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RA26-014 10 CFR 50 Appendix I

May 7, 2026

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

LaSalle County Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373, 50-374, and 72-70

Subject: 2025 Annual Radiological Environmental Operating Report

Enclosed is the Constellation Energy Generation, LLC, 2025 Annual Radiological Environmental Operating Report for LaSalle County Station, submitted in accordance with Technical Specification 5.6.2, "Annual Radiological Environmental Operating Report." The enclosed report contains the results of groundwater monitoring conducted in accordance with Constellation's Radiological Groundwater Protection Program, which is a voluntary program implemented in 2006. This information is being reported in accordance with a nuclear industry initiative.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Ms. Laura Ekern, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

John Van Fleet
Site Vice President
LaSalle County Station

Enclosures: LaSalle County Station Units 1 and 2 2025 Annual Radiological Environmental Operating Report

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

# 2025 Annual Radiological Environmental Operating Report

Docket Number: 50-373/50-374

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## 1.0 LIST OF ACRONYMS AND DEFINITIONS

1. Airborne Activity Sampling: Continuous sampling of air through the collection of particulates and radionuclides on filter media.

2. ARERR: Annual Radioactive Effluent Release Report

3. AREOR: Annual Radiological Environmental Operating Report

4. BWR: Boiling Water Reactor

5. Composite Sample: A series of single collected portions (aliquots) analyzed as one sample. The aliquots making up the sample are collected at time intervals that are very short compared to the composite period.

6. Control: A sampling station in a location not likely to be affected by plant effluents due to its distance and/or direction from the station.

7. Curie (Ci): A measure of radioactivity; equal to $3.7 \times 10^{10}$ disintegrations per second, or $2.22 \times 10^{12}$ disintegrations per minute.

8. Direct Radiation Monitoring: The measurement of radiation dose at various distances from the plant is assessed using Thermoluminescent Dosimeters (TLD), Optically Stimulated Luminescence Dosimeters (OSLD) and pressurized ionization chambers.

9. EPA: Environmental Protection Agency

10. GPI: Groundwater Protection Initiative

11. Grab Sample: A single discrete sample drawn at one point in time.

12. Indicator: A sampling location that is likely to be affected by plant effluents due to its proximity and/or direction from the plant.

13. Ingestion Pathway: The ingestion pathway includes milk, fish, drinking water and garden produce. Also sampled (under special circumstances) are other media such as vegetation or animal products when additional information about particular radionuclides is needed.

14. ISFSI: Independent Spent Fuel Storage Installation

15. Lower Limit of Detection (LLD): An *a priori* measure of the detection capability of a radiochemistry measurement based on instrument setup, calibration, background, decay time, and sample volume. An LLD is expressed as an activity concentration. The MDA is used for reporting results. LLD are specified by a regulator, such as the NRC and are typically listed in the ODCM.

16. MDA: Minimum Detectable Activity. For radiochemistry instruments, the MDA is the *a posteriori* minimum concentration that a counting system detects. The smallest concentration or activity of radioactive material in a sample that will yield a net count above instrument background and that is detected with 95% probability, with only five % probability of falsely concluding that a blank observation represents a true signal.

17. MDC: Minimum Detectable Concentration. Essentially synonymous with MDA for the purposes of radiological monitoring.

18. Mean: The sum of all of the values in a distribution divided by the number of values in the distribution, synonymous with average.

19. Microcurie: $3.7 \times 10^4$ disintegrations per second, or $2.22 \times 10^6$ disintegrations per minute.

20. N/A: Not Applicable

21. NEI: Nuclear Energy Institute

22. NIST: National Institute of Standards and Technology.

23. NRC: Nuclear Regulatory Commission

24. ODCM: Offsite Dose Calculation Manual

25. OSLD: Optically Stimulated Luminescence Dosimeter

26. pCi/L: picocuries / Liter

27. PWR: Pressurized Water Reactor

28. REMP: Radiological Environmental Monitoring Program

29. TLD: Thermoluminescent Dosimeter

## 2.0 EXECUTIVE SUMMARY

LaSalle County Station Units 1 and 2 Radiological Environmental Monitoring Program (REMP) was established prior to the station becoming operational to provide information on background radiation present in the area. The goal of LaSalle Station REMP is to evaluate the impact of the station on the environment. Environmental samples from different media are monitored as part of the program in accordance with specifications detailed in the Offsite Dose Calculation Manual (ODCM). The program compares data from Indicator locations near the plant, to Control locations farther away from the site to assess operation impacts.

The Annual Radiological Environmental Operating Report (AREOR) provides data obtained through analyses of environmental samples collected at LaSalle Station for the reporting period of January 1st through December 31st, 2025. During that time period 1,272 analyses were performed on 1,189 samples. In assessing all the data gathered for this report and comparing these results with preoperational data and/or 10-year average values, it was concluded that the operation of LaSalle Station had no adverse radiological impact on the environment.

## 2.1 Summary of Conclusions:

In 2025, the LaSalle Generating Station released to the environment through the radioactive effluent gaseous pathways 2,340 curies of noble gas, fission, and activation products and 52 curies of tritium. There were no liquid effluent releases beyond the site in 2025. The resultant calculated doses due to gaseous radioactive effluents from LaSalle Station were well below regulatory limits of 40 CFR 190 and summarized below.

| | Whole Body | Thyroid | Max Other Organ |
|---|---|---|---|
| Gaseous[1,2] | 2.36E-02 | 3.85E-02 | 4.73E-02 |
| Liquid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sky Shine & ISFSI | 7.26E-01 | 7.26E-01 | 7.26E-01 |
| Total Site Dose | 7.49E-01 | 7.64E-01 | 7.73E-01 |
| **Total w/Other Nearby Facility[3]** | **7.49E-01** | **7.64E-01** | **7.73E-01** |
| **Limit** | **25 mrem** | **75 mrem** | **25 mrem** |
| **% of Limit** | **3.00E+00** | **1.02E+00** | **3.09E+00** |

[1] Gaseous dose values include organ dose from Noble Gas, Iodine, Tritium, Carbon-14, and particulates
[2] Individual groups with the highest dose are used: Total Body: all age groups for Noble Gas and the Infant and Child for particulates, Individual age group sum is lower.
[3] Other fuel cycle sources within 5 miles of the site do not exist.

