

DOE Oversight Bureau, New Mexico Environment Department

**Direct Penetrating Radiation Monitoring at
the Waste Isolation Pilot Plant**

**Conducted by the
New Mexico Environment Department DOE Oversight Bureau
for Calendar Year 2015**

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Final Report

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The purpose of this communication is to transmit direct penetrating radiation (DPR) dose levels collected at the Waste Isolation Pilot Plant during the calendar year 2015. The data measurements were obtained using the E-PERM® electret ionization chamber system from Rad Elec Inc.

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Introduction

On average, Americans receive a radiation dose of about 620 mrem each year. Half of this dose (310 mrem) comes from natural background radiation: radon in the air, cosmic rays and the Earth itself. The other half comes from man-made sources of radiation: medical, commercial, and industrial sources (Doses in our Daily Lives, U.S. Nuclear Regulatory Commission website <http://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html>, accessed August 4, 2014).

The environmental dose standard for the Waste Isolation Pilot Plant (WIPP) facility is established in Title 40 Code of Federal Regulations (CFR) Part 191, Subpart A, "Environmental Standards for Management and Storage." The standard sets the regulatory limit for external radiation to a member of the public outside the exclusive use area boundary at 25 mrem per year to the whole body and 75 mrem to any critical organ.

In a 1995 memorandum of understanding between the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE), the DOE agreed that the WIPP facility would comply with 40 CFR Part 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities." The National Emissions Standards for Hazardous Air Pollutants (NESHAP) standard for radionuclides requires that the emissions of radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent (EDE) of 10 mrem per year.

The New Mexico Environment Department (NMED) DOE Oversight Bureau (DOE-OB or the Bureau) has measured and compiled Direct Penetrating Radiation (DPR) dose levels recorded at NMED DOE-OB monitoring sites during calendar year (CY) 2015. The Bureau maintains fourteen (14) monitoring sites located at WIPP, in the Exclusive Use Area, and six (6) sites at other locations off-site in the WIPP region (Table 1, Figures 1 and 2) that are sampled quarterly.

Table 1. Location and operational details of Direct Penetrating Radiation monitoring stations located inside the WIPP Exclusive Use Area and in the WIPP vicinity.

Location	Location Description	Operational History
DPR 01	Exclusive Use Area, Parking lot	CY2006 Q-3 to present
DPR 02	Exclusive Use Area, Railroad Entrance	CY2006 Q-3 to present
DPR 03	Exclusive Use Area, Southwest Fence Corner	CY2007 Q-1 to present
DPR 04	Exclusive Use Area, South Fence Center	CY2007 Q-1 to present
DPR 05	Exclusive Use Area, Near Southeast Fence Corner	CY2006 Q-3 to present
DPR 06	Exclusive Use Area, Far Southeast Fence Corner	CY2006 Q-3 to present
DPR 07	Exclusive Use Area, East Fence Mid	CY2007 Q-1 to present
DPR 08	Exclusive Use Area, Northeast Fence Corner	CY2007 Q-1 to present
DPR 09	Exclusive Use Area, North-Northeast Fence	CY2007 Q-1 to present
DPR 10	Exclusive Use Area, North Fence Salt Pile	CY2007 Q-1 to present
DPR 11	Exclusive Use Area, Northwest Fence Corner	CY2006 Q-3 to present

DPR 12	Exclusive Use Area, Waste Handling Building, Loading Dock West	CY2006 Q-3 to present
DPR 13	Exclusive Use Area, Waste Handling Building, Loading Dock Center	CY2006 Q-3 to present
DPR 14	Exclusive Use Area, Waste Handling Building, Loading Dock East	CY2006 Q-3 to present
DPR 15	Carlsbad, NM - Canal St.	CY2006 Q-3 to CY2012 Q2 ¹
DPR 16	Loving Weigh Station	CY2007 Q3, CY2009 Q-3 to present
DPR 17	Malaga Volunteer Fire Department	CY2008 Q-1 to present
DPR 18	Hobbs Highway / North Access Road	CY2009 Q-1 to present
DPR 19	Southeast Control Tower	CY2011 Q-4 to present
DPR 20	Carlsbad, NM - Guadalupe St. (interior)	CY2012 Q-3 to present
DPR 21	Carlsbad, NM - Guadalupe St. (exterior)	CY2012 Q-3 to present

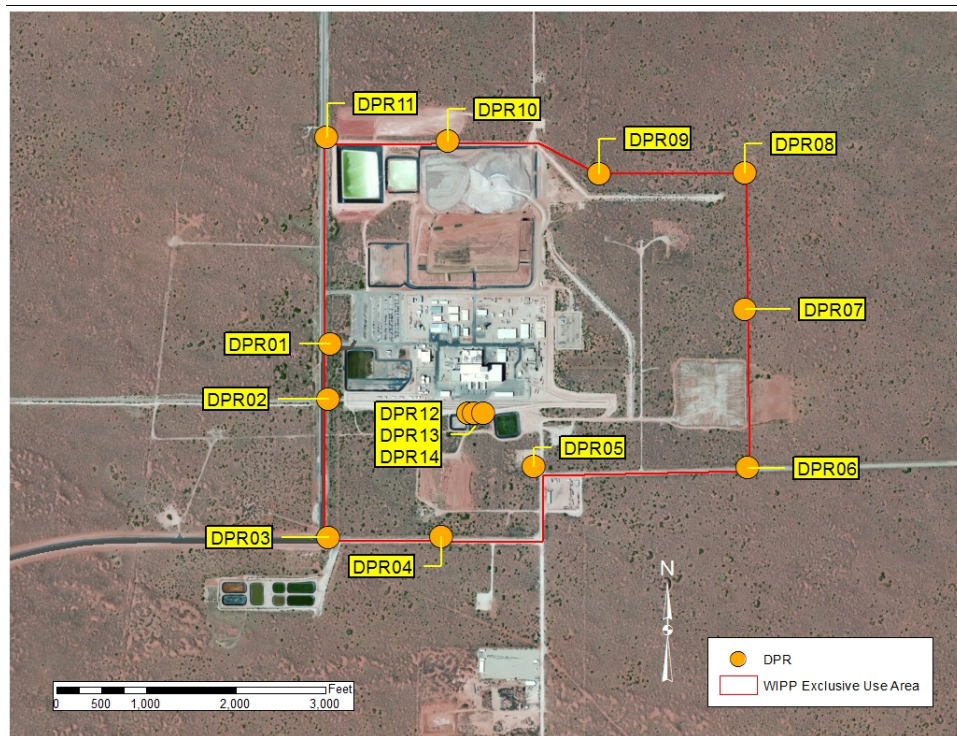


Figure 1. Location of DPR monitors maintained by the DOE Oversight Bureau at the WIPP.

