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Ambient Air Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for CY 2011 Q-1

The New Mexico Environment Department DOE Oversight Bureau has compiled and assessed ambient air data collected during CY 2011 Q-1. The Bureau collected independent low-volume air samples from three locations at the WIPP site. 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, gross 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.

This set of data shows what is believed to be fallout from the damaged nuclear reactors at Fukushima following the devastating earthquake and tsunami. Cs-137 was reported in all ambient air samples, but at levels that were much too small to be significant in dose rate calculations.

A small amount of Sr-90 was detected slightly above the MDC on filters from LVAS 3 at the Met Tower, but not confirmed on the co-located sampler LVAS 7.

Gross alpha and gross beta will be tracked to aid in data analysis and to improve the Bureau'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-1
 2. Map of NMED's Ambient Air Sampling Locations

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Ambient Air Sampling Results CY 2011 Q-1

<i>LVAS 1 WIPP Salt Shaft</i>							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	157	24	6		530000	81000	20200
Gross beta	241	26	5		813000	87700	16900
Am-241	0.10	0.15	0.22	U	337	506	742
Cs-137	12.6	3.9	3.5		42500	13200	11800
Pu-238	-0.03	0.14	0.35	U	-101	472	1180
Pu-239/240	-0.052	0.088	0.29	U	-175	297	979
Sr-90	0.37	0.92	1.6	U	1250	3100	5400
Total Air Volume (m³)					10963		

<i>LVAS 2 Far Field</i>							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	161	23	3		544000	77800	10100
Gross beta	277	29	4		936000	98000	13500
Am 241	-0.04	0.10	0.33	U	-135	338	1120
Cs-137	21.8	5.7	4.7		73700	19300	15900
Pu-238	0.07	0.17	0.33	U	237	575	1120
Pu-239/240	0.030	0.082	0.18	U	101	277	609
Sr-90	0.23	0.97	1.7	U	778	3280	5750
Total Air Volume (m³)					10944		

<i>LVAS 3 Met Tower</i>							
Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	146	21	3		483000	69400	9920
Gross beta	251	26	4		830000	86000	13200
Am-241	0.0	0.086	0.25	U	0	284	826
Cs-137	14.1	4.0	3.1		46600	13200	10200
Pu-238	-0.01	0.19	0.43	U	-33	628	1420
Pu-239/240	-0.07	0.10	0.34	U	-231	331	1120
Sr-90	1.45	0.91	1.4		4790	3010	4630
Total Air Volume (m³)					11192		

LVAS 7 Met Tower Duplicate

Analyte	pCi/sample			Lab Flag	nBq/m3		
	Result	±2 s TPU	MDC		Result	±2 s TPU	MDC
Gross alpha	144	20	3		490000	68100	10200
Gross beta	208	22	4		708000	74900	13600
Am-241	-0.051	0.046	0.28	U	-174	157	953
Cs-137	15.3	4.4	3.5		52100	15000	11900
Pu-238	0.21	0.20	0.27	U	715	681	919
Pu-239/240	0.019	0.079	0.20	U	65	269	681
Sr-90	-0.59	0.90	1.6	U	-2010	3060	5450
Total Air Volume (m³) 10871							

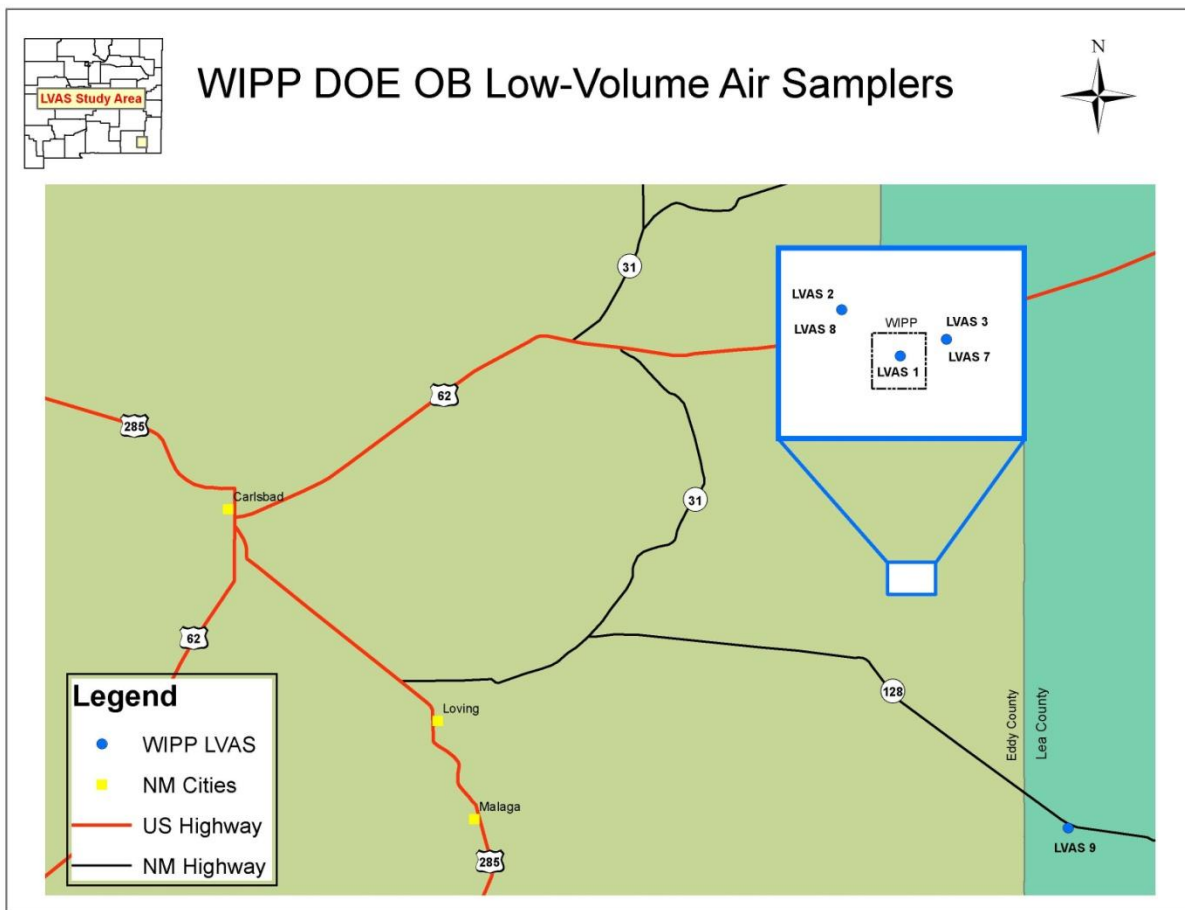
Abbreviations

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

Notes:

At the time of this report, the Bureau had not begun air sampling at the LVAS 9 location on Hwy 128, and LVAS 8 was employed in an internal filter matrix study.