## 3.0 INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) provides data on measurable levels of radiation and radioactive materials in the environment. This program also evaluates the relationship between quantities of radioactive materials released from the plant and resultant doses to individuals from principal pathways of exposure. In this capacity, REMP provides a check on the effluent release program and dispersion modeling to ensure that concentrations in the environment due to radioactive effluents conform to the "As Low as Is Reasonably Achievable" (ALARA) design objectives of 10 CFR 50, Appendix I [1], and implements the requirements of Section IV.B.2 and IV.B.3 of Appendix I. REMP is designed to conform to the Nuclear Regulatory Commission (NRC) Regulatory Guide 4.1 [2], NUREG 1301/1302 [3] [4], and the 1979 NRC Branch Technical Position [5].

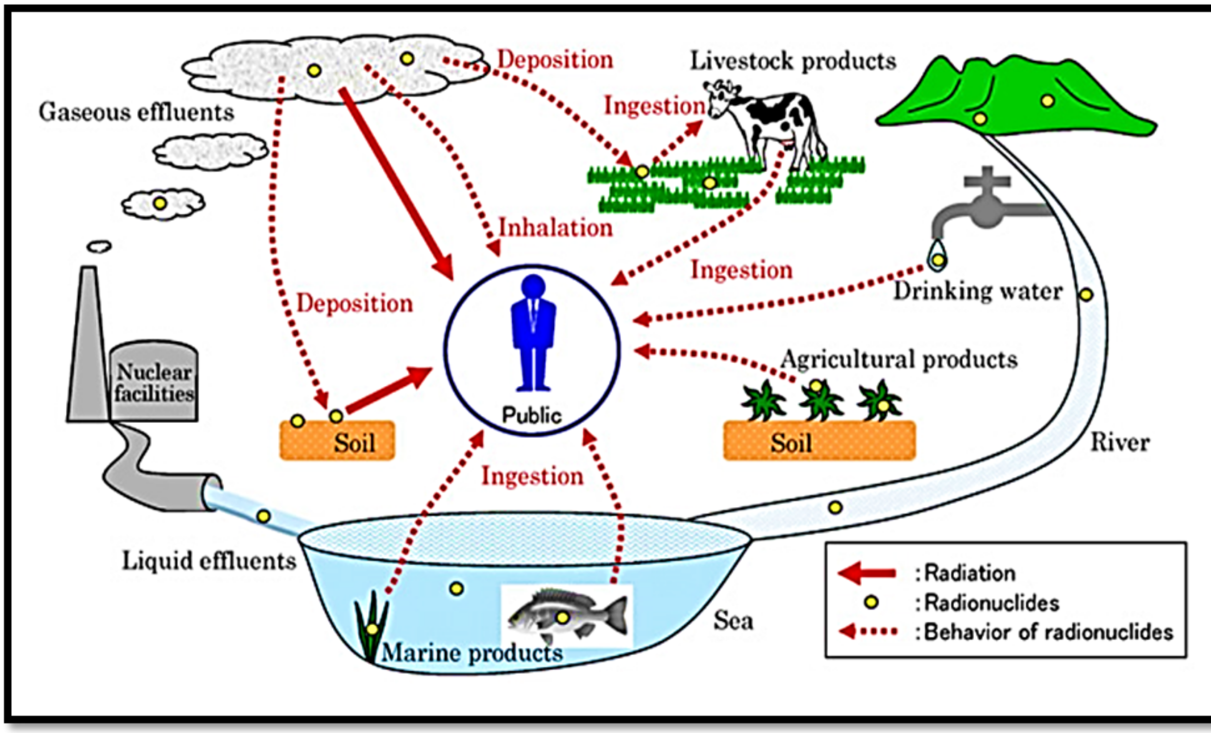


Figure 1, Potential exposure pathways to Members of the Public due to Plant Operations [6]

Quality assurance aspects of the sampling program and TLD/OSLD data collection are conducted in accordance with Regulatory Guides 4.15 [7] and 4.13 [8]. REMP also adheres to the requirements of Illinois, LaSalle Station Technical Specifications, and Offsite Dose Calculation Manual (ODCM). These governing documents dictate the environmental sampling, sample analysis protocols, data reporting and quality assurance requirements for the environmental monitoring program.

The Annual Radiological Environmental Operating Report provides summaries of the environmental data from exposure pathways, interpretations of the data, and analyses of trends of the results. Routinely monitored pathways include ingestion, inhalation, and direct radiation. Routes of exposure are based on site specific information such as meteorology, receptor locations, and water usage around the plant.

## 4.0 SITE DESCRIPTION AND SAMPLE LOCATIONS

LaSalle County Station Units 1 and 2 consists of two boiling water reactors, each rated for 3,546 MWt. Both units are owned and operated by Constellation Energy and are located in LaSalle County, Illinois. Unit 1 went critical on 16 March 1982. Unit 2 went critical on 02 December 1983. The site is located in northern Illinois, approximately 75 miles southwest of Chicago, Illinois.

LaSalle Station sampling media are selected based on site specific information such as meteorology, receptor locations, and water usage around the plant. Sampling and analysis frequencies are documented in the Offsite Dose Calculation Manual and site procedures. Required sampling, analysis frequencies and location of sample collected are captured in the following tables and figures:

- Table 1: Radiological Environmental Sampling Program – Exposure Pathway – Direct Radiation
- Table 2, Radiological Environmental Sampling Program – Exposure Pathway - Airborne
- Table 3, Radiological Environmental Sampling Program – Exposure Pathway - Waterborne
- Table 4, Radiological Environmental Sampling Program – Exposure Pathway - Ingestion
- Table 5, REMP Sampling Locations – Direct Radiation
- Figure 2, Inner Ring OSLD Locations of the LaSalle County Station, 2025
- Figure 3, Outer Ring OSLD Locations and Fixed Air Sampling Locations of the LaSalle County Station, 2025
- Figure 4, Ingestion and Waterborne Exposure Pathway Sample Locations of the LaSalle County Station, 2025

## 5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM REQUIREMENTS

Table 1: Radiological Environmental Sampling Program – Exposure Pathway – Direct Radiation

| Requirement | Sample Location Description, Distance, and Direction | Sampling Collection/ Frequency | Type and Frequency of Analyses |
|---|---|---|---|
| **Direct Radiation**<br>42 OSLD monitoring stations with two dosimeters placed as follows:<br>An inner ring consisting of 16 locations, near and within the site perimeter representing fence post doses.<br>An outer ring of stations consisting of 17 locations, extending to approximately 5 miles from the site designated to measure possible exposure to nearby populations.<br>An “other” set consisting of 8 locations<br>A control/special interest location | See Table 5 | Quarterly | Gamma dose Quarterly |