¹ Sampling at DPR 15 was discontinued after CY2012 Q2 when NMED moved their office from the Canal Street location to the Guadalupe Street location

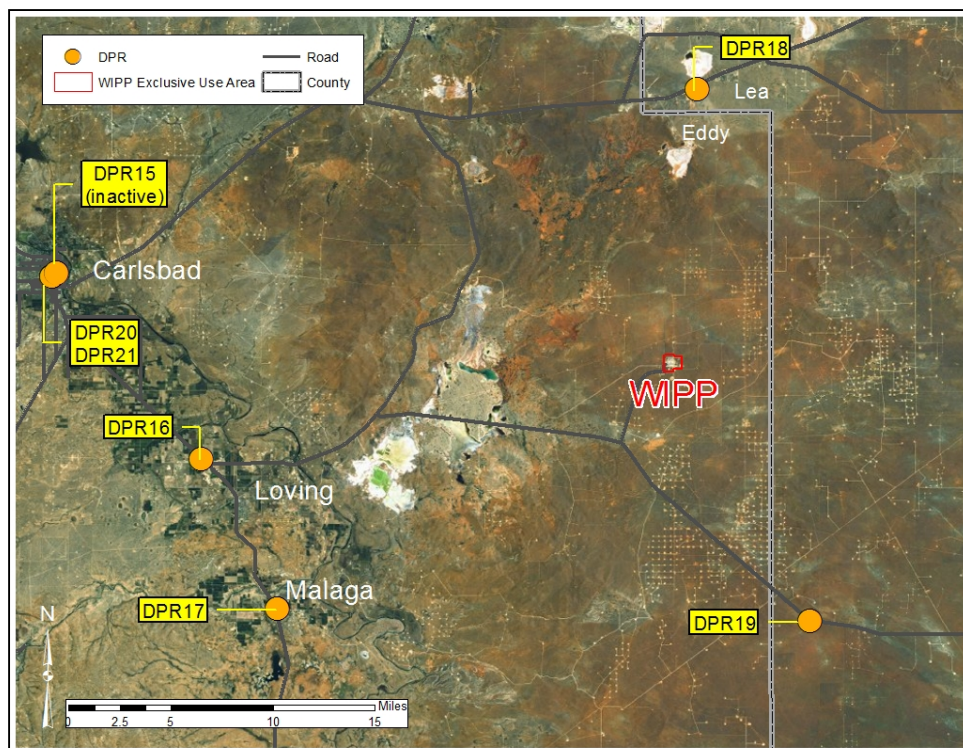


Figure 2. Location of DPR monitors maintained by the DOE Oversight Bureau in the area surrounding WIPP.

The data were obtained using the E-PERM® electret ionization chamber system from Rad Elec Inc. The electret passive ion chamber uses the principle of ion pair production resulting from gamma photons interacting with air molecules to reduce the voltage of a charged Teflon™ disk. The chambers are housed in aluminum canisters designed to block gamma radiation from radon. Using a predetermined formula, the voltage drop indicates the amount of radiation passing through the chamber. NMED DOE-OB's monitoring program reads electret passive ion chambers at the end of each quarter, converts reading into quarterly dose values presented in units of millirads (mrad).

A rad is a unit of absorbed radiation dose, regardless of its source. The rem (Roentgen equivalent man) is a commonly used unit of ionizing radiation dose that uses a quality factor based on the source of radiation as it interacts with human body tissue. In the case of gamma radiation, the quality factor is one, and thus one rad is equal to one rem.

The quarterly dose rates have been normalized to reflect an actual quarter of 91.25 days. Normalized quarterly dose rates are summed for an estimated annual dose rate.

Results

A summary of the DPR results for each station by quarter, average quarterly dose and total doses for CY 2015 are presented in Table 2 and Figure 3. For the complete dataset, see Appendix 1.

First Quarter:

DPR results at the WIPP ranged from a minimum average quarterly dose of 21.5 mrad at the WIPP Waste Handling Building, Loading Dock West (DPR12), to a maximum average quarterly dose of 45.6 mrad at the Near Southeast Fence Corner (DPR15). The largest measurement in the vicinity of WIPP was 55.7 mrad, measured at the Malaga Volunteer Fire Department location (DPR17).

Second Quarter:

DPR results at the WIPP ranged from a minimum average quarterly dose of 24.4 mrad at the WIPP Waste Handling Building, Loading Dock Center (DPR13), to a maximum average quarterly dose of 44.9 mrad at the Northeast Fence Corner (DPR08). The largest measurement in the vicinity of WIPP was 32.7 mrad, measured at Loving Weigh Station (DPR16).

Third Quarter:

DPR results at the WIPP ranged from a minimum average quarterly dose of 23.5 mrad at the Northeast Fence Corner (DPR08), to a maximum average quarterly dose of 54.8 mrad at the North-Northeast Fence Corner (DPR09). The largest measurement in the region of WIPP was 32.1 mrad, measured at Loving Weigh Station (DPR16).

Fourth Quarter:

DPR results at the WIPP ranged from a minimum average quarterly dose of 18.2 mrad at the WIPP Waste Handling Building, Loading Dock Center (DPR13), to a maximum average quarterly dose of 34.4 at the North-Northeast Fence (DPR09). The largest measurement in the region surrounding WIPP was 55.4 mrad at NMED Guadalupe St. Office Interior (DPR20).

Annual Summary:

A review of the historical DPR data collected at WIPP in the surrounding region identified several potential outliers in the dataset. In these instances, one of the three electrets at a location had a voltage drop that was significantly higher or lower than the other two electrets. Potential outliers were compared to the quarterly average across all stations, and data that exceeded 2 and 3 standard deviations from the mean are identified in Table 2. Potential outliers have not been excluded from the results reported or analyzed.

Table 2. NMED DOE OB DPR Results by Quarter, Average Quarterly Dose, and Total Annual Dose by Station Location for Calendar Year (CY) 2015. No data is reported if the data were disqualified (DQ)². (*) indicates that one of the three electrets' calculated dose exceeds two standard deviations of the mean quarterly average for all stations without a disqualifying event listed in the field notes. (**) indicates that one of the three electrets' calculated dose exceeds three standard deviations of the mean quarterly average for all stations without a disqualifying event listed in the field notes. Total annual doses were not calculated if one or more quarter's data was DQ.

