	180	2.2	0.099	
	Trichlorofluoromethane	8.4	2.2	0.34	
	Trimethylbenzene[1,2,4-]	0.62	2.2	0.62	U
	Trimethylbenzene[1,3,5-]	0.43	2.2	0.43	U
	Vinyl acetate	22	54	22	U
	Vinyl Chloride	0.19	2.2	0.19	U
	Xylene[1,2-]	0.43	2.2	0.43	U
	Xylene[1,3-]+Xylene[1,4-]	0.83	5.4	0.83	U
	Total Organics	587.86			

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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	13	10	2.6	
	Benzene	0.35	0.4	0.056	J
	Benzyl Chloride	0.13	0.4	0.13	U
	Bromodichloromethane	0.12	0.4	0.12	U
	Bromoform	0.07	0.4	0.07	U
	Bromomethane	0.072	0.4	0.072	U
	Butanone[2-]	4.2	1	0.22	
	Carbon Disulfide	0.39	1	0.056	J
	Carbon Tetrachloride	0.24	0.4	0.022	J
	Chlorobenzene	0.05	0.4	0.05	U
	Chlorodibromomethane	0.034	0.4	0.034	U
	Chloroethane	0.26	1	0.26	U
	Chloroform	0.23	0.4	0.05	J
	Chloromethane	0.32	1	0.32	U
	Dibromoethane[1,2-]	0.046	0.4	0.046	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.082	0.4	0.082	U
	Dichlorobenzene[1,2-]	0.09	0.4	0.09	U
	Dichlorobenzene[1,3-]	0.1	0.4	0.1	U
	Dichlorobenzene[1,4-]	0.13	0.4	0.13	U
	Dichlorodifluoromethane	22	1	0.094	
	Dichloroethane[1,1-]	0.52	0.4	0.034	
	Dichloroethane[1,2-]	0.068	0.4	0.068	U
	Dichloroethene[1,1-]	9.4	0.4	0.07	
	Dichloroethene[cis-1,2-]	0.32	0.4	0.058	J
	Dichloroethene[trans-1,2-]	0.1	0.4	0.1	U
	Dichloropropane[1,2-]	0.07	0.4	0.07	U
	Dichloropropene[cis-1,3-]	0.072	0.4	0.072	U
	Dichloropropene[trans-1,3-]	0.97	0.4	0.076	
	Ethylbenzene	0.19	0.4	0.068	J
	Ethyltoluene[4-]	0.08	0.4	0.08	U
	Hexachlorobutadiene	0.13	0.4	0.13	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	0.17	1	0.17	U
	Methyl-2-pentanone[4-]	0.51	1	0.13	J
	Methylene Chloride	0.69	1	0.14	J
	Styrene	0.11	0.4	0.07	J
	Tetrachloroethane[1,1,2,2-]	0.052	0.4	0.052	U
	Tetrachloroethene	61	0.4	0.02	
	Toluene	2.8	0.4	0.07	
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	59	0.4	0.054	
	Trichlorobenzene[1,2,4-]	0.38	1	0.38	U
	Trichloroethane[1,1,1-]	0.28	0.4	0.052	J
	Trichloroethane[1,1,2-]	0.034	0.4	0.034	U
	Trichloroethene	41	0.4	0.018	
	Trichlorofluoromethane	9.7	0.4	0.062	
	Trimethylbenzene[1,2,4-]	0.11	0.4	0.11	U
	Trimethylbenzene[1,3,5-]	0.08	0.4	0.08	U
	Vinyl acetate	4	10	4	U
	Vinyl Chloride	0.036	0.4	0.036	U
	Xylene[1,2-]	0.22	0.4	0.08	J
	Xylene[1,3-]+Xylene[1,4-]	0.55	1	0.15	J
	Total Organics	227.67	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 (Duplicate) 26-Oct-17	Acetone	8	25	6.5	J
	Benzene	0.32	1	0.14	J
	Benzyl Chloride	0.34	1	0.34	U
	Bromodichloromethane	0.3	1	0.3	U
	Bromoform	0.18	1	0.18	U
	Bromomethane	0.18	1	0.18	U
	Butanone[2-]	0.69	2.5	0.55	J
	Carbon Disulfide	0.23	2.5	0.14	J
	Carbon Tetrachloride	0.23	1	0.055	J
	Chlorobenzene	0.13	1	0.13	U
	Chlorodibromomethane	0.085	1	0.085	U
	Chloroethane	0.65	2.5	0.65	U
	Chloroform	0.22	1	0.13	J
	Chloromethane	0.8	2.5	0.8	U
	Dibromoethane[1,2-]	0.12	1	0.12	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.21	1	0.21	U
	Dichlorobenzene[1,2-]	0.23	1	0.23	U
	Dichlorobenzene[1,3-]	0.25	1	0.25	U
	Dichlorobenzene[1,4-]	0.32	1	0.32	U
	Dichlorodifluoromethane	21	2.5	0.24	
	Dichloroethane[1,1-]	0.48	1	0.085	J
	Dichloroethane[1,2-]	0.17	1	0.17	U
	Dichloroethene[1,1-]	9.2	1	0.18	
	Dichloroethene[cis-1,2-]	0.27	1	0.15	J
	Dichloroethene[trans-1,2-]	0.25	1	0.25	U
	Dichloropropane[1,2-]	0.18	1	0.18	U
	Dichloropropene[cis-1,3-]	0.18	1	0.18	U
	Dichloropropene[trans-1,3-]	0.19	1	0.19	U
	Ethylbenzene	0.2	1	0.17	J
	Ethyltoluene[4-]	0.2	1	0.2	U
	Hexachlorobutadiene	0.32	1	0.32	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

