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Direct Penetrating Radiation Monitoring at the Waste Isolation Pilot Plant Conducted by NMED/DOE OB for the CY 2010 Q-3

The New Mexico Environment Department (NMED) DOE Oversight Bureau has compiled and assessed direct penetrating radiation (DPR) data collected during CY 2010 Q-3. The accompanying table shows DPR dose levels at various locations surrounding the Waste Isolation Pilot Plant, the Oversight Bureau Office in Carlsbad, the Malaga Volunteer Fire Department, and at the weigh station between Carlsbad and Loving. The data were obtained using Rad Elec gamma radiation monitoring electrets.

Water was found in the canisters of WIPP 11 and 13, which were omitted for this quarter, as the presence of water causes a larger voltage drop, resulting in a higher calculated average quarterly dose result. Electret number SFC 131 from WIPP 4 was omitted from the calculation of the Average Quarterly Dose, as its Teflon disk was inadvertently touched upon removal from the canister. Touching the Teflon disk also causes a larger voltage drop and a higher calculated average quarterly dose result. The WIPP 18 monitor was missing from its deployed location.

The DPR results ranged from a minimum average quarterly dose of 24.5 mrad at WIPP 14 to a maximum average quarterly dose of 32.4 mrad at WIPP 16 (the weigh station on US 285 between Carlsbad and Loving). Currently, WIPP 15 serves as a control for quality assurance and is located in the Oversight Bureau Office in Carlsbad. The average quarterly dose for WIPP 15 was 28.5 mrad.

This quarter, the highest readings were found at WIPP 16 and WIPP 17 (the Malaga Volunteer Fire Department). These are along the south transportation route, over which there have been no TRU shipments since September 2008. Table 1 shows the individual results from each electret. Questions and or comments may be addressed to Barry S. Birch by phone at (505) 845-5933, or by e-mail at barry.birch@state.nm.us.

Enclosures: 1. Table-1: Direct Penetrating Radiation as Measured by Electrets CY 2010 Q-3
2. Physical Location of the Oversight Bureau's Electret Gamma Monitors.

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Table-1: Direct Penetrating Radiation as Measured by Electrets CY 2010 Q-3

New Mexico Environment Department, DOE Oversight Bureau, WIPP Section

WIPP 1

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SX 3751	7/2/10 8:01 AM	10/1/10 8:08 AM	91.00	50	26.6
SFB 973	7/2/10 8:01 AM	10/1/10 8:08 AM	91.00	51	25.7
SX 3856	7/2/10 8:01 AM	10/1/10 8:08 AM	91.00	48	26.2
Average Quarterly Dose in mrad:					26.2

WIPP 2

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC065	7/2/10 8:08 AM	10/1/10 7:57 AM	90.99	55	27.1
SFC082	7/2/10 8:08 AM	10/1/10 7:57 AM	90.99	64	31.9
SBZ 906	7/2/10 8:08 AM	10/1/10 7:57 AM	90.99	40	22.3
Average Quarterly Dose in mrad:					27.1

WIPP 3

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFB 974	7/2/10 8:16 AM	10/1/10 7:38 AM	90.97	55	27.7
SFB 893	7/2/10 8:16 AM	10/1/10 7:38 AM	90.97	58	28.8
SFC 025	7/2/10 8:16 AM	10/1/10 7:38 AM	90.97	50	25.1
Average Quarterly Dose in mrad:					27.2

WIPP 4

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFB 969	7/2/10 8:22 AM	10/1/10 8:36 AM	91.01	51	25.9
SFB 999	7/2/10 8:22 AM	10/1/10 8:36 AM	91.01	48	24.3
SFC 131	Teflon disk was touched. Result is disregarded				
Average Quarterly Dose in mrad:					25.1

WIPP 5

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 061	7/2/10 8:30 AM	10/1/10 8:48 AM	91.01	54	27.3
SX3836	7/2/10 8:30 AM	10/1/10 8:48 AM	91.01	48	26.1
SX3746	7/2/10 8:30 AM	10/1/10 8:48 AM	91.01	46	24.8
Average Quarterly Dose in mrad:					26.1

Table-1: Direct Penetrating Radiation as Measured by Electrets CY 2010 Q-3

New Mexico Environment Department, DOE Oversight Bureau, WIPP Section

WIPP 6

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 099	7/2/10 8:36 AM	10/1/10 9:22 AM	91.03	48	24.3
SFC 126	7/2/10 8:36 AM	10/1/10 9:22 AM	91.03	47	23.7
SFC 171	7/2/10 8:36 AM	10/1/10 9:22 AM	91.03	50	25.7
Average Quarterly Dose in mrad:					24.6

WIPP 7

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SX 3872	7/6/10 8:11 AM	10/1/10 9:45 AM	87.07	43	25.7
SFB 985	7/6/10 8:11 AM	10/1/10 9:45 AM	87.07	46	24.9
SFB 987	7/6/10 8:11 AM	10/1/10 9:45 AM	87.07	51	27.9
Average Quarterly Dose in mrad:					26.1

WIPP 8

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFB 966	7/6/10 8:44 AM	10/4/10 8:55 AM	90.01	55	29.0
SFB 988	7/6/10 8:44 AM	10/4/10 8:55 AM	90.01	56	29.2
SFC 095	7/6/10 8:44 AM	10/4/10 8:55 AM	90.01	54	28.7
Average Quarterly Dose in mrad:					29.0