NMED DPR Location	Q1 CY 2015 Dose (mrad)	Q2 CY 2015 Dose (mrad)	Q3 CY 2015 Dose (mrad)	Q4 CY 2015 Dose (mrad)	CY 2015 Average Quarterly Dose (mrad)	CY 2015 Total Annual Dose (mrad)
DPR 01	24.9	27.0	26.6	27.7	26.6	106.2
DPR 02	25.6	25.6	27.3	27.1	26.4	105.6
DPR 03	26.5	27.1*	31.8	29.2	28.7	114.6
DPR 04	23.8	29.5	30.1	26.3	27.4	109.7
DPR 05	45.6**	24.9	23.8	25.8	30.0	120.1
DPR 06	26.2	25.5	DQ	25.0	25.6	
DPR 07	22.2	25.1	25.6	27.0	25.0	99.9
DPR 08	25.5	44.9**	23.5	DQ	31.3	
DPR 09	23.8	DQ	54.8**	34.4*	37.7	
DPR 10	27.3	25.6	29.9	DQ	27.6	
DPR 11	25.7	29.5	23.9	28.5	26.9	107.6
DPR 12	21.5	26.8	30.3	25.6	26.1	104.2
DPR 13	25.1	24.4	26.6	18.2*	23.6	94.3
DPR 14	27.1	28.6	33	32.1	30.2	120.8
DPR 16	27.5	32.7	32.1	34.2	31.6	126.5
DPR 17	55.7**	DQ	27.8	28.5	37.3	
DPR 18	27.5	24.9	DQ	30.6	27.7	
DPR 19	23.8	26.7	27.9	34.2	28.2	112.6
DPR 20	55.3**	32.0**	29.3	55.4**	43.0	172.0
DPR 21	26.8	26.4	28.7	DQ	27.3	

² Data is disqualified if the canister or electrets have been found to have been tampered with in any way. Details of the conditions for disqualification are provided in Appendix 1. Disqualified data are not included in any further analysis.

There was no observable trend in the calculated doses measured at individual stations from CY2015 Q-1 to CY2015 Q-4. There were significant differences in the calculated doses among stations (Figure 3). Post hoc analyses indicate that the doses measured at DPR 20 (Guadalupe Office Interior) were significantly higher than at DPR 13 (Waste Handling Building, Loading Dock Center).

In general, the locations sampled off-site of WIPP, in and around the Carlsbad region (quarterly average 32.76 ± 9.90 , $n=21$), had slightly higher quarterly doses than the stations located in the Exclusive Use Area on-site at WIPP (quarterly average 27.87 ± 5.97 , $n=52$).

Data collected during CY 2015 are comparable with historical data (Figure 4). The average quarterly dose across all locations and all quarters in CY 2015 was 29.28 ± 7.58 ($n=73$). The average quarterly dose across all locations and all quarters from 2006 through 2014 was 26.87 ± 3.38 ($n=556$). It's important to note that some stations have been sampled quarterly since 2006, while other locations have only been sampled since 2012 (Table 1), so the sample size varies at each location (Figure 4).

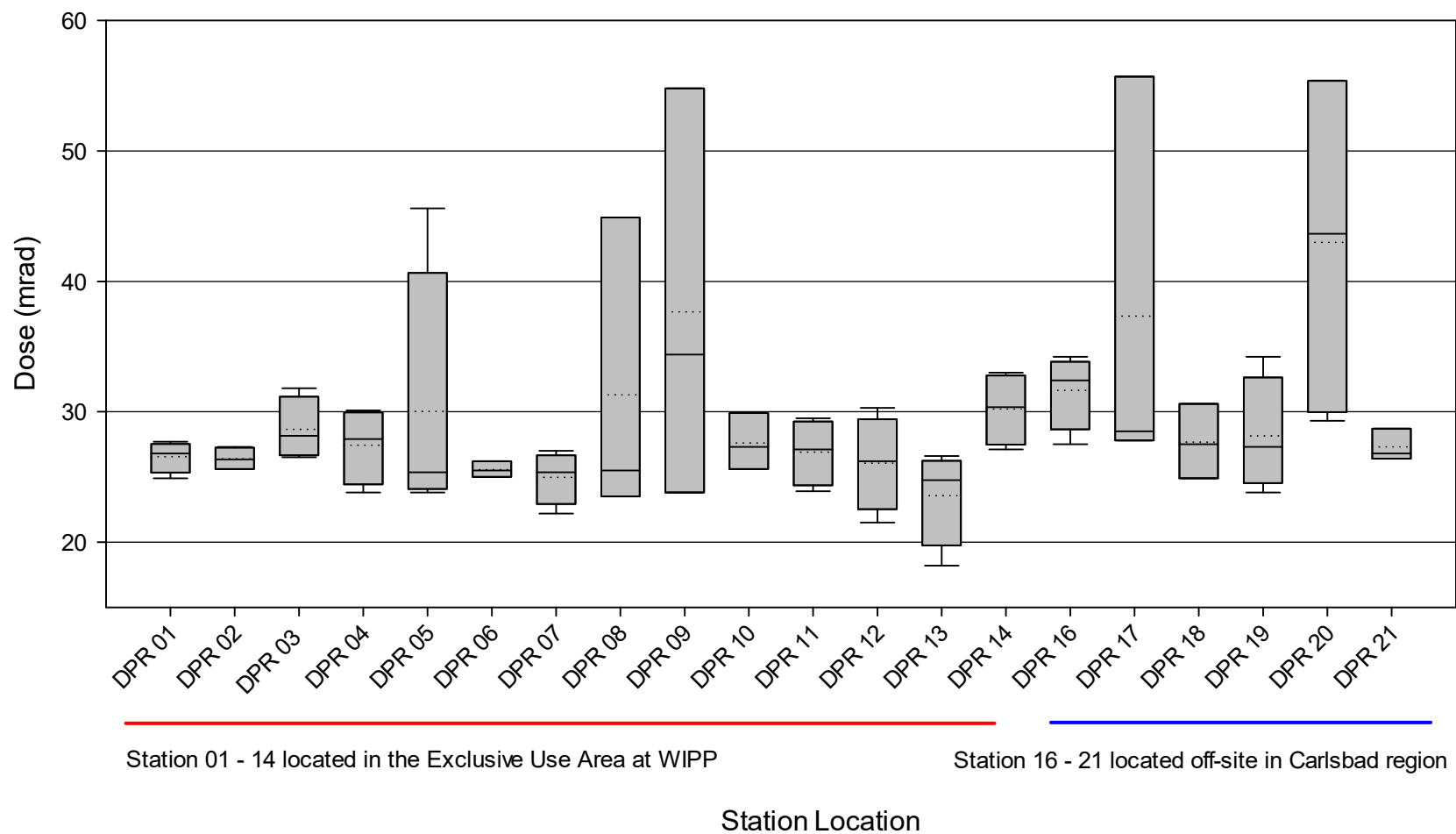


Figure 3. Average quarterly dose calculations for each DPR monitoring location sampled during CY 2015. Box plots depicting the 10th, 25th, 75th, and 90th percentiles; the solid middle line is the median, the dotted middle line is the mean.