*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 (Duplicate) 26-Oct-17	Hexanone[2-]	0.43	2.5	0.43	U
	Methyl-2-pentanone[4-]	0.33	2.5	0.33	U
	Methylene Chloride	0.71	2.5	0.34	J
	Styrene	0.18	1	0.18	U
	Tetrachloroethane[1,1,2,2-]	0.13	1	0.13	U
	Tetrachloroethene	56	1	0.049	
	Toluene	2.1	1	0.18	
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	58	1	0.14	
	Trichlorobenzene[1,2,4-]	0.95	2.5	0.95	U
	Trichloroethane[1,1,1-]	0.18	1	0.13	J
	Trichloroethane[1,1,2-]	0.085	1	0.085	U
	Trichloroethene	42	1	0.046	
	Trichlorofluoromethane	9.3	1	0.16	
	Trimethylbenzene[1,2,4-]	0.29	1	0.29	U
	Trimethylbenzene[1,3,5-]	0.2	1	0.2	U
	Vinyl acetate	10	25	10	U
	Vinyl Chloride	0.09	1	0.09	U
	Xylene[1,2-]	0.2	1	0.2	U
	Xylene[1,3-]+Xylene[1,4-]	0.53	2.5	0.39	J
	Total Organics	209.66	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	7.9	15	3.9	J
	Benzene	0.79	0.6	0.084	
	Benzyl Chloride	0.2	0.6	0.2	U
	Bromodichloromethane	0.18	0.6	0.18	U
	Bromoform	0.11	0.6	0.11	U
	Bromomethane	0.11	0.6	0.11	U
	Butanone[2-]	0.96	1.5	0.33	J
	Carbon Disulfide	0.6	1.5	0.084	J
	Carbon Tetrachloride	0.18	0.6	0.033	J
	Chlorobenzene	0.075	0.6	0.075	U
	Chlorodibromomethane	0.051	0.6	0.051	U
	Chloroethane	0.39	1.5	0.39	U
	Chloroform	0.27	0.6	0.075	J
	Chloromethane	0.48	1.5	0.48	U
	Dibromoethane[1,2-]	0.069	0.6	0.069	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.12	0.6	0.12	U
	Dichlorobenzene[1,2-]	0.14	0.6	0.14	U
	Dichlorobenzene[1,3-]	0.15	0.6	0.15	U
	Dichlorobenzene[1,4-]	0.19	0.6	0.19	U
	Dichlorodifluoromethane	26	1.5	0.14	
	Dichloroethane[1,1-]	0.38	0.6	0.051	J
	Dichloroethane[1,2-]	0.1	0.6	0.1	U
	Dichloroethene[1,1-]	8.8	0.6	0.11	
	Dichloroethene[cis-1,2-]	0.33	0.6	0.087	J
	Dichloroethene[trans-1,2-]	0.15	0.6	0.15	U
	Dichloropropane[1,2-]	0.11	0.6	0.11	U
	Dichloropropene[cis-1,3-]	0.11	0.6	0.11	U
	Dichloropropene[trans-1,3-]	0.11	0.6	0.11	U
	Ethylbenzene	0.1	0.6	0.1	U
	Ethyltoluene[4-]	0.12	0.6	0.12	U
	Hexachlorobutadiene	0.19	0.6	0.19	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	0.26	1.5	0.26	U
	Methyl-2-pentanone[4-]	0.2	1.5	0.2	U
	Methylene Chloride	0.2	1.5	0.2	U
	Styrene	0.11	0.6	0.11	U
	Tetrachloroethane[1,1,2,2-]	0.078	0.6	0.078	U
	Tetrachloroethene	100	0.6	0.029	
	Toluene	0.13	0.6	0.11	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	81	0.6	0.081	
	Trichlorobenzene[1,2,4-]	0.57	1.5	0.57	U
	Trichloroethane[1,1,1-]	0.078	0.6	0.078	U
	Trichloroethane[1,1,2-]	0.051	0.6	0.051	U
	Trichloroethene	54	0.6	0.027	
	Trichlorofluoromethane	14	0.6	0.093	
	Trimethylbenzene[1,2,4-]	0.17	0.6	0.17	U
	Trimethylbenzene[1,3,5-]	0.12	0.6	0.12	U
	Vinyl acetate	6	15	6	U
	Vinyl Chloride	0.054	0.6	0.054	U
	Xylene[1,2-]	0.12	0.6	0.12	U
	Xylene[1,3-]+Xylene[1,4-]	0.23	1.5	0.23	U
	Total Organics	295.34	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 3-7