Table 2, Radiological Environmental Sampling Program – Exposure Pathway - Airborne

| Requirement | Sample Location Description, Distance, and Direction | Sampling Collection/ Frequency | Type and Frequency of Analyses |
|---|---|---|---|
| **<u>Airborne Radioiodine and Particulates</u>**<br>Samples from 9 locations:<br><br>Four locations close to the site boundary in different sectors of the highest calculated annual average ground level D/Q.<br><br>Four samples from the vicinity of a community having the highest calculated annual average D/Q.<br><br>One samples from Control Locations between 6.2 – 18.6 miles away in the least predominant wind direction. | L-01 Nearsite 1, 1.5 miles NNW<br>L-03 Onsite 3, 1.0 miles ENE<br>L-04 Rte. 170, 3.2 miles E<br>L-05 Onsite 5, 0.3 miles ESE<br>L-06 Nearsite 6, 0.4 miles W<br>L-07 Seneca, 5.2 miles NNE<br>L-08 Marseilles, 6.0 miles NNW<br>L-10 Streator (C), 13.5 miles SW<br>L-11A Ransom, 6.0 miles S | One-week of continuous air sampling through glass fiber filter paper<br>Weekly composite of continuous air sampling through charcoal filter | Particulate sampler: Gross Beta analysis following weekly filter change and Gamma isotopic quarterly on composite filters by location on near field and control samples.<br><br>Radioiodine canister: I-131 analysis weekly on near field and control samples. |

Table 3, Radiological Environmental Sampling Program – Exposure Pathway - Waterborne

| Requirement | Sample Location Description, Distance, and Direction | Sampling Collection/ Frequency | Type and Frequency of Analyses |
|---|---|---|---|
| Surface Water<br>One sample upstream (control) and one sample downstream (indicator) | L-21 Illinois River at Seneca, Upstream (C), 4.0 miles NE<br>L-40 Illinois River, Downstream (I), 5.2 miles NNW | Monthly and quarterly composite from weekly grab samples | Gamma isotopic Monthly<br>Gross beta Monthly<br>H-3 Quarterly |
| Groundwater/Well Water<br>Two control location upgradient from the plant and Two indicator locations down gradient from the plant, only if likely to be affected. | L-27 LSCS Onsite Well (I), 0 miles at station<br>L-28-W4 Marseilles Well (C), 7.0 miles NNW<br>L-28-W5 Marseilles Well (C), 6.7 miles NNW<br>L-28-W6 Marseilles Well (I), 4.1 miles N | Quarterly grab samples | Gamma isotopic Quarterly<br>H-3 Quarterly |
| Sediment from Shoreline<br>One sample upstream (control) and two of samples downstream (indicator) | L-21 Illinois River at Seneca, Upstream (C), 4.0 miles NE<br>L-40 Illinois River, Downstream (I), 5.2 miles NNW<br>L-41 Illinois River, Downstream (I), 4.6 miles N | Semi-annual grab samples | Gamma isotopic Semiannually |

Table 4, Radiological Environmental Sampling Program – Exposure Pathway - Ingestion

| Requirement | Sample Location Description, Distance, and Direction | Sampling Collection/ Frequency | Type and Frequency of Analyses |
|---|---|---|---|
| Fish<br>One sample upstream (control) and two samples downstream (indicator) of each commercially and recreationally important species in vicinity of site discharge. | L-34 LaSalle Cooling Lake (I), 2.0 miles E<br>L-35 Marseilles Pool of Illinois River, Downstream (I), 6.5 miles NNW<br>L-36 Illinois River, Upstream of Discharge (C), 4.3 miles NE | Semi-annual samples collected via electroshocking or other techniques | Gamma isotopic analysis on edible portions |
| Food products/Vegetation<br>Five samples of food products from any area that is irrigated by water in which liquid plant wastes have been discharged.<br><br>Three broad leaf vegetation grown nearest each of two different offsite locations of highest predicated annual average ground level D/Q if milk sampling is not performed and one sample collected from the control location. | Quadrant 1 281 E. Lincoln Rd, Seneca, IL, 5.75 miles NE<br>Quadrant 2 106 W. Thomas, Ransom, IL, 6.0 miles S<br>Quadrant 3 2260 N 21st Road, Marseilles IL, 3.2 miles WSW<br>Quadrant 4 2507 N. 2553 Rd., Marseilles IL, 4.3 miles NNW<br>Control Biros Farm, 14.2 miles E<br><br>L-CONTROL, 9.5 miles ENE<br>L-ESE 1 ,1.5 miles ESE<br>L-ESE 2 ,6.0 miles ESE | Annual grab samples<br><br>Monthly grab samples during growing season | Gamma isotopic on each sample |

Table 5, REMP Sampling Locations – Direct Radiation

| Site # | Location Type | Sector | Distance | Description |
|---|---|---|---|---|
| L-101-1 and -2 | Inner Ring | N | 0.5 miles | |
| L-102-1 and -2 | Inner Ring | NNE | 0.6 miles | |
| L-103-1 and -2 | Inner Ring | NE | 0.7 miles | |
| L-104-1 and -2 | Inner Ring | ENE | 0.8 miles | |
| L-105-1 and -2 | Inner Ring | E | 0.7 miles | |
| L-106-1 and -2 | Inner Ring | ESE | 1.4 miles | |
| L-107-1 and -2 | Inner Ring | SE | 0.8 miles | |
| L-108-1 and -2 | Inner Ring | SSE | 0.5 miles | |
| L-109-1 and -2 | Inner Ring | S | 0.6 miles | |
| L-110-1 and -2 | Inner Ring | SSW | 0.6 miles | |
| L-111b-1 and -2 | Inner Ring | SW | 0.8 miles | |
| L-112-1 and -2 | Inner Ring | WSW | 0.9 miles | |
| L-113a-1 and -2 | Inner Ring | W | 0.8 miles | |
| L-114-1 and -2 | Inner Ring | WNW | 0.9 miles | |
| L-115-1 and -2 | Inner Ring | NW | 0.7 miles | |
| L-116-1 and -2 | Inner Ring | NNW | 0.6 miles | |
| L-201-3 and -4 | Outer Ring | N | 4.0 miles | |
| L-202-3 and -4 | Outer Ring | NNE | 3.6 miles | |
| L-203-1 and -2 | Outer Ring | NE | 4.0 miles | |
| L-204-1 and -2 | Outer Ring | ENE | 3.2 miles | |
| L-205A-1 and -2 | Outer Ring | ESE | 3.2 miles | |

