



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

DOE Oversight Bureau

604B N Canal Street

Carlsbad, New Mexico 88220

Phone (575) 887-5681 Fax (575) 887-6862

www.nmenv.state.nm.us



DAVE MARTIN
Secretary

BUTCH TONGATE
Acting Deputy Secretary

August 30, 2011

George Basabilvazo
Department of Energy
Carlsbad Field Office
Carlsbad, NM 88220

Subject: Analytical Results of Sediments Collected From Selected Water Bodies Near the WIPP, New Mexico, 2011

Mr. Basabilvazo:

This letter transmits the subject final report.

The monitoring results are provided to DOE as final. If you have any questions, please contact me at 575-887-6851.

Sincerely,

Thomas Kesterson
Environmental Specialist –O
WIPP Oversight Section

Enclosure: Final submittal entitled: “Analytical Results of Sediments Collected From Selected Water Bodies Near the WIPP, New Mexico, 2011”, with the following enclosures:

1. Table 1 – Analytical Results for Sediments Collected From Selected Water Bodies Near the WIPP, 2011.
2. Definitions.

Cc: Thomas Skibitski, Bureau Chief, NMED DOE OB
Dan Ferguson, DOE CBFO



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Subject: Analytical Results of Sediments Collected From Selected Water Bodies Near the WIPP, New Mexico, 2011

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE OB) has compiled and assessed laboratory data for sediment collected from selected water bodies near the Waste Isolation Pilot Plant (WIPP), New Mexico, during 2011.

The accompanying data report includes results for sediment collected from eight surface water bodies near the WIPP. These include Hill Tank, Indian Tank, Lost Tank, Noya Tank, Pierce Canyon, Poker Tank, Red Tank, and Under-the-Hill Tank, with a field duplicate collected at Red tank. Selected analytes included americium-241 (Am-241), cesium-137 (Cs-137), plutonium-238 (Pu-238), plutonium-239/240 (Pu-239/240), strontium-90 (Sr-90), uranium-234 (U-234), uranium-235 (U-235), and uranium-238 (U-238).

Sr-90 was detected in activities greater than the sample MDC in sediments collected from Hill Tank, Noya Tank, and Under-the-Hill Tank. Historically, it has not been detected around the WIPP site. This analyte was neither detected in previous sediment activities, nor was it detected by the Permittee's lab this year.

Pu-238 was detected in sediments collected from Hill Tank, Indian Tank, Noya Tank, and Red Tank. However, it was not detected in the field duplicate. As with Sr-90, this analyte was not detected in the previous sampling activities, nor did the Permittee's lab detect it this year. Another analyte, Pu-239/240 was detected this year in activities greater than the sample MDC in sediments collected from Indian Tank. This analyte was detected in samples collected by the DOE OB from this tank in 2009. These results are within the average range of plutonium levels in surface soil.

The analyte Am-241 was detected in activities greater than the sample MDC in samples collected from Hill Tank, Indian Tank, Lost Tank, Noya Tank, Pierce Canyon, and Red Tank. However, this analyte was not detected in the field duplicate. In 2010, Am-241 was detected in each of these tanks, with the exception of Indian Tank. This analyte was not detected in any of the Permittee's samples this year.

Cs-137 was not detected in any of the DOE OB's sediment samples this year, though it was detected in earlier sampling activities, and it was detected in all but one of the Permittee's samples this year.

The analytes U-234 and U-238 were detected in activities exceeding the sample MDC in all sediment samples this year, as was the case in previous sampling activities. U-235 was also detected at Indian Tank, Poker Tank, and the field duplicate from Red Tank this year, and has previously been detected in these tanks during previous sampling activities. All uranium activities were within the average range of uranium found naturally in soils worldwide.

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 the address in the above letterhead.

Enclosures: 1. Table 1 – Analytical Laboratory Results For Sediment Collected From Selected Water Bodies Near the WIPP, 2011.
2. Definitions

Cc: George Basabilvazo, DOE, CBFO
Dan Ferguson, Site Regulatory Specialist, DOE, CBFO
Thomas Skibitski, Bureau Chief, NMED DOE OB

Table 1 – Analytical Laboratory Results For Sediment Collected From Selected Water Bodies Near the WIPP, 2011.

<i>Hill Tank, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty
					(2 s) TPU	
Analyte	pCi/g				mBq/g	
Sr 90	0.83	0.35	0.47		30.710	12.950
Pu-239/240	0.033	0.033	0.047	U	1.221	1.221
Pu-238	0.020	0.024	0.018	LT	0.740	0.888
Am 241	0.028	0.026	0.015	LT	1.036	0.962
Cs 137	0.14	0.15	0.23	U, G	5.180	5.550
U-234	0.55	0.15	0.05		20.350	5.550
U-235	0.031	0.035	0.058	U	1.147	1.295
U-238	0.64	0.16	0.05		23.680	5.920

<i>Indian Tank, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty
					(2 s) TPU	
Analyte	pCi/g				mBq/g	
Sr 90	-0.01	0.20	0.49	U	-0.481	7.400
Pu-239/240	0.027	0.024	0.014	LT	0.999	0.888
Pu-238	0.016	0.019	0.014	LT	0.592	0.703
Am 241	0.015	0.018	0.013	LT	0.555	0.666
Cs 137	0.06	0.21	0.38	U, G	2.035	7.770
U-234	0.75	0.18	0.04		27.750	6.660
U-235	0.040	0.035	0.037	LT	1.480	1.295
U-238	0.68	0.17	0.04		25.160	6.290

