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 2017 Q-3

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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 third quarter of Federal Fiscal Year (FFY) 2017.

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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 May 30, 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 (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) using method TO-15, by Test America-Burlington located in South Burlington, Vermont. Test America-Burlington 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 50ft, 100ft, 200ft, 300ft, and 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-SV05 300ft bgs.

Split samples were collected in sequence, rather than using the manifold sampling system, designed to collect samples simultaneously. All samples collected from May 2017 were well below established trigger levels for VOCs in soil vapor, as specified in the SNL/NM LTMMP for the MWL.

<u>Data Assessment</u>

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 FLUTeTM soil vapor monitoring wells.

<u>Results</u>

Analytical results for VOCs are presented in Table-1 through Table-8. All samples were analyzed for VOCs using analytical method TO-15. Sample results

are presented in units of ppbv. PCE concentrations ranged from 54 ppbv at MWL-SV02 to 360 ppbv at MWL-SV01. TCE concentrations ranged from 32 ppbv at monitoring well MWL-SV04 400ft to 140 ppbv at MWL-SV03 300ft. Total VOCs ranged from 192.71 ppbv at MWL-SV05 400ft to 2275.6 ppbv at MWL-SV04 300ft.

Below are the sample results for TCE and PCE as well as total VOCs in units of ppbv directly measured by the analytical laboratory.

MWL Well ID & Port Depth	Tetrachlorethene (PCE) (ppbv)	Trichloroethene (TCE) (ppbv)	Total VOCs (ppbv)
MWL-SV01 42.5ft	360	75	838.76
MWL-SV02 41.5 ft.	54	52	607.78
MWL-SV03-300ft	240	140	593.58
MWL-SV03-400ft	260	120	437
MWL-SV04-300ft	83	50	2275.6
MWL-SV04-400ft	79	32	265.86
MWL-SV05-300ft	89	110	495.2
MWL-SV05-300ft Duplicate	80	87	423.16
MWL-SV05-400ft	69	40	192.71
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 also collected at MWL-SV05 300ft bgs. The soil vapor samples collected by DOE-OB during May 2017 were measured at levels well below the trigger levels listed in the SNL/NM LTMMP for the MWL.

Results from the MWL-SV04-300ft sample for total VOC concentration was well below the LTMMP trigger level, however it was elevated when compared with data from the other monitoring wells, and with historical data from the same location. Based on the initial pressure of the SUMMA canister measured prior to sample collection, the canister may have been structurally compromised at some point during shipment from Test America-Burlington or during storage at the Bureau office, potentially resulting in contamination of the sample. The main component in the total VOCs for this sample was acetone, a commonly occurring VOC that could have contaminated the canister during storage. In addition, a quality control (QC) sample was collected at MWL-SV04 prior to collecting the MWL-SV04-300ft sample. The QC sample was a non-detect for acetone and the total VOC was 1.47 ppbv.

Data results for PCE, TCE and total VOCs from the six (6) previous sampling events at the MWL are provided in the tables below. 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.

	Tetrachlorethene (PCE) (ppbv)						
MWL Well ID & Sample Port Depth ^b	Sep 2014 ^c	Apr 2015⁰	Oct 2015 ^c	Apr 2016 ^c	Oct 2016 ^c	Мау 2017 ^с	
MWL-SV01	460	NA	NA	NA	NA	360	
MWL-SV02	69	NA	NA	NA	NA	54	
MWL-SV03-300ft	200	270	190	240	260	240	
MWL-SV03-400ft	350	330	310	340	350	260	
MWL-SV04-300ft	61	86	85	98	130 ^d	83	
MWL-SV04-400ft	67	93	88	90	110	79	
MWL-SV05-300ft	70	76	46	91	150	89	
MWL-SV05-400ft	71	74	71	94	94	69	
Trigger Level ^a			20,00	00			

NMED DOE OB Soil Vapor Data Results from the MWL 2014-2017

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.

° If a duplicate sample was collected, then maximum concentration of the environmental-duplicate sample

pair is shown. ^d Concentration was corrected from FFY2017 Q-1 MWL Soil Vapor Monitoring report to include the duplicate results, which were higher than the environmental sample.

