

Quarterly Report

Calendar Year 2026 – Second Quarter, April 1 – June 30, 2026

Prepared by:

**Carlsbad Environmental Monitoring & Research Center
under a financial assistance grant from
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Carlsbad Field Office (CBFO)
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Submitted to:

**U.S. Department of Energy
Carlsbad Field Office**

July 2026

Field Programs - Radiation Safety Group

WIPP Underground Effluent Monitoring (Station F)

From April 1st to June 30th, a total of 107 filters were collected from the primary skid at Station F, including 85 sample filters, 11 trip blanks, and 11 filter blanks. All 107 filters collected from the primary skid at Station F were processed by the Field Programs group (FP), including gravimetrics, sample flow volume, and mass concentration calculations, and were transferred to the Radiochemistry group (RC).

From April 1st to June 30th, a total of 61 filters were collected from the secondary skid at Station F, including 48 sample filters, 6 trip blanks, and 7 filter blanks. All 61 filters collected from the secondary skid at Station F were processed by FP, including gravimetrics, sample flow volume, and mass concentration calculations, and were transferred to the Environmental Chemistry group (EC).

WIPP Underground Effluent Monitoring (Station G)

From April 1st to June 30th, a total of 99 filters were collected from the primary skid at Station G, including 77 sample filters, 11 trip blanks, and 11 filter blanks. All 99 filters collected from the primary skid at Station G were processed by FP, including gravimetrics, sample flow volume, and mass concentration calculations, and were transferred to the RC group.

From April 1st to June 30th, a total of 99 filters were collected from the secondary skid at Station G, including 77 sample filters, 11 trip blanks, and 11 filter blanks. All 99 filters collected from the secondary skid at Station G were processed by FP, including gravimetrics, sample flow volume, and mass concentration calculations, and were transferred to the EC group.

During the second quarter, scheduled power outages and electrical interruptions occurred at the WIPP site. Water was also observed in the FAS skid heads.

Ambient Air Sampling

From April 1st to June 30th, 6 ambient air particulate filters from the previous sampling period were processed by FP, including gravimetrics, total air flow values, and notes of any irregularities, and were transferred to the RC group. During the second quarter, the current ambient air sampling period remained active at the six perimeter and regional continuous sampling stations (On-Site, Near Field, Cactus Flats, WIPP East, Carlsbad, and Loving), as the applicable conditions for filter changeout had not yet been met. Power outages and electrical interruptions occurred at sampling locations surrounding the WIPP site during the quarter.

Subtask - Non-Radiological analyses

From April 1st to June 30th, 2 Whatman-41 filters and 1 trip blank filter from the previous sampling period were processed by FP, including total airflow values and notes of any irregularities, and were transferred to the EC group. During the second quarter, the current Whatman-41 sampling period remained active in the field at the Near Field and Cactus Flats sampling sites, as the applicable conditions for filter changeout had not yet been met. Power outages and electrical interruptions occurred at the Near Field station during the quarter.

Soils sampling

From April 1st to June 30th, no soil samples were collected. The 54 soil samples collected during the previous quarter are currently being processed. No soil samples were transferred to the RC group during this quarter.

Vegetation sampling

From April 1st to June 30th, 3 vegetation samples were collected and are currently being processed. No vegetation samples were transferred to the RC group during this quarter.

Surface Water Monitoring

From April 1st to June 30th, 4 surface water samples and 1 trip blank were collected. All samples were processed and transferred to both the EC and RC groups.

Drinking Water Monitoring

No activity to report this quarter.

Sediment Monitoring

No activity to report this quarter.

Groundwater Monitoring

From April 1st to June 30th, 1 groundwater sample was collected, processed, and transferred to both the EC and RC groups. The scheduled groundwater sample from WQSP-4 was not collected due to pump issues at that station.

Nuclear Materials Management and Safeguards

From April 1st to June 30th, 2026, the Radiation Safety group (RS) collected and bulked radioactive waste from NMSU and LANL groups working in the CEMRC facility. Radiation Safety has performed monthly surveys of all laboratories where radioactive materials are present, including smears, and dose rate measurements. All fume hoods are face-velocity checked the date of the last inspection was June 26, 2026. All hazardous acid waste was removed from CEMRC and LANL laboratories for proper waste disposal via Clean Harbors. Combustible and non-combustible waste was sealed and moved to secondary storage. Out of service equipment for LANL was smeared and prepped for removal from the laboratory. Dosimetry kits were relinquished to LANL staff for evaluations and TLDs for all staff have been changed. Fire extinguishers were updated and taken for service. Cintas personnel have made monthly stops to

update first aid kits. CAM filters in LANL laboratories were checked monthly. Dosimeter and flow monitors were sent for calibration. Floor mats near doors were changed weekly; eye wash stations, and showers were inspected to function properly with the last inspection performed on June 25, 2026.

Radiochemistry Group

WIPP Underground Effluent Monitoring (Stations F and G)

Gross alpha and beta activities on individual filters collected from station F, taken before any high-efficiency particulate air (HEPA) filtration, and Station G, taken after HEPA filtration, were counted using a low-background gas proportional counter (Protean Instruments) for 1200 minutes (20 hours). The complete results for gross alpha and gross beta counts on FAS filters from both stations through June 2026 were submitted to CBFO on July 10, 2026.

Gamma-radiation-emitting isotope activity concentrations were analyzed in:

- Thirteen surface water samples
- Seven drinking water samples
- Seven groundwater samples
- Six HiVol samples
- Eight FAS samples
- One sediment sample
- Seventeen soil samples

Actinide activity concentrations were analyzed in:

- Sixteen surface water samples
- Eight drinking water samples
- Eight groundwater samples
- Eight HiVol samples
- Twenty-two FAS samples
- Four sediment samples
- Forty-seven soil samples

Characteristic results are included in the following pages.

C E M R C G A M M A S P E C T R U M A N A L Y S I S

Sample ID : 56578
Sample Description : 2025 Soil
 :
Calibration ID :
Background ID :

Sample Collection Date : 8/19/2025 1:00:00 PM
Count Start Date : 5/26/2026 12:20:56 PM

Sample Aliquot : 2.76900E-01
Aliquot Unc. : 0.00000E+00
Aliquot Unit : kg

Live Time (sec) : 172800
Real Time (sec) : 172824

Energy Calibration Used Done On : 10/1/2024
Efficiency Calibration Used Done On : 7/16/2024
Efficiency ID : DET03_soilEff_24

%Random Unc. : 0.0
%Systematic Unc. : 0.0

Nuclide	Energy	Eff%	UncEff%	Abun%	UncAbn%	HL(d)	UncHL(d)	Conc(Bq/unit)	Unc2sigma
MDC									
K-40	1460.81	0.432	0.009	10.6700	0.1100	4.66412E+11	2.92192E+09	5.41526E+02	1.33688E+01
9.16234E+00									
MN-54	834.82	0.700	0.010	99.9750	0.0000	3.12700E+02	0.00000E+00	6.26338E-01	3.18313E-01
1.04370E+00									
CO-57	122.06	2.551	0.064	85.5100	0.1800	2.70900E+02	6.00000E-01	-6.54618E-03	2.47228E-01
8.18785E-01									
CO-57	136.47	2.566	0.061	10.6000	0.1800	2.70900E+02	6.00000E-01	-1.04767E+00	2.10567E+00
6.98251E+00									
CO-60	1173.22	0.524	0.008	100.0000	0.0000	1.92518E+03	3.65240E-01	1.25045E-01	1.66878E-01

5.55463E-01
 CO-60 1332.49 0.469 0.008 100.0000 0.0000 1.92518E+03 3.65240E-01 -8.11364E-02 1.65784E-01
 5.62692E-01
 ZN-65 1115.52 0.548 0.008 50.7500 0.0000 2.44400E+02 0.00000E+00 -5.93848E-03 1.09404E+00
 3.64468E+00
 CS-134 604.69 0.919 0.014 97.6000 0.0000 7.53125E+02 0.00000E+00 -9.76201E-01 3.89045E-01
 1.29962E+00
 CS-134 795.84 0.728 0.011 85.4000 0.0000 7.53125E+02 0.00000E+00 1.90600E+00 3.05123E-01
 9.65523E-01
 CS-137 661.65 0.851 0.013 85.1200 0.2300 1.10193E+04 1.09572E+01 4.09769E+00 2.88726E-01
 8.63252E-01
 RA-226 186.21 2.351 0.060 3.2800 0.0000 5.84384E+05 1.82620E+02 7.31441E+01 5.01047E+00
 1.46483E+01
 RA-228 911.07 0.650 0.009 27.7000 1.0000 2.10013E+03 0.00000E+00 4.01133E+01 1.98431E+00
 3.32179E+00
 AM-241 59.54 1.575 0.000 36.3000 0.0000 1.58153E+05 0.00000E+00 -6.40976E-01 5.26307E-01
 0.00000E+00

13 nuclide lines identified

 ***** P E A K A N A L Y S I S R E P O R T *****

Detector Name: DET03
 Sample Title: 56578
 Peak Analysis Performed on: 5/28/2026 12:21:26 PM
 Peak Analysis From Channel: 50
 Peak Analysis To Channel: 8190

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	240-	253	245.28	59.54	0.24	-1.752E+02	143.67	1.034E+04
2	496-	512	501.75	122.06	0.33	-3.329E+00	125.73	7.123E+03
3	549-	566	560.86	136.47	0.24	-6.643E+01	133.50	7.813E+03
4	752-	778	764.90	186.21	2.18	2.697E+03	171.43	9.917E+03
5	2472-	2499	2481.60	604.69	0.24	-3.239E+02	129.01	6.353E+03
6	2698-	2733	2715.26	661.65	2.49	1.396E+03	96.12	2.607E+03
7	3247-	3276	3265.74	795.84	1.43	4.383E+02	69.88	1.663E+03
8	3413-	3435	3425.65	834.82	0.27	1.124E+02	57.12	1.379E+03
9	3719-	3757	3738.44	911.07	2.69	3.151E+03	96.49	1.944E+03

10	4570-	4596	4577.14	1115.52	0.24	-3.560E-01	65.58	1.777E+03
11	4804-	4821	4813.82	1173.22	0.25	2.837E+01	37.86	7.386E+02
12	5457-	5478	5467.18	1332.49	0.24	-1.647E+01	33.65	5.455E+02
13	5972-	6014	5993.59	1460.81	3.04	1.195E+04	124.98	1.168E+03

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

 C E M R C G A M M A S P E C T R U M A N A L Y S I S

Sample ID : 57560
 Sample Description : 2025 Soil
 :
 Calibration ID :
 Background ID :
 Sample Collection Date : 4/8/2025 1:00:00 PM
 Count Start Date : 6/25/2026 11:55:22 AM
 Sample Aliquot : 4.52000E-01
 Aliquot Unc. : 0.00000E+00
 Aliquot Unit : kg
 Live Time (sec) : 172800
 Real Time (sec) : 172820
 Energy Calibration Used Done On : 10/1/2024
 Efficiency Calibration Used Done On : 7/16/2024
 Efficiency ID : DET03_soilEff_24
 %Random Unc. : 0.0
 %Systematic Unc. : 0.0

Nuclide	Energy	Eff%	UncEff%	Abun%	UncAbn%	HL(d)	UncHL(d)	Conc(Bq/unit)	Unc2sigma
MDC									
K-40	1460.81	0.432	0.009	10.6700	0.1100	4.66412E+11	2.92192E+09	2.23422E+02	5.75360E+00
	4.65793E+00								
MN-54	834.82	0.700	0.010	99.9750	0.0000	3.12700E+02	0.00000E+00	2.03702E-01	1.84101E-01
	6.09885E-01								
CO-57	122.06	2.551	0.064	85.5100	0.1800	2.70900E+02	6.00000E-01	1.65847E-01	1.42428E-01
	4.69811E-01								
CO-57	136.47	2.566	0.061	10.6000	0.1800	2.70900E+02	6.00000E-01	-1.93472E+00	2.39320E+00
	7.93055E+00								
CO-60	1173.22	0.524	0.008	100.0000	0.0000	1.92518E+03	3.65240E-01	6.22496E-02	9.12489E-02