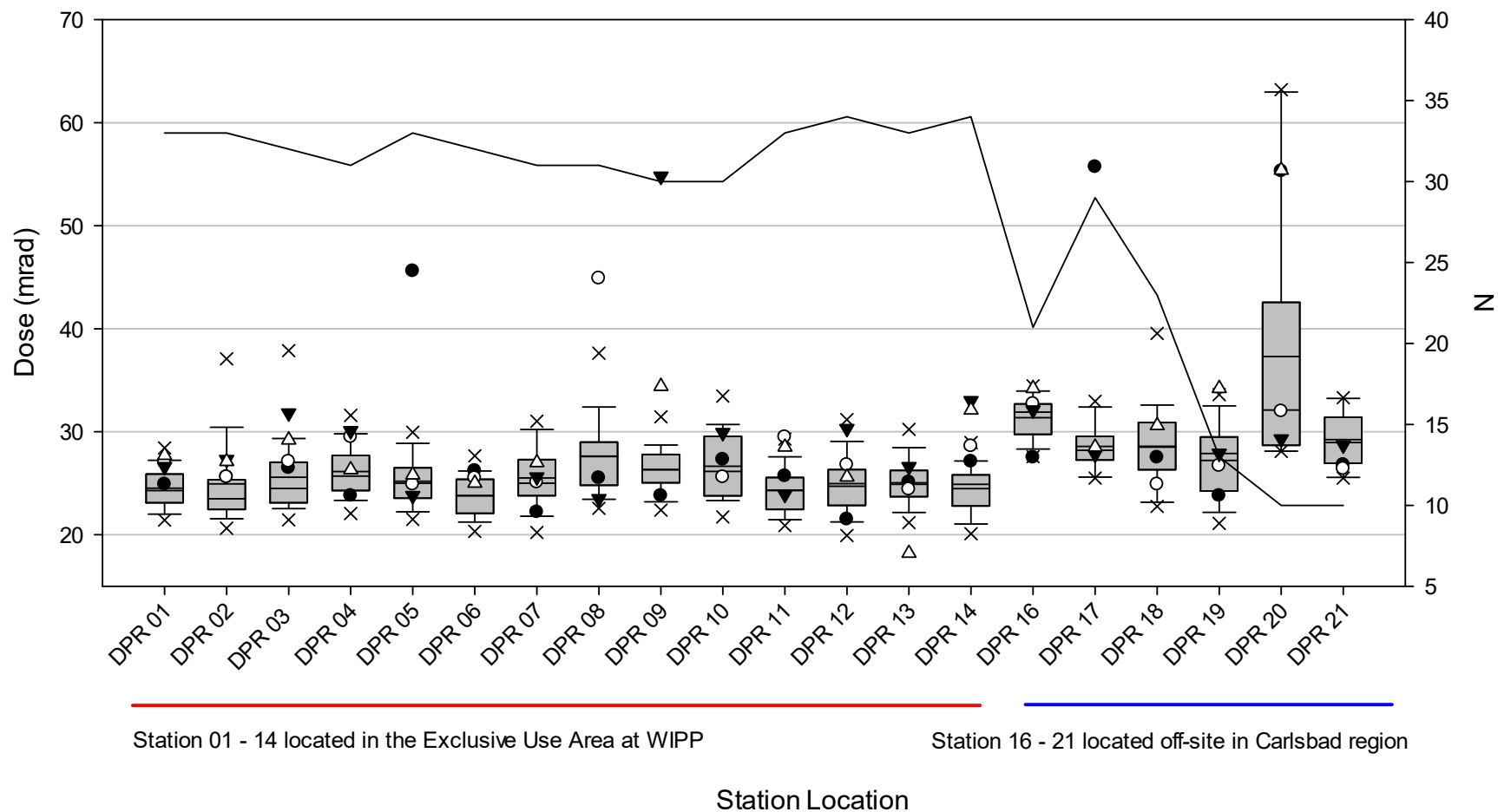


Figure 4. Quarterly dose calculations (● = Q1, ○ = Q2, ▼ = Q3, and △ = Q4) for each DPR monitoring location in CY 2015 compared to historical averages, all available quarterly doses 2006-2014. Box plots depicting the 10th, 25th, 75th, and 90th percentiles; the solid middle line is the median, the dotted middle line is the mean; X = potential outliers. N = the number of quarterly samples between 2006 and 2014 (black line).

Conclusions

The doses calculated from the NMED DPR locations located at WIPP and in the surrounding region during CY 2015 are comparable with historical results obtained by the DOE Oversight Bureau since 2006. There were some spikes observed above the historical averages from some locations, but overall the 2015 data fall within the range of expected doses.

If you sum the quarterly dose rates measured during CY 2015, the annual direct penetrating radiation dosages measured by the NMED at WIPP and in the region surrounding Carlsbad range from 94.3 to 172 mrad. In the case of gamma radiation, the quality factor is one, and thus one rad is equal to one rem. These observed dose rates are less than the average U.S. natural background annual dose of 310 mrem.

Reference

Department of Energy and Environmental Protection Agency. "Memorandum of Understanding Between the U.S. EPA and the U.S. DOE Concerning the Clean Air Act Emission Standards for Radionuclides 40 CFR § 61, Including Subparts H, I, Q & T." Signed by Mary D. Nichols, EPA Assistant Administrator for Air and Radiation: September 29, 1994. Signed by Tara O'Toole, DOE Assistant Secretary for Environment, Safety, and Health, April 5, 1995

Appendix 1 -

Direct Penetrating Radiation Quarterly Dose Rates for CY 2015. Data that have been disqualified are highlighted grey, and provides a brief explanation for the disqualification. (*) indicates that the calculated dose exceeds two standard deviations of the mean quarterly average for all stations without a disqualifying event listed in the field notes. (**) indicates that the calculated dose exceeds three standard deviations of the mean quarterly average for all stations without a disqualifying event listed in the field notes.