NA = No data available. No samples were collected during this sampling event.

	Trichloroethene (TCE) (ppbv)							
MWL Well ID & Sample Port Depth ^b	Sep 2014 ^c	Apr 2015⁰	Oct 2015 ^c	Apr 2016 ^c	Oct 2016 ^c	Мау 2017 ^с		
MWL-SV01	110	NA	NA	NA	NA	75		
MWL-SV02	68	NA	NA	NA	NA	52		
MWL-SV03-300ft	120	150	140	160	180	140		
MWL-SV03-400ft	200	210	210	200	230	120		
MWL-SV04-300ft	33	58	59	82	68 ^d	50		
MWL-SV04-400ft	40	58	67	68	56	32		
MWL-SV05-300ft	73	72	66	81	150	110		
MWL-SV05-400ft	56	62	60	71	75	40		
Trigger Level ^a			20,00	00				

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.

° If a duplicate sample was collected, then maximum concentration of the environmental-duplicate sample pair is shown.

^d Concentration was corrected from FFY2017 Q-1 MWL Soil Vapor Monitoring report to include the duplicate results, which were higher than the environmental sample.

NA = No data available. No samples were collected during this sampling event.

MWL Well ID & Sample Port	Total VOCs (ppbv) Sep Apr Oct Apr Oct May							
Depth ^b	2014 ^c	2015°	2015 ^c	2016 ^c	2016°	2017℃		
MWL-SV01	833.7	NA	NA	NA	NA	838.76		
MWL-SV02	515.5	NA	NA	NA	NA	607.78		
MWL-SV03-300ft	460.6	554.9	493.6	576.8	649.67	593.58		
MWL-SV03-400ft	825.4	685.3	661.5	678.6	681.73	437		
MWL-SV04-300ft	158.7	237.9	252.4	269.7	320.64 ^d	2275.6		
MWL-SV04-400ft	147.5	228.9	220.5	234.6	285.08	265.86		
MWL-SV05-300ft	282.8	289.9	272.2	335.3	534.19	495.2		
MWL-SV05-400ft	802	235.8	241.2	249.7	310.66	172.71		
Trigger Level ^a			25,00	00				

NMED DOE OB Soil Vapor Data Results from the MWL 2014-2017

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.

^dConcentration was corrected from FFY2017 Q-1 MWL Soil Vapor Monitoring report to include the duplicate results, which were higher than the environmental sample.

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.

Sandia National Laboratories, New Mexico Environmental Restoration Operations. Installation of Three FLUTe[™] Soil-Vapor Monitoring Wells (MWL-SV03, MWL-SV04, and MWL-SV05) at the Mixed Waste Landfill, September 2014.