3.04711E-01										
CO-60	1332.49	0.469	0.008	100.0000	0.0000	1.92518E+03	3.65240E-01	-5.79995E-02	7.57210E-02	
2.61761E-01										
ZN-65	1115.52	0.548	0.008	50.7500	0.0000	2.44400E+02	0.00000E+00	-8.58631E-01	8.76016E-01	
2.95176E+00										
CS-134	604.69	0.919	0.014	97.6000	0.0000	7.53125E+02	0.00000E+00	-9.21004E-01	2.03661E-01	
6.90160E-01										
CS-134	795.84	0.728	0.011	85.4000	0.0000	7.53125E+02	0.00000E+00	4.41095E-01	1.58982E-01	
5.16664E-01										
CS-137	661.65	0.851	0.013	85.1200	0.2300	1.10193E+04	1.09572E+01	1.26311E+00	1.19640E-01	
3.60217E-01										
RA-226	186.21	2.351	0.060	3.2800	0.0000	5.84384E+05	1.82620E+02	2.04440E+01	2.26138E+00	
7.02492E+00										
RA-228	911.07	0.650	0.009	27.7000	1.0000	2.10013E+03	0.00000E+00	9.60760E+00	6.65122E-01	
1.57940E+00										
AM-241	59.54	1.575	0.000	36.3000	0.0000	1.58153E+05	0.00000E+00	9.79651E-02	2.20272E-01	
0.00000E+00										

13 nuclide lines identified

 ***** P E A K A N A L Y S I S R E P O R T *****

Detector Name: DET03
 Sample Title: 57560
 Peak Analysis Performed on: 6/27/2026 11:55:47 AM
 Peak Analysis From Channel: 50
 Peak Analysis To Channel: 8190

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	240-	251	245.28	59.54	0.28	4.367E+01	98.18	5.149E+03
2	496-	507	501.75	122.06	0.24	9.073E+01	77.88	3.202E+03
3	546-	575	560.86	136.47	0.24	-1.320E+02	163.19	8.505E+03
4	753-	779	764.90	186.21	2.00	1.230E+03	132.42	6.056E+03
5	2474-	2499	2481.60	604.69	23.65	-4.294E+02	94.74	3.672E+03
6	2699-	2725	2715.26	661.65	2.31	6.953E+02	65.03	1.413E+03
7	3250-	3275	3265.74	795.84	0.58	1.425E+02	51.33	1.017E+03
8	3418-	3433	3425.65	834.82	0.67	4.159E+01	37.58	7.164E+02
9	3721-	3753	3738.44	911.07	2.28	1.167E+03	66.89	1.166E+03

10	4569-	4596	4577.14	1115.52	0.24	-5.292E+01	53.98	1.201E+03
11	4804-	4821	4813.82	1173.22	0.53	2.174E+01	31.87	5.223E+02
12	5459-	5476	5467.18	1332.49	0.24	-1.812E+01	23.66	3.041E+02
13	5972-	6014	5993.59	1460.81	2.85	8.045E+03	102.77	7.888E+02

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

C E M R C G A M M A S P E C T R U M A N A L Y S I S

Sample ID : 57593
Sample Description : 2025 Soil
 :
Calibration ID :
Background ID :

Sample Collection Date : 4/9/2025 1:00:00 PM
Count Start Date : 5/24/2026 9:31:19 AM

Sample Aliquot : 4.32700E-01
Aliquot Unc. : 0.00000E+00
Aliquot Unit : kg

Live Time (sec) : 172800
Real Time (sec) : 172821

Energy Calibration Used Done On : 10/1/2024
Efficiency Calibration Used Done On : 7/16/2024
Efficiency ID : DET03_soilEff_24

%Random Unc. : 0.0
%Systematic Unc. : 0.0

Nuclide	Energy	Eff%	UncEff%	Abun%	UncAbn%	HL(d)	UncHL(d)	Conc(Bq/unit)	Unc2sigma
MDC									
K-40	1460.81	0.432	0.009	10.6700	0.1100	4.66412E+11	2.92192E+09	2.43897E+02	6.27022E+00
5.27724E+00									
MN-54	834.82	0.700	0.010	99.9750	0.0000	3.12700E+02	0.00000E+00	1.69994E-01	2.84938E-01
9.45599E-01									
CO-57	122.06	2.551	0.064	85.5100	0.1800	2.70900E+02	6.00000E-01	-1.17778E-01	2.02052E-01
6.71106E-01									
CO-57	136.47	2.566	0.061	10.6000	0.1800	2.70900E+02	6.00000E-01	-7.81013E+00	2.16846E+00
7.21583E+00									
CO-60	1173.22	0.524	0.008	100.0000	0.0000	1.92518E+03	3.65240E-01	-1.65902E-02	8.84235E-02

2.99821E-01									
CO-60	1332.49	0.469	0.008	100.0000	0.0000	1.92518E+03	3.65240E-01	6.78822E-02	9.99112E-02
3.33912E-01									
ZN-65	1115.52	0.548	0.008	50.7500	0.0000	2.44400E+02	0.00000E+00	8.90031E-01	8.93360E-01
2.95521E+00									
CS-134	604.69	0.919	0.014	97.6000	0.0000	7.53125E+02	0.00000E+00	-5.62470E-01	2.45635E-01
8.21709E-01									
CS-134	795.84	0.728	0.011	85.4000	0.0000	7.53125E+02	0.00000E+00	9.69571E-01	1.89267E-01
6.02343E-01									
CS-137	661.65	0.851	0.013	85.1200	0.2300	1.10193E+04	1.09572E+01	6.17053E+00	2.11873E-01
5.22223E-01									
RA-226	186.21	2.351	0.060	3.2800	0.0000	5.84384E+05	1.82620E+02	2.81634E+01	2.99523E+00
9.33172E+00									
RA-228	911.07	0.650	0.009	27.7000	1.0000	2.10013E+03	0.00000E+00	1.53661E+01	8.96270E-01
1.87325E+00									
AM-241	59.54	1.575	0.000	36.3000	0.0000	1.58153E+05	0.00000E+00	-2.11806E-01	5.20144E-01
0.00000E+00									

13 nuclide lines identified

 ***** P E A K A N A L Y S I S R E P O R T *****

Detector Name: DET03
 Sample Title: 57593
 Peak Analysis Performed on: 5/26/2026 9:31:45 AM
 Peak Analysis From Channel: 50
 Peak Analysis To Channel: 8190

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	231-	259	245.28	59.54	0.24	-9.040E+01	221.98	1.605E+04
2	492-	508	501.75	122.06	0.50	-6.713E+01	115.16	6.003E+03
3	548-	571	560.86	136.47	0.24	-5.550E+02	153.25	8.847E+03
4	750-	780	764.90	186.21	2.64	1.623E+03	167.52	8.987E+03
5	2470-	2499	2481.60	604.69	0.24	-2.588E+02	112.95	4.731E+03
6	2697-	2733	2715.26	661.65	2.65	3.258E+03	100.73	2.254E+03
7	3248-	3277	3265.74	795.84	2.20	3.092E+02	60.19	1.239E+03
8	3416-	3443	3425.65	834.82	0.26	3.576E+01	59.93	1.387E+03
9	3719-	3755	3738.44	911.07	2.53	1.807E+03	78.61	1.430E+03

10	4568-	4596	4577.14	1115.52	1.44	5.768E+01	57.89	1.317E+03
11	4806-	4821	4813.82	1173.22	0.24	-5.613E+00	29.92	4.996E+02
12	5459-	5481	5467.18	1332.49	0.26	2.055E+01	30.24	4.154E+02
13	5972-	6014	5993.59	1460.81	2.99	8.408E+03	106.65	9.465E+02

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069521.Cnf
Batch Identification: 2025_GW_SW_DW_Pu
Sample Identification: DW56567_Pu
Procedure Description: Pu - 3 Days

Detector Name: 2-06
Env. Background: System Bkgd 74077

Sample Size: 1.0000E+00 +/- 0.0000E+00 L
Sample Date/Time: 6/23/2026 2:13:48 PM
Acquisition Date/Time: 6/23/2026 2:13:48 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.1 minutes

Tracer Certificate: 450_Pu-242_T
Tracer Quantity: 0.186 mL
Counting Efficiency: 0.3217 +/- 0.0036 on 7/28/2025 3:59:40 PM
Chem. Rec. Factor (%): 64.10 +/- 1.4313

----- PEAK AREA REPORT -----					

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)

PU-238	5.415	-9.71	98.87	6.00	2.9
PU-239	5.122	13.52	182.53	1.00	4.9
PU-242 T	4.858	2788.00	3.79	1.00	53.5

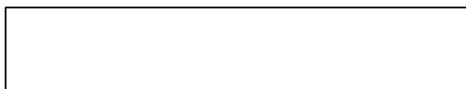
T = Tracer Peak used for Effective Efficiency

----- NUCLIDE ANALYSIS RESULTS -----					

Nuclide	Energy (keV)	Activity (Bq /L)		MDA (Bq /L)	

PU-238	5487.10*	-1.819E-04	+/- 1.800E-04	5.493E-04	+/- 2.118E-05
PU-239	5147.70*	2.532E-04	+/- 4.622E-04	1.076E-03	+/- 4.151E-05
PU-242	4890.70*	5.195E-02	+/- 2.004E-03	1.730E-04	+/- 6.674E-06

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069515.Cnf
Batch Identification: 2025 DrinkinkWat
Sample Identification: 56571_Am_R
Procedure Description: Am - 3 Days

Detector Name: 2-02
Env. Background: System Bkgd 74049

Sample Size: 1.0000E+00 +/- 0.0000E+00 L
Sample Date/Time: 6/23/2026 2:13:42 PM
Acquisition Date/Time: 6/23/2026 2:13:42 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.1 minutes

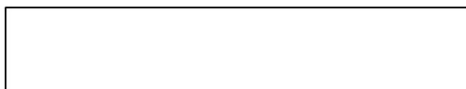
Tracer Certificate: 1322_Am-243-4_T
Tracer Quantity: 0.206 mL
Counting Efficiency: 0.3267 +/- 0.0037 on 7/25/2025 2:55:07 PM
Chem. Rec. Factor (%): 80.82 +/- 1.5096

----- ----- PEAK AREA REPORT ----- -----					
Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)
AM-241	5.430	13.00	70.50	4.00	2.9
AM-243 T	5.225	5060.00	2.81	3.00	77.2

T = Tracer Peak used for Effective Efficiency

----- ----- NUCLIDE ANALYSIS RESULTS ----- -----					
Nuclide	Energy (keV)	Activity (Bq /L)		MDA (Bq /L)	
AM-241	5479.10*	1.901E-04	+/- 1.341E-04	2.319E-04	+/- 6.924E-06
AM-243	5270.00*	7.422E-02	+/- 2.216E-03	2.068E-04	+/- 6.175E-06

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069513.Cnf
Batch Identification: 2025_GW_SW_DW_Pu
Sample Identification: GW56548Pu
Procedure Description: Pu - 3 Days

Detector Name: 2-08
Env. Background: System Bkgd 74009

Sample Size: 5.0000E-01 +/- 0.0000E+00 L
Sample Date/Time: 6/23/2026 2:13:51 PM
Acquisition Date/Time: 6/23/2026 2:13:51 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.1 minutes