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	9.1	35	9.1	U
	Benzene	0.33	1.4	0.2	J
	Benzyl Chloride	0.47	1.4	0.47	U
	Bromodichloromethane	0.41	1.4	0.41	U
	Bromoform	0.24	1.4	0.24	U
	Bromomethane	0.25	1.4	0.25	U
	Butanone[2-]	0.77	3.5	0.77	U
	Carbon Disulfide	0.2	3.5	0.2	U
	Carbon Tetrachloride	0.94	1.4	0.077	J
	Chlorobenzene	0.17	1.4	0.17	U
	Chlorodibromomethane	0.12	1.4	0.12	U
	Chloroethane	0.91	3.5	0.91	U
	Chloroform	0.81	1.4	0.17	J
	Chloromethane	1.1	3.5	1.1	U
	Dibromoethane[1,2-]	0.16	1.4	0.16	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.29	1.4	0.29	U
	Dichlorobenzene[1,2-]	0.31	1.4	0.31	U
	Dichlorobenzene[1,3-]	0.35	1.4	0.35	U
	Dichlorobenzene[1,4-]	0.44	1.4	0.44	U
	Dichlorodifluoromethane	52	3.5	0.33	
	Dichloroethane[1,1-]	2	1.4	0.12	
	Dichloroethane[1,2-]	0.24	1.4	0.24	U
	Dichloroethene[1,1-]	31	1.4	0.24	
	Dichloroethene[cis-1,2-]	1	1.4	0.2	J
	Dichloroethene[trans-1,2-]	0.35	1.4	0.35	U
	Dichloropropane[1,2-]	0.24	1.4	0.24	U
	Dichloropropene[cis-1,3-]	0.25	1.4	0.25	U
	Dichloropropene[trans-1,3-]	0.26	1.4	0.26	U
	Ethylbenzene	0.24	1.4	0.24	U
	Ethyltoluene[4-]	0.28	1.4	0.28	U
	Hexachlorobutadiene	0.45	1.4	0.45	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Hexanone[2-]	0.6	3.5	0.6	U
	Methyl-2-pentanone[4-]	0.45	3.5	0.45	U
	Methylene Chloride	1.6	3.5	0.47	J
	Styrene	0.24	1.4	0.24	U
	Tetrachloroethane[1,1,2,2-]	0.18	1.4	0.18	U
	Tetrachloroethene	86	1.4	0.068	
	Toluene	0.24	1.4	0.24	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	150	1.4	0.19	
	Trichlorobenzene[1,2,4-]	1.3	3.5	1.3	U
	Trichloroethane[1,1,1-]	0.18	1.4	0.18	U
	Trichloroethane[1,1,2-]	0.12	1.4	0.12	U
	Trichloroethene	110	1.4	0.063	
	Trichlorofluoromethane	37	1.4	0.22	
	Trimethylbenzene[1,2,4-]	0.4	1.4	0.4	U
	Trimethylbenzene[1,3,5-]	0.28	1.4	0.28	U
	Vinyl acetate	14	35	14	U
	Vinyl Chloride	0.13	1.4	0.13	U
	Xylene[1,2-]	0.28	1.4	0.28	U
	Xylene[1,3-]+Xylene[1,4-]	0.54	3.5	0.54	U
	Total Organics	472.68	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