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	13	50	13	U
	Benzene	0.28	2	0.28	U
	Benzyl Chloride	0.66	2	0.66	U
	Bromodichloromethane	0.59	2	0.59	U
	Bromoform	0.35	2	0.35	U
	Bromomethane	0.36	2	0.36	U
	Butanone[2-]	1.1	5	1.1	U
	Carbon Disulfide	0.28	5	0.28	U
	Carbon Tetrachloride	0.26	2	0.11	J
	Chlorobenzene	0.25	2	0.25	U
	Chlorodibromomethane	0.17	2	0.17	U
	Chloroethane	1.3	5	1.3	U
	Chloroform	13	2	0.25	В
	Chloromethane	1.6	5	1.6	U
	Dibromoethane[1,2-]	0.23	2	0.23	U
MWL-SV01 42.5 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.41	2	0.41	U
-12.0 10	Dichlorobenzene[1,2-]	0.45	2	0.45	U
	Dichlorobenzene[1,3-]	0.5	2	0.5	U
	Dichlorobenzene[1,4-]	0.62	2	0.62	U
	Dichlorodifluoromethane	89	5	0.47	
	Dichloroethane[1,1-]	2.5	2	0.17	
	Dichloroethane[1,2-]	0.34	2	0.34	U
	Dichloroethene[1,1-]	7.5	2	0.35	
	Dichloroethene[cis-1,2-]	1.4	2	0.29	J
	Dichloroethene[trans-1,2-]	0.5	2	0.5	U
	Dichloropropane[1,2-]	0.35	2	0.35	U
	Dichloropropene[cis-1,3-]	0.36	2	0.36	U
	Dichloropropene[trans-1,3-]	0.38	2	0.38	U
	Ethylbenzene	0.34	2	0.34	U
	Ethyltoluene[4-]	0.4	2	0.4	U
	Hexachlorobutadiene	0.63	2	0.63	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.85	5	0.85	U
	Methyl-2-pentanone[4-]	0.64	5	0.64	U
	Methylene Chloride	1.1	5	0.67	BJ
	Styrene	0.35	2	0.35	U
	Tetrachloroethane[1,1,2,2-]	0.26	2	0.26	U
	Tetrachloroethene	360	2	0.097	
	Toluene	0.35	2	0.35	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	81	2	0.27	
	Trichlorobenzene[1,2,4-]	1.9	5	1.9	U
MWL-SV01	Trichloroethane[1,1,1-]	38	2	0.26	
42.5 ft.	Trichloroethane[1,1,2-]	0.17	2	0.17	U
	Trichloroethene	75	2	0.09	
	Trichlorofluoromethane	170	2	0.31	
	Trimethylbenzene[1,2,4-]	0.57	2	0.57	U
	Trimethylbenzene[1,3,5-]	0.4	2	0.4	U
	Vinyl acetate	20	50	20	U
	Vinyl Chloride	0.18	2	0.18	U
	Xylene[1,2-]	0.4	2	0.4	U
	Xylene[1,3-]+Xylene[1,4-]	0.76	5	0.76	U
	Total Organics	838.76	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	12	46	12	U
	Benzene	0.26	1.8	0.26	U
	Benzyl Chloride	0.61	1.8	0.61	U
	Bromodichloromethane	0.54	1.8	0.54	U
	Bromoform	0.32	1.8	0.32	U
	Bromomethane	0.33	1.8	0.33	U
	Butanone[2-]	1	4.6	1	U
	Carbon Disulfide	0.26	4.6	0.26	U
	Carbon Tetrachloride	0.29	1.8	0.1	J
	Chlorobenzene	0.23	1.8	0.23	U
	Chlorodibromomethane	0.15	1.8	0.15	U
	Chloroethane	1.2	4.6	1.2	U
	Chloroform	3.4	1.8	0.23	В
	Chloromethane	1.5	4.6	1.5	U
	Dibromoethane[1,2-]	0.21	1.8	0.21	U
MIVVL-SV02 41.5 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.37	1.8	0.37	U
-110 10	Dichlorobenzene[1,2-]	0.41	1.8	0.41	U
	Dichlorobenzene[1,3-]	0.46	1.8	0.46	U
	Dichlorobenzene[1,4-]	0.57	1.8	0.57	U
	Dichlorodifluoromethane	84	4.6	0.43	
	Dichloroethane[1,1-]	1.8	1.8	0.15	
	Dichloroethane[1,2-]	0.31	1.8	0.31	U
	Dichloroethene[1,1-]	9.5	1.8	0.32	
	Dichloroethene[cis-1,2-]	0.79	1.8	0.26	J
	Dichloroethene[trans-1,2-]	0.46	1.8	0.46	U
	Dichloropropane[1,2-]	0.32	1.8	0.32	U
	Dichloropropene[cis-1,3-]	0.33	1.8	0.33	U
	Dichloropropene[trans-1,3-]	0.35	1.8	0.35	U
	Ethylbenzene	0.31	1.8	0.31	U
	Ethyltoluene[4-]	0.36	1.8	0.36	U
	Hexachlorobutadiene	0.58	1.8	0.58	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.78	4.6	0.78	U
	Methyl-2-pentanone[4-]	0.59	4.6	0.59	U
	Methylene Chloride	1	4.6	0.62	BJ
	Styrene	0.32	1.8	0.32	U
	Tetrachloroethane[1,1,2,2-]	0.24	1.8	0.24	U
	Tetrachloroethene	54	1.8	0.089	
	Toluene	0.32	1.8	0.32	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	48	1.8	0.25	
	Trichlorobenzene[1,2,4-]	1.7	4.6	1.7	U
MWL-SV02	Trichloroethane[1,1,1-]	73	1.8	0.24	
41.5 ft.	Trichloroethane[1,1,2-]	0.15	1.8	0.15	U
	Trichloroethene	52	1.8	0.083	
	Trichlorofluoromethane	280	1.8	0.28	
	Trimethylbenzene[1,2,4-]	0.52	1.8	0.52	U
	Trimethylbenzene[1,3,5-]	0.36	1.8	0.36	U
	Vinyl acetate	18	46	18	U
	Vinyl Chloride	0.16	1.8	0.16	U
	Xylene[1,2-]	0.36	1.8	0.36	U
	Xylene[1,3-]+Xylene[1,4-]	0.7	4.6	0.7	U
	Total Organics	607.78	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	L imit	мы	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	13	49	13	U
	Benzene	0.47	2	0.28	J
	Benzyl Chloride	0.66	2	0.66	U
	Bromodichloromethane	0.58	2	0.58	U
	Bromoform	0.34	2	0.34	U
	Bromomethane	0.35	2	0.35	U
	Butanone[2-]	1.1	4.9	1.1	U
	Carbon Disulfide	0.28	4.9	0.28	U
	Carbon Tetrachloride	0.28	2	0.11	J
	Chlorobenzene	0.25	2	0.25	U
	Chlorodibromomethane	0.17	2	0.17	U
	Chloroethane	1.3	4.9	1.3	U
	Chloroform	2.1	2	0.25	В
	Chloromethane	1.6	4.9	1.6	U
	Dibromoethane[1,2-]	0.23	2	0.23	U
MVVL-SVU3 300 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.4	2	0.4	U
000 11.	Dichlorobenzene[1,2-]	0.44	2	0.44	U
	Dichlorobenzene[1,3-]	0.49	2	0.49	U
	Dichlorobenzene[1,4-]	0.62	2	0.62	U
	Dichlorodifluoromethane	39	4.9	0.46	
	Dichloroethane[1,1-]	2.6	2	0.17	
	Dichloroethane[1,2-]	0.33	2	0.33	U
	Dichloroethene[1,1-]	20	2	0.34	
	Dichloroethene[cis-1,2-]	2.1	2	0.29	
	Dichloroethene[trans-1,2-]	0.49	2	0.49	U
	Dichloropropane[1,2-]	0.34	2	0.34	U
	Dichloropropene[cis-1,3-]	0.35	2	0.35	U
	Dichloropropene[trans-1,3-]	0.37	2	0.37	U
	Ethylbenzene	0.33	2	0.33	U
	Ethyltoluene[4-]	0.39	2	0.39	U
	Hexachlorobutadiene	0.63	2	0.63	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