Tracer Certificate: 450_Pu-242_T
Tracer Quantity: 0.147 mL
Counting Efficiency: 0.3294 +/- 0.0037 on 7/22/2025 11:52:11 AM
Chem. Rec. Factor (%): 65.00 +/- 1.5614

----- PEAK AREA REPORT -----					

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)

PU-238	5.417	-7.31	121.54	6.00	2.9
PU-239	5.121	21.76	102.57	0.00	16.5
PU-242 T	4.858	2282.00	4.19	0.00	55.2

T = Tracer Peak used for Effective Efficiency

----- NUCLIDE ANALYSIS RESULTS -----					

Nuclide	Energy (keV)	Activity (Bq /L)		MDA (Bq /L)	

PU-238	5487.10*	-2.638E-04	+/- 3.209E-04	9.705E-04	+/- 4.124E-05
PU-239	5147.70*	7.853E-04	+/- 8.062E-04	1.799E-03	+/- 7.644E-05
PU-242	4890.70*	8.192E-02	+/- 3.481E-03	2.642E-04	+/- 1.123E-05

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069245.Cnf
Batch Identification: 2025_sediment_U
Sample Identification: 56577U
Procedure Description: U - 3 Days (Blank Corrected)

Detector Name: 2-01
Env. Background: System Bkgd 74048

Sample Size: 1.0087E-03 +/- 0.0000E+00 kg
Sample Date/Time: 5/29/2026 12:43:26 PM
Acquisition Date/Time: 5/29/2026 12:43:26 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.1 minutes

Tracer Certificate: 1320_U232_2
Tracer Quantity: 0.198 mL
Counting Efficiency: 0.3334 +/- 0.0037 on 7/25/2025 2:55:18 PM
Chem. Rec. Factor (%): 78.07 +/- 4.1322

		PEAK	AREA	REPORT	-----	

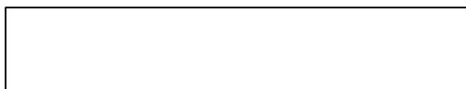
Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)
U-232	T	5.272	5560.00	2.68	2.00	81.5
U-234		4.722	-2530.34	11.62	1.00	77.3
U-235		4.357	-96.36	45.75	0.00	4.1
U-238		4.142	-3484.13	8.41	0.00	53.3

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS						

Nuclide	Energy (keV)	Activity (Bq /kg)			MDA (Bq /kg)	
U-232	5302.50*	8.186E+01	+/-	8.475E+00	1.768E-01	+/- 1.831E-02
U-234	4761.50*	-3.725E+01	+/-	5.797E+00	1.068E+01	+/- 1.105E+00
U-235	4385.50*	-1.750E+00	+/-	8.209E-01	2.087E+00	+/- 2.161E-01
U-238	4184.40*	-5.107E+01	+/-	6.813E+00	1.081E+01	+/- 1.119E+00

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069235.Cnf
Batch Identification: 2025_Sediment_Am
Sample Identification: 56579Am
Procedure Description: Am - 3 Days

Detector Name: 3-08
Env. Background: System Bkgd 74176

Sample Size: 1.0227E-03 +/- 0.0000E+00 kg
Sample Date/Time: 5/29/2026 12:43:46 PM
Acquisition Date/Time: 5/29/2026 12:43:46 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.0 minutes

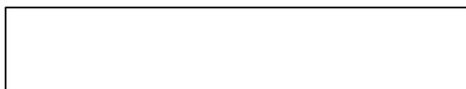
Tracer Certificate: 1322_Am-243-4_T
Tracer Quantity: 0.176 mL
Counting Efficiency: 0.3250 +/- 0.0037 on 7/29/2025 2:47:42 PM
Chem. Rec. Factor (%): 78.57 +/- 1.5548

----- ----- PEAK AREA REPORT ----- -----					
Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)
AM-241	5.459	23.00	45.18	2.00	3.7
AM-243 T	5.240	4168.00	3.10	3.00	59.8

T = Tracer Peak used for Effective Efficiency

----- ----- NUCLIDE ANALYSIS RESULTS ----- -----					
Nuclide	Energy (keV)	Activity (Bq /kg)		MDA (Bq /kg)	
AM-241	5479.10*	3.400E-01	+/- 1.540E-01	1.775E-01	+/- 5.783E-03
AM-243	5270.00*	6.181E+01	+/- 2.013E+00	2.091E-01	+/- 6.811E-03

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069408.Cnf
Batch Identification: 2025SoilBatch6_P
Sample Identification: 57590Pu
Procedure Description: Pu - 3 Days

Detector Name: 3-10
Env. Background: System Bkgd 74290

Sample Size: 1.0162E-03 +/- 0.0000E+00 kg
Sample Date/Time: 6/12/2026 1:52:00 PM
Acquisition Date/Time: 6/12/2026 1:52:00 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.0 minutes

Tracer Certificate: 450_Pu-242_T
Tracer Quantity: 0.110 mL
Counting Efficiency: 0.3390 +/- 0.0038 on 7/29/2025 5:51:18 PM
Chem. Rec. Factor (%): 81.25 +/- 1.9821

----- PEAK AREA REPORT -----					

Nuclide	Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)

PU-238	5.459	-3.55	279.01	4.00	2.9
PU-239	5.127	6.91	218.30	6.00	3.9
PU-242 T	4.862	2188.00	4.28	1.00	57.1

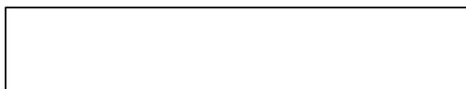
T = Tracer Peak used for Effective Efficiency

----- NUCLIDE ANALYSIS RESULTS -----					

Nuclide	Energy (keV)	Activity (Bq /kg)		MDA (Bq /kg)	

PU-238	5487.10*	-4.894E-02	+/- 1.366E-01	3.771E-01	+/- 1.636E-02
PU-239	5147.70*	9.529E-02	+/- 2.081E-01	4.907E-01	+/- 2.128E-02
PU-242	4890.70*	3.004E+01	+/- 1.303E+00	1.275E-01	+/- 5.530E-03

[PS 0



Sample Description:
Spectrum File: C:\Canberra\ApexAlpha\Root\Data\0000069471.Cnf
Batch Identification: 2025 Soil Batch5
Sample Identification: 57600U
Procedure Description: U - 3 Days (Blank Corrected)

Detector Name: 2-06
Env. Background: System Bkgd 74077

Sample Size: 1.0062E-03 +/- 0.0000E+00 kg
Sample Date/Time: 6/18/2026 3:21:09 PM
Acquisition Date/Time: 6/18/2026 3:21:09 PM
Acquisition Live Time: 4320.0 minutes
Acquisition Real Time: 4320.1 minutes

Tracer Certificate: 1320 U232_2
Tracer Quantity: 0.149 mL
Counting Efficiency: 0.3217 +/- 0.0036 on 7/28/2025 3:59:40 PM
Chem. Rec. Factor (%): 77.79 +/- 4.1711

		PEAK	AREA	REPORT	-----	

Nuclide		Energy (MeV)	Net Pk Area	Pk Area Error %	Ambient Backgnd	FWHM (keV)
U-232	T	5.272	4037.00	3.15	2.00	73.6
U-234		4.722	545.58	9.45	0.00	33.8
U-235		4.360	47.49	36.19	4.00	4.3
U-238		4.144	557.29	9.07	8.00	17.1

T = Tracer Peak used for Effective Efficiency

NUCLIDE ANALYSIS RESULTS						

Nuclide	Energy (keV)	Activity (Bq /kg)			MDA (Bq /kg)	
U-232	5302.50*	6.197E+01	+/-	6.497E+00	1.844E-01	+/- 1.933E-02
U-234	4761.50*	8.375E+00	+/-	1.182E+00	8.203E-01	+/- 8.600E-02
U-235	4385.50*	8.993E-01	+/-	3.388E-01	5.034E-01	+/- 5.277E-02
U-238	4184.40*	8.518E+00	+/-	1.181E+00	6.854E-01	+/- 7.186E-02

Environmental Chemistry Group

From April 1st to June 30th, 2026, the Environmental Chemistry (EC) group completed metal analyses on FAS filter samples (stations F and G) collected in 2025 and anion analyses for Whatman filter samples collected during the 3rd quarter of 2025.

The following tables and figures represent characteristics results.

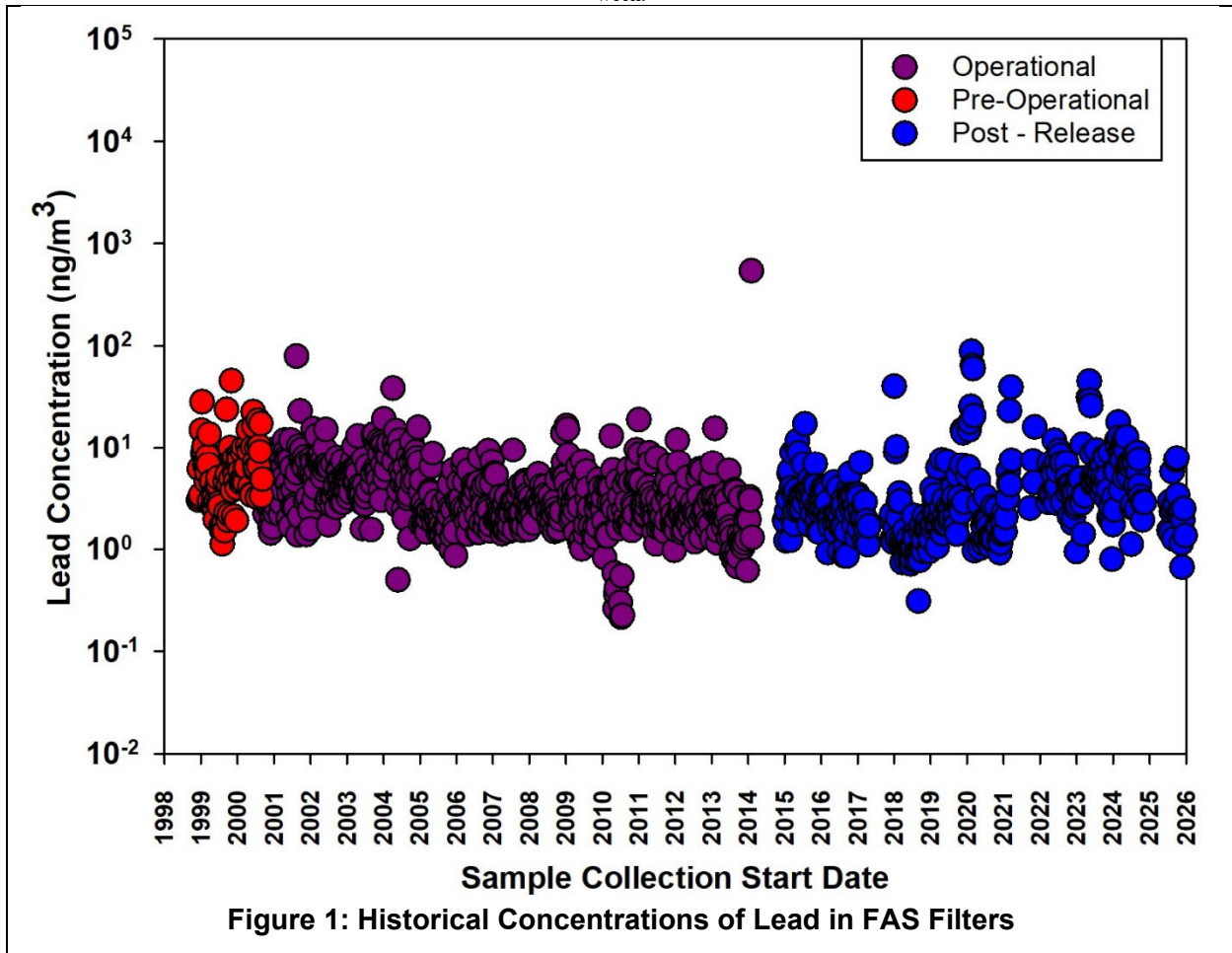
FAS Filters – Station F

Sample Type: FAS, Station F
 Year: 2025
 Analysis Performed: Metals in weekly composites