Table 5, REMP Sampling Locations – Direct Radiation

| Site # | Location Type | Sector | Distance | Description |
|---|---|---|---|---|
| L-205B-3 and -4 | Outer Ring | E | 5.1 miles | |
| L-206-1 and -2 | Outer Ring | SE | 4.3 miles | |
| L-207-1 and -2 | Outer Ring | SSE | 4.5 miles | |
| L-208-1 and -2 | Outer Ring | S | 4.5 miles | |
| L-209-1 and -2 | Outer Ring | SSW | 4.0 miles | |
| L-210-1 and -2 | Outer Ring | SW | 3.3 miles | |
| L-211-1 and -2 | Outer Ring | WSW | 4.5 miles | |
| L-212-1 and -2 | Outer Ring | W | 4.0 miles | |
| L-213-3 and -4 | Outer Ring | W | 4.9 miles | |
| L-214-3 and -4 | Outer Ring | WNW | 5.1 miles | |
| L-215-3 and -4 | Outer Ring | NW | 5.0 miles | |
| L-216-3 and -4 | Outer Ring | NNW | 5.0 miles | |
| L-01-1 and -2 | Other | NNW | 1.5 miles | Nearsite 1 (indicator) |
| L-03-1 and -2 | Other | ENE | 1.0 miles | Onsite 3 (indicator) |
| L-04-1 and -2 | Other | E | 3.2 miles | Rte. 170 (indicator) |
| L-05-1 and -2 | Other | ESE | 0.3 miles | Onsite 5 (indicator) |
| L-06-1 and -2 | Other | W | 0.4 miles | Nearsite 6 (indicator) |
| L-07-1 and -2 | Other | NNE | 5.2 miles | Seneca (indicator) |
| L-08-1 and -2 | Other | NNW | 6.0 miles | Marseilles (indicator) |
| L-11A-1 and -2 | Other | S | 6.0 miles | Ransom (indicator) |
| L-10-1 and -2 | Control/ Special Interest | SW | 13.5 miles | Streator |

## 6.0 MAPS OF COLLECTION SITES


Figure 2, Inner Ring OSLD Locations of the LaSalle County Station, 2025

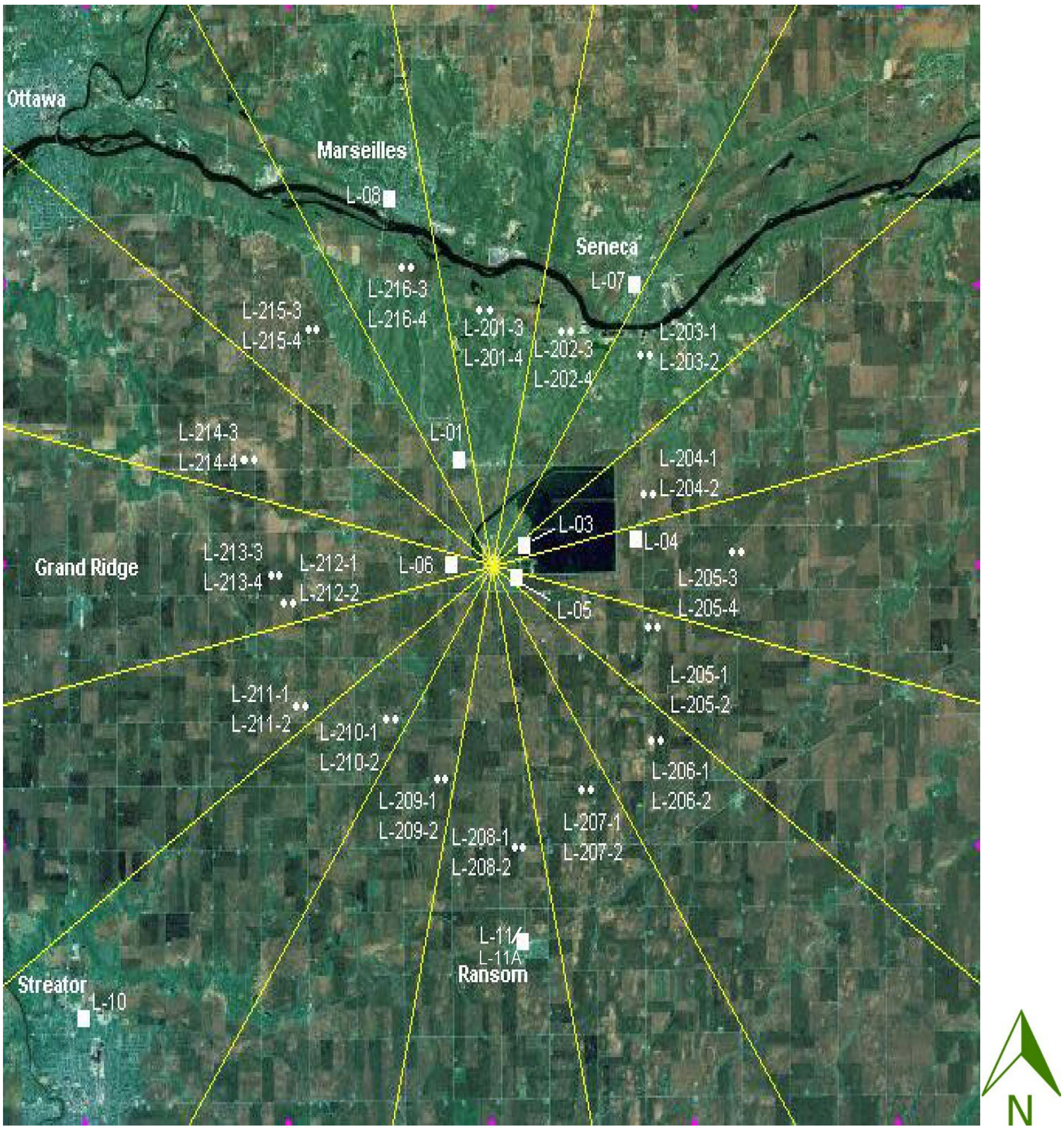


Figure 3, Outer Ring OSLD Locations and Fixed Air Sampling Locations of the LaSalle County Station, 2025

