



700 Landwehr Road • Northbrook, IL 60062-2310
phone (847) 564-0700 • fax (847) 564-4517

DUANE ARNOLD ENERGY CENTER
CEDAR RAPIDS, IOWA
Docket No. 50-331

RADIOLOGICAL ENVIRONMENTAL
MONITORING PROGRAM (REMP)

ANNUAL REPORT - PART II
DATA TABULATIONS AND ANALYSES

January 1 to December 31, 2025

Prepared by

Microbac Laboratories Inc. - Northbrook

Project No. 8001

Reviewed and
Approved

A handwritten signature in black ink, appearing to read "Michelle L.Z. Carpenter", with the date "05/06/2026" written to the right of the signature.

Michelle L.Z. Carpenter, Ph.D.
Laboratory Director

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
	List of Tables	iii
1.0	INTRODUCTION	iv
2.0	PROGRAM DEVIATIONS.....	v
3.0	DATA TABLES.....	vi

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1	Airborne particulates, Location D-15, analyses for gross beta.....	1-1
2	Airborne particulates, Location D-16, analyses for gross beta.....	2-1
3	Airborne Particulate samples, quarterly composites of weekly samples, analyses for gamma-emitting isotopes.....	3-1
4	Ambient gamma radiation by thermoluminescent dosimeters (TLD), quarterly exposure.....	4-1
5	Groundwater samples, analysis for iodine-131, tritium and gamma-emitting isotopes.....	5-1
6	Vegetation samples, analysis for iodine-131 and gamma-emitting isotopes.....	6-1
7	Surface water samples, analysis for iodine-131, tritium and gamma-emitting isotopes.....	7-1
8	Fish samples, analysis for gamma-emitting isotopes.....	8-1
9	River sediment samples, analysis for gamma-emitting isotopes.....	9-1

1.0 INTRODUCTION

The following constitutes a supplement to the Annual Report for the Radiological Environmental Monitoring Program conducted at the Duane Arnold Energy Center, Palo, Iowa in 2025. Results of completed analyses are presented in the attached tables.

For information regarding sampling locations, type and frequency of collection, and sample codes, please refer to Part I, Tables 5.3 - 5.5 and Figures 5.1 and 5.2.

All concentrations, except gross beta and airborne iodine, are decay corrected to the time of collection. Airborne I-131 is decayed to the midpoint of the collection period.

The required values for lower limits of detection (LLD) for gamma emitting isotopes are established through the Defueled Offsite Dose Assessment Manual (DODAM). Naturally occurring radioisotopes, such as Be-7, K-40 and Ra daughters, are frequently detected, but may not be listed for every sample medium.

2.0 PROGRAM DEVIATIONS

Sample Type	Analysis	Location(s)	Collection Date or Period	Comments
SW		D-49	January '25	River frozen.
SW		D-61	January '25	River frozen.
AP		D-16	03/13/25	Sample accidently destroyed during Collection. (AR-2510357).
SW		D-49	December '25	River frozen.
SW		D-61	December '25	River frozen.

3.0 DATA TABLES

Table 1. Airborne particulates, analyses for gross beta.

Location: D-15 (On-site, north)

Units: pCi/m³

Collection: Continuous, bi-weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-16-25	569	0.041 ± 0.003	07-17-25	568	0.027 ± 0.003
01-30-25	571	0.033 ± 0.003	07-31-25	570	0.019 ± 0.002
02-13-25	575	0.031 ± 0.003	08-14-25	571	0.032 ± 0.003
02-27-25	566	0.036 ± 0.003	08-28-25	571	0.027 ± 0.003
03-13-25	571	0.024 ± 0.002	09-11-25	570	0.031 ± 0.003
03-27-25	569	0.024 ± 0.002	09-25-25	571	0.049 ± 0.003
1st Quarter Mean ± s.d.		0.031 ± 0.007	3rd Quarter Mean ± s.d.		0.031 ± 0.010
04-10-25	572	0.029 ± 0.003	10-09-25	571	0.048 ± 0.003
04-24-25	570	0.018 ± 0.002	10-23-25	571	0.029 ± 0.003
05-08-25	572	0.019 ± 0.002	11/06/25	572	0.028 ± 0.003
05-22-25	570	0.016 ± 0.002	11/20/25	570	0.024 ± 0.002
06-05-25	570	0.020 ± 0.002	12-04-25	581	0.003 ± 0.001
06-19-25	575	0.027 ± 0.003	12-18-25	605	0.030 ± 0.003
07-03-25	570	0.023 ± 0.002	12-31-25	564	0.006 ± 0.002
2nd Quarter Mean ± s.d.		0.022 ± 0.005	4th Quarter Mean ± s.d.		0.024 ± 0.016
Cumulative Average					0.027

Table 2. Airborne particulates, analyses for gross beta.