Week	Aluminum ng/m ³	Cadmium ng/m ³	Lead ng/m ³	Magnesium ng/m ³	Silicon ng/m ³	Thorium ng/m ³	Uranium ng/m ³
01/01/25							
01/08/25							
01/15/25							
01/22/25							
02/01/25							
02/08/25							
02/15/25							
02/22/25							
03/01/25							
03/08/25							
03/15/25							
03/22/25							
04/01/25							
04/08/25							
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04/22/25							
05/01/25							
05/08/25							
05/15/25							
05/22/25							
06/01/25							
06/08/25							
06/15/25							
06/22/25							
07/01/25							
07/08/25							
07/15/25	1.36E+03	4.36E-01	1.53E+00	2.08E+02	1.16E+03		
07/22/25	8.87E+02	3.44E-01	2.92E+00	1.96E+02	7.19E+02	3.56E-02	1.61E-02
08/01/25	1.30E+03	2.93E-01	1.43E+00	1.56E+02	6.24E+02	4.11E-02	1.94E-02
08/08/25	1.01E+03	3.40E-01	2.35E+00	1.64E+02	6.32E+02	3.08E-02	1.65E-02
08/15/25	1.32E+03	3.31E-01	5.74E+00	2.06E+02	6.25E+02	2.16E-02	1.19E-02
08/22/25	1.46E+03	3.30E-01	2.52E+00	2.99E+02	7.30E+02	1.87E-02	1.35E-02
09/01/25	1.17E+03	3.10E-01	1.26E+00	2.28E+02	4.21E+02	8.69E-03	4.83E-03
09/08/25	1.61E+03	3.55E-01	2.75E+00	1.90E+02	5.25E+02	1.73E-02	1.25E-02
09/15/25	1.04E+03	3.30E-01	2.67E+00	2.52E+02	5.49E+02	1.19E-02	7.88E-03
09/22/25	9.75E+02	3.48E-01	7.46E+00	2.26E+02	5.38E+02	1.27E-02	1.75E-02
10/01/25	1.302E+03	3.18E-01	7.89E+00	4.08E+02	6.12E+02	<MDL	1.02E-02
10/08/25	9.328E+02	2.94E-01	3.39E+00	1.27E+02	3.82E+02	<MDL	<MDL
10/15/25	9.246E+02	3.12E-01	2.21E+00	3.62E+02	5.78E+02	<MDL	<MDL
10/22/25	1.412E+03	3.83E-01	2.19E+00	6.06E+02	7.10E+02	<MDL	<MDL
11/01/25	1.058E+03	3.263E-01		6.984E+02	7.297E+02	3.427E-02	2.053E-02
11/08/25	1.106E+03	2.707E-01	2.374E+00	1.018E+03	9.603E+02	4.091E-02	2.301E-02
11/15/25	9.697E+02	2.916E-01	1.142E+00	1.034E+03	5.811E+02	2.398E-02	4.095E-02
11/22/25	8.732E+02	2.953E-01	6.660E-01	4.905E+02	3.569E+02	7.595E-03	1.419E-02
12/01/25	1.270E+03	4.863E-01	1.930E+00	1.172E+03	7.919E+02		2.644E-02
12/08/25	1.247E+03	3.612E-01	2.492E+00	1.214E+03	1.067E+03	5.777E-02	3.999E-02
12/15/25							

12/22/25	1.013E+03	3.366E-01	1.361E+00	2.667E+02	5.247E+02	1.917E-02	9.728E-03
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NOTE: Filters were not received for the following time frames: January, February, March, April, May, June, July 1st and 2nd week, December 3rd week.



Sample Type: FAS, Station F
Year: 2025
Analysis Performed: Anions in weekly composites

Week	Chloride ng/m ³	Nitrate ng/m ³	Phosphate ng/m ³	Sulfate ng/m ³
01/01/25				
01/08/25				
01/15/25				
01/22/25				
02/01/25				
02/08/25				
02/15/25				
02/22/25				
03/01/25				
03/08/25				
03/15/25				
03/22/25				
04/01/25				
04/08/25				
04/15/25				
04/22/25				
05/01/25				
05/08/25				
05/15/25				
05/22/25				
06/01/25				
06/08/25				
06/15/25				
06/22/25				
07/01/25				
07/08/25				
07/15/25	2.54E+03	<MDL	<MDL	2.92E+03
07/22/25	2.88E+03	<MDL	<MDL	2.00E+03
08/01/25	1.89E+03	<MDL	<MDL	1.66E+03
08/08/25	1.98E+03	<MDL	<MDL	1.92E+03
08/15/25	3.15E+03	6.97E+01	<MDL	1.61E+03
08/22/25	1.37E+04	<MDL	<MDL	2.50E+03
09/01/25				
09/08/25				
09/15/25				
09/22/25				
10/01/25				
10/08/25				
10/15/25				
10/22/25				
11/01/25				
11/08/25				
11/15/25				
11/22/25				
12/01/25				
12/08/25				
12/15/25				
12/22/25				

NOTE: Filters were not received for the following time frames: January, February, March, April, May, June, July 1st and 2nd week

Sample Type: FAS, Station F
Year: 2025
Analysis Performed: Cations in weekly composites

Week	Sodium ng/m ³	Ammonium ng/m ³	Magnesium ng/m ³	Potassium ng/m ³	Calcium ng/m ³
01/01/25					
01/08/25					
01/15/25					
01/22/25					
02/01/25					
02/08/25					
02/15/25					
02/22/25					
03/01/25					
03/08/25					
03/15/25					
03/22/25					
04/01/25					
04/08/25					
04/15/25					
04/22/25					
05/01/25					
05/08/25					
05/15/25					
05/22/25					
06/01/25					
06/08/25					
06/15/25					
06/22/25					
07/01/25					
07/08/25					
07/15/25	1.27E+03	3.87E+02	<MDL	3.73E+02	2.37E+02
07/22/25	1.69E+03	2.32E+02	<MDL	4.38E+02	2.16E+02
08/01/25	8.26E+02	1.86E+02	<MDL	1.84E+02	2.84E+02
08/08/25	1.00E+03	1.57E+02	<MDL	2.24E+02	4.00E+02
08/15/25	1.73E+03	2.03E+02	<MDL	3.03E+02	1.50E+02
08/22/25	1.00E+04	1.20E+02	<MDL	2.72E+02	5.36E+02
09/01/25					
09/08/25					
09/15/25					
09/22/25					
10/01/25					
10/08/25					
10/21/25					
10/22/25					
11/01/25					
11/08/25					
11/15/25					
11/22/25					
12/01/25					
12/08/25					
12/15/25					
12/22/25					

NOTE: Filters were not received for the following time frames: January, February, March, April, May, June, July 1st and 2nd week

FAS Filters – Station B & G

Sample Type: FAS, Station B & G
Year: 2025
Analysis Performed: Metals in monthly composites

Month	Aluminum ng/m ³	Cadmium ng/m ³	Lead ng/m ³	Magnesium ng/m ³	Silicon ng/m ³	Thorium ng/m ³	Uranium ng/m ³
January	4.08E+01	2.66E-01	1.18E-01	2.54E+01	2.75E+02	<MDC	<MDC
February	1.14E+02	2.54E-01	2.38E-01	7.93E+01	4.54E+02	5.64E-03	<MDC
March	2.10E+02	2.57E-01	1.93E-01	7.66E+01	6.78E+02	3.07E-02	6.89E-03
April	2.01E+02	2.59E-01	2.37E-01	6.62E+01	6.64E+02	3.01E-02	6.81E-03
May	8.17E+01	<MDC	2.08E-01	4.76E+01	4.41E+02	<MDC	<MDC
June							
July	2.57E+02	2.48E-01	5.23E-02	<MDC	<MDC	<MDC	<MDC
August	1.36E+02	2.77E-01	9.29E-02	<MDC	<MDC	<MDC	<MDC
September	1.63E+02	2.76E-01	8.55E-02	<MDC	<MDC	7.29E-03	5.40E-03
October	1.01E+02	2.72E-01	5.45E-02	<MDC	<MDC	<MDC	<MDC
November	4.08E+02	2.51E-01	6.32E-02	<MDC	<MDC	<MDC	<MDC
December	8.66E+01	2.80E-01	6.99E-02	<MDC	<MDC	<MDC	<MDC

NOTE: Filters were not received for the following time frames: June

Sample Type: FAS, Station B & G
Year: 2025
Analysis Performed: Anions in monthly composites

Month	Chloride ng/m ³	Nitrate ng/m ³	Phosphate ng/m ³	Sulfate ng/m ³
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

Sample Type: FAS, Station B & G
Year: 2025
Analysis Performed: Cations in monthly composites

Month	Sodium ng/m ³	Ammonium ng/m ³	Magnesium ng/m ³	Potassium ng/m ³	Calcium ng/m ³
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					

NOTE: The filters were collected from Station B (skid B-1) in January, February, March, April, May, June, July 1st and 2nd week. Starting from July 3rd week and after, the filters were collected from station G (skid G-1)

Whatman Filters

Sample Type:	Near Field (107), ambient air
Year:	2025
Analysis Performed:	Metals

[illegible]

Sample Type: Cactus Flats (108), ambient air
Year: 2025
Analysis Performed: Metals

[illegible]

Analysis Performed: Anions

[illegible]**Analysis Performed:** Anions[illegible]

Analysis Performed: Cations

[illegible]

Analysis Performed: Cations

[illegible]

Drinking Water

Sample Type: Drinking Water

Year: 2025

Analysis Performed: Anions

Sample Location	Chloride mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
Carlsbad (Sheep draw)	3.72E+01	4.49E+00	<MDL	8.96E+01
Hobbs	1.27E+02	2.29E+01	<MDL	1.55E+02
Double Eagle PRV4	3.00E+01	1.30E+01	<MDL	3.97E+01
Loving	3.14E+01	2.06E+01	<MDL	1.16E+02
Otis	2.83E+02	1.60E+01	<MDL	6.32E+02
Malaga	6.50E+02	1.54E+01	<MDL	1.01E+03

Sample Type: Drinking Water

Year: 2025

Analysis Performed: Cations

Sample Location	Sodium mg/L	Magnesium mg/L	Potassium mg/L	Calcium mg/L
Carlsbad (Sheep draw)	2.82E+01	3.25E+01	<MDL	7.25E+01
Hobbs	6.14E+01	2.56E+01	<MDL	1.14E+02
Double Eagle PRV4	3.18E+01	1.02E+01	<MDL	5.03E+01
Loving	2.24E+01	3.64E+01	<MDL	8.65E+01
Otis	9.93E+01	7.65E+01	<MDL	2.81E+02
Malaga	2.14E+02	1.29E+02	<MDL	4.54E+02

Sample Type: Drinking Water

Year: 2025

Analysis Performed: pH

Sample Location	pH @ 26.77°C
Carlsbad (Sheep draw)	8.34
Hobbs	8.16
Double Eagle PRV4	8.19
Loving	8.11
Otis	7.84
Malaga	7.59

Sample Type: Drinking Water

Year: 2025

Analysis Performed: Total Organic Carbon

Sample Location	TOC mg/L
Carlsbad (Sheep draw)	
Hobbs	
Double Eagle PRV-4	
Loving	
Otis	
Malaga	

Sample Type: Drinking Water

Year: 2025
 Analysis Performed: Conductivity

Sample Location	Conductivity mS/cm	Temperature °C
Carlsbad (Sheep draw)	0.729	27.9
Loving	0.792	27.8
Otis	2.24	28.1
Malaga	3.65	27.8
Hobbs	1.073	27.7
PRV4 (Double Eagle)	0.500	27.6

Sample Type: Drinking Water
 Year: 2025
 Analysis Performed: Specific gravity

Sample Location	Specific Gravity
Carlsbad (Sheep draw)	0.991
Loving	0.990
Otis	0.993
Malaga	0.995
Hobbs	0.992
PRV4 (Double Eagle)	0.992

Sample Type: Drinking Water
 Year: 2025
 Analysis Performed: TDS/TSS

Sample Location	TDS mg/L	TSS mg/L
Carlsbad (Sheep draw)	440.0	N.D.
Loving	560.0	20.0
Otis	1820.0	N.D.
Malaga	3260.0	N.D.
Hobbs	720.0	20.0
PRV4 (Double Eagle)	260.0	N.D.
N.D. = non-detect.		