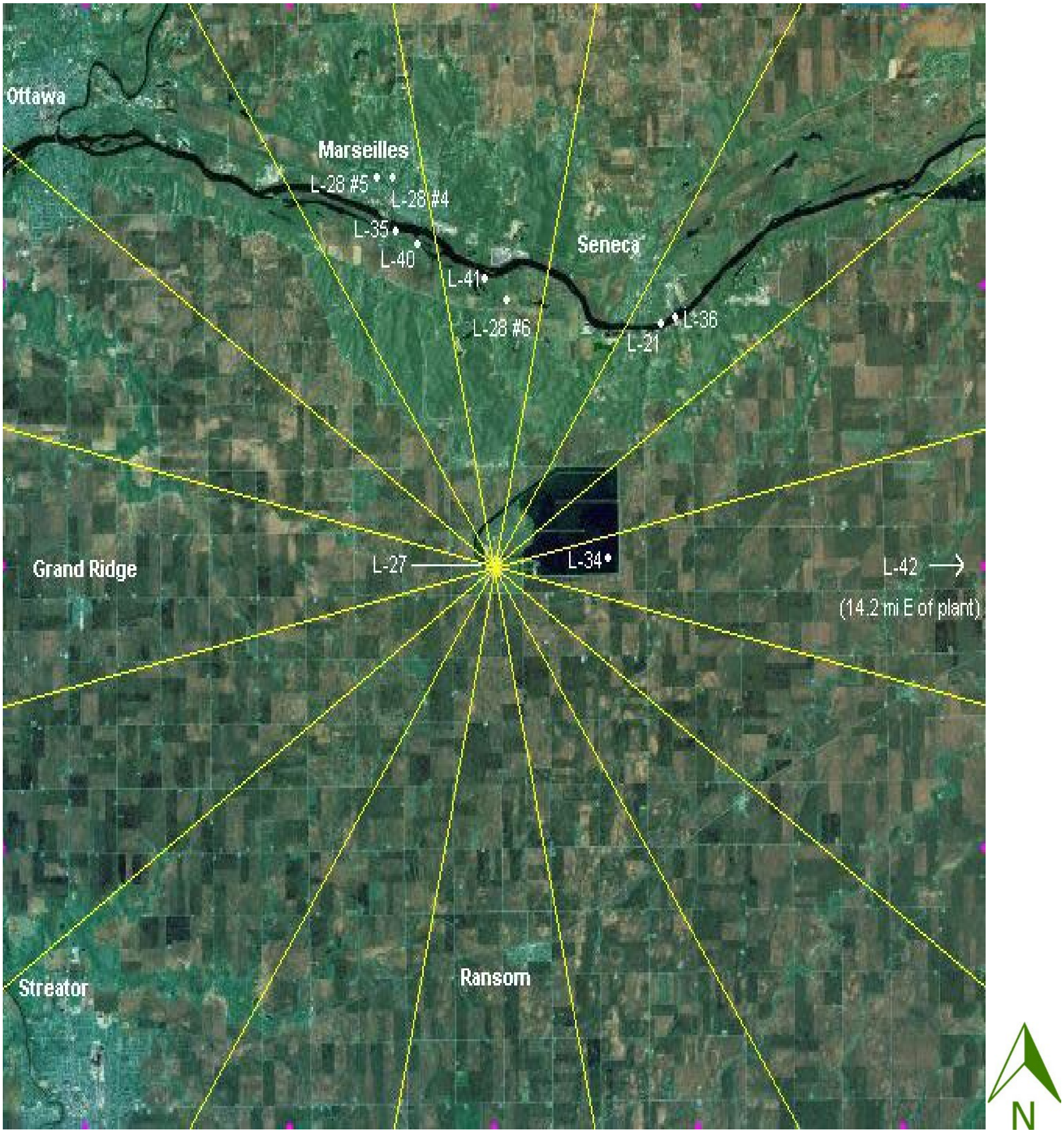


Figure 4, Ingestion and Waterborne Exposure Pathway Sample Locations of the LaSalle County Station, 2025

## 7.0 REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Table 6, Reporting Levels for Radioactivity Concentrations in Environmental Samples

| Radionuclide | Water (pCi/L) | Air Particulates or Gases ($pCi/m^3$) | Fish (pCi/kg-wet) | Milk (pCi/L) | Food Products (pCi/kg-wet) |
|---|---|---|---|---|---|
| H-3 | 20,000 [1] | NA | NA | NA | NA |
| Mn-54 | 1,000 | NA | 30,000 | NA | NA |
| Fe-59 | 400 | NA | 10,000 | NA | NA |
| Co-58 | 1,000 | NA | 30,000 | NA | NA |
| Co-60 | 300 | NA | 10,000 | NA | NA |
| Zn-65 | 300 | NA | 20,000 | NA | NA |
| Zr-Nb-95 | 400 | NA | NA | NA | NA |
| I-131 | 2 [2] | 0.9 | NA | 3 | 100 |
| Cs-134 | 30 | 10 | 1,000 | 60 | 1,000 |
| Cs-137 | 50 | 20 | 2,000 | 70 | 2,000 |
| Ba-La-140 | 200 | NA | NA | 300 | NA |

Table 7, Maximum Values for the Limit of Detection

| Radionuclide | Water (pCi/L) | Air Particulates or Gases ($pCi/m^3$) | Fish (pCi/kg-wet) | Milk (pCi/L) | Food Products (pCi/kg-wet) | Sediment (pCi/kg-dry) |
|---|---|---|---|---|---|---|
| Gross Beta | 4 | 0.01 | NA | NA | NA | NA |
| H-3 | 2,000 | NA | NA | NA | NA | NA |
| Mn-54 | 15 | NA | 130 | NA | NA | NA |
| Fe-59 | 30 | NA | 260 | NA | NA | NA |
| Co-58, Co-60 | 15 | NA | 130 | NA | NA | NA |
| Zn-65 | 30 | NA | 260 | NA | NA | NA |
| Zr-95 | 30 | NA | NA | NA | NA | NA |
| Nb-95 | 15 | NA | NA | NA | NA | NA |
| I-131 | 1 [3] | 0.07 | NA | 1 | 60 | NA |
| Cs-134 | 15 | 0.05 | 130 | 15 | 60 | 150 |
| Cs-137 | 18 | 0.06 | 150 | 18 | 80 | 180 |
| Ba-140 | 60 | NA | NA | 60 | NA | NA |
| La-140 | 15 | NA | NA | 15 | NA | NA |