		_	Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.85	4.9	0.85	U
	Methyl-2-pentanone[4-]	0.64	4.9	0.64	U
	Methylene Chloride	1.8	4.9	0.67	BJ
	Styrene	0.34	2	0.34	U
	Tetrachloroethane[1,1,2,2-]	0.26	2	0.26	U
	Tetrachloroethene	240	2	0.096	
	Toluene	0.45	2	0.34	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	130	2	0.27	
	Trichlorobenzene[1,2,4-]	1.9	4.9	1.9	U
MWL-SV03	Trichloroethane[1,1,1-]	0.78	2	0.26	J
300 ft.	Trichloroethane[1,1,2-]	0.17	2	0.17	U
	Trichloroethene	140	2	0.09	
	Trichlorofluoromethane	14	2	0.31	
	Trimethylbenzene[1,2,4-]	0.56	2	0.56	U
	Trimethylbenzene[1,3,5-]	0.39	2	0.39	U
	Vinyl acetate	20	49	20	U
	Vinyl Chloride	0.18	2	0.18	U
	Xylene[1,2-]	0.39	2	0.39	U
	Xylene[1,3-]+Xylene[1,4-]	0.76	4.9	0.76	U
	Total Organics	593.58	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	15	59	15	U
	Benzene	0.39	2.4	0.33	J
	Benzyl Chloride	0.79	2.4	0.79	U
	Bromodichloromethane	0.7	2.4	0.7	U
	Bromoform	0.41	2.4	0.41	U
	Bromomethane	0.42	2.4	0.42	U
	Butanone[2-]	1.3	5.9	1.3	U
	Carbon Disulfide	2.1	5.9	0.33	J
	Carbon Tetrachloride	0.33	2.4	0.13	J
	Chlorobenzene	0.3	2.4	0.3	U
	Chlorodibromomethane	0.2	2.4	0.2	U
	Chloroethane	1.5	5.9	1.5	U
	Chloroform	2.2	2.4	0.3	BJ
	Chloromethane	1.9	5.9	1.9	U
	Dibromoethane[1,2-]	0.27	2.4	0.27	U
400 ft.	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.48	2.4	0.48	U
	Dichlorobenzene[1,2-]	0.53	2.4	0.53	U
	Dichlorobenzene[1,3-]	0.59	2.4	0.59	U
	Dichlorobenzene[1,4-]	0.74	2.4	0.74	U
	Dichlorodifluoromethane	2	5.9	0.55	J
	Dichloroethane[1,1-]	3.7	2.4	0.2	
	Dichloroethane[1,2-]	0.4	2.4	0.4	U
	Dichloroethene[1,1-]	18	2.4	0.41	
	Dichloroethene[cis-1,2-]	1.3	2.4	0.34	J
	Dichloroethene[trans-1,2-]	0.59	2.4	0.59	U
	Dichloropropane[1,2-]	0.41	2.4	0.41	U
	Dichloropropene[cis-1,3-]	0.42	2.4	0.42	U
	Dichloropropene[trans-1,3-]	0.45	2.4	0.45	U
	Ethylbenzene	0.4	2.4	0.4	U
	Ethyltoluene[4-]	0.47	2.4	0.47	U
	Hexachlorobutadiene	0.76	2.4	0.76	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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/		Rosult	Laboratory Detection	МП	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Hexanone[2-]	1	5.9	1	U
	Methyl-2-pentanone[4-]	0.77	5.9	0.77	U
	Methylene Chloride	1.9	5.9	0.8	BJ
	Styrene	0.41	2.4	0.41	U
	Tetrachloroethane[1,1,2,2-]	0.31	2.4	0.31	U
	Tetrachloroethene	260	2.4	0.12	
	Toluene	0.78	2.4	0.41	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	18	2.4	0.32	
	Trichlorobenzene[1,2,4-]	2.2	5.9	2.2	U
MWL-SV03	Trichloroethane[1,1,1-]	1.3	2.4	0.31	J
400 ft.	Trichloroethane[1,1,2-]	0.2	2.4	0.2	U
	Trichloroethene	120	2.4	0.11	
	Trichlorofluoromethane	5	2.4	0.37	
	Trimethylbenzene[1,2,4-]	0.67	2.4	0.67	U
	Trimethylbenzene[1,3,5-]	0.47	2.4	0.47	U
	Vinyl acetate	24	59	24	U
	Vinyl Chloride	0.21	2.4	0.21	U
	Xylene[1,2-]	0.47	2.4	0.47	U
	Xylene[1,3-]+Xylene[1,4-]	0.91	5.9	0.91	U
	Total Organics	437	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	2000	350	91	
	Benzene	2	14	2	U
	Benzyl Chloride	4.7	14	4.7	U
	Bromodichloromethane	4.1	14	4.1	U
	Bromoform	2.4	14	2.4	U
	Bromomethane	2.5	14	2.5	U
	Butanone[2-]	7.7	35	7.7	U