Location: D-16 (On-site)

Units: pCi/m³

Collection: Continuous, bi-weekly exchange.

Date Collected	Volume (m ³)	Gross Beta	Date Collected	Volume (m ³)	Gross Beta
<u>Required LLD</u>		<u>0.010</u>	<u>Required LLD</u>		<u>0.010</u>
01-16-25	570	0.038 ± 0.003	07-17-25	601	0.024 ± 0.002
01-30-25	571	0.030 ± 0.003	07-31-25	605	0.016 ± 0.002
02-13-25	576	0.003 ± 0.001 ^a	08-14-25	605	0.028 ± 0.003
02-27-25	566	0.034 ± 0.003	08-28-25	606	0.023 ± 0.002
03-13-25		NS ^b	09-11-25	605	0.028 ± 0.003
03-27-25	565	0.021 ± 0.002	09-25-25	606	0.052 ± 0.003
1st Quarter Mean ± s.d.		<u>0.025 ± 0.014</u>	3rd Quarter Mean ± s.d.		<u>0.029 ± 0.012</u>
04-10-25	572	0.029 ± 0.003	10-09-25	605	0.048 ± 0.003
04-24-25	570	0.020 ± 0.002	10-23-25	573	0.030 ± 0.003
05-08-25	572	0.017 ± 0.002	11/06/25	606	0.027 ± 0.002
05-22-25	570	0.012 ± 0.002	11/20/25	604	0.024 ± 0.002
06-05-25	572	0.010 ± 0.002	12-04-25	616	0.038 ± 0.003
06-19-25	609	0.026 ± 0.002	12-18-25	605	0.027 ± 0.002
07-03-25	605	0.020 ± 0.002	12-31-25	564	0.020 ± 0.002
2nd Quarter Mean ± s.d.		<u>0.019 ± 0.007</u>	4th Quarter Mean ± s.d.		<u>0.031 ± 0.009</u>
			Cumulative Average		0.026

^a Filter very pale

^b "NS" = No data; see Table 2.0, Program Deviations.

Table 3. Airborne particulates, analyses for gamma-emitting isotopes.

Collection: Quarterly Composite

Units: pCi/m³

Location				
D-15				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	DAP- 3902	DAP- 4746	DAP-O5K0012-01	DAP-
Volume (m ³)	3421	3999	3421	4034
Be-7	0.060 ± 0.017	0.074 ± 0.012	0.073 ± 0.019	0.024 ± 0.009
Mn-54	< 0.0006	< 0.0003	< 0.0009	< 0.0005
Fe-59	< 0.0015	< 0.0005	< 0.0020	< 0.0010
Co-58	< 0.0009	< 0.0006	< 0.0011	< 0.0006
Co-60	< 0.0011	< 0.0008	< 0.0008	< 0.0004
Zn-65	< 0.0019	< 0.0008	< 0.0018	< 0.0012
Nb-95	< 0.0013	< 0.0007	< 0.0012	< 0.0008
Zr-95	< 0.0011	< 0.0009	< 0.0025	< 0.0008
Ru-103	< 0.0016	< 0.0006	< 0.0016	< 0.0006
Ru-106	< 0.0072	< 0.0056	< 0.0068	< 0.0054
Cs-134	< 0.0008	< 0.0008	< 0.0011	< 0.0006
Cs-137	< 0.0011	< 0.0009	< 0.0006	< 0.0005
Ce-141	< 0.0018	< 0.0011	< 0.0026	< 0.0009
Ce-144	< 0.0032	< 0.0031	< 0.0044	< 0.0026

