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Ambient Air Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for CY 2011 Q-3

The New Mexico Environment Department DOE Oversight Bureau has compiled and assessed ambient air data collected during CY 2011 Q-3. The Bureau collected independent low-volume air samples from three locations at the WIPP site and at the Southeast Control Site located 12 miles upwind from WIPP. Filters from the air samplers were collected bi-weekly and composited by location. The samples were sent to an independent analytical laboratory for analysis of gross alpha/beta, americium-241, cesium-137, plutonium-238, plutonium-239/240, and strontium-90.

The Bureau performs environmental monitoring and oversight to assure that activities at the WIPP are protective of the public health and environment. The ambient air monitoring program is implemented to independently verify the radiological monitoring results obtained by WIPP personnel, and to confirm that the operation of the WIPP is not increasing levels of radionuclides present in the ambient air as determined from preoperational studies.

Measurements for Am-241, Cs-137, Pu-238/239, Pu-240 and Sr-90 were reported with a "U" flag, meaning the target analyte was not detected above the Minimum Detectable Concentration (MDC). The gross alpha/beta results aid in data analysis and are trended to improve NMED's characterization of the WIPP environment.

Questions and/or comments may be addressed to Julia Marple by phone at (575) 885-9023, or by e-mail at Julia.marple@state.nm.us

Enclosures: 1. Ambient Air Sampling Results CY 2011 Q-3
2. Map of NMED's Ambient Air Sampling Locations

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Ambient Air Sampling Results CY 2011 Q-3

LVAS 1 WIPP Salt Shaft							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	1.26E+02	3.1E+01	1.37E+00		468000	115000	5090
Gross beta	1.97E+02	2.6E+01	1.98E+00		732000	96600	7360
Am-241	3.34E-02	3.2E-02	4.09E-02	U	124	119	152
Cs-137	1.12E+00	2.1E+00	3.59E+00	U	4160	7800	13300
Pu-238	-1.39E-07	4.7E-03	1.23E-02	U	0	17	46
Pu-239/240	6.67E-03	8.2E-03	1.23E-02	U	25	30	46
Sr-90	8.98E-02	3.4E-01	6.32E-01	U	334	1260	2350
Total Air Volume (m³)					9958		

LVAS 2 Far Field							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	1.06E+02	2.7E+01	1.22E+00		378000	96300	4350
Gross beta	3.08E+02	4.0E+01	2.03E+00		1100000	143000	7240
Am 241	2.92E-03	1.1E-02	2.75E-02	U	10	39	98
Cs-137	-1.22E+00	2.3E+00	3.85E+00	U	-4350	8200	13700
Pu-238	-5.82E-07	2.3E-02	5.41E-02	U	0	82	193
Pu-239/240	1.75E-02	2.6E-02	4.28E-02	U	62	93	153
Sr-90	1.43E-01	3.4E-01	6.17E-01	U	510	1210	2200
Total Air Volume (m³)					10377		

LVAS 3 Met Tower							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	6.90E+01	1.8E+01	1.10E+00		329000	85900	5250
Gross beta	1.54E+02	2.1E+01	1.98E+00		735000	100000	9450
Am-241	5.86E-03	1.3E-02	3.31E-02	U	28	62	158
Cs-137	-1.51E+00	2.8E+00	4.74E+00	U	-7210	13400	22600
Pu-238	8.49E-03	2.9E-02	6.25E-02	U	41	138	298
Pu-239/240	1.70E-02	2.9E-02	6.24E-02	U	81	138	298
Sr-90	1.95E-01	3.3E-01	5.85E-01	U	930	1570	2790
Total Air Volume (m³)					7754		

LVAS 7 Met Tower Duplicate

Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	1.17E+02	3.0E+01	1.22E+00		423400	109000	4420
Gross beta	1.87E+02	2.5E+01	2.07E+00		677000	90500	7490
Am-241	1.12E-03	1.3E-02	3.84E-02	U	4	47	139
Cs-137	1.44E+00	1.9E+00	3.50E+00	U	5210	6880	12700
Pu-238	5.74E-03	1.6E-02	4.23E-02	U	21	58	153
Pu-239/240	2.30E-02	2.8E-02	4.22E-02	U	83	101	153
Sr-90	-1.04E-01	3.2E-01	5.99E-01	U	-376	1160	2170
Total Air Volume (m³) 10221							

LVAS 9 Southeast Control

Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	8.67E+01	2.2E+01	1.18E+00		355000	90200	4840
Gross beta	1.77E+02	2.3E+01	2.09E+00		725000	94300	8570
Am-241	4.95E-03	1.1E-02	2.80E-02	U	20	45	115
Cs-137	-1.45E+00	1.6E+00	2.62E+00	U	-5940	6560	10700
Pu-238	1.43E-02	2.1E-02	3.51E-02	U	59	86	144
Pu-239/240	-2.23E-06	2.7E-02	5.73E-02	U	0	111	235
Sr-90	-6.54E-01	4.3E-01	7.75E-01	U	-2680	1760	3180
Total Air Volume (m³) 9028							