[1] For drinking water samples, this is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 30,000 pCi/l may be used.
[2] If no drinking water pathway exists, a value of 20 pCi/l may be used
[3] If no drinking water pathway exists, a value of 15 pCi/l may be used (NUREG 1301/1302)

## 8.0 SAMPLING PROGRAM, PROGRAM MODIFICATION AND INTEPRETATION OF RESULTS

The radiological and direct radiation data collected prior to LaSalle County Station becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, LaSalle County Station was considered operational at initial criticality. In addition, data were compared to previous years' operational data for consistency and trending. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

   The lower limit of detection (LLD) is defined as the smallest concentration of radioactive material in a sample that would yield a net count (above background) that would be detected with only a 5% probability of falsely concluding that a blank observation represents a "real" signal. The LLD is intended as before the fact (a priori) estimate of a system (including instrumentation, procedure, and sample type) and not as an after the fact (a posteriori) criteria for the presence of activity. All analyses were designed to achieve the required LSCS detection capabilities for environmental sample analysis. The minimum detectable concentration (MDC) is defined above with the exception that the measurement is an after the fact estimate of the presence of activity.

2. Net Activity Calculation and Reporting of Results

   Net activity for a sample was calculated by subtracting background activity from the sample activity. Since the REMP measures extremely small changes in radioactivity in the environment, background variations may result in sample activity being lower than the background activity effecting a negative number. An MDC was reported in all cases where positive activity was not detected

   Gamma Spectroscopy results for each type of sample were grouped as follows

   For surface water, food products, and vegetation: 12 nuclides including Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, I-131, Cs-134, Cs-137, Ba-14, and La-140 were reported

   For ground/well water, fish, sediment, air particulate, and milk: 11 nuclides including Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, Cs-134, Cs-137, Ba-140, and La-140 were reported

   Means and standard deviations of the results were calculated. The standard deviations represents the variability of measured results for different samples rather than single analysis uncertainty.

At most nuclear stations, data was collected prior to plant operation to determine background radioactivity levels in the environment. Annual data is routinely compared to preoperational and/or 10-year average values to determine if changes in the environs are present. Strict comparison is difficult to make due to fallout from historical nuclear weapon testing. Cesium-137 can be routinely found in environmental samples as a result of above ground nuclear weapons testing. It is important to note, levels of Cs-137 in environment are observed to fluctuate, for example as silt distributions shift due to natural erosion and transport processes, Cs-137 may or may not be observed in sediment samples. Results from samples collected and analyzed during the year, 2025, are described below.

In the following sections, results from direct radiation, air, water, and food products analyzed as part of REMP in 2025 will be discussed. Sampling program descriptions and deviations will also be discussed.

## 8.1 Environmental Direct Radiation Dosimetry Results

Dose is measured as net exposure (field reading less transit reading) normalized to 91-day quarters. Data is treated and analyzed consistent with ANSI/HPS N13.37-2014, which compares the measured dose for each location to the baseline background dose for that location. Environmental dose rates vary by location, depending on geological and land use considerations, and remain relatively constant for any given location (unless land use changes). Some facilities observe seasonal variation in environmental doses. Baseline Background Doses have been determined for both quarterly and annual measurements at each location using historical field measurements.

ANSI/HPS N13.37-2014 uses the concept of minimum differential dose (MDD), which is the minimum facility-related dose that can be detected above background. Due to natural background variations and measurement sensitivities and uncertainties, minimum differential dose is not zero. MDD is calculated based on statistical performance of the dosimetry system in the environment and is site specific.

Normalized doses that exceed the Minimum Differential Dose value above the Baseline Background Dose are considered to indicate Facility-Related Dose; a quality assurance review is performed to verify that any results indicating Facility-Related Dose are accurate.

During the calendar year 2025, a total of 42 locations were monitored and data. Attachment 4, Environmental Direct Radiation Dosimetry Results, provides the annual direct radiation dosimetry analysis.

There was no direct radiation dose detected from the facility. All OSLD measurements were analyzed, and none were found to have radiation levels that had increased over normal background radiation levels.

## 8.2 Air Particulate and Radioiodine Sample Results

Air particulate filters and charcoal canisters were collected from locations specified in Table 2, Radiological Environmental Sampling Program – Exposure Pathway - Airborne. During the calendar year 2025, a total of 457 samples were collected and analyzed for gross beta, gamma emitters and iodine. Particulate samplers are used to continuously collect airborne particulates on a filter. The samples are analyzed for gross beta activity following filter changeout which occurs weekly. Gamma isotopic analysis is also performed on the samples collected at each location and is analyzed quarterly. Radioiodine (I-131) analysis is performed weekly on radioiodine sample cartridges.

All gross beta analyses of air particulate filters detected gross beta activity at levels consistent with previous years. All air particulate quarterly gamma composite samples were below the detection limit except for naturally occurring radionuclides.

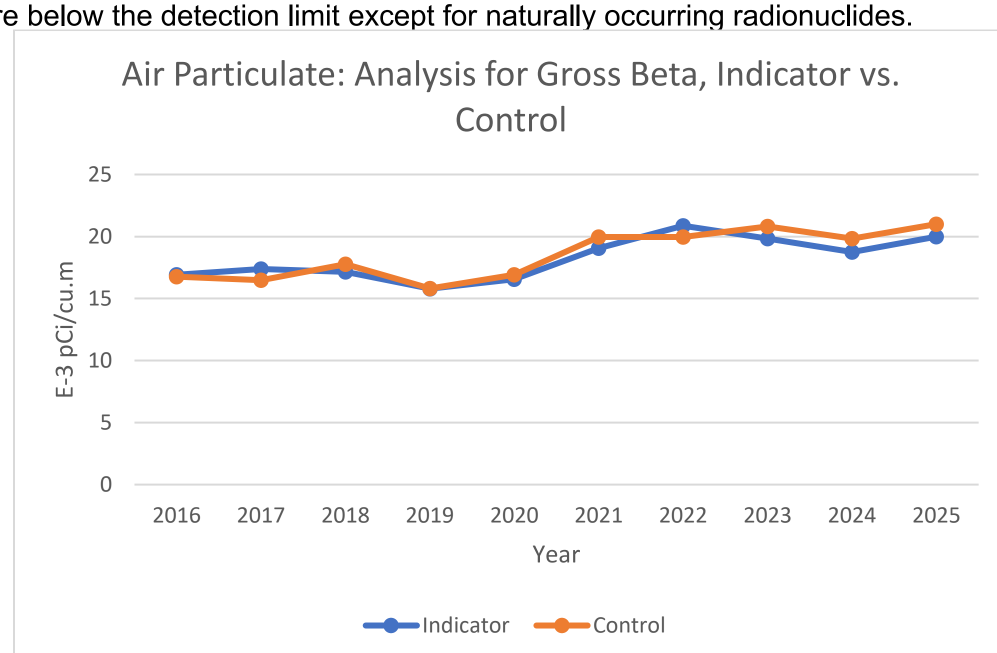


Figure 5, Air Particulate: Analysis for Gross Beta, Average for All Indicator vs. Control Location

Air particulate and radioiodine results from this monitoring period, 2025, were compared to 10-year average as shown in Figure 5, and there were no significant changes.