Location				
D-16				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	DAP- 3903	DAP- 4747	DAP-O5K0012-02	DAP-
Volume (m ³)	2848	4070	3628	4173
Be-7	0.060 ± 0.018	0.070 ± 0.011	0.069 ± 0.019	0.040 ± 0.010
Mn-54	< 0.0010	< 0.0008	< 0.0009	< 0.0006
Fe-59	< 0.0019	< 0.0014	< 0.0023	< 0.0020
Co-58	< 0.0013	< 0.0008	< 0.0008	< 0.0004
Co-60	< 0.0013	< 0.0006	< 0.0004	< 0.0007
Zn-65	< 0.0018	< 0.0007	< 0.0021	< 0.0015
Nb-95	< 0.0014	< 0.0009	< 0.0019	< 0.0012
Zr-95	< 0.0017	< 0.0013	< 0.0019	< 0.0013
Ru-103	< 0.0011	< 0.0011	< 0.0015	< 0.0006
Ru-106	< 0.0087	< 0.0059	< 0.0049	< 0.0056
Cs-134	< 0.0012	< 0.0007	< 0.0009	< 0.0008
Cs-137	< 0.0014	< 0.0006	< 0.0005	< 0.0010
Ce-141	< 0.0021	< 0.0008	< 0.0021	< 0.0009
Ce-144	< 0.0047	< 0.0022	< 0.0040	< 0.0052

Table 4. Ambient gamma radiation as measured by thermoluminescent dosimeters (TLD).
 Quarterly collection.

Units: mR/91 days

<u>Control Location</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
D-4	15.7 ± 1.0	16.1 ± 2.3	13.4 ± 0.8	15.2 ± 2.2
<u>Within 0.5 mi. of Stack</u>				
D-15	14.7 ± 1.2	12.9 ± 1.3	15.3 ± 1.1	13.6 ± 1.1
D-17	25.1 ± 2.6	17.1 ± 1.2	28.9 ± 2.9	18.1 ± 1.1
D-18	20.1 ± 1.0	14.5 ± 1.2	19.7 ± 1.8	15.8 ± 1.1
D-20	15.2 ± 1.1	15.0 ± 1.2	16.3 ± 1.1	15.9 ± 1.1
D-22	15.1 ± 1.0	16.2 ± 1.2	16.2 ± 0.8	16.8 ± 1.1
D-29	19.3 ± 1.1	16.6 ± 1.3	21.2 ± 1.1	16.5 ± 1.3
D-31	16.7 ± 1.3	17.8 ± 1.2	18.1 ± 1.7	18.1 ± 1.1
D-83	15.6 ± 1.0	17.7 ± 1.3	17.4 ± 1.0	18.8 ± 1.2
D-85	16.0 ± 0.7	18.5 ± 1.4	18.0 ± 0.6	19.7 ± 1.4
Mean ± s.d.	17.5 ± 3.4	16.3 ± 1.8	19.0 ± 4.1	17.0 ± 1.9

Table 4. Ambient gamma radiation as measured by thermoluminescent dosimeters (TLD).
 Quarterly collection.

Units: mR/91 days

<u>Within 1.0 mi. of Stack</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
D-43	14.5 ± 1.5	13.5 ± 1.3	15.2 ± 1.1	13.9 ± 1.3
D-46	19.5 ± 1.3	19.1 ± 1.4	20.4 ± 1.1	20.8 ± 1.9
D-48	18.9 ± 1.3	15.8 ± 1.4	20.3 ± 1.2	16.8 ± 1.2
Mean ± s.d.	17.6 ± 2.7	16.1 ± 2.8	18.6 ± 3.0	17.2 ± 3.5
<u>Within 3.0 mi. of Stack</u>				
D-33	14.9 ± 1.0	12.5 ± 1.5	15.5 ± 0.7	14.3 ± 1.4
D-35	13.3 ± 0.8	10.1 ± 1.2	14.3 ± 0.7	10.9 ± 1.3
D-37	16.5 ± 1.4	16.0 ± 1.5	17.8 ± 1.3	16.3 ± 1.4
D-39	13.9 ± 0.7	14.5 ± 1.3	14.5 ± 0.6	14.3 ± 1.2
D-42	18.3 ± 2.1	14.3 ± 1.2	18.8 ± 1.9	16.1 ± 1.1
Mean ± s.d.	15.4 ± 2.0	13.5 ± 2.3	16.2 ± 2.0	14.4 ± 2.2
<u>ISFSI Fenceline</u>				
D-161	78.7 ± 3.7	74.8 ± 1.9	79.3 ± 2.5	82.7 ± 4.0
D-162	22.8 ± 1.3	21.5 ± 1.8	24.8 ± 1.2	21.3 ± 1.8
D-163	72.2 ± 4.5	72.2 ± 3.3	72.0 ± 2.9	75.7 ± 4.0
D-164	58.8 ± 2.0	59.9 ± 4.0	57.3 ± 2.7	63.5 ± 3.8
D-ISFSI-1	25.4 ± 1.9	24.0 ± 1.2	25.3 ± 1.3	26.6 ± 1.1
D-ISFSI-2	86.0 ± 3.5	82.2 ± 5.6	81.4 ± 4.0	75.7 ± 2.7
D-ISFSI-3	63.7 ± 4.4	62.0 ± 3.9	60.7 ± 4.1	58.0 ± 3.4
D-ISFSI-4	23.6 ± 1.0	21.5 ± 1.3	24.2 ± 0.6	26.4 ± 1.3
D-ISFSI-5	34.5 ± 1.7	30.0 ± 1.4	32.4 ± 1.8	33.6 ± 1.4
D-ISFSI-6	43.6 ± 1.3	39.5 ± 2.7	46.4 ± 2.8	42.4 ± 4.2
D-ISFSI-7	32.4 ± 1.2	32.5 ± 1.4	32.8 ± 1.3	34.5 ± 1.2
D-ISFSI-8	19.6 ± 1.1	19.1 ± 1.8	21.2 ± 0.8	17.5 ± 1.9
D-SOLAR-1	26.8 ± 1.7	25.1 ± 1.9	29.0 ± 1.6	25.9 ± 1.5
D-SOLAR-2	44.6 ± 0.8	39.2 ± 2.8	43.6 ± 0.9	40.1 ± 2.1
D-SOLAR-3	42.7 ± 2.6	40.4 ± 2.0	40.4 ± 2.3	42.5 ± 3.0
D-SOLAR-4	26.0 ± 1.2	21.8 ± 1.4	27.9 ± 1.5	22.7 ± 1.6
Mean ± s.d.	43.8 ± 21.6	41.6 ± 21.5	43.7 ± 20.5	43.1 ± 21.4

