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**Department of Energy**  
Carlsbad Field Office  
P. O. Box 3090  
Carlsbad, New Mexico 88221  
**JUN 08 2011**

JUN 2011

Mr. John Kieling, Acting Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6303

Subject: Waste Isolation Pilot Plant Groundwater Level Measurements for May 2011

Dear Mr. Kieling:

The purpose of this letter is to submit the Waste Isolation Pilot Plant Groundwater Level Measurements for May 2011, as required by Part 5, Section 5.10.2.2. of Hazardous Waste Facility Permit No. NM4890139088-TSDF.

We certify under penalty of law that this document and all enclosures were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Please feel free to contact Daniel J. Ferguson at (575) 234-7018 if you have any questions regarding this data transmittal.

Sincerely,

Edward Ziemianski, Acting Manager  
Carlsbad Field Office

M. F. Sharif, General Manager  
Washington TRU Solutions LLC

Enclosure

cc: w/enclosure  
J. Davis, NMED \* ED  
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SUMMARY COMMENTS FOR THE WATER LEVEL MEASUREMENTS FOR THE  
MONTH OF MAY 2011

1. The WIPP Hazardous Waste Facility Permit (Permit), Attachment L, Section L-4c (1) requires reporting of cumulative fluctuations noted in the Detection Monitoring Program (DMP) wells of more than two feet in the course of one year which are not attributable to site tests and subsequent stabilization. The Calendar Year 2009 Annual Site Environmental Report (ASER), was submitted to the New Mexico Environment Department in compliance with the Permit, and summarizes and discusses DMP water level changes greater than two feet for calendar year 2009. Changes in DMP well water levels greater than two feet for the current year, if any, are reported in the data sheet and will be discussed in the ASER for calendar year 2011.
2. Calculations used to derive water level and fresh water head elevations in Table 1:
  - $\text{Adjusted Depth to Water(ft)} = \text{Depth to Water from Measuring Point(ft)} - \text{Adjustment(ft)}$
  - $\text{Water Level(ft amsl)} = \text{Top of Surveyed Casing Elevation(ft amsl)} - \text{Adjusted Depth to Water(ft)}$
  - $\text{Column Height(ft)} = \text{Water Level(ft amsl)} - \text{Culebra Midpoint Elevation(ft amsl)}$
  - $\text{Fresh-water Head(ft amsl)} = \text{Specific Gravity} \times \text{Column Height(ft)} + \text{Culebra Midpoint Elevation(ft amsl)}$
3. For production-injection packers (PIPs) installed on tubing or Water Quality Sampling Program wells with tubing access ports, an adjustment is necessary to reference the water level to the surveyed fixed permanent casing [Top of Casing(TOC)]. If the measuring point is above the TOC, the depth to water relative to TOC is less. If the measuring point is below the TOC, the depth to water relative to TOC is greater (ref: WP 02-EM1014, Rev 6).
4. Groundwater level measurements were not taken at wells H-09bR and H-09c due to Sandia National Laboratories testing and instrumentation activities. Water level measurements at H-09bR and H-09c are anticipated to resume in July 2011.