## 8.3 Waterborne Sample Results

### 8.3.1 Surface Water

Composite water samples are collected monthly at the upstream control location and at the downstream indicator locations. Monthly composite samples are analyzed for gamma emitters. Aliquots from the monthly composites are combined to form a quarterly composite which is then analyzed for tritium. During the calendar year 2025, a total of 32 surface water samples were collected and analyzed in accordance with the requirements in the ODCM and shown in Table 3, Radiological Environmental Sampling Program – Exposure Pathway - Waterborne. Gross Beta was detected in 24 of the 24 samples with a range of 4 to 14 pCi/L. The required LLD for Gross Beta was met for all samples. Samples from both locations were analyzed for gamma-emitting nuclides. No nuclides were detected and all required LLDs were met. Tritium was detected in 7 of the 8 samples with a range of 201 to 500 pCi/L. Concentrations detected were consistent with those detected in previous years. Tritium concentrations in surface water were well below the EPA tritium drinking water limit of 20,000 pCi/L.

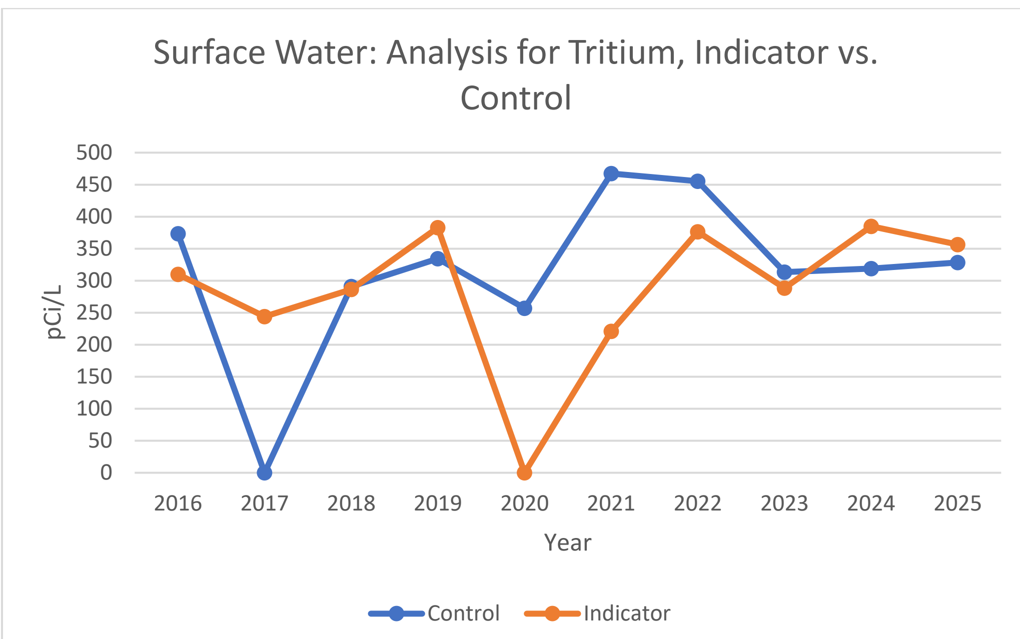


Figure 6: Average Surface Water Tritium Results by Year

Values of zero represent years where all tritium results were < MDC.

8.3.2 REMP Groundwater

Groundwater samples were collected from control location upgradient from the plant and indicator location downgradient from the plant. During the calendar year 2025, a total of 12 groundwater water samples were collected from offsite monitoring wells and analyzed in accordance with the requirements in the ODCM and shown in Table 3: Radiological Environmental Sampling Program – Exposure Pathway - Waterborne. A total of 2 control sample locations and a total of 2 indicator sample locations were collected. These samples were analyzed for tritium and gamma quarterly. All groundwater samples were collected in new containers, which were rinsed with source water prior to collection.

Samples from all locations were analyzed for gamma-emitting nuclides. No nuclides were detected and all required LLDs were met. Tritium concentrations in groundwater were well below the EPA tritium drinking water limit of 20,000 pCi/L. There has been no detectable tritium in any REMP groundwater samples in 2025 or the previous 10 years. Therefore, no trend has been established above the detection limit to plot on a trending graph.

8.3.3 Sediment from Shoreline

Shoreline sediment collections were made in May through October of 2025 and analyzed for gamma-emitting isotopes. Samples are collected at both indicator and control locations. A total of 6 shoreline samples were analyzed in accordance with requirements in the ODCM and shown in Table 3, Radiological Environmental Sampling Program – Exposure Pathway - Waterborne.

No nuclides potentially associated with LaSalle Station were detected and all required LLDs were met.

## 8.4 Ingestion Pathway Sample Results

8.4.1 Fish

A total of 12 fish samples were collected in 2025. These samples were analyzed for gamma-emitting radionuclides in edible portions, in accordance with requirements of the ODCM and summarized in Table 4, Radiological Environmental Sampling Program – Exposure Pathway - Ingestion. These samples are collected from the indicator and control areas as required by the ODCM.

Naturally occurring potassium-40 was identified in all fish samples with concentrations consistent with previous years.

8.4.2 Food Products

A total of 10 food product type samples were analyzed in 2025, for gamma emitting radionuclides in accordance with requirements of the ODCM, as summarized in Table 4, Radiological Environmental Sampling Program – Exposure Pathway - Ingestion.

No nuclides were detected and all required LLDs were met.

8.4.3 Vegetation

In accordance with the ODCM and as described in Table 4, Radiological Environmental Sampling Program – Exposure Pathway - Ingestion, 41 vegetation samples were collected from growing locations nearest site boundary in areas of highest predicted annual average ground level D/Q.  Samples are collected and analyzed for gamma isotopic from the indicator and control locations monthly during growing season.