CY2015 First Quarter:

DPR01 Parking Lot Entrance				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 022	12/26/2014 9:50	3/27/2015 10:27	44	25.3
SGJ 058	12/26/2014 9:50	3/27/2015 10:27	40	22.4
SHC 841	12/26/2014 9:50	3/27/2015 10:27	50	27.2
Average Quarterly Dose in mrad:				24.9
DPR02 Railroad Track Entrance				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 428	12/26/2014 11:30	3/27/2015 10:28	45	26.3
SFK 437	12/26/2014 11:30	3/27/2015 10:28	45	26.5
SFK 438	12/26/2014 11:30	3/27/2015 10:28	42	23.9
Average Quarterly Dose in mrad:				25.6
DPR03 Southwest Fence Corner				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 673	12/26/2014 11:25	3/27/2015 10:37	52	28.2
SHC 676	12/26/2014 11:25	3/27/2015 10:37	47	25.5
SHC 736	12/26/2014 11:25	3/27/2015 10:37	47	25.7
Average Quarterly Dose in mrad:				26.5
DPR04 South Fence Center				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 550	12/26/2014 11:35	3/27/2015 10:34	25	25.0
SHC 685	12/26/2014 11:35	3/27/2015 10:34	43	23.3
SHC 704	12/26/2014 11:35	3/27/2015 10:34	43	23.1
Average Quarterly Dose in mrad:				23.8
DPR05 Near Southeast Fence Corner				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 991	12/26/2014 11:20	3/27/2015 10:39	151	85.4**
SHC 816	12/26/2014 11:20	3/27/2015 10:39	48	25.9
SHC 657	12/26/2014 11:20	3/27/2015 10:39	47	25.4
Average Quarterly Dose in mrad:				45.6

DPR06		Far Southeast Fence Corner		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 982	12/26/2014 9:55	3/27/2015 10:22	45	24.7
SHC 665	12/26/2014 9:55	3/27/2015 10:22	49	26.9
SHC 667	12/26/2014 9:55	3/27/2015 10:22	50	27.1
Average Quarterly Dose in mrad:				26.2
DPR07		East Fence Mid		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 037	12/26/2014 9:45	3/27/2015 10:31	35	18.9
SHC 674	12/26/2014 9:45	3/27/2015 10:31	42	22.6
SHC 755	12/26/2014 9:45	3/27/2015 10:31	46	25.2
Average Quarterly Dose in mrad:				22.2
DPR08		Northeast Fence Corner		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 431	12/26/2014 10:35	3/27/2015 10:47	44	25.7
SFK 510	12/26/2014 10:35	3/27/2015 10:47	45	25.9
SFK 533	12/26/2014 10:35	3/27/2015 10:47	44	24.9
Average Quarterly Dose in mrad:				25.5
DPR09		North-Northeast Fence		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFC 074	12/26/2014 10:00	3/27/2015 10:48	41	24.3
SHC 850	12/26/2014 10:00	3/27/2015 10:48	41	21.6
SHC 647	12/26/2014 10:00	3/27/2015 10:48	48	25.6
Average Quarterly Dose in mrad:				23.8
DPR10		North Fence Salt Pile		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 658	12/26/2014 10:20	3/27/2015 10:52	53	29.3
SHC 765	12/26/2014 10:20	3/27/2015 10:52	48	26.4
SHC 793	12/26/2014 10:20	3/27/2015 10:52	47	26.3
Average Quarterly Dose in mrad:				27.3
DPR11		Northwest Fence Corner		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 042	12/26/2014 11:40	3/27/2015 10:53	43	23.9
SGJ 083	12/26/2014 11:40	3/27/2015 10:53	49	27.1
SGJ 986	12/26/2014 11:40	3/27/2015 10:53	47	26.1
Average Quarterly Dose in mrad:				25.7

DPR12 Waste Handling Building Loading Dock (West)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 344	12/26/2014 10:30	3/27/2015 10:55	36	20.9
SHC 722	12/26/2014 10:30	3/27/2015 10:55	43	22.8
SHC 705	12/26/2014 10:30	3/27/2015 10:55	39	20.8
Average Quarterly Dose in mrad:				21.5

DPR13 Waste Handling Building Loading Dock (Center)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 997	12/26/2014 11:15	3/27/2015 10:24	43	23.8
SGJ 041	12/26/2014 11:15	3/27/2015 10:24	45	25.2
SHC 653	12/26/2014 11:15	3/27/2015 10:24	49	26.3
Average Quarterly Dose in mrad:				25.1

DPR14 Waste Handling Building Loading Dock (East)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 708	12/26/2014 10:40	3/27/2015 10:26	60	32.0
SHC 716	12/26/2014 10:40	3/27/2015 10:26	45	23.8
SHC 842	12/26/2014 10:40	3/27/2015 10:26	48	25.6
Average Quarterly Dose in mrad:				27.1

DPR16 Loving Weigh Station				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 675	12/26/2014 10:15	3/27/2015 10:57	53	27.7
SHC 696	12/26/2014 10:20	3/27/2015 10:57	47	24.5
SHC 740	12/26/2014 10:20	3/27/2015 10:57	57	30.2
Average Quarterly Dose in mrad:				27.5

DPR17 Malaga Volunteer Fire Department				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 380	12/26/2014 11:10	3/27/2015 11:00	195	111.0**
SFK 524	12/26/2014 11:10	3/27/2015 11:00	52	28.6
SFK 543	12/26/2014 11:10	3/27/2015 11:00	49	27.4
Average Quarterly Dose in mrad:				55.7

DPR18 Hobbs Hwy / North Access Rd				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 581	12/26/2014 10:50	3/27/2015 10:30	45	26.5
SGJ 001	12/26/2014 10:50	3/27/2015 10:30	49	27.0
SHC 767	12/26/2014 10:50	3/27/2015 10:30	53	28.9
Average Quarterly Dose in mrad:				27.5

DPR19 Southeast Control

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 410	12/26/2014 11:05	3/27/2015 10:18	40	23.6
SFK 443	12/26/2014 11:05	3/27/2015 10:18	43	25.4
SFK 562	12/26/2014 11:05	3/27/2015 10:18	39	22.3
Average Quarterly Dose in mrad:				23.8

DPR20 NMED Guadalupe St. Office Interior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 656	12/29/2014 13:37	3/27/2015 10:08	90	55.0*
SHC 691	12/29/2014 13:37	3/27/2015 10:08	95	56.6**
SHC 812	12/29/2014 13:37	3/27/2015 10:08	90	54.3*
Average Quarterly Dose in mrad:				55.3

DPR21 NMED Guadalupe St. Office Exterior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 774	12/29/2014 13:39	3/27/2015 10:15	49	27.3
SHC 785	12/29/2014 13:39	3/27/2015 10:15	52	29.1
SHC 709	12/29/2014 13:39	3/27/2015 10:15	43	23.8
Average Quarterly Dose in mrad:				26.8

*CY2015 Second Quarter:***DPR01 Parking Lot Entrance**

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 650	3/25/2015 12:52	7/1/2015 12:39	51	27.4
SHC 659	3/25/2015 12:52	7/1/2015 12:40	51	27.3
SHC 726	3/25/2015 12:52	7/1/2015 12:39	49	26.4
Average Quarterly Dose in mrad:				27.0

DPR02 Railroad Track Entrance

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 754	3/25/2015 12:44	7/1/2015 12:44	49	26.5
SHC 835	3/25/2015 12:44	7/1/2015 12:44	47	25.1
SHC 856	3/25/2015 12:44	7/1/2015 12:46	47	25.1
Average Quarterly Dose in mrad:				25.6