Table 5. Well water samples, analyses for gamma emitting isotopes and tritium.

Collection: Monthly

Units: pCi/L

Location		D-52 Drinking Water			
Lab Code	DWW- 3200	DWW- 3502	DWW- 3617	DWW- 3867	
Date Collected	01-02-25	02-03-25	03-03-25	04-01-25	
H-3	< 182	< 173	< 176	< 182	
Mn-54	< 3.1	< 5.1	< 2.8	< 4.4	
Fe-59	< 4.4	< 9.3	< 3.2	< 6.4	
Co-58	< 2.6	< 5.2	< 2.2	< 2.8	
Co-60	< 3.1	< 6.4	< 3.3	< 4.8	
Zn-65	< 5.2	< 6.8	< 3.6	< 7.8	
Nb-95	< 4.5	< 3.7	< 3.4	< 3.9	
Zr-95	< 3.4	< 8.6	< 3.8	< 5.1	
I-131	< 5.0	< 8.5	< 3.6	< 7.8	
Cs-134	< 3.4	< 5.5	< 2.9	< 4.6	
Cs-137	< 4.0	< 7.2	< 3.4	< 5.1	
Ba-140	< 11.9	< 10.5	< 10.9	< 17.3	
La-140	< 2.2	< 4.6	< 2.8	< 2.4	
Lab Code	DWW- 4188	DWW- 4403	DWW- 4646	DWW- 4927	
Date Collected	05-05-25	06-02-25	07-01-25	08-04-25	
H-3	< 182	< 181	< 175	< 167	
Mn-54	< 1.3	< 2.6	< 2.8	< 3.2	
Fe-59	< 3.0	< 7.3	< 9.1	< 4.4	
Co-58	< 3.9	< 2.3	< 3.4	< 3.3	
Co-60	< 2.1	< 4.5	< 5.9	< 3.3	
Zn-65	< 3.2	< 3.6	< 5.2	< 11.1	
Nb-95	< 2.9	< 5.0	< 6.8	< 4.2	
Zr-95	< 5.5	< 3.5	< 8.6	< 3.9	
I-131	< 6.5	< 5.7	< 12.5	< 5.8	
Cs-134	< 3.9	< 4.5	< 7.0	< 5.1	
Cs-137	< 3.5	< 6.8	< 6.1	< 4.1	
Ba-140	< 20.2	< 16.7	< 13.4	< 29.8	
La-140	< 2.8	< 2.0	< 5.1	< 10.6	

Table 5. Well water samples, analyses for gamma emitting isotopes and tritium.