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 26-Oct-17	Acetone	10	10	2.6	
	Benzene	0.5	0.4	0.056	
	Benzyl Chloride	0.13	0.4	0.13	U
	Bromodichloromethane	0.12	0.4	0.12	U
	Bromoform	0.07	0.4	0.07	U
	Bromomethane	0.072	0.4	0.072	U
	Butanone[2-]	3.1	1	0.22	
	Carbon Disulfide	1.3	1	0.056	
	Carbon Tetrachloride	0.69	0.4	0.022	
	Chlorobenzene	2.8	0.4	0.05	
	Chlorodibromomethane	0.034	0.4	0.034	U
	Chloroethane	0.26	1	0.26	U
	Chloroform	0.54	0.4	0.05	
	Chloromethane	0.32	1	0.32	U
	Dibromoethane[1,2-]	0.046	0.4	0.046	U
	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.082	0.4	0.082	U
	Dichlorobenzene[1,2-]	0.09	0.4	0.09	U
	Dichlorobenzene[1,3-]	0.1	0.4	0.1	U
	Dichlorobenzene[1,4-]	0.14	0.4	0.13	J
	Dichlorodifluoromethane	12	1	0.094	
	Dichloroethane[1,1-]	2.2	0.4	0.034	
	Dichloroethane[1,2-]	0.068	0.4	0.068	U
	Dichloroethene[1,1-]	17	0.4	0.07	
	Dichloroethene[cis-1,2-]	0.7	0.4	0.058	
	Dichloroethene[trans-1,2-]	0.1	0.4	0.1	U
	Dichloropropane[1,2-]	0.07	0.4	0.07	U
	Dichloropropene[cis-1,3-]	0.072	0.4	0.072	U
	Dichloropropene[trans-1,3-]	0.076	0.4	0.076	U
	Ethylbenzene	0.095	0.4	0.068	J
	Ethyltoluene[4-]	0.08	0.4	0.08	U
	Hexachlorobutadiene	0.13	0.4	0.13	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)

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

October 2017

*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 26-Oct-17	Hexanone[2-]	0.17	1	0.17	U
	Methyl-2-pentanone[4-]	0.28	1	0.13	J
	Methylene Chloride	1.2	1	0.14	
	Styrene	0.07	0.4	0.07	U
	Tetrachloroethane[1,1,2,2-]	0.052	0.4	0.052	U
	Tetrachloroethene	74	0.4	0.02	
	Toluene	1.4	0.4	0.07	
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	27	0.4	0.054	
	Trichlorobenzene[1,2,4-]	0.38	1	0.38	U
	Trichloroethane[1,1,1-]	2.3	0.4	0.052	
	Trichloroethane[1,1,2-]	0.034	0.4	0.034	U
	Trichloroethene	67	0.4	0.018	
	Trichlorofluoromethane	18	0.4	0.062	
	Trimethylbenzene[1,2,4-]	0.11	0.4	0.11	J
	Trimethylbenzene[1,3,5-]	0.08	0.4	0.08	U
	Vinyl acetate	4	10	4	U
	Vinyl Chloride	0.036	0.4	0.036	U
	Xylene[1,2-]	0.08	0.4	0.08	U
	Xylene[1,3-]+Xylene[1,4-]	0.28	1	0.15	J
	Total Organics	242.64	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.