Groundwater level Measurements for May 2011

Well Number	Zone	Top of Surveyed Casing Elevation (ft amsl)	Date	Time	Depth to Water from Measuring Point (feet)	Adjustment (feet)	Adjusted Depth to Water (feet)	Adjusted Depth to Water (m)	Water Level (ft amsl)	Water Level (m amsl)	Fresh-water Head (ft amsl)	Culebra Midpoint Elevation (ft amsl)	Specific Gravity	Column Height (feet)	Notes
AEC-7	CUL	3657.06	05/16/11	12:54	612.57	0.00	612.57	186.71	3044.49	927.96	3064.76	2784.60	1.078	259.89	NA
C-2737 (PIP)	CUL	3400.76	05/19/11	09:10	386.04	-0.60	386.64	117.85	3014.12	918.70	3022.34	2709.70	1.027	304.42	NA
ERDA-9	CUL	3410.17	05/19/11	08:10	398.17	-0.03	398.20	121.37	3011.97	918.05	3034.94	2693.00	1.072	318.97	NA
H-02b2	CUL	3378.36	05/17/11	15:10	335.40	0.00	335.40	102.23	3042.96	927.49	3046.86	2742.80	1.013	300.16	NA
H-03b2	CUL	3389.91	05/19/11	09:23	388.06	0.00	388.06	118.28	3001.85	914.96	3014.73	2702.20	1.043	299.65	NA
H-04bR	CUL	3334.64	05/16/11	07:43	331.37	0.00	331.37	101.00	3003.27	915.40	3006.45	2826.76	1.018	176.51	NA
H-05b	CUL	3506.78	05/16/11	13:17	466.59	0.00	466.59	142.22	3040.19	926.65	3081.45	2596.50	1.093	443.69	NA
H-06bR	CUL	3349.22	05/17/11	14:10	289.53	0.00	289.53	88.25	3059.69	932.59	3071.82	2731.90	1.037	327.79	NA
H-07b1	CUL	3163.72	05/16/11	08:18	165.89	0.00	165.89	50.56	2997.83	913.74	2998.45	2893.80	1.006	104.03	NA
H-10c	CUL	3688.40	05/16/11	14:38	719.85	0.00	719.85	219.41	2968.55	904.81	3027.90	2316.30	1.091	652.25	NA
H-11b4	CUL	3410.79	05/17/11	11:36	423.01	0.00	423.01	128.93	2987.78	910.68	3003.75	2674.60	1.051	313.18	NA
H-12	CUL	3427.33	05/17/11	10:20	456.56	0.00	456.56	139.16	2970.77	905.49	3011.63	2588.90	1.107	381.87	NA
H-15R	CUL	3482.02	05/19/11	08:55	506.84	0.00	506.84	154.48	2975.18	906.83	3018.72	2609.30	1.119	366.88	NA
H-16	CUL	3410.06	05/19/11	07:53	373.55	0.00	373.55	113.86	3036.51	925.53	3049.12	2695.63	1.037	340.88	NA
H-17	CUL	3385.24	05/17/11	11:24	417.85	0.00	417.85	127.36	2967.39	904.46	3008.54	2664.80	1.136	302.59	NA
H-19b0	CUL	3418.33	05/17/11	12:00	425.66	0.00	425.66	129.74	2992.67	912.17	3014.99	2664.40	1.068	328.27	NA
I-461	CUL	3283.61	05/16/11	08:57	240.02	0.00	240.02	73.16	3043.59	927.69	3044.27	2907.10	1.005	136.49	NA
SNL-01	CUL	3512.84	05/17/11	06:40	432.56	0.00	432.56	131.84	3080.28	938.87	3085.33	2900.00	1.028	180.28	NA
SNL-02	CUL	3323.06	05/16/11	09:40	252.92	0.00	252.92	77.09	3070.14	935.78	3072.10	2852.30	1.009	217.84	NA
SNL-03	CUL	3490.35	05/17/11	07:47	417.60	0.00	417.60	127.28	3072.75	936.57	3082.52	2723.80	1.028	348.95	NA
SNL-05	CUL	3379.98	05/16/11	09:54	307.41	0.00	307.41	93.70	3072.57	936.52	3075.30	2731.00	1.008	341.57	NA
SNL-06	CUL	3646.11	05/16/11	12:23	684.15	0.00	684.15	208.53	2961.96	902.81	3114.36	2307.90	1.233	654.06	1
SNL-08	CUL	3555.73	05/16/11	13:34	543.48	0.00	543.48	165.65	3012.25	918.13	3052.32	2586.00	1.094	426.25	NA
SNL-09	CUL	3360.96	05/17/11	13:50	310.95	0.00	310.95	94.78	3050.01	929.64	3054.62	2793.80	1.018	256.21	NA
SNL-10	CUL	3377.59	05/17/11	13:07	325.77	0.00	325.77	99.29	3051.82	930.19	3054.41	2764.10	1.009	287.72	NA
SNL-12	CUL	3339.46	05/17/11	09:40	337.64	0.00	337.64	102.91	3001.82	914.95	3002.99	2768.60	1.005	233.22	NA
SNL-13	CUL	3294.22	05/16/11	07:54	269.45	0.00	269.45	82.13	3024.77	921.95	3027.80	2893.10	1.023	131.67	2
SNL-14	CUL	3368.41	05/17/11	11:06	376.75	0.00	376.75	114.83	2991.66	911.86	3005.13	2698.90	1.046	292.76	NA
SNL-15	CUL	3479.93	05/16/11	13:45	571.94	0.00	571.94	174.33	2907.99	886.36	2987.99	2557.10	1.228	350.89	3
SNL-16	CUL	3133.00	05/16/11	08:35	124.78	0.00	124.78	38.03	3008.22	916.91	3008.95	2926.70	1.009	81.52	NA
SNL-17	CUL	3238.06	05/17/11	08:36	232.61	0.00	232.61	70.90	3005.45	916.06	3005.92	2888.50	1.004	116.95	NA
SNL-18	CUL	3375.44	05/17/11	07:00	301.26	0.00	301.26	91.82	3074.18	937.01	3075.68	2824.20	1.006	249.98	NA
SNL-19	CUL	3222.65	05/16/11	09:27	151.63	0.00	151.63	46.22	3071.02	936.05	3072.24	2867.60	1.006	203.42	NA
WIPP-11	CUL	3427.78	05/17/11	07:26	362.62	0.00	362.62	110.53	3065.16	934.26	3083.48	2570.00	1.037	495.16	NA
WIPP-13	CUL	3405.67	05/17/11	14:55	343.00	0.00	343.00	104.55	3062.67	933.50	3079.05	2690.30	1.044	372.37	NA
WIPP-19	CUL	3435.11	05/19/11	09:32	389.46	0.00	389.46	118.71	3045.65	928.31	3065.06	2665.00	1.051	380.65	NA
WQSP-1	CUL	3419.25	05/17/11	14:30	359.13	0.18	358.95	109.41	3060.30	932.78	3077.68	2705.60	1.049	354.70	NA
WQSP-2	CUL	3463.87	05/19/11	10:13	399.00	0.20	398.80	121.55	3065.07	934.23	3085.10	2638.80	1.047	426.27	NA
WQSP-3	CUL	3480.14	05/19/11	09:54	463.47	0.19	463.28	141.21	3016.86	919.54	3075.15	2620.30	1.147	396.56	NA
WQSP-4	CUL	3433.09	05/17/11	12:10	443.10	0.18	442.92	135.00	2990.17	911.40	3016.53	2652.20	1.078	337.97	NA
WQSP-5	CUL	3384.38	05/17/11	12:22	379.33	0.20	379.13	115.56	3005.25	916.00	3013.08	2725.70	1.028	279.55	NA
WQSP-6	CUL	3364.72	05/17/11	12:40	343.29	0.19	343.10	104.58	3021.62	920.99	3025.68	2767.60	1.016	254.02	NA
C-2737 (ANNULUS)	MAG	3400.76	05/19/11	09:15	256.43	0.00	256.43	78.16	3144.33	958.39	NA	NA	NA	NA	NA
H-02b1	MAG	3378.49	05/17/11	15:10	314.41	0.00	314.41	95.83	3064.08	933.93	NA	NA	NA	NA	NA
H-03b1	MAG	3390.72	05/19/11	08:15	244.00	0.00	244.00	74.37	3146.72	959.12	NA	NA	NA	NA	NA
H-04c	MAG	3334.28	05/19/11	08:31	212.52	0.00	212.52	64.78	3121.76	951.51	NA	NA	NA	NA	NA
H-06c	MAG	3348.69	05/17/11	14:04	277.78	0.00	277.78	84.67	3070.91	936.01	NA	NA	NA	NA	NA
H-08a	MAG	3433.28	05/17/11	09:10	409.04	0.00	409.04	124.68	3024.24	921.79	NA	NA	NA	NA	NA
H-10a	MAG	3688.45	05/16/11	14:30	575.87	0.00	575.87	175.53	3112.58	948.71	NA	NA	NA	NA	NA