Collection: Monthly

Units: pCi/L

Location	D-52 Drinking Water			
Lab Code	DWW- 5129	DWW-O5J0010-01	DWW-O5J0026-01	DWW-O5L0020-01
Date Collected	09-02-25	10-01-25	11-03-25	12-01-25
H-3	< 173	< 173	< 171	< 173
Mn-54	< 2.4	< 2.6	< 2.1	< 3.2
Fe-59	< 5.0	< 3.2	< 6.3	< 5.9
Co-58	< 2.5	< 1.8	< 3.0	< 3.1
Co-60	< 2.7	< 2.1	< 4.1	< 4.0
Zn-65	< 2.9	< 5.6	< 4.4	< 3.8
Nb-95	< 2.4	< 2.5	< 3.6	< 3.0
Zr-95	< 3.4	< 2.8	< 5.7	< 4.0
I-131	< 5.1	< 7.0	< 11.4	< 7.0
Cs-134	< 2.7	< 2.3	< 3.0	< 3.4
Cs-137	< 2.5	< 2.1	< 3.7	< 4.5
Ba-140	< 13.9	< 16.7	< 20.6	< 11.4
La-140	< 2.1	< 2.0	< 2.4	< 4.8

Table 5. Well water samples, analyses for gamma emitting isotopes and tritium.

Collection: Monthly

Units: pCi/L

D-53 Treated Municipal Water, Drinking Water				
Location				
Lab Code	DWW- 3201	DWW- 3503	DWW- 3619	DWW- 3868
Date Collected	01-02-25	02-03-25	03-03-25	04-01-25
H-3	< 182	< 173	< 176	< 182
Mn-54	< 6.2	< 0.8	< 2.6	< 3.1
Fe-59	< 8.7	< 2.4	< 6.6	< 5.0
Co-58	< 3.9	< 1.5	< 4.3	< 6.7
Co-60	< 4.5	< 1.6	< 3.4	< 4.3
Zn-65	< 7.1	< 1.1	< 5.2	< 5.3
Nb-95	< 6.6	< 1.7	< 5.2	< 2.9
Zr-95	< 9.9	< 2.3	< 8.1	< 8.4
I-131	< 6.2	< 2.4	< 6.0	< 11.4
Cs-134	< 6.4	< 2.0	< 4.2	< 6.7
Cs-137	< 4.0	< 1.5	< 4.6	< 5.7
Ba-140	< 27.2	< 9.1	< 18.9	< 24.6
La-140	< 6.6	< 2.2	< 4.8	< 3.3
Lab Code	DWW- 4189	DWW- 4404	DWW- 4647	DWW- 4928
Date Collected	05-05-25	06-02-25	07-01-25	08-04-25
H-3	< 182	< 182	< 175	< 167
Mn-54	< 4.1	< 2.1	< 1.9	< 1.8
Fe-59	< 6.6	< 3.7	< 4.5	< 3.6
Co-58	< 3.8	< 3.7	< 4.4	< 1.9
Co-60	< 3.8	< 2.8	< 2.6	< 1.7
Zn-65	< 8.2	< 6.4	< 4.7	< 4.6
Nb-95	< 5.1	< 2.5	< 4.1	< 1.8
Zr-95	< 9.7	< 5.4	< 6.8	< 3.9
I-131	< 6.5	< 4.0	< 8.4	< 2.9
Cs-134	< 5.6	< 3.5	< 4.8	< 2.3
Cs-137	< 5.7	< 3.8	< 5.1	< 2.8
Ba-140	< 21.1	< 14.5	< 20.2	< 10.2
La-140	< 4.3	< 2.5	< 4.5	< 1.4

Table 5. Well water samples, analyses for gamma emitting isotopes and tritium.

Collection: Monthly

Units: pCi/L

Location	D-53 Treated Municipal Water, Drinking Water			
Lab Code	DWW- 5130	DWW-O5J0010-02	DWW-O5J0026-02	DWW-O5L0020-02
Date Collected	09-02-25	10-01-25	11-03-25	12-01-25
H-3	< 173	< 173	< 171	< 177
Mn-54	< 2.0	< 1.3	< 2.3	< 1.8
Fe-59	< 6.0	< 5.4	< 3.3	< 4.9
Co-58	< 2.6	< 2.0	< 2.3	< 1.1
Co-60	< 2.7	< 2.6	< 2.2	< 3.0
Zn-65	< 3.1	< 2.7	< 2.8	< 2.3
Nb-95	< 1.8	< 2.0	< 2.4	< 2.9
Zr-95	< 3.0	< 3.9	< 4.6	< 5.4
I-131	< 8.1	< 6.3	< 9.7	< 6.4
Cs-134	< 3.0	< 2.5	< 2.5	< 3.1
Cs-137	< 2.9	< 2.6	< 1.7	< 3.4
Ba-140	< 14.6	< 10.4	< 11.3	< 14.3
La-140	< 3.0	< 2.4	< 3.8	< 1.8

Table 6. Vegetation, analyses for iodine-131 and other gamma-emitting isotopes.