DPR03 Southwest Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 330	3/25/2015 12:56	7/1/2015 12:55	46	26.0
SFK 351	3/25/2015 12:56	7/1/2015 12:54	voltage too low	
SFK 458	3/25/2015 12:56	7/1/2015 12:53	48	28.1
Average Quarterly Dose in mrad:				27.1

DPR04 South Fence Center

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 976	3/25/2015 13:14	7/1/2015 12:48	48	26.6
SHC 768	3/25/2015 13:14	7/1/2015 12:50	53	28.8
SHC 771	3/25/2015 13:14	7/1/2015 12:50	62	33.0
Average Quarterly Dose in mrad:				29.5

DPR05 Near Southeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 044	3/25/2015 13:06	7/1/2015 12:41	45	24.6
SGJ 109	3/25/2015 13:06	7/1/2015 12:42	42	23.1
SHC 688	3/25/2015 13:06	7/1/2015 12:41	50	27.1
Average Quarterly Dose in mrad:				24.9

DPR06 Far Southeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 478	3/25/2015 13:04	7/1/2015 12:32	42	24.0
SFK 512	3/25/2015 13:04	7/1/2015 12:32	40	22.9
SHC 761	3/25/2015 13:04	7/1/2015 12:32	56	29.7
Average Quarterly Dose in mrad:				25.5

DPR07 East Fence Mid

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 481	3/25/2015 12:55	7/1/2015 12:17	44	25.4
SFK 500	3/25/2015 12:55	7/1/2015 12:17	44	25.2
SFK 533	3/25/2015 12:55	7/1/2015 12:17	43	24.7
Average Quarterly Dose in mrad:				25.1

DPR08 Northeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFC 049	3/25/2015 12:58	7/1/2015 12:26	48	28.1
SHC 703	3/25/2015 12:58	7/1/2015 12:28	133	70.6**
SHC 686	3/25/2015 12:58	7/1/2015 12:29	68	35.9
Average Quarterly Dose in mrad:				44.9

DPR09 North-Northeast Fence - Water in Canister

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 046	3/25/2015 12:50	7/1/2015 12:25	62	34.2
SGJ 055	3/25/2015 12:50	7/1/2015 12:12	212	119.5
SGJ 061	3/25/2015 12:50	7/1/2015 12:13	100	56.0
Average Quarterly Dose in mrad:				69.9

DPR10 North Fence Salt Pile

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 957	3/25/2015 13:08	7/1/2015 12:15	38	20.8
SHC 689	3/25/2015 13:08	7/1/2015 12:16	53	28.5
SHC 778	3/25/2015 13:08	7/1/2015 12:16	51	27.5
Average Quarterly Dose in mrad:				25.6

DPR11 Northwest Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 666	3/25/2015 13:01	7/1/2015 11:45	58	32.1
SHC 678	3/25/2015 13:01	7/1/2015 11:45	47	25.6
SHC 780	3/25/2015 13:01	7/1/2015 11:46	56	30.8
Average Quarterly Dose in mrad:				29.5

DPR12 Waste Handling Building Loading Dock (West)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 644	3/25/2015 13:11	7/1/2015 11:58	47	25.1
SHC 743	3/25/2015 13:11	7/1/2015 11:58	46	24.7
SHC 777	3/25/2015 13:11	7/1/2015 11:59	57	30.7
Average Quarterly Dose in mrad:				26.8

DPR13 Waste Handling Building Loading Dock (Center)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 672	3/25/2015 12:47	7/1/2015 12:01	47	25.2
SHC 799	3/25/2015 12:47	7/1/2015 12:01	44	23.5
SHC 863	3/25/2015 12:47	7/1/2015 12:02	46	24.6
Average Quarterly Dose in mrad:				24.4

DPR14 Waste Handling Building Loading Dock (East)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 645	3/25/2015 12:54	7/1/2015 12:03	47	25.0
SHC 715	3/25/2015 12:54	7/1/2015 12:03	69	36.9
SHC 849	3/25/2015 12:54	7/1/2015 12:04	45	24.0
Average Quarterly Dose in mrad:				28.6

DPR16 Loving Weigh Station

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 526	3/25/2015 13:12	7/1/2015 12:05	52	29.9
SFK 539	3/25/2015 13:12	7/1/2015 12:07	51	29.7
SHC 725	3/25/2015 13:12	7/1/2015 12:07	73	38.4
Average Quarterly Dose in mrad:				32.7

DPR17 Malaga Volunteer Fire Department - Canister found smashed				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 519	3/25/2015 12:40	7/1/2015 11:51	46	25.6
SFK 525	3/25/2015 12:40	7/1/2015 11:52	50	27.7
SFK 559	3/25/2015 12:40	7/1/2015 11:52	49	28.0
Average Quarterly Dose in mrad:				27.1

DPR18 Hobbs Hwy / North Access Rd				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 354	3/25/2015 12:37	7/1/2015 11:54	42	24.5
SFK 406	3/25/2015 12:37	7/1/2015 11:54	42	24.2
SFK 502	3/25/2015 12:37	7/1/2015 11:55	45	25.9
Average Quarterly Dose in mrad:				24.9

DPR19 Southeast Control				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 958	3/25/2015 12:42	7/1/2015 11:49	48	26.7
SGJ 103	3/25/2015 12:42	7/1/2015 11:50	45	24.7
SGJ 104	3/25/2015 12:42	7/1/2015 11:50	52	28.6
Average Quarterly Dose in mrad:				26.7

DPR20 NMED Guadalupe St. Office Interior				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 656	3/25/2015 10:08	7/1/2015 12:35	4	2.1*
SHC 691	3/25/2015 10:08	7/1/2015 12:35	61	33.3
SHC 812	3/25/2015 10:08	7/1/2015 12:35	108	60.4**
Average Quarterly Dose in mrad:				32.0

DPR21 NMED Guadalupe St. Office Exterior				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 774	3/25/2015 10:15	7/2/2015 9:06	52	27.6
SHC 785	3/25/2015 10:15	7/2/2015 9:06	55	29.4
SHC 709	3/25/2015 10:15	7/2/2015 9:06	42	22.1
Average Quarterly Dose in mrad:				26.4

CY2015 Third Quarter:

DPR01 Parking Lot Entrance				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 022	6/29/2015 10:31	9/30/2015 12:04	40	24.6
SGJ 058	6/29/2015 10:34	9/30/2015 12:04	41	24.4
SHC 841	6/29/2015 10:33	9/30/2015 12:04	53	30.7
Average Quarterly Dose in mrad:				26.6