Sample Type: Drinking Water
 Year: 2025
 Analysis Performed: Metals

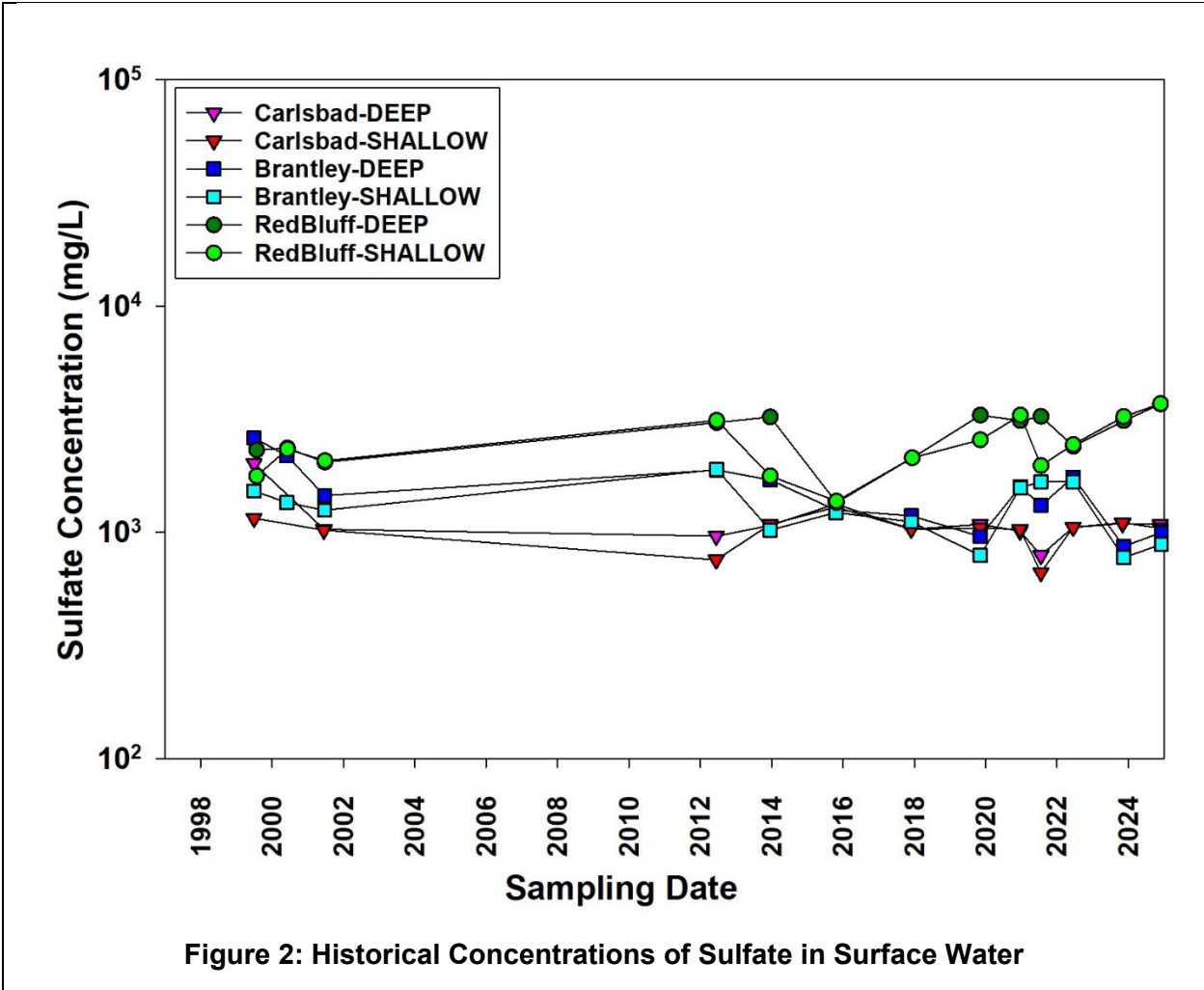
Metal	Carlsbad Conc µg/L	Loving Conc µg/L	Otis Conc µg/L	Malaga Conc µg/L	Hobbs Conc µg/L	Double Eagle (PRV4) Conc µg/L
Ag	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Al	3.02E+00	4.54E+00	3.00E+01	9.67E+00	4.31E+00	6.98E+00
As	7.13E-01	1.77E+00	1.88E+00	2.03E+00	6.54E+00	7.34E+00
Ba	7.05E+01	3.29E+01	1.33E+01	1.20E+01	5.50E+01	8.79E+01
Be	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Ca	7.23E+04	8.52E+04	2.64E+05	4.31E+05	1.12E+05	5.01E+04
Cd	4.51E-03	4.98E-02	<MDC	<MDC	7.41E-03	<MDC
Ce	<MDC	<MDC	4.35E-02	<MDC	<MDC	<MDC

Co	8.90E-02	1.01E-01	3.56E-01	5.19E-01	1.51E-01	6.10E-02
Cr	2.00E+00	2.63E+00	2.92E+00	2.77E+00	2.32E+00	1.80E+00
Cu	4.10E+00	5.40E+00	<MDC	<MDC	8.94E+00	<MDC
Dy	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Er	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Eu	1.30E-02	5.95E-03	<MDC	<MDC	8.91E-03	1.54E-02
Fe	2.26E+02	2.69E+02	1.02E+03	1.45E+03	3.56E+02	2.34E+02
Gd	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Hg	<MDL	<MDL	0.167	<MDL	<MDL	<MDL
K	1.27E+03	1.80E+03	2.71E+03	3.83E+03	2.61E+03	2.46E+03
La	<MDC	<MDC	2.05E-02	<MDC	<MDC	<MDC
Li	7.16E+00	1.92E+01	4.41E+01	6.05E+01	3.72E+01	1.82E+01
Mg	3.35E+04	3.64E+04	8.01E+04	1.32E+05	2.66E+04	9.83E+03
Mn	4.35E-01	5.67E-01	1.02E+00	<MDC	1.27E+00	3.49E+00
Mo	1.36E+00	1.67E+00	3.93E+00	4.06E+00	2.70E+00	1.77E+00
Na	2.62E+04	2.06E+04	9.35E+04	2.01E+05	5.54E+04	2.94E+04
Nd	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Ni	2.69E+00	2.95E+00	1.93E+01	1.37E+01	3.96E+00	1.72E+00
P	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Pb	2.55E-01	4.16E+00	<MDC	<MDC	5.10E-01	1.12E+00
Pr	<MDC	<MDC	5.47E-03	<MDC	<MDC	<MDC
Sb	3.05E-02	4.28E-02	3.51E-02	3.79E-02	6.08E-02	2.66E-02
Sc	1.37E+00	2.19E+00	2.40E+00	2.52E+00	5.41E+00	3.39E+00
Se	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Si	6.10E+03	9.49E+03	9.66E+03	9.97E+03	2.55E+04	1.52E+04
Sr	3.08E+02	7.08E+02	2.87E+03	5.11E+03	1.13E+03	4.70E+02
Th	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Tl	7.50E-02	3.53E-03	<MDC	<MDC	<MDC	<MDC
U	8.12E-01	1.92E+00	4.07E+00	5.69E+00	3.80E+00	1.41E+00
V	3.96E+00	1.22E+01	9.40E+00	8.05E+00	3.04E+01	2.81E+01
Zn	5.60E+00	2.51E+02	2.29E+01	<MDC	1.10E+01	8.76E+00

Surface Water

Sample Type: Surface Water
Year: 2025
Analysis Performed: Anions

Sample Location	Chloride mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
Hill Tank	2.73E+00	1.03E+00	4.66E-01	7.63E+00
Noya Tank	1.09E+00	1.71E+00	6.77E-01	1.82E+00
Pierce Canyon	1.41E+03	3.14E+00	<MDL	1.47E+03
Lake Carlsbad (Shore)	7.04E+02	1.48E+00	<MDL	1.16E+03
Lake Carlsbad (Shallow)	7.10E+02	4.03E+00	<MDL	1.13E+03
Lake Carlsbad (Deep)	7.97E+02	4.60E+00	<MDL	1.24E+03
Brantley Lake (shore)	1.33E+03	<MDL	<MDL	1.42E+03
Brantley Lake (shallow)	9.98E+02	<MDL	<MDL	1.15E+03
Brantley Lake (deep)	1.01E+03	<MDL	<MDL	1.15E+03
Pecos River (Shore)	4.94E+02	2.33E+00	<MDL	1.11E+03
Red Bluff (Shallow)	3.16E+03	<MDL	<MDL	3.27E+03
Red Bluff (Deep)	3.19E+03	<MDL	<MDL	3.29E+03



Sample Type: Surface Water
Year: 2025
Analysis Performed: Cations

Sample Location	Sodium mg/L	Magnesium mg/L	Potassium mg/L	Calcium mg/L
Hill Tank	1.38E+00	3.61E+00	7.59E+00	4.93E+01
Noya Tank	3.40E-01	2.05E+00	5.38E+00	4.26E+01
Pierce Canyon	8.30E+02	1.86E+02	3.91E+01	4.98E+02
Lake Carlsbad (Shore)	4.47E+02	1.19E+02	9.52E+00	3.88E+02
Lake Carlsbad (Shallow)	4.83E+02	1.46E+02	<MDL	4.09E+02
Lake Carlsbad (Deep)	5.00E+02	1.54E+02	<MDL	4.19E+02
Brantley Lake (Shore)	8.42E+02	1.47E+02	1.50E+01	4.96E+02
Brantley Lake (shallow)	6.47E+02	1.07E+02	1.30E+01	4.01E+02
Brantley Lake (deep)	6.54E+02	1.01E+02	<MDL	4.03E+02
Pecos River (Shore)	4.07E+02	9.58E+01	8.08E+00	4.95E+02
Red Bluff (Shallow)	1.97E+03	4.38E+02	7.42E+01	9.83E+02
Red Bluff (Deep)	1.97E+03	4.40E+02	8.50E+01	9.77E+02

Sample Type: Surface Water
Year: 2025
Analysis Performed: pH

Sample Location	pH @ 25°C
Hill Tank	8.33

Noya Tank	8.41
Pierce Canyon	8.07
Lake Carlsbad (Shore)	8.21
Lake Carlsbad (Shallow)	8.13
Lake Carlsbad (Deep)	8.44
Brantley Lake (Shore)	8.29
Brantley Lake (shallow)	8.12
Brantley Lake (deep)	7.95
Pecos River (Shore)	7.58
Red Bluff (Shallow)	8.22
Red Bluff (Deep)	8.32