Collection: Annually

Units: pCi/g wet

Location	D-015	D-015	D-015	
Lab Code	DVE- 5266	DVE- 5267	DVE- 5268	
Date Collected	09-15-25	09-15-25	09-15-25	
Sample Type	Forage	Leafy	Grain	
K-40	5.96 ± 0.85	7.30 ± 0.66	2.37 ± 0.29	
Mn-54	< 0.026	< 0.021	< 0.011	
Fe-59	< 0.075	< 0.034	< 0.019	
Co-58	< 0.019	< 0.023	< 0.008	
Co-60	< 0.035	< 0.022	< 0.012	
Zn-65	< 0.033	< 0.028	< 0.019	
Nb-95	< 0.016	< 0.019	< 0.007	
Zr-95	< 0.071	< 0.031	< 0.014	
Ru-103	< 0.040	< 0.023	< 0.011	
Ru-106	< 0.220	< 0.229	< 0.124	
I-131	< 0.058	< 0.059	< 0.020	
Cs-134	< 0.032	< 0.021	< 0.012	
Cs-137	< 0.034	< 0.025	< 0.010	
Ce-141	< 0.040	< 0.043	< 0.024	
Ce-144	< 0.214	< 0.190	< 0.045	

Location	D-016	D-016	D-016	D-016
Lab Code	DVE- 5263	DVE- 5264	DVE- 5265	DVE-O5J0084-01
Date Collected	09-15-25	09-15-25	09-15-25	10-07-25
Sample Type	Forage	Grain	Leafy	Forage
K-40	8.70 ± 0.36	3.50 ± 0.48	3.76 ± 0.62	3.49 ± 0.45
Mn-54	< 0.015	< 0.013	< 0.024	< 0.013
Fe-59	< 0.033	< 0.037	< 0.033	< 0.040
Co-58	< 0.011	< 0.012	< 0.025	< 0.015
Co-60	< 0.032	< 0.010	< 0.026	< 0.022
Zn-65	< 0.036	< 0.018	< 0.055	< 0.042
Nb-95	< 0.017	< 0.020	< 0.043	< 0.026
Zr-95	< 0.027	< 0.034	< 0.050	< 0.030
Ru-103	< 0.014	< 0.012	< 0.031	< 0.017
Ru-106	< 0.101	< 0.090	< 0.275	< 0.164
I-131	< 0.033	< 0.040	< 0.053	< 0.042
Cs-134	< 0.014	< 0.017	< 0.031	< 0.017
Cs-137	< 0.015	< 0.021	< 0.038	< 0.022
Ce-141	< 0.025	< 0.030	< 0.070	< 0.036
Ce-144	< 0.098	< 0.114	< 0.233	< 0.097

Table 7. Surface water samples, analyses for tritium and gamma-emitting isotopes.

Collection: Monthly
 Units: pCi/L
 Location: D-49

Lab Code	ND ^a	DSW- 3611	DSW- 3759	DSW- 4001	DSW- 4282	DSW- 4519
Date Collected	01-02-25	02-26-25	03-18-25	04-15-25	05-19-25	06-18-25
H-3	-	< 176	< 177	< 173	< 181	< 178
Mn-54	-	< 1.8	< 2.1	< 2.8	< 4.0	< 5.1
Fe-59	-	< 5.5	< 6.6	< 5.4	< 8.0	< 5.1
Co-58	-	< 1.9	< 3.9	< 2.3	< 2.4	< 2.8
Co-60	-	< 3.5	< 3.7	< 4.3	< 4.0	< 4.5
Zn-65	-	< 4.9	< 3.2	< 2.3	< 8.3	< 5.6
Nb-95	-	< 2.5	< 4.1	< 3.5	< 4.3	< 3.4
Zr-95	-	< 3.5	< 5.8	< 4.0	< 6.0	< 7.8
I-131	-	< 4.9	< 6.5	< 12.1	< 6.1	< 9.0
Cs-134	-	< 2.9	< 4.1	< 3.6	< 4.5	< 4.9
Cs-137	-	< 3.8	< 5.0	< 5.1	< 5.8	< 7.8
Ba-140	-	< 13.9	< 15.2	< 20.3	< 21.0	< 17.8
La-140	-	< 2.0	< 1.8	< 2.6	< 2.4	< 3.4
Lab Code	DSW- 4857	DSW- 5052	DSW-05J0004-01	DSW-05J0140-01	DSW-05J0080-01	ND ^a
Date Collected	07-21-25	08-18-25	09-22-25	10-20-25	11-18-25	12-18-25
H-3	< 186	176 ± 92	< 173	< 173	< 171	-
Mn-54	< 2.6	< 2.1	< 1.4	< 3.7	< 2.2	-
Fe-59	< 2.6	< 4.8	< 4.7	< 7.0	< 4.3	-
Co-58	< 3.9	< 2.4	< 2.1	< 2.3	< 2.9	-
Co-60	< 2.3	< 3.5	< 3.0	< 4.8	< 3.1	-
Zn-65	< 5.9	< 3.6	< 4.1	< 5.5	< 4.1	-
Nb-95	< 2.4	< 1.7	< 2.1	< 2.8	< 3.7	-
Zr-95	< 4.8	< 4.6	< 4.6	< 6.3	< 4.8	-
I-131	< 8.9	< 4.2	< 11.9	< 9.1	< 13.2	-
Cs-134	< 3.1	< 2.7	< 2.4	< 3.9	< 2.8	-
Cs-137	< 3.3	< 3.6	< 3.3	< 4.9	< 3.3	-
Ba-140	< 15.0	< 8.2	< 18.5	< 15.6	< 22.6	-
La-140	< 4.0	< 1.7	< 4.7	< 2.0	< 2.7	-