DPR02 Railroad Track Entrance

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 428	6/29/2015 10:40	9/30/2015 12:20	41	25.6
SFK 438	6/29/2015 10:38	9/30/2015 12:20	43	26.2
SHV 170	6/29/2015 10:39	9/30/2015 12:20	54	30.1
Average Quarterly Dose in mrad:				27.3

DPR03 Southwest Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 736	6/29/2015 10:43	9/30/2015 12:18	49	28.5
SHC 673	6/29/2015 10:44	9/30/2015 12:18	61	35.2
SHC 676	6/29/2015 10:42	9/30/2015 12:18	55	31.7
Average Quarterly Dose in mrad:				31.8

DPR04 South Fence Center

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 685	6/29/2015 10:48	9/30/2015 12:13	50	28.8
SHC 704	6/29/2015 10:47	9/30/2015 12:13	50	28.6
SHV 216	6/29/2015 10:49	9/30/2015 12:13	59	33.0
Average Quarterly Dose in mrad:				30.1

DPR05 Near Southeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 991	6/29/2015 10:53	9/30/2015 12:08	34	20.0
SHC 816	6/29/2015 10:52	9/30/2015 12:08	49	27.5
SHC 657	6/29/2015 10:51	9/30/2015 12:08	43	24.0
Average Quarterly Dose in mrad:				23.8

DPR06 Far Southeast Fence Corner - Canister found smashed

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 478	3/25/2015 13:04	7/1/2015 12:32	42	24.0
SFK 512	3/25/2015 13:04	7/1/2015 12:32	40	22.9
SHC 761	3/25/2015 13:04	7/1/2015 12:32	56	29.7
Average Quarterly Dose in mrad:				25.5

DPR07 East Fence Mid

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 037	6/29/2015 11:01	9/30/2015 13:01	37	21.1
SHC 674	6/29/2015 11:02	9/30/2015 13:01	46	26.4
SHC 755	6/29/2015 11:00	9/30/2015 13:01	50	29.3
Average Quarterly Dose in mrad:				25.6

DPR08 Northeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 431	6/29/2015 11:05	9/30/2015 11:57	38	23.7
SFK 510	6/29/2015 11:06	9/30/2015 11:57	39	23.9
SFK 533	6/29/2015 11:04	9/30/2015 11:57	38	22.8
Average Quarterly Dose in mrad:				23.5

DPR09 North-Northeast Fence

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 647	6/29/2015 11:07	9/30/2015 12:00	47	26.6
SHC 850	6/29/2015 11:08	9/30/2015 12:00	38	21.2
SHV 205	6/29/2015 11:09	9/30/2015 12:00	201	116.7**
Average Quarterly Dose in mrad:				54.8

DPR10 North Fence Salt Pile

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 658	6/29/2015 11:11	9/30/2015 11:55	52	30.6
SHC 765	6/29/2015 11:12	9/30/2015 11:55	49	28.7
SHC 793	6/29/2015 11:13	9/30/2015 11:55	51	30.5
Average Quarterly Dose in mrad:				29.9

DPR11 Northwest Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 083	6/29/2015 11:17	9/30/2015 12:58	43	25.2
SGJ 042	6/29/2015 11:15	9/30/2015 12:58	39	23.0
SGJ 986	6/29/2015 11:16	9/30/2015 12:58	40	23.5
Average Quarterly Dose in mrad:				23.9

DPR12 Waste Handling Building Loading Dock (West)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 344	6/29/2015 11:20	9/30/2015 12:02	42	26.2
SHC 722	6/29/2015 11:19	9/30/2015 12:02	53	30.0
SHC 705	6/29/2015 11:20	9/30/2015 12:02	61	34.7
Average Quarterly Dose in mrad:				30.3

DPR13 Waste Handling Building Loading Dock (Center)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 653	6/29/2015 11:23	9/30/2015 12:16	57	32.5
SGI 997	6/29/2015 11:22	9/30/2015 12:16	36	21.0
SGJ 041	6/29/2015 11:22	9/30/2015 12:16	44	26.3
Average Quarterly Dose in mrad:				26.6

DPR14 Waste Handling Building Loading Dock (East)

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 842	6/29/2015 11:26	9/30/2015 12:06	61	34.6
SHC 716	6/29/2015 11:25	9/30/2015 12:06	60	33.9
SHC 708	6/29/2015 11:26	9/30/2015 12:06	54	30.6
Average Quarterly Dose in mrad:				33.0

DPR16 Loving Weigh Station

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 675	6/29/2015 11:29	9/30/2015 12:10	58	32.3
SHC 696	6/29/2015 11:28	9/30/2015 12:10	52	28.8
SHC 740	6/29/2015 11:28	9/30/2015 12:10	62	35.1
Average Quarterly Dose in mrad:				32.1

DPR17 Malaga Volunteer Fire Department

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 380	6/29/2015 11:31	9/30/2015 11:48	voltage outside parameters	
SFK 543	6/29/2015 11:32	9/30/2015 11:48	46	27.5
SFK 524	6/29/2015 11:31	9/30/2015 11:48	48	28.1
Average Quarterly Dose in mrad:				27.8

DPR18 Hobbs Hwy / North Access Rd - Canister lost

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 001	6/29/2015 11:35	Canister missing		
SHC 767	6/29/2015 11:34	Canister missing		
SHV 168	6/29/2015 11:35	Canister missing		
Average Quarterly Dose in mrad:				NA

DPR19 Southeast Control

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 562	6/29/2015 11:38	9/30/2015 11:45	37	22.5
SHD 971	6/29/2015 11:41	9/30/2015 11:45	56	31.6
SHV 195	6/29/2015 11:37	9/30/2015 11:45	53	29.8
Average Quarterly Dose in mrad:				27.9

DPR20 NMED Guadalupe St. Office Interior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 656	7/2/2015 9:06	9/30/2015 11:35	47	28.7
SHC 691	7/2/2015 9:06	9/30/2015 11:35	52	31.3
SHC 812	7/2/2015 9:06	9/30/2015 11:35	45	28.0
Average Quarterly Dose in mrad:				29.3

DPR21 NMED Guadalupe St. Office Exterior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 774	7/2/2015 9:06	9/30/2015 11:30	49	29.3
SHC 785	7/2/2015 9:06	9/30/2015 11:30	54	32.5
SHC 709	7/2/2015 9:06	9/30/2015 11:30	41	24.2

Average Quarterly Dose in mrad: 28.7

CY2015 Fourth Quarter:

DPR01 Parking Lot Entrance

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 650	9/28/2015 13:30	1/6/2016 16:33	51	26.2
SHC 659	9/28/2015 13:30	1/6/2016 16:33	52	26.5
SHC 726	9/28/2015 13:30	1/6/2016 16:33	59	30.4