Groundwater level Measurements for May 2011

Well Number	Zone	Top of Surveyed Casing Elevation (ft amsl)	Date	Time	Depth to Water from Measuring Point (feet)	Adjustment (feet)	Adjusted Depth to Water (feet)	Adjusted Depth to Water (m)	Water Level (ft amsl)	Water Level (m amsl)	Fresh-water Head (ft amsl)	Culebra Midpoint Elevation (ft amsl)	Specific Gravity	Column Height (feet)	Notes
H-11b2	MAG	3411.86	05/17/11	11:44	272.22	0.00	272.22	82.97	3139.64	956.96	NA	NA	NA	NA	NA
H-14	MAG	3347.08	05/17/11	12:50	210.97	0.00	210.97	64.30	3136.11	955.89	NA	NA	NA	NA	NA
H-15	MAG	3483.50	05/19/11	08:51	342.00	0.00	342.00	104.24	3141.50	957.53	NA	NA	NA	NA	NA
H-18	MAG	3414.21	05/17/11	14:24	260.16	0.00	260.16	79.30	3154.05	961.35	NA	NA	NA	NA	NA
WIPP-18	MAG	3457.57	05/19/11	09:43	307.72	0.00	307.72	93.79	3149.85	960.07	NA	NA	NA	NA	4
WQSP-6a	DL	3364.05	05/17/11	12:35	167.39	0.25	167.14	50.94	3196.91	974.42	NA	NA	NA	NA	NA
CB-1	B/C	3329.12	05/17/11	10:50	313.83	0.00	313.83	95.66	3015.29	919.06	NA	NA	NA	NA	NA
DOE-2	B/C	3419.18	05/17/11	14:42	352.17	0.00	352.17	107.34	3067.01	934.82	NA	NA	NA	NA	NA

**Notes**

1. Recovering from development 09/2005 and bailing 01/2007.
2. Rise in water level due to oil field activity.
3. Recovering from pumping 04/2007.
4. Water level depressed from SNL testing ending on March 2010; recovering.

B/C= Bell Canyon  
 CUL= Culebra  
 MAG= Magenta  
 DL= Dewey Lake  
 SR= Santa Rosa

NA = Not applicable