	Carbon Disulfide	2	35	2	U
	Carbon Tetrachloride	0.77	14	0.77	U
	Chlorobenzene	1.7	14	1.7	U
	Chlorodibromomethane	1.2	14	1.2	U
	Chloroethane	9.1	35	9.1	U
	Chloroform	9.6	14	1.7	BJ
	Chloromethane	11	35	11	U
	Dibromoethane[1,2-]	1.6	14	1.6	U
300 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	2.9	14	2.9	U
	Dichlorobenzene[1,2-]	3.1	14	3.1	U
	Dichlorobenzene[1,3-]	3.5	14	3.5	U
	Dichlorobenzene[1,4-]	4.4	14	4.4	U
	Dichlorodifluoromethane	25	35	3.3	J
	Dichloroethane[1,1-]	1.2	14	1.2	U
	Dichloroethane[1,2-]	2.4	14	2.4	U
	Dichloroethene[1,1-]	13	14	2.4	J
	Dichloroethene[cis-1,2-]	2	14	2	U
	Dichloroethene[trans-1,2-]	3.5	14	3.5	U
	Dichloropropane[1,2-]	2.4	14	2.4	U
	Dichloropropene[cis-1,3-]	2.5	14	2.5	U
	Dichloropropene[trans-1,3-]	2.6	14	2.6	U
	Ethylbenzene	2.4	14	2.4	U
	Ethyltoluene[4-]	2.8	14	2.8	U
	Hexachlorobutadiene	4.5	14	4.5	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
Monitoring Well/ Sample Depth MWL-SV04 300 ft.	Hexanone[2-]	6	35	6	U
	Methyl-2-pentanone[4-]	4.5	35	4.5	U
	Methylene Chloride	7	35	4.7	BJ
	Styrene	2.4	14	2.4	U
	Tetrachloroethane[1,1,2,2-]	1.8	14	1.8	U
	Tetrachloroethene	83	14	0.68	
	Toluene	2.4	14	2.4	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	77	14	1.9	
	Trichlorobenzene[1,2,4-]	13	35	13	U
MWL-SV04 300 ft.	Trichloroethane[1,1,1-]	1.8	14	1.8	U
	Trichloroethane[1,1,2-]	1.2	14	1.2	U
	Trichloroethene	50	14	0.63	
	Trichlorofluoromethane	11	14	2.2	J
	Trimethylbenzene[1,2,4-]	4	14	4	U
	Trimethylbenzene[1,3,5-]	2.8	14	2.8	U
	Vinyl acetate	140	350	140	U
	Vinyl Chloride	1.3	14	1.3	U
	Xylene[1,2-]	2.8	14	2.8	U
	Xylene[1,3-]+Xylene[1,4-]	5.4	35	5.4	U
	Total Organics	2275.6	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	76	20	5.2	
	Benzene	0.49	0.8	0.11	J
	Benzyl Chloride	0.27	0.8	0.27	U
	Bromodichloromethane	0.24	0.8	0.24	U
	Bromoform	0.14	0.8	0.14	U
	Bromomethane	0.14	0.8	0.14	U
	Butanone[2-]	0.69	2	0.44	J
	Carbon Disulfide	0.65	2	0.11	J
	Carbon Tetrachloride	0.087	0.8	0.044	J
	Chlorobenzene	0.1	0.8	0.1	U
	Chlorodibromomethane	0.068	0.8	0.068	U
	Chloroethane	0.52	2	0.52	U
	Chloroform	0.67	0.8	0.1	BJ
	Chloromethane	0.64	2	0.64	U
	Dibromoethane[1,2-]	0.092	0.8	0.092	U
MWL-SV04 400 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.16	0.8	0.16	U
400 11.	Dichlorobenzene[1,2-]	0.18	0.8	0.18	U
	Dichlorobenzene[1,3-]	0.2	0.8	0.2	U
	Dichlorobenzene[1,4-]	0.25	0.8	0.25	U
	Dichlorodifluoromethane	17	2	0.19	
	Dichloroethane[1,1-]	0.17	0.8	0.068	J
	Dichloroethane[1,2-]	0.14	0.8	0.14	U
	Dichloroethene[1,1-]	4	0.8	0.14	
	Dichloroethene[cis-1,2-]	0.23	0.8	0.12	J
	Dichloroethene[trans-1,2-]	0.2	0.8	0.2	U
	Dichloropropane[1,2-]	0.14	0.8	0.14	U
	Dichloropropene[cis-1,3-]	0.14	0.8	0.14	U
	Dichloropropene[trans-1,3-]	0.15	0.8	0.15	U
	Ethylbenzene	0.14	0.8	0.14	U
	Ethyltoluene[4-]	0.16	0.8	0.16	U
	Hexachlorobutadiene	0.26	0.8	0.26	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.34	2	0.34	U
	Methyl-2-pentanone[4-]	0.26	2	0.26	U
	Methylene Chloride	0.39	2	0.27	BJ
MWL-SV04 400 ft.	Styrene	0.14	0.8	0.14	U
	Tetrachloroethane[1,1,2,2-]	0.1	0.8	0.1	U
	Tetrachloroethene	79	0.8	0.039	