<i>Lost Tank, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty
					(2 s) TPU	
Analyte	pCi/g				mBq/g	
Sr 90	-0.01	0.20	0.50	U	-0.518	7.400
Pu-239/240	0.015	0.020	0.029	U	0.555	0.740
Pu-238	0.020	0.023	0.029	U	0.740	0.851
Am 241	0.026	0.023	0.014	LT	0.962	0.851
Cs 137	0.12	0.19	0.31	U, G	4.440	7.030
U-234	0.29	0.10	0.04		10.730	3.552
U-235	0.007	0.024	0.018	U	0.248	0.888
U-238	0.38	0.11	0.05		14.060	4.070

Table 1 – Analytical Laboratory Results For Sediment Collected From Selected Water Bodies Near the WIPP, 2011.

<i>Noya Tank, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty (2 s) TPU
	pCi/g				mBq/g	
Sr 90	0.85	0.36	0.50		31.450	13.320
Pu-239/240	0.004	0.021	0.036	U	0.144	0.777
Pu-238	0.028	0.026	0.015	LT	1.036	0.962
Am 241	0.026	0.023	0.014	LT	0.962	0.851
Cs 137	0.10	0.11	0.19	U, G	3.589	4.070
U-234	0.46	0.14	0.05		17.020	5.180
U-235	-0.002	0.031	0.066	U	-0.063	1.147
U-238	0.64	0.18	0.06		23.680	6.660

<i>Pierce Canyon, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty (2 s) TPU
	pCi/g				mBq/g	
Sr 90	0.06	0.15	0.34	U	2.146	5.550
Pu-239/240	-0.008	0.020	0.047	U	-0.311	0.740
Pu-238	0.011	0.020	0.015	U	0.407	0.740
Am 241	0.034	0.028	0.027	LT	1.258	1.036
Cs 137	0.04	0.15	0.27	U, G	1.480	5.550
U-234	0.520	0.130	0.027		19.240	4.810
U-235	0.013	0.022	0.044	U	0.481	0.814
U-238	0.390	0.110	0.027		14.430	4.070

<i>Poker Tank, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab Flag	Result	Uncertainty (2 s) TPU
	pCi/g				mBq/g	
Sr 90	0.11	0.14	0.30	U	4.070	5.180
Pu-239/240	0.009	0.020	0.032	U	0.322	0.740
Pu-238	0	0.020	0.015	U	0.000	0.740
Am 241	0.029	0.027	0.034	U	1.073	0.999
Cs 137	0.29	0.25	0.38	U, G	10.730	9.250
U-234	0.49	0.13	0.05		18.130	4.810
U-235	0.026	0.026	0.017	LT	0.962	0.962
U-238	0.55	0.14	0.04		20.350	5.180

Table 1 – Analytical Laboratory Results For Sediment Collected From Selected Water Bodies Near the WIPP, 2011.

<i>Red Tank 1, 2011</i>					<i>Data Summaries</i>	
	Result	2 s TPU (\pm)	MDC	Lab	Result	Uncertainty
	pCi/g			Flag	mBq/g	
Sr 90	0.11	0.15	0.33	U	4.070	5.550
Pu-239/240	0.011	0.023	0.033	U	0.407	0.851
Pu-238	0.025	0.026	0.017	LT	0.925	0.962
Am 241	0.047	0.035	0.036	LT	1.739	1.295
Cs 137	0.04	0.11	0.19	U, G	1.554	4.070
U-234	0.39	0.12	0.05		14.430	4.440
U-235	0.001	0.026	0.051	U	0.026	0.962
U-238	0.40	0.12	0.03		14.800	4.440

<i>Red Tank 2, 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab	Result	Uncertainty
	pCi/g			Flag	mBq/g	
Sr 90	0.13	0.22	0.49	U	4.810	8.140
Pu-239/240	0.011	0.023	0.033	U	0.407	0.851
Pu-238	0.006	0.023	0.027	U	0.211	0.851
Am 241	0.012	0.021	0.016	U	0.444	0.777
Cs 137	0.04	0.10	0.17	U, G	1.628	3.589
U-234	0.43	0.12	0.04		15.910	4.440
U-235	0.032	0.029	0.017	LT	1.184	1.073
U-238	0.38	0.11	0.03		14.060	4.070

<i>Under-the-Hill Tank 2011</i>					<i>Data Summaries</i>	
	Result	(2 s) TPU	MDC	Lab	Result	Uncertainty
	pCi/g			Flag	mBq/g	
Sr 90	0.72	0.34	0.51	M3	26.640	12.580
Pu-239/240	0.017	0.023	0.040	U	0.629	0.851
Pu-238	0.008	0.020	0.035	U	0.292	0.740
Am 241	0.011	0.020	0.015	U	0.407	0.740
Cs 137	0.05	0.13	0.23	U, G	1.776	4.810
U-234	0.19	0.07	0.04		7.030	2.664
U-235	0.011	0.023	0.033	U	0.407	0.851
U-238	0.24	0.08	0.02		8.880	3.071

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.

M3 – The requested MDC was not met, but the reported activity is greater than the reported MDC.

Abbreviations:

TPU - Total Propagated Uncertainty

MDC – Minimum detectable Concentration