Sample Type: Surface Water
Year: 2025
Analysis Performed: Conductivity

Sample Location	Conductivity mS/cm	Temperature °C
Hill Tank	0.1764	19.8
Noya Tank	0.1537	19.8
Pierce Canyon	6.49	19.6
Lake Carlsbad (Shore)	4.26	19.6
Lake Carlsbad (Shallow)	4.27	19.6
Lake Carlsbad (Deep)	4.37	19.6
Brantley Lake (Shore)	6.44	19.4
Brantley Lake (shallow)	4.92	21.1
Brantley Lake (deep)	4.98	21.1
Pecos River (Shore)	3.91	19.9
Red Bluff (Shallow)	12.48	19.6
Red Bluff (Deep)	12.43	19.6

Sample Type: Surface Water
Year: 2025
Analysis Performed: Specific gravity

Sample Location	SG T/4°C
Hill Tank	0.995
Noya Tank	0.996
Pierce Canyon	1.001
Lake Carlsbad (Shore)	0.999
Lake Carlsbad (Shallow)	0.993
Lake Carlsbad (Deep)	0.995
Brantley Lake (Shore)	1.000
Brantley Lake (Shallow)	0.993
Brantley Lake (Deep)	0.997
Pecos River (Shore)	1.000
Red Bluff (Shallow)	0.998
Red Bluff (Deep)	0.998

Sample Type: Surface Water
Year: 2025

Analysis Performed: TOC

Sample Location	TOC mg/L
Hill Tank	16.01
Noya Tank	16.10
Pierce Canyon	17.91
Lake Carlsbad (Shore)	17.73
Brantley Lake (Shore)	18.33
Pecos River (Shore)	12.11

Sample Type: Surface Water

Year: 2025

Analysis Performed: TDS/TSS

Sample Location	TDS mg/L	TSS mg/L
Hill Tank	160.00	N.D.
Noya Tank	200.00	N.D.
Pierce Canyon	4760.00	N.D.
Lake Carlsbad (Shore)	2960.00	N.D.
Lake Carlsbad (Shallow)	3210.00	80.00
Lake Carlsbad (Deep)	3200.00	80.00
Brantley Lake (Shore)	4680.00	N.D.
Brantley Lake (Shallow)	3800.00	40.00
Brantley Lake (Deep)	3680.00	N.D.
Pecos River (Shore)	2720.00	2120.00
Red Bluff (Shallow)	10520.00	160.00
Red Bluff (Deep)	10320.00	N.D.

Sample Type: Surface Water

Year: 2025

Analysis Performed: Metals

Metal	Hill Tank Conc µg/L	Noya Tank Conc µg/L	Pierce Canyon Conc µg/L
Ag	<MDC	<MDC	<MDC
Al	6.54E+03	7.12E+03	1.78E+03
As	2.68E+00	2.60E+00	<MDC
Ba	2.60E+02	2.55E+02	1.37E+02
Be	4.83E-01	5.26E-01	<MDC
Ca	4.51E+04	3.96E+04	4.16E+05
Cd	1.14E-01	1.16E-01	<MDC
Ce	1.27E+01	1.37E+01	2.58E+00
Co	4.22E+00	4.59E+00	2.17E+00
Cr	4.51E+00	4.23E+00	<MDC
Cu	<MDC	1.89E+01	<MDC
Dy	9.61E-01	1.08E+00	2.22E-01
Er	4.42E-01	4.95E-01	1.01E-01
Eu	3.70E-01	4.21E-01	9.55E-02
Fe	3.28E+03	3.49E+03	2.33E+03
Gd	1.50E+00	1.69E+00	3.28E-01
Hg	<MDL	<MDL	<MDC
K	7.03E+03	6.94E+03	1.53E+04
La	5.53E+00	5.96E+00	1.07E+00
Li	7.55E+00	9.43E+00	7.70E+01
Mg	7.34E+03	7.60E+03	1.80E+05
Mn	1.71E+02	1.93E+02	1.69E+02
Mo	1.39E-01	3.00E-01	2.91E+00

Groundwater

Sample Type: Ground Water
Year: 2025
Analysis Performed: Anions

Sample Location	Chloride mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
WQSP-1	3.56E+04	<MDL	<MDL	4.85E+03
WQSP-2	3.59E+04	<MDL	<MDL	5.28E+03
WQSP-3	1.36E+05	<MDL	<MDL	7.95E+03
WQSP-4	5.94E+04	<MDL	<MDL	6.75E+03
WQSP-5	1.66E+04	<MDL	<MDL	4.88E+03
WQSP-6	5.32E+03	<MDL	<MDL	4.51E+03

Sample Type: Ground Water
Year: 2025
Analysis Performed: Cations

Sample Location	Sodium mg/L	Magnesium mg/L	Potassium mg/L	Calcium mg/L
WQSP-1	2.31E+04	1.01E+03	4.12E+02	1.79E+03
WQSP-2	2.16E+04	9.74E+02	4.36E+02	1.58E+03
WQSP-3	8.39E+04	2.29E+03	1.47E+03	1.44E+03
WQSP-4	4.02E+04	1.24E+03	9.81E+02	1.80E+03
WQSP-5	1.13E+04	5.95E+02	3.76E+02	1.12E+03
WQSP-6	4.69E+03	2.01E+02	1.63E+02	7.14E+02

Sample Type: Ground Water
Year: 2025
Analysis Performed: pH

Sample Location	pH @ 23°C
WQSP-1	6.86
WQSP-2	7.05
WQSP-3	7.32
WQSP-4	7.42
WQSP-5	7.62
WQSP-6	8.02

Sample Type: Ground Water
Year: 2025
Analysis Performed: Conductivity

Sample Location	Conductivity mS/cm	Temperature °C
WQSP-1	85.4	21.7
WQSP-2	83.6	21.7
WQSP-3	198.8	18.6
WQSP-4	128.9	20.4
WQSP-5	46.8	22.6
WQSP-6	21.0	18.6

Sample Type: Ground Water
Year: 2025
Analysis Performed: Specific gravity

Sample Location	SG T/4°C
WQSP-1	1.041

WQSP-2	1.044
WQSP-3	1.129
WQSP-4	1.069
WQSP-5	1.024
WQSP-6	1.007

Sample Type: Ground Water
Year: 2025
Analysis Performed: TOC

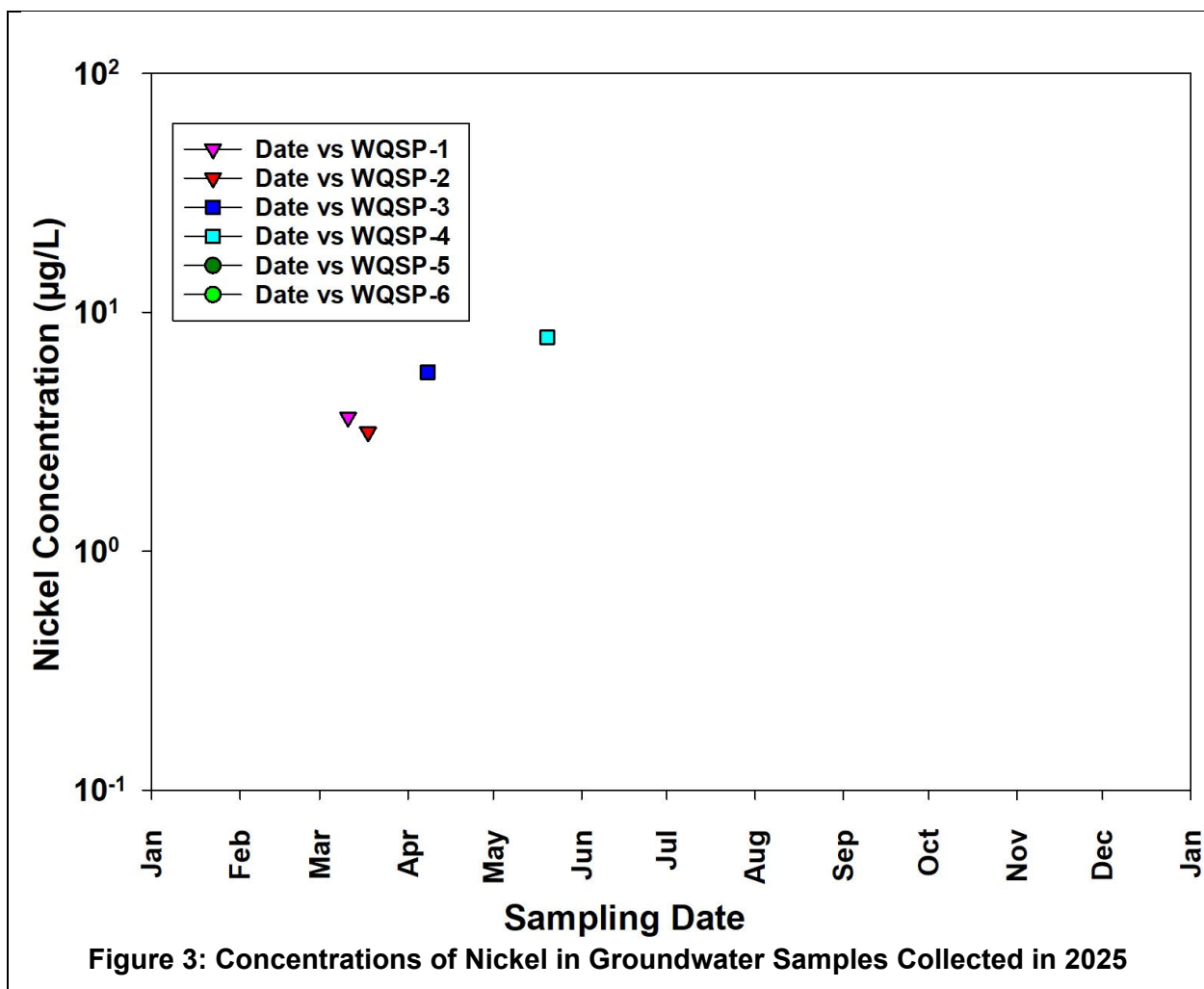
Sample Location	TOC mg/L
WQSP-1	1.440
WQSP-2	1.322
WQSP-3	0.969
WQSP-4	3.497
WQSP-5	4.130
WQSP-6	1.384

Sample Type: Ground Water
Year: 2025
Analysis Performed: TDS/TSS

Sample Location	TDS mg/L	TSS mg/L
WQSP-1	66480.00	N.D.
WQSP-2	66440.00	N.D.
WQSP-3	229580.00	60.00
WQSP-4	111260.00	20.00
WQSP-5	35020.00	40.00
WQSP-6	15440.00	180.00

Sample Type: Ground Water
Year: 2025
Analysis Performed: Metals

Metals	WQSP-1 µg/L	WQSP-2 µg/L	WQSP-3 µg/L	WQSP-4 µg/L	WQSP-5 µg/L	WQSP-6 µg/L
Cd	0.1601	<MDC	<MDC	<MDC	<MDC	2.26575
Co	0.6465	<MDC	<MDC	<MDC	<MDC	1.5122
Cr	<MDC	<MDC	15.8467	<MDC	3.26515	2.41995
Cu	<MDC	<MDC			<MDC	<MDC
Eu	0.3206	<MDC	<MDC	<MDC	<MDC	<MDC
La	0.553	<MDC	<MDC	<MDC	<MDC	5.71325
Ni	3.6407	3.1548	5.6259	7.8804	<MDC	<MDC
Pb	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
Th	<MDC	<MDC	<MDC	<MDC	<MDC	<MDC
U	11.0011	9.3027	<MDC	5.1374	3.89445	3.48635
Zn		<MDC			<MDC	<MDC