^a "ND" = No data; see Table 2.0, Program Deviations.

Table 7. Surface water samples, analyses for tritium and gamma-emitting isotopes.

Collection: Monthly
 Units: pCi/L
 Location: D-61

Lab Code	ND ^a	DSW- 3612	DSW- 3760	DSW- 4002	DSW- 4284	DSW- 4520
Date Collected	01-02-25	02-26-25	03-18-25	04-15-25	05-19-25	06-18-25
H-3	-	< 176	< 177	< 173	< 181	< 178
Mn-54	-	< 4.3	< 6.9	< 2.9	< 2.8	< 1.6
Fe-59	-	< 5.7	< 11.0	< 5.8	< 3.5	< 3.6
Co-58	-	< 4.3	< 4.1	< 3.2	< 2.9	< 3.6
Co-60	-	< 3.3	< 4.2	< 3.6	< 3.5	< 2.8
Zn-65	-	< 5.7	< 5.6	< 5.0	< 3.7	< 3.9
Nb-95	-	< 4.0	< 4.9	< 3.9	< 2.7	< 3.5
Zr-95	-	< 7.4	< 13.2	< 5.5	< 5.2	< 6.9
I-131	-	< 10.3	< 10.8	< 10.9	< 5.8	< 6.7
Cs-134	-	< 4.9	< 7.5	< 3.2	< 4.6	< 5.2
Cs-137	-	< 6.0	< 7.0	< 4.5	< 2.8	< 5.1
Ba-140	-	< 26.8	< 16.7	< 26.5	< 15.6	< 22.6
La-140	-	< 5.1	< 6.9	< 3.7	< 3.1	< 3.1
Lab Code	DSW- 4858	DSW- 5053	DSW-05J0004-02	DSW-05J0140-02	DSW-05J0080-02	ND ^a
Date Collected	07-21-25	08-18-25	09-22-25	10-20-25	11-18-25	12-18-25
H-3	< 186	< 172	< 173	< 173	< 171	-
Mn-54	< 2.5	< 2.2	< 2.5	< 2.0	< 2.5	-
Fe-59	< 4.0	< 3.4	< 3.3	< 4.5	< 2.6	-
Co-58	< 3.3	< 2.0	< 2.9	< 3.5	< 1.9	-
Co-60	< 1.6	< 2.0	< 1.9	< 3.0	< 2.2	-
Zn-65	< 3.7	< 4.2	< 3.0	< 2.1	< 3.1	-
Nb-95	< 2.7	< 2.4	< 2.7	< 2.9	< 2.4	-
Zr-95	< 6.2	< 2.0	< 4.7	< 6.2	< 4.9	-
I-131	< 4.9	< 3.4	< 10.9	< 7.8	< 14.7	-
Cs-134	< 3.3	< 2.2	< 2.7	< 3.7	< 2.3	-
Cs-137	< 3.4	< 1.8	< 2.7	< 3.4	< 2.5	-
Ba-140	< 16.4	< 8.1	< 17.0	< 15.9	< 17.3	-
La-140	< 3.5	< 1.7	< 5.3	< 2.2	< 3.9	-

a "ND" = No data; see Table 2.0, Program Deviations.