Filter Blank WPLA

Analyte	pCi/sample			Lab Flag
	Result	±2 s TPU	MDC	
Gross alpha	4.70E-01	9.0E-01	1.58E+00	U
Gross beta	1.18E+01	2.3E+00	1.98E+00	
Am-241	1.84E-02	2.2E-02	3.46E-02	U
Cs-137	1.26E-01	2.2E+00	3.77E+00	U
Pu-238	-5.61E-03	1.6E-02	4.13E-02	U
Pu-239/240	1.12E-02	1.9E-02	4.13E-02	U
Sr-90	-1.88E-01	3.1E-01	5.99E-01	U

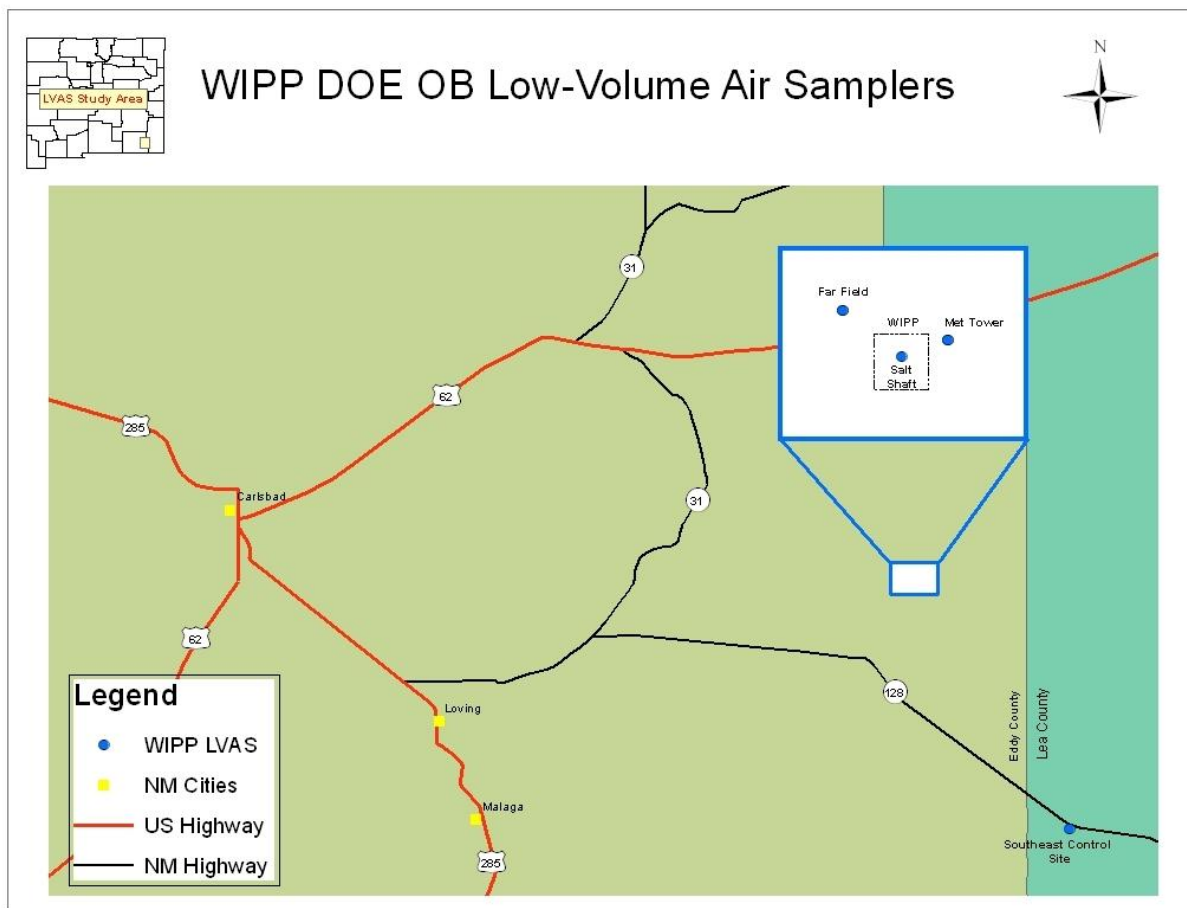
Abbreviations

TPU – Total Propagated Uncertainty

MDC – Minimum Detectable Concentration

Qualifiers/Flags

U – Result is less than 2sTPU and the sample MDC



Map of NMED's Ambient Air Sampling Locations