	Toluene	0.14	0.8	0.14	U
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	48	0.8	0.11	
	Trichlorobenzene[1,2,4-]	0.76	2	0.76	U
	Trichloroethane[1,1,1-]	0.18	0.8	0.1	J
	Trichloroethane[1,1,2-]	0.068	0.8	0.068	U
	Trichloroethene	32	0.8	0.036	
	Trichlorofluoromethane	6.3	0.8	0.12	
	Trimethylbenzene[1,2,4-]	0.23	0.8	0.23	U
	Trimethylbenzene[1,3,5-]	0.16	0.8	0.16	U
	Vinyl acetate	8	20	8	U
	Vinyl Chloride	0.072	0.8	0.072	U
	Xylene[1,2-]	0.16	0.8	0.16	U
	Xylene[1,3-]+Xylene[1,4-]	0.31	2	0.31	U
	Total Organics	265.86	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	6.6	25	6.6	J
	Benzene	0.25	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-]	0.55	2.5	0.55	U
	Carbon Disulfide	0.14	2.5	0.14	U
	Carbon Tetrachloride	1.1	1	0.055	
	Chlorobenzene	0.13	1	0.13	U
	Chlorodibromomethane	0.086	1	0.086	U
	Chloroethane	0.66	2.5	0.66	U
	Chloroform	1.8	1	0.13	В
	Chloromethane	0.81	2.5	0.81	U
	Dibromoethane[1,2-]	0.12	1	0.12	U
MWL-SV05 300 ft	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.21	1	0.21	U
500 H.	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	50	2.5	0.24	
	Dichloroethane[1,1-]	2	1	0.086	
	Dichloroethane[1,2-]	0.17	1	0.17	U
	Dichloroethene[1,1-]	33	1	0.18	
	Dichloroethene[cis-1,2-]	0.94	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	0.17	1	0.17	U
	Ethyltoluene[4-]	0.2	1	0.2	U
	Hexachlorobutadiene	0.32	1	0.32	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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/		Result	Laboratory Detection Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
Sample Depth MWL-SV05 300 ft.	Hexanone[2-]	0.43	2.5	0.43	U
	Methyl-2-pentanone[4-]	0.33	2.5	0.33	U
	Methylene Chloride	1.4	2.5	0.34	BJ
	Styrene	0.18	1	0.18	U
MWL-SV05 300 ft.	Tetrachloroethane[1,1,2,2-]	0.13	1	0.13	U
	Tetrachloroethene	89	1	0.049	
	Toluene	0.24	1	0.18	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	160	1	0.14	
	Trichlorobenzene[1,2,4-]	0.96	2.5	0.96	U
	Trichloroethane[1,1,1-]	0.87	1	0.13	J
	Trichloroethane[1,1,2-]	0.086	1	0.086	U
	Trichloroethene	110	1	0.046	
	Trichlorofluoromethane	38	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	0.091	1	0.091	U
	Xylene[1,2-]	0.2	1	0.2	U
	Xylene[1,3-]+Xylene[1,4-]	0.39	2.5	0.39	U
	Total Organics	495.2	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	6.6	25	6.6	U
	Benzene	0.24	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-]	0.55	2.5	0.55	U
	Carbon Disulfide	0.14	2.5	0.14	U
	Carbon Tetrachloride	0.88	1	0.055	J
	Chlorobenzene	0.13	1	0.13	U
	Chlorodibromomethane	0.086	1	0.086	U
	Chloroethane	0.66	2.5	0.66	U
	Chloroform	1.2	1	0.13	В
	Chloromethane	0.81	2.5	0.81	U
MWL-SV05	Dibromoethane[1,2-]	0.12	1	0.12	U
300 ft.	Dichloro-1,1,2,2-tetrafluoroethane[1,2-]	0.21	1	0.21	U
(Duplicate)	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	45	2.5	0.24	
	Dichloroethane[1,1-]	1.8	1	0.086	
	Dichloroethane[1,2-]	0.17	1	0.17	U
	Dichloroethene[1,1-]	29	1	0.18	
	Dichloroethene[cis-1,2-]	0.83	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	0.17	1	0.17	U
	Ethyltoluene[4-]	0.2	1	0.2	U
	Hexachlorobutadiene	0.32	1	0.32	U