Table 8. Fish, analyses of edible portion for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/g wet

Upstream, D-49				
Location	Upstream, D-49			
Lab Code	DF- 4003	DF- 4005	DF-O5J0151-01	DF-O5J0151-02
Date Collected	04-16-25	04-16-25	10-20-25	10-20-25
Sample Type	Channel Catfish	Black Crappie	Channel Catfish	Walleye
K-40	4.34 ± 0.42	3.05 ± 0.27	3.87 ± 0.35	4.51 ± 0.38
Mn-54	< 0.011	< 0.013	< 0.015	< 0.013
Fe-59	< 0.062	< 0.035	< 0.060	< 0.009
Co-58	< 0.026	< 0.013	< 0.022	< 0.015
Co-60	< 0.021	< 0.010	< 0.015	< 0.009
Zn-65	< 0.040	< 0.029	< 0.021	< 0.040
Nb-95	< 0.043	< 0.020	< 0.029	< 0.040
Zr-95	< 0.054	< 0.023	< 0.030	< 0.050
Ru-103	< 0.022	< 0.017	< 0.029	< 0.053
Ru-106	< 0.200	< 0.067	< 0.132	< 0.119
Cs-134	< 0.019	< 0.010	< 0.014	< 0.012
Cs-137	< 0.024	< 0.009	< 0.016	< 0.014
Ce-141	< 0.076	< 0.035	< 0.079	< 0.058
Ce-144	< 0.104	< 0.077	< 0.096	< 0.078

Downstream, D-61				
Location	Downstream, D-61			
Lab Code	DF- 4006	DF- 4007	DF-O5J0151-03	DF-O5J0151-04
Date Collected	04-16-25	04-16-25	10-20-25	10-20-25
Sample Type	Channel Catfish	Largemouth Bass	Channel Catfish	Smallmouth Bass
K-40	3.76 ± 0.43	3.43 ± 0.41	4.07 ± 0.42	4.14 ± 0.25
Mn-54	< 0.017	< 0.010	< 0.011	< 0.006
Fe-59	< 0.037	< 0.045	< 0.092	< 0.029
Co-58	< 0.013	< 0.022	< 0.016	< 0.010
Co-60	< 0.022	< 0.016	< 0.016	< 0.006
Zn-65	< 0.031	< 0.016	< 0.038	< 0.014
Nb-95	< 0.030	< 0.024	< 0.051	< 0.020
Zr-95	< 0.050	< 0.044	< 0.055	< 0.018
Ru-103	< 0.023	< 0.030	< 0.037	< 0.017
Ru-106	< 0.094	< 0.137	< 0.131	< 0.052
Cs-134	< 0.016	< 0.015	< 0.014	< 0.008
Cs-137	< 0.023	< 0.013	< 0.015	< 0.006
Ce-141	< 0.070	< 0.037	< 0.096	< 0.033
Ce-144	< 0.121	< 0.071	< 0.087	< 0.041

Table 9. River sediment, analysis for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/g dry

Location	D-49 (Control)	
Lab Code	DBS- 4411	DBS-O5J0201-01
Date Collected	06-02-25	10-27-25
K-40	8.88 ± 0.46	8.79 ± 0.34
Mn-54	< 0.014	< 0.011
Fe-59	< 0.067	< 0.050
Co-58	< 0.015	< 0.015
Co-60	< 0.017	< 0.009
Zn-65	< 0.037	< 0.032
Nb-95	< 0.031	< 0.035
Zr-95	< 0.049	< 0.021
Ru-103	< 0.025	< 0.013
Ru-106	< 0.166	< 0.076
Cs-134	< 0.017	< 0.007
Cs-137	< 0.018	< 0.010
Ce-141	< 0.075	< 0.051
Ce-144	< 0.132	< 0.072

Location	D-51 (Discharge)	
Lab Code	DBS- 4413	DBS-O5J0201-02
Date Collected	06-02-25	10-27-25
K-40	12.78 ± 0.66	10.74 ± 0.33
Mn-54	< 0.025	< 0.013
Fe-59	< 0.082	< 0.027
Co-58	< 0.025	< 0.008
Co-60	< 0.026	< 0.006
Zn-65	< 0.040	< 0.026
Nb-95	< 0.044	< 0.031
Zr-95	< 0.052	< 0.039
Ru-103	< 0.036	< 0.017
Ru-106	< 0.150	< 0.071
Cs-134	< 0.022	< 0.010
Cs-137	< 0.023	0.018 ± 0.008
Ce-141	< 0.082	< 0.059
Ce-144	< 0.168	< 0.072