WIPP 9

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFB 995	7/6/10 8:48 AM	10/4/10 8:23 AM	89.98	51	26.4
SFC 018	7/6/10 8:48 AM	10/4/10 8:23 AM	89.98	53	27.2
SFB 961	7/6/10 8:48 AM	10/4/10 8:23 AM	89.98	53	27.4
Average Quarterly Dose in mrad:					27.0

WIPP 10

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 010	7/6/10 8:43 AM	10/1/10 10:37 AM	87.08	48	26.3
SFB 962	7/6/10 8:43 AM	10/1/10 10:37 AM	87.08	49	27.0
SFB 963	7/6/10 8:43 AM	10/1/10 10:37 AM	87.08	46	25.3
Average Quarterly Dose in mrad:					26.2

Table-1: Direct Penetrating Radiation as Measured by Electrets CY 2010 Q-3

New Mexico Environment Department, DOE Oversight Bureau, WIPP Section

WIPP 11

WIPP 11 was found containing water. Results omitted for this quarter.

WIPP 12

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 013	7/2/10 8:45 AM	10/1/10 8:57 AM	91.01	52	26.7
SX 3896	7/2/10 8:45 AM	10/1/10 8:57 AM	91.01	47	25.8
SFC 108	7/2/10 8:45 AM	10/1/10 8:57 AM	91.01	52	26.6
Average Quarterly Dose in mrad:					26.3

WIPP 13

WIPP 13 was found containing water. Results omitted for this quarter.

WIPP 14

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 064	7/2/10 8:48 AM	10/1/10 9:12 AM	91.02	37	20.1
SFC 077	7/2/10 8:48 AM	10/1/10 9:12 AM	91.02	53	27.3
SFC 152	7/2/10 8:48 AM	10/1/10 9:12 AM	91.02	51	26.1
Average Quarterly Dose in mrad:					24.5

**WIPP 15
Carlsbad**

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SX 3785	7/6/10 2:16 PM	10/4/10 10:16 AM	89.83	48	26.9
SX 3823	7/6/10 2:16 PM	10/4/10 10:16 AM	89.83	51	29.0
SX 3911	7/6/10 2:16 PM	10/4/10 10:16 AM	89.83	52	29.7
Average Quarterly Dose in mrad:					28.5

WIPP 16

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 060	7/6/10 1:13 PM	10/4/10 11:48 AM	89.94	62	33.5
SFC 132	7/6/10 1:13 PM	10/4/10 11:48 AM	89.94	59	31.4
SFC 173	7/6/10 1:13 PM	10/4/10 11:48 AM	89.94	61	32.3
Average Quarterly Dose in mrad:					32.4

Table-1: Direct Penetrating Radiation as Measured by Electrets CY 2010 Q-3

New Mexico Environment Department, DOE Oversight Bureau, WIPP Section

WIPP 17

Electret Number	Start Date and Time	Finish Date and Time	# of Days:	Voltage Drop	Quarterly Dose
SFC 012	7/6/10 12:41 PM	10/4/10 11:38 AM	89.96	59	30.6
SFC 021	7/6/10 12:41 PM	10/4/10 11:38 AM	89.96	61	31.4
SFC 044	7/6/10 12:41 PM	10/4/10 11:38 AM	89.96	63	32.3
Average Quarterly Dose in mrad:					31.5

WIPP 18

Missing from site.

Physical Location of the Oversight Bureau's Electret Gamma Monitors

WIPP 1 – On the Exclusive Use Area fence, east side of the North Access Rd., just north of the cattle guard at the south drive way into the main parking lot at the WIPP.

WIPP 2 – South of the main parking lot at the WIPP, east side of the North Access Rd. on the back side of the gate in the Exclusive Use Area, north of the rail road track.

WIPP 3 – South of the WIPP, east of the intersection of the North Access Rd. and WIPP Rd. on the Exclusive Use Area fence, north of the cattle guard.

WIPP 4 – On the Exclusive Use Area fence, east of WIPP 3.

WIPP 5 – Following the WIPP Rd beyond its intersection with the North Access Rd. until it stops at a “Tee”- intersection, towards the north. The Exclusive Use Area fence goes to the west, away from the road. This gamma monitor is on a corner of the fence.

WIPP 6 – On the southeast corner of the Exclusive Use Area fence.

WIPP 7 – This is on the east side of the Exclusive Use Area fence, between WIPP 6 and WIPP 8.

WIPP 8 – At the northeast corner of the Exclusive Use Area fence.

WIPP 9 – On the north Exclusive Use Area fence, between WIPP 8 and WIPP 10.

WIPP 10 – East of WIPP 11, on the fence of the Exclusive Use Area, north side of the salt pile.

WIPP 11 – East side of the North Access Rd, north of the WIPP, at the northwest corner of the Exclusive Use Area fence, across the road from the Far Field Ambient Air Monitoring station.

WIPP 12 – Just south of the loading dock, behind the WHB, on the Property Protection Area fence, south of the railroad track.

WIPP 13 - Just south of the loading dock, behind the WHB, on the Property Protection Area fence, south of the railroad track.

WIPP 14 - Just south of the loading dock, behind the WHB, on the Property Protection Area fence, south of the railroad track.

WIPP 15 - Outside the Oversight Bureau Office in Carlsbad.

WIPP 16 - At the weigh station on US 285 between Loving and Carlsbad, on the fence behind the picnic tables.

WIPP 17 - Near the intersection of US 285 and Black River Village Rd, at the Malaga Volunteer Fire Department.

WIPP 18 – Near the intersection of the Hobbs Highway and the North Access Road, just west of the cattle guard on the North Access Rd.