Surface Water

Sample Type: Surface Water
Year: 2026
Analysis Performed: Anions

Sample Location	Chloride mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
Red Tank	1.57E+02	<MDL	<MDL	2.32E+02
Red Lake	8.69E+01	4.46E+00	<MDL	9.51E+01
Noya Tank	4.65E+00	3.03E-01	4.66E-01	6.54E+00
Lake Carlsbad (Shore)				
Lake Carlsbad (Shallow)				
Lake Carlsbad (Deep)				
Brantley Lake (shore)				
Brantley Lake (shallow)				
Brantley Lake (deep)				
Pecos River (Shore)				
Red Bluff (Shallow)				
Red Bluff (Deep)				

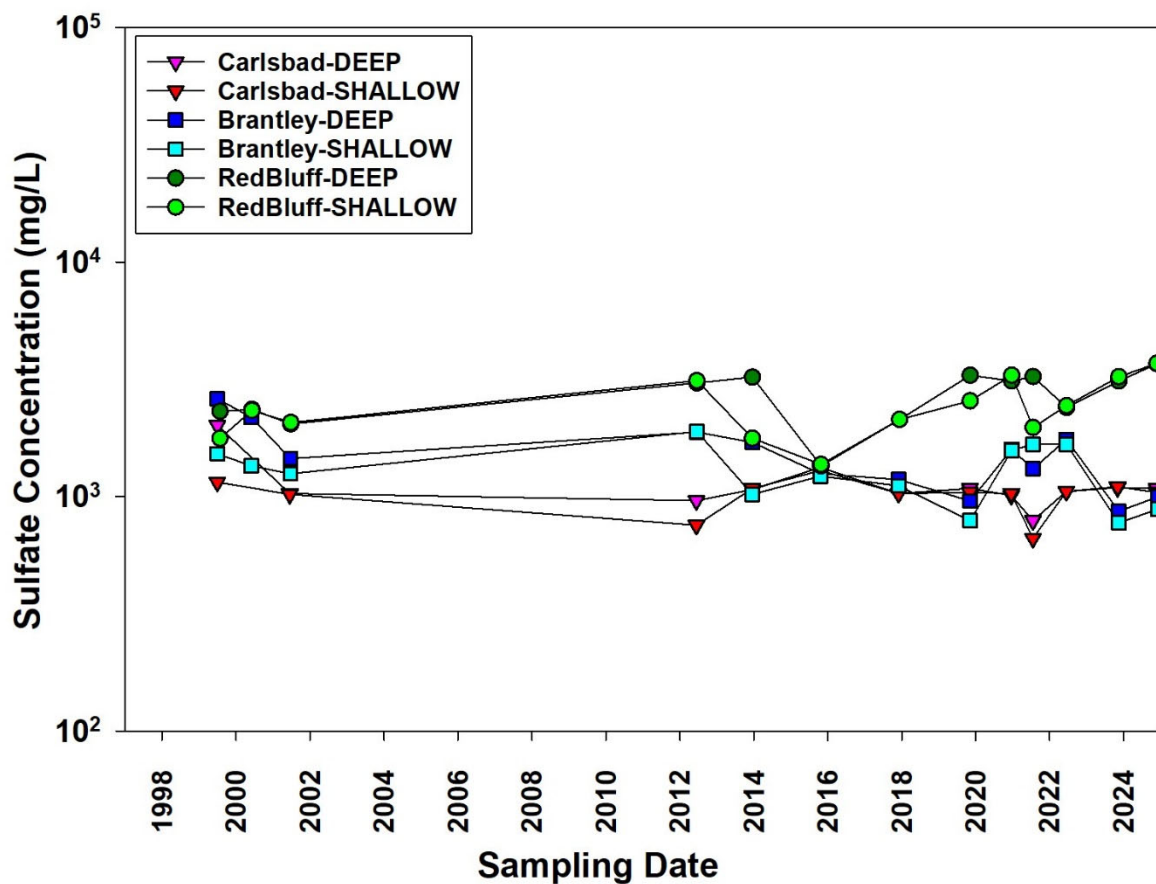


Figure 4: Historical Concentrations of Sulfate in Surface Water

Sample Type: Surface Water
Year: 2026
Analysis Performed: Cations

Sample	Sodium	Magnesium	Potassium	Calcium
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Location	mg/L	mg/L	mg/L	mg/L
Red Tank	1.12E+02	3.53E+01	2.10E+01	5.82E+01
Red Lake	1.54E+01	1.78E+01	1.05E+02	1.74E+02
Noya Tank				
Lake Carlsbad (Shore)				
Lake Carlsbad (Shallow)				
Lake Carlsbad (Deep)				
Brantley Lake (Shore)				
Brantley Lake (shallow)				
Brantley Lake (deep)				
Pecos River (Shore)				
Red Bluff (Shallow)				
Red Bluff (Deep)				

Sample Type: Surface Water
 Year: 2026
 Analysis Performed: pH

Sample Location	pH @ 25°C
Red Tank	8.5
Red Lake	7.7
Noya Tank	
Lake Carlsbad (Shore)	
Lake Carlsbad (Shallow)	
Lake Carlsbad (Deep)	
Brantley Lake (Shore)	
Brantley Lake (shallow)	
Brantley Lake (deep)	
Pecos River (Shore)	
Red Bluff (Shallow)	
Red Bluff (Deep)	

Sample Type: Surface Water
 Year: 2026
 Analysis Performed: Conductivity

Sample Location	Conductivity mS/cm	Temperature °C
Red Tank	1.084	20.6
Red Lake	0.944	21.6
Noya Tank		
Lake Carlsbad (Shore)		
Lake Carlsbad (Shallow)		
Lake Carlsbad (Deep)		
Brantley Lake (Shore)		
Brantley Lake (shallow)		
Brantley Lake (deep)		
Pecos River (Shore)		
Red Bluff (Shallow)		
Red Bluff (Deep)		

Sample Type: Surface Water
 Year: 2026
 Analysis Performed: Specific gravity

Sample Location	SG _{T/4°C}
Red Tank	0.996

Red Lake	0.997
Noya Tank	0.990
Lake Carlsbad (Shore)	
Lake Carlsbad (Shallow)	
Lake Carlsbad (Deep)	
Brantley Lake (Shore)	
Brantley Lake (Shallow)	
Brantley Lake (Deep)	
Pecos River (Shore)	
Red Bluff (Shallow)	
Red Bluff (Deep)	

Sample Type: Surface Water
Year: 2026
Analysis Performed: TOC

Sample Location	TOC mg/L
Red Tank	
Red Lake	
Noya Tank	
Lake Carlsbad (Shore)	
Brantley Lake (Shore)	
Pecos River (Shore)	

Sample Type: Surface Water
Year: 2026
Analysis Performed: TDS/TSS

Sample Location	TDS mg/L	TSS mg/L
Red Tank		
Red Lake		
Noya Tank		
Lake Carlsbad (Shore)		
Lake Carlsbad (Shallow)		
Lake Carlsbad (Deep)		
Brantley Lake (Shore)		
Brantley Lake (Shallow)		
Brantley Lake (Deep)		
Pecos River (Shore)		
Red Bluff (Shallow)		
Red Bluff (Deep)		

Sample Type: Surface Water
Year: 2026
Analysis Performed: Metals

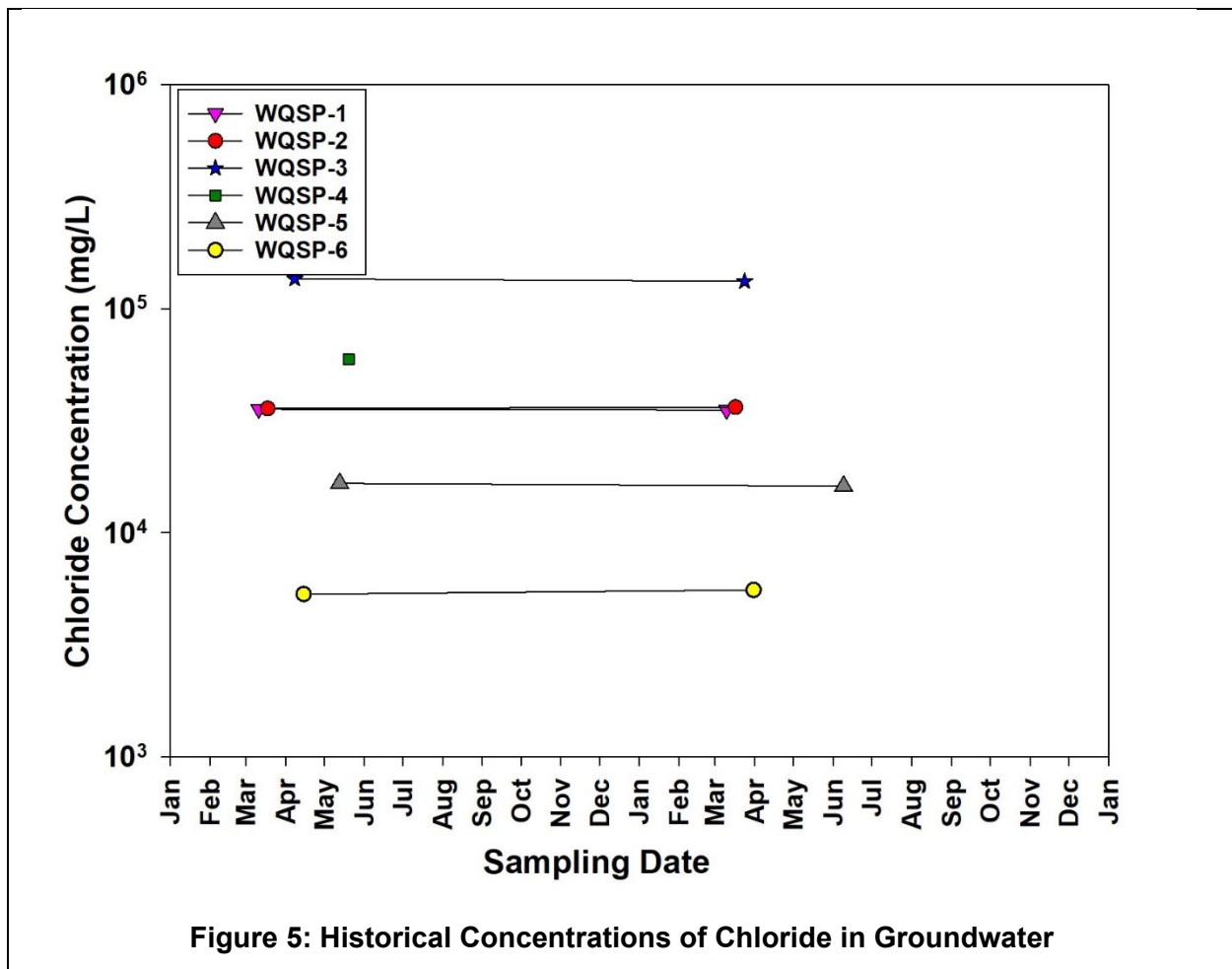
Metal	Red Tank Conc µg/L	Red Lake Conc µg/L	Noya Tank Conc µg/L
Ag	9.59E-01	<MDC	<MDC
Al	1.42E+03	2.35E+04	2.39E+03