Average Quarterly Dose in mrad: 27.7

DPR02 Railroad Track Entrance

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 754	9/28/2015 13:56	1/6/2016 16:36	55	28.5
SHC 835	9/28/2015 13:56	1/6/2016 16:36	56	28.5
SHC 856	9/28/2015 13:56	1/6/2016 16:36	47	24.3

Average Quarterly Dose in mrad: 27.1

DPR03 Southwest Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 330	9/28/2015 13:43	1/6/2016 16:20	47	25.6
SHD 960	9/28/2015 13:43	1/6/2016 16:20	61	30.3
SHD 185	9/28/2015 13:43	1/6/2016 16:20	64	31.7

Average Quarterly Dose in mrad: 29.2

DPR04 South Fence Center

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 976	9/28/2015 13:46	1/6/2016 14:50	43	22.8
SHC 768	9/28/2015 13:46	1/6/2016 14:50	53	27.6
SHC 771	9/28/2015 13:46	1/6/2016 14:50	56	28.5

Average Quarterly Dose in mrad: 26.3

DPR05 Near Southeast Fence Corner

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 044	9/28/2015 13:31	1/6/2016 15:04	49	25.6
SGJ 109	9/28/2015 13:31	1/6/2016 15:04	45	23.7
SHC 688	9/28/2015 13:31	1/6/2016 15:04	54	28.0

Average Quarterly Dose in mrad: 25.8

DPR06		Far Southeast Fence Corner		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 478	9/28/2015 13:51	1/6/2016 14:55	42	23.1
SFK 512	9/28/2015 13:51	1/6/2016 14:55	43	23.7
SHC 761	9/28/2015 13:51	1/6/2016 14:55	56	28.3
Average Quarterly Dose in mrad:				25.0

DPR07		East Fence Mid		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 481	9/28/2015 13:39	1/6/2016 15:06	45	25.1
SFK 500	9/28/2015 13:39	1/6/2016 15:06	49	27.1
SFK 553	9/28/2015 13:39	1/6/2016 15:06	52	28.9
Average Quarterly Dose in mrad:				27.0

DPR08		Northeast Fence Corner -Water in canister		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 686	9/28/2015 13:23	1/6/2016 16:15	109	55.4
SHC 703	9/28/2015 13:23	1/6/2016 16:15	369	195.6
SHV 211	9/28/2015 13:23	1/6/2016 16:15	113	56.5
Average Quarterly Dose in mrad:				102.5

DPR09		North-Northeast Fence		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGJ 046	9/28/2015 13:32	1/6/2016 15:29	92	49.3*
SHC 830	9/28/2015 13:32	1/6/2016 15:29	56	27.9
SGJ 061	9/28/2015 13:32	1/6/2016 15:29	48	26.1
Average Quarterly Dose in mrad:				34.4

DPR10		North Fence Salt Pile - Canister found on ground		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 957	9/28/2015 13:50	1/6/2016 16:40	50	26.1
SHC 689	9/28/2015 13:50	1/6/2016 16:40	64	32.9
SHC 778	9/28/2015 13:50	1/6/2016 16:40	65	33.5
Average Quarterly Dose in mrad:				30.9

DPR11		Northwest Fence Corner		
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 666	9/28/2015 14:01	1/6/2016 15:25	56	29.7
SHC 678	9/28/2015 14:01	1/6/2016 15:25	71	31.1
SHC 780	9/28/2015 14:01	1/6/2016 15:25	56	24.7
Average Quarterly Dose in mrad:				28.5

DPR12 Waste Handling Building Loading Dock (West)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 645	9/28/2015 13:34	1/6/2016 15:15	48	24.3
SHC 715	9/28/2015 13:34	1/6/2016 15:15	47	24.0
SHC 849	9/28/2015 13:34	1/6/2016 15:15	56	28.6
Average Quarterly Dose in mrad:				25.6
DPR13 Waste Handling Building Loading Dock (Center)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 672	9/28/2015 14:00	1/6/2016 14:03	6	3.0*
SHC 799	9/28/2015 14:00	1/6/2016 14:03	48	24.4
SHC 863	9/28/2015 14:00	1/6/2016 14:03	53	27.1
Average Quarterly Dose in mrad:				18.2
DPR14 Waste Handling Building Loading Dock (East)				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 644	9/28/2015 13:41	1/6/2016 13:38	53	27.0
SHC 743	9/28/2015 13:41	1/6/2016 13:38	54	27.7
SHC 777	9/28/2015 13:41	1/6/2016 13:38	80	41.5
Average Quarterly Dose in mrad:				32.1
DPR16 Loving Weigh Station				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 724	9/28/2015 13:36	1/6/2016 13:41	72	35.4
SHC 725	9/28/2015 13:36	1/6/2016 13:41	66	33.2
SHV 169	9/28/2015 13:36	1/6/2016 13:41	70	34.2
Average Quarterly Dose in mrad:				34.2
DPR17 Malaga Volunteer Fire Department				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 519	9/28/2015 13:28	1/6/2016 13:58	51	27.3
SFK 525	9/28/2015 13:28	1/6/2016 13:58	51	27.2
SFK 559	9/28/2015 13:28	1/6/2016 13:58	56	31.0
Average Quarterly Dose in mrad:				28.5
DPR18 Hobbs Hwy / North Access Rd				
Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SFK 406	9/28/2015 13:47	1/6/2016 15:19	49	27.3
SFK 502	9/28/2015 13:47	1/6/2016 15:19	56	31.3
SHD 983	9/28/2015 13:47	1/6/2016 15:19	66	33.1
Average Quarterly Dose in mrad:				30.6

DPR19 Southeast Control

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SGI 958	9/28/2015 13:27	1/6/2016 13:53	72	35.4
SGJ 103	9/28/2015 13:27	1/6/2016 13:53	66	33.2
SGJ 104	9/28/2015 13:27	1/6/2016 13:53	70	34.2
Average Quarterly Dose in mrad:				34.2

DPR20 NMED Guadalupe St. Office Interior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 691	9/30/2015 11:40	1/6/2016 13:28	100	56.9**
SHC 812	9/30/2015 11:40	1/6/2016 13:28	95	55.1*
SHD 934	9/30/2015 11:40	1/6/2016 13:28	105	54.3*
Average Quarterly Dose in mrad:				55.4

DPR21 NMED Guadalupe St. Office Exterior

Electret ID	Start Date and Time	Finish Date and Time	Voltage Drop	Quarterly Dose Normalized
SHC 774	9/30/2015 11:30	1/6/2016 13:43	55	29.2
SHC 709	9/30/2015 11:30	1/6/2016 13:43	-37	-19.7
SHC 785	9/30/2015 11:30	1/6/2016 13:43	145	76.9
Average Quarterly Dose in mrad:				28.8