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**Vegetation Sampling near the Waste Isolation Pilot Plant Conducted by NMED/DOE OB
for CY 2010**

The New Mexico Environment Department (NMED) DOE Oversight Bureau has compiled and assessed laboratory data for vegetation samples collected near the Waste Isolation Pilot Plant (WIPP) during CY 2010. Bureau staff collected split vegetation samples from four locations surrounding the WIPP site. The samples were submitted to an independent analytical laboratory for analysis of specific radionuclides, including: americium-241, cesium-137, plutonium-238, plutonium-239/240, uranium-234, uranium-235, and uranium-238.

Data Assessment

Data results are compared to the New Mexico Environment Department Technical Background Document for Development of Soil Screening Levels, Revision 5.0, August 2009. This document references: "USEPA, 1997, *Ecological Risk Assessment Guidelines for Superfund: Process for Designing and Conducting Ecological Risk Assessments*, Environmental Response Team, Interim Final June 5", and USEPA, 1998, *Guidelines for Ecological Risk Assessment*, Risk Assessment Forum, Final, April. EPA/630/R-95/002F; <http://www.epa.gov/ncea/ecorisk.htm>". The soil screening levels provide site managers with a framework for developing and applying the soil screening levels (for appropriate land uses) to determine if areas or entire sites are contaminated to an extent that warrants further investigation.

Results

Farfield: all radionuclides were undetected with sampled activities less than the sample specific MDCs.

WIPP East: all radionuclides were either detected with sample activities less than the sample specific MDCs or less than the requested MDCs but greater than the sample specific MDC (Am-241, U-234).

Mills Ranch: all radionuclides were either detected with sample activities less than the sample specific MDCs or less than the requested MDCs but greater than the sample specific MDC (U-234).

WIPP South: all radionuclides were either detected with sample activities less than the sample specific MDCs or less than the requested MDCs but greater than the sample specific MDC (Pu-238, Pu-239/240, Am-241, U-238 in the primary sample, and U-234 in the duplicate sample).

Laboratory Method Blank: all radionuclides were either detected with sample activities less than the sample specific MDCs or less than the requested MDCs but greater than the sample specific MDC (Pu-238, Pu-239/240, and Am-241).

Conclusions

Though there were no radionuclide activities above the requested MDC, such activities may be suspected in some locations based upon activity exceeding the sample MDC. However, the Method Blank results shown in Table 5 indicate activities above the sample MDC, and below the requested MDC for Pu-238, Pu-239/240 and for Am-241. Therefore, it is likely the activities noted are due to quality control issues in the contract laboratory.

The Bureau will continue to sample these sites to verify that operations at the WIPP are conducted without adverse impacts to the surrounding environment.

Response

Questions and or comments may be addressed to Thomas Kesterson by phone at (575)-887-6851, by e-mail at thomasl.kesterson@state.nm.us, or to Barry S. Birch by phone at (505)845 5933, or by e-mail at barry.birch@state.nm.us, or by mail to the address in the above letterhead.

Enclosure: (1) Table-1 Isotopic Activity results from Farfield
 (2) Table-2 Isotopic Activity results from WIPP East
 (3) Table-3 Isotopic Activity results from Mills Ranch
 (4) Table-4 Isotopic Activity results from WIPP South (including a duplicate)
 (5) Table-5 Laboratory Method Blank results

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File: WGE75.General ER/EM Projects.Vegetation Sampling CY 2010

Table-1 Isotopic Activity results from Farfield

<i>Farfield 2010</i>						<i>Data Summaries</i>	
Analyte	Result	2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	Result	2 s TPU (\pm)
	pCi/g					mBq/g	
Sr-90	0.030	0.018	0.033	0.5	U	1.110	0.666
Pu-239/240	-0.00026	0.0012	0.0029	0.05	U	-0.00962	0.0444
Pu-238	0.00016	0.0012	0.0028	0.05	U	0.00592	0.0444
Am-241	0.00054	0.00092	0.0018	0.05	U	0.01998	0.03404
Cs-137	-0.050	0.13	0.25	0.5	U, G	-1.850	4.81
U-234	0.0028	0.0022	0.0032	0.1	U	0.1036	0.0814
U-235	-0.00040	0.0012	0.0026	0.1	U	-0.01480	0.0444
U-238	0.0020	0.0017	0.0020	0.1	U	0.074	0.0629