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.43	2.5	0.43	U
	Methyl-2-pentanone[4-]	0.33	2.5	0.33	U
	Methylene Chloride	1.3	2.5	0.34	BJ
MWL-SV05 300 ft. (Duplicate)	Styrene	0.18	1	0.18	U
	Tetrachloroethane[1,1,2,2-]	0.13	1	0.13	U
	Tetrachloroethene	80	1	0.049	
	Toluene	0.18	1	0.18	J
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	140	1	0.14	
	Trichlorobenzene[1,2,4-]	0.96	2.5	0.96	U
	Trichloroethane[1,1,1-]	0.73	1	0.13	J
	Trichloroethane[1,1,2-]	0.086	1	0.086	U
	Trichloroethene	87	1	0.046	
	Trichlorofluoromethane	35	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	0.091	1	0.091	U
	Xylene[1,2-]	0.2	1	0.2	U
	Xylene[1,3-]+Xylene[1,4-]	0.39	2.5	0.39	U
	Total Organics	423.16	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory		
Monitoring Well/		Result	Limit	MDL	Laboratory
Sample Depth	Analyte	(ppbv)	(ppbv)	(ppbv)	Qualifier
	Acetone	2.6	10	2.6	U
	Benzene	0.29	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-]	0.22	1	0.22	J
	Carbon Disulfide	0.14	1	0.056	J
	Carbon Tetrachloride	0.48	0.4	0.022	
	Chlorobenzene	0.05	0.4	0.05	U
	Chlorodibromomethane	0.034	0.4	0.034	U
	Chloroethane	0.26	1	0.26	U
	Chloroform	0.47	0.4	0.05	В
	Chloromethane	0.32	1	0.32	U
	Dibromoethane[1,2-]	0.046	0.4	0.046	U
MVVL-SV05 400 ft	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	7.9	1	0.094	
	Dichloroethane[1,1-]	1.1	0.4	0.034	
	Dichloroethane[1,2-]	0.068	0.4	0.068	U
	Dichloroethene[1,1-]	21	0.4	0.07	
	Dichloroethene[cis-1,2-]	0.25	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-]	0.076	0.4	0.076	U
	Ethylbenzene	0.068	0.4	0.068	U
	Ethyltoluene[4-]	0.08	0.4	0.08	U
	Hexachlorobutadiene	0.13	0.4	0.13	U