Si									
Sr									
Th									
Tl									
U									
V									
Zn									

Groundwater

Sample Type: Groundwater
Year: 2026
Analysis Performed: Anions

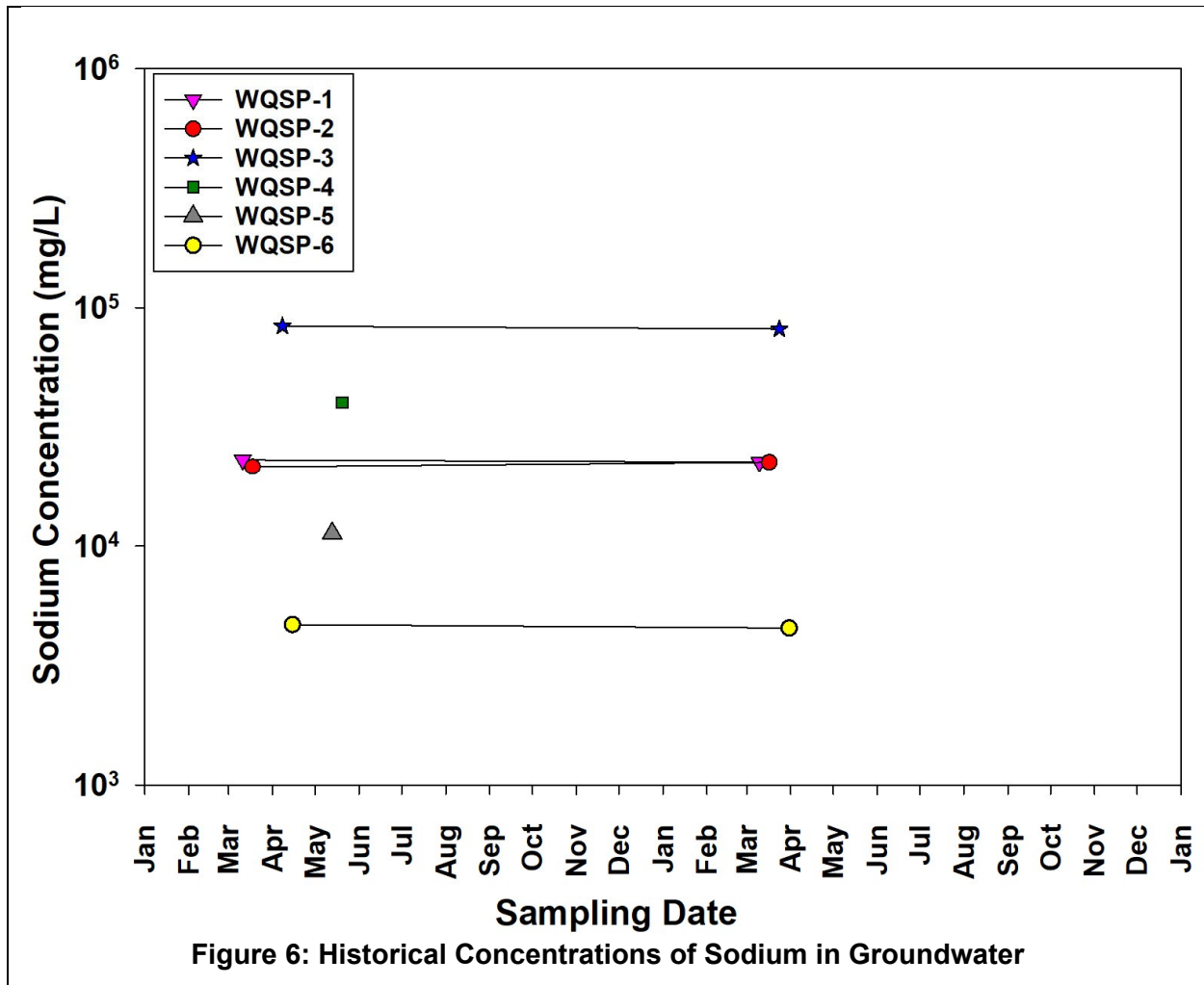
Sample Location	Chloride mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
WQSP-1	3.53E+04	<MDL	<MDL	4.50E+03
WQSP-2	3.64E+04	<MDL	<MDL	5.50E+03
WQSP-3	1.33E+05	<MDL	<MDL	7.64E+03
WQSP-4				
WQSP-5	1.61E+04	<MDL	<MDL	4.81E+03
WQSP-6	5.55E+03	<MDL	<MDL	4.61E+03



Sample Type: Groundwater

Year: 2026
Analysis Performed: Cations

Sample Location	Sodium mg/L	Magnesium mg/L	Potassium mg/L	Calcium mg/L
WQSP-1	2.26E+04	1.17E+03	6.79E+02	1.79E+03
WQSP-2	2.26E+04	1.10E+03	6.53E+02	1.60E+03
WQSP-3	8.16E+04	2.31E+03	1.74E+03	1.37E+03
WQSP-4				
WQSP-5				
WQSP-6	4.54E+03	1.63E+02	1.51E+02	7.23E+02



Sample Type: Groundwater
Year: 2026
Analysis Performed: pH

Sample Location	pH @ 23°C
WQSP-1	7.7
WQSP-2	7.7
WQSP-3	7.4
WQSP-4	
WQSP-5	
WQSP-6	8.0

Sample Type: Groundwater

Year: 2026
Analysis Performed: Conductivity

Sample Location	Conductivity mS/cm	Temperature °C
WQSP-1	89.5	21.8
WQSP-2	88.3	21.3
WQSP-3	210.0	21.5
WQSP-4		
WQSP-5		
WQSP-6	21.4	21.6

Sample Type: Groundwater
Year: 2026
Analysis Performed: Specific gravity

Sample Location	SG _{T/4°C}
WQSP-1	1.043
WQSP-2	1.047
WQSP-3	1.134
WQSP-4	
WQSP-5	1.013
WQSP-6	1.011

Sample Type: Groundwater
Year: 2026
Analysis Performed: TOC

Sample Location	TOC mg/L
WQSP-1	
WQSP-2	
WQSP-3	
WQSP-4	
WQSP-5	
WQSP-6	

Sample Type: Groundwater
Year: 2026
Analysis Performed: TDS/TSS

Sample Location	TDS mg/L	TSS mg/L
WQSP-1	66460.00	40.00
WQSP-2	66160.00	20.00
WQSP-3	220540.00	60.00
WQSP-4		
WQSP-5		
WQSP-6		

Internal Dosimetry Group and Public Outreach

***In vivo* radiobioassay measurements performed during the reporting period**

The total number of radiobioassay measurements performed during this reporting period is 5. One for WIPP personnel, none for the contract radiological personnel and those working in the laboratories located at CEMRC, and 4 for public participants.

CEMRC Lung and Whole Body APEX In-Vivo radiobioassay system annual daily QC jig efficiency calibrations for 2026-2027 period:

Successfully performed the annual daily QC jig efficiency calibrations of CEMRC Lung and Whole-Body APEX In-vivo radiobioassay measurement system during April-June 2026.

Outreach activities:

The Internal Dosimetry group continues to interact with the public to encourage the Lie Down and Be Counted (LDBC) project's lung and whole body in-vivo radiobioassay measurements at CEMRC. CEMRC also promotes awareness of environmental monitoring and research, to the public.

During this reporting period:

- 04/23/2026 – 2026 SENMC Annual STEAM Expo at Southeast New Mexico College from 3:30 - 7:30 pm. Explained CEMRC's roles and lab activities, handed out brochures to encourage participating in the LDBC program, and demonstrated simple science experiments to around 200 community members and students of all ages.
- 05/11/2026 – Provided a detailed tour (approximately 4 hours) including explanation about CEMRC in general and individual lab activities, demonstration of the lung and whole-body radiobioassay counting chamber and LDBC program, and handing out LDBC brochures to a group of 20 graduate students and instructors from the Consortium for Risk Evaluation with Stakeholder Participation (CRESP).
- 05/14/2026 – Provided a detailed tour of CEMRC including explanation about CEMRC in general and individual lab activities, and handing out LDBC pen and brochure to a public visitor from Santa Fe, New Mexico.
- 05/22/2026 – Provided a detailed whole day tour including explanation about CEMRC in general and individual lab activities, handing out LDBC brochures, and providing whole-body radiobioassay counts to a group of 3 graduate and undergraduate students and their instructor of a Health Physics class taught at New Mexico State University (NMSU).
- 06/24/2026 – Provided a detailed tour (approximately 4 hours) including explanation about CEMRC in general and individual lab activities, demonstration of the lung and

whole-body radiobioassay counting chamber and LDBC program, and handing out LDBC brochures to a group of 18 undergraduate students and 4 professors from the NuChemE Pipeline program hosted by the Chemical and Materials Engineering (CHME) Department of NMSU.

Low Background Radiation Experiment (LBRE)

In May, 2026, we coordinated with LANL's Shawn Otto and Jon Davis to perform final removal of equipment from the WIPP surface and underground laboratories that LBRE has been using since 2009. All chemicals and biological materials had been removed by Smith and student Jacob Angel during our last experimental work carried out in the summer of 2025. For this current effort, much of the hands-on work was carried out by Shawn Otto and Jon Davis, but a significant amount of discussions and paperwork needed to be done in preparation for this laboratory shut-down. The effort culminated in renting a U-Haul truck to load the equipment at WIPP on May 26th. Smith and LBRE-supported student Emma Soto drove to WIPP and helped load the equipment and supplies. The next day, the supplies and equipment were properly distributed among the NMSU Central Property office and the Biology Department.

In May and June, former graduate student Liam Goodale (currently working at the University of New Mexico Medical School), former post-doc Cung Thawng (both supported by LBRE) and G. Smith made final revisions on a manuscript that has now been submitted to *PLoS One*. One of the highlights of the paper is that it demonstrated a consistent increase in mortality in the *Aedes aegypti* mosquito when incubated underground at WIPP in the absence of natural levels of radiation at the surface (**Figure 1**).

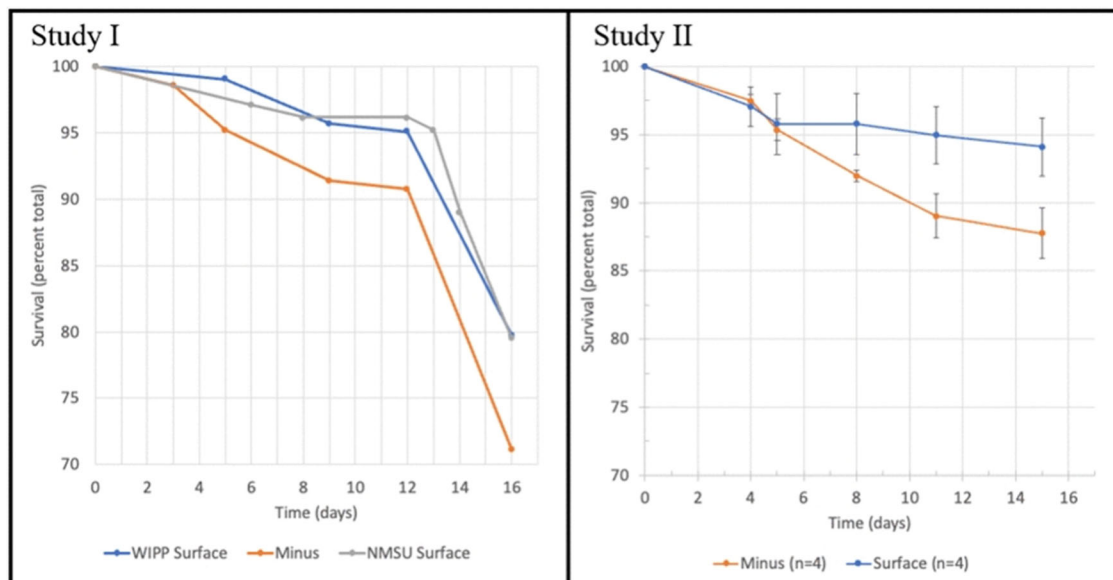


Figure 1. Two separate studies carried out at WIPP show increased mortality rate in *Aedes aegypti* when grown underground at WIPP. Study I results were not statistically significant, but when repeated with four biological replicates (Study II), the results were significant by Kaplan Meier analysis ($p=0.002$).

References

Goodale, Liam, Cung Thawng, Immo Hansen and Geoffrey Smith. 2026. Submitted to *PLoS One* June 26, 2026