Table-2 Isotopic Activity results from WIPP East

<i>WIPP East 2010</i>						<i>Data Summaries</i>	
Analyte	Result	2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	Result	2 s TPU (\pm)
	pCi/g					mBq/g	
Sr-90	0.014	0.011	0.023	0.5	U	0.518	0.407
Pu-239/240	0.0013	0.0012	0.0015	0.05	U	0.048	0.0444
Pu-238	0.0010	0.0011	0.0015	0.05	U	0.0370	0.0407
Am-241	0.0015	0.0012	0.0013	0.05	LT	0.0555	0.0444
Cs-137	-0.031	0.14	0.28	0.5	U, G	-1.147	5.18
U-234	0.0038	0.0021	0.0026	0.1	LT	0.1406	0.0777
U-235	0.000035	0.00090	0.0020	0.1	U	0.001295	0.0333
U-238	0.00031	0.0011	0.0025	0.1	U	0.01147	0.0407

Table-3 Isotopic Activity results from Mills Ranch

<i>Mills Ranch 2010</i>						<i>Data Summaries</i>	
Analyte	Result	2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	Result	2 s TPU (\pm)
	pCi/g					mBq/g	
Sr-90	0.015	0.011	0.020	0.5	U	0.555	0.407
Pu-239/240	0.00048	0.00073	0.0014	0.05	U	0.01776	0.02701
Pu-238	0.000069	0.00063	0.0011	0.05	U	0.002553	0.02331
Am-241	0.00021	0.00055	0.00095	0.05	U	0.00777	0.02035
Cs-137	0.013	0.11	0.20	0.5	U, G	0.481	4.07
U-234	0.0020	0.0014	0.0018	0.1	LT	0.0740	0.0518
U-235	0.00046	0.00089	0.0019	0.1	U	0.01702	0.03293
U-238	0.00076	0.00099	0.0018	0.1	U	0.02812	0.03663

Table-4 Isotopic Activity results from WIPP South (including a duplicate)

<i>WIPP South 2010</i>						<i>Data Summaries</i>	
Analyte	Result	2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	Result	2 s TPU (\pm)
	pCi/g						mBq/g
Sr-90	0.025	0.016	0.028	0.5	U	0.925	0.592
Pu-239/240	0.0012	0.0012	0.00078	0.05	LT	0.0444	0.0444
Pu-238	0.0012	0.0012	0.00078	0.05	LT	0.0444	0.0444
Am-241	0.0016	0.0012	0.00062	0.05	LT	0.0592	0.0444
Cs-137	0.056	0.14	0.25	0.5	U, G	2.072	5.18
U-234	0.0012	0.0012	0.0015	0.1	U	0.0444	0.0444
U-235	-0.000081	0.00098	0.0014	0.1	U	-0.002997	0.03626
U-238	0.0035	0.0019	0.0016	0.1	LT	0.1295	0.0703

<i>WIPP South 2010 Dup</i>						<i>Data Summaries</i>	
Analyte	Result	2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	Result	2 s TPU (\pm)
	pCi/g						mBq/g
Sr-90	0.019	0.017	0.034	0.5	U	0.703	0.629
Pu-239/240	0.00016	0.00083	0.0012	0.05	U	0.00592	0.03071
Pu-238	0.0010	0.0011	0.0014	0.05	U	0.0370	0.0407
Am-241	0.00056	0.00076	0.0011	0.05	U	0.02072	0.02812
Cs-137	-0.045	0.10	0.19	0.5	U, G	-1.665	3.70
U-234	0.0028	0.0019	0.0019	0.1	LT	0.1036	0.0703
U-235	-0.00019	0.0012	0.0020	0.1	U	-0.00703	0.0444
U-238	0.0012	0.0013	0.0018	0.1	U	0.0444	0.0481

Table-5 Laboratory Method Blank results

<i>Method Blank 2010</i>		2 s TPU (\pm)	Sample MDC	Requested MDC	Lab Flag	<i>Data Summaries</i>	
Analyte	Result					Result	2 s TPU (\pm)
	pCi/g						mBq/g
Sr-90	-0.0060	0.010	0.027	0.5	U	-0.2220	0.370
Pu-239/240	0.004	0.003	0.004	0.05	B3	0.148	0.126
Pu-238	0.0054	0.0038	0.0033	0.05	B3	0.1998	0.1406
Am-241	0.0033	0.0029	0.0031	0.05	B3	0.12210	0.1073
Cs-137	0.0084	0.035	0.066	0.5	U	0.3108	1.295
U-234	0.0021	0.0029	0.0051	0.1	U	0.0777	0.1073
U-235	0.0012	0.0026	0.0038	0.1	U	0.04440	0.0962
U-238	0.00067	0.0022	0.0044	0.1	U	0.0248	0.0814

Definitions:

Qualifiers / Flags:

U – Result is less than the sample specific MDC.

LT – Result is less than requested MDC; greater than sample specific MDC.

G – Sample density differs by more than 15% of LCS density.

B3 – Analyte concentration greater than MDC but less than Requested MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC – Minimum detectable Concentration