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 $\mathsf{U}=\mathsf{Indicates}$ the analyte was analyzed for but not detected.

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

SNL/NM Mixed Waste Landfill

New Mexico Environment Department DOE Oversight Bureau

May 30, 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.

			Laboratory Detection		
Monitoring Well/ Sample Depth	Analyte	Result (ppbv)	Limit (ppbv)	MDL (ppbv)	Laboratory Qualifier
	Hexanone[2-]	0.17	1	0.17	U
	Methyl-2-pentanone[4-]	0.13	1	0.13	U
	Methylene Chloride	0.48	1	0.14	BJ
	Styrene	0.07	0.4	0.07	U
	Tetrachloroethane[1,1,2,2-]	0.052	0.4	0.052	U
	Tetrachloroethene	69	0.4	0.02	
	Toluene	2.7	0.4	0.07	
	Trichloro-1,2,2-trifluoroethane[1,1,2-]	29	0.4	0.054	
	Trichlorobenzene[1,2,4-]	0.38	1	0.38	U
MWL-SV05 400 ft.	Trichloroethane[1,1,1-]	0.68	0.4	0.052	
	Trichloroethane[1,1,2-]	0.034	0.4	0.034	U
	Trichloroethene	40	0.4	0.018	
	Trichlorofluoromethane	19	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-]	0.08	0.4	0.08	U
	Xylene[1,3-]+Xylene[1,4-]	0.15	1	0.15	U
	Total Organics	192.71	NA	NA	

 $\mathsf{B}=\mathsf{Compound}$ was found in the blank and sample.

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