No nuclides were detected and all required LLDs were met.

## 9.0 LAND USE CENSUS

An annual land use census is required by the Offsite Dose Calculation Manual and is performed to ensure that changes in the use of areas at or beyond the site boundary are identified and modifications to REMP are made if required by changes in land use. The land use census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR 50 [1]. NUREG-1301/1302 Control 3.12.2 specifies that "a Land Use Census shall be conducted and shall identify within a distance of 8 km (5 mi.) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden of greater than 50 $m^2$ (500 $ft^2$) producing broad leaf vegetation. Note, per NUREG-1301/1302, Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the SITE BOUNDARY in each of two different direction sectors with the highest predicted D/Qs in lieu of the garden census.

A Land Use Census was conducted during the calendar year, 2025, within the growing season to identify changes in land use, receptor locations, and new exposure pathways. The results for the 2025 Land Use Census are listed in Table 8: Land Use Census – Nearest Receptors within 5 miles. In summary, the highest D/Q location for nearest residence did not change following the 2025 census. A residence was identified 3.4 miles away in sector A from the site compared to the previous year where a residence was located 3.9 miles away in Sector A.

Table 8: Land Use Census – Nearest Receptors within 5 miles

| Sector | Direction | Residence Distance (Miles) | Milk Farm Distance (Miles) | Livestock Distance (Miles) |
|---|---|---|---|---|
| A | N | 3.4 | | |
| B | NNE | 1.6 | | 1.7 |
| C | NE | 2.1 | | 3.5 |
| D | ENE | 3.3 | | 3.8 |
| E | E | 3.2 | | |
| F | ESE | 1.4 | | |
| G | SE | 1.7 | | 5.1 |
| H | SSE | 1.8 | | 4.7 |
| J | S | 1.5 | | 1.5 |
| K | SSW | 0.7 | | |
| L | SW | 1.0 | | 5.8 |
| M | WSW | 1.5 | | |
| N | W | 1.7 | | 3.0 |
| P | WNW | 0.9 | | 3.0 |
| Q | NW | 1.7 | | 3.3 |
| R | NNW | 1.7 | | 4.5 |

## 10.0 SAMPLE DEVIATIONS, ANOMALIES AND UNAVAILABILITY

Sampling and analysis are performed for media types addressed in the Offsite Dose Calculation Manual. Sampling and analysis challenges may be experienced due to a multitude of reasons including environmental factors, loss of TLDs/OSLDs, contamination of samples, etc. To aid classification of sampling and analysis challenges experienced in 2025, the following three terms are used to describe the issues: Sample Anomalies, Sample Deviation, and Unavailable Samples.

Media that experienced downtime (i.e., air samplers or water samplers) during a surveillance period are classified a “Sample Deviation”. “Sample Anomalies” are defined as errors that were introduced to a sample once it arrived in the laboratory, errors that prevents the sample from being analyzed as it normally would, or may have altered the outcome of the analysis (i.e., cross contamination, human error).

“Sample Unavailability” is defined as sample collection with no available sample (i.e., food crop, TLD).

All required samples were collected and analyzed as scheduled except for the following:

Table 9: Sample Deviation Summary

| Sample Type | Location | Collection Date or Period | Reason for not conducting REMP sampling as required by ODCM | Plans for preventing reoccurrence |
|---|---|---|---|---|
| AP/AI | L-05 | 11/05/2025 | Timer failure at the station. Filter accumulation indicates normal exposure. The run time was calculated | The timer was exchanged |
| AP/AI | L-03 | 12/11/2025 | Samples collected after 2 week run time due to heavy snow accumulation. | |
| AP/AI | L-05 | 12/11/2025 | Samples collected after 2 week run time due to heavy snow accumulation. | |
| VE | D/Q-ESE #1 | 06/18/2025<br>10/16/2025 | Only two vegetation kinds were available due to dry conditions | |
| VE | D/Q-ESE #2 | 06/18/2025<br>10/16/2025 | Only two vegetation kinds were available due to dry conditions | |
| VE | Control-ENE | 06/19/2025<br>10/16/2025 | Only two vegetation kinds were available due to dry conditions | |
| SW | L-21 | 01/16/2025<br>01/30/2025<br>02/20/2025 | River was frozen | |
| SW | L-40 | 01/16/2025<br>01/30/2025<br>02/20/2025<br>12/18/2025 | River was frozen | |
| AP/AI | L-06 | 03/20/2025<br>03/27/2025<br>04/03/2025<br>04/09/2025<br>04/17/2025<br>04/24/2025<br>04/30/2025<br>05/08/2025<br>05/15/2025 | No power at station due to power supply | |
| OSLD | L-104-1 | 3rd Quarter | Possibly dislodged and destroyed by heavy activity in the area. | |
| OSLD | L-104-2 | 3rd Quarter | Possibly dislodged and destroyed by heavy activity in the area. | |
| OSLD | L-208-1 | 4th Quarter | Possibly dislodged by strong winds. | |
| OSLD | L-01-1 | 4th Quarter | Lost in transit by analytical laboratory. | |

# 11.0 OTHER SUPPLEMENTAL INFORMATION

## 11.1 NEI 07-07 Onsite Radiological Groundwater Monitoring Program

LaSalle County Station Units 1 and 2 has developed a Groundwater Protection Initiative (GPI) program in accordance with NEI 07-07, Industry Ground Water Protection Initiative – Final Guidance Document. The purpose of the GPI is to ensure timely detection and an effective response to situations involving inadvertent radiological releases to groundwater in order to prevent migration of licensed radioactive material off-site and to quantify impacts on decommissioning. It is important to note, samples and results taken in support of NEI 07-07 on-site groundwater monitoring program are separate from the Radiological Environmental Monitoring Program (REMP). Results of the NEI 07-07 Radiological Groundwater Monitoring Program for onsite groundwater wells are provided in the AREOR.

## 11.2 Corrections to Previous Reports

No corrections were made to previous reports in 2025

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**Attachment 1, Data Table Summary**

Table 10: LaSalle Data Summary Table

| Medium or Pathway Sampled (Units) | Type, Total Number of Analyses performed (e.g., I-131, 400) | | Lower Limit of Detection (LLD) | Indicator Mean[8]; (f[9]). Range[8] | Location with Highest Annual Mean | | Control Mean[8] (f[9]). Range[8] | Number of Nonroutine Reported Measurements |
|---|---|---|---|---|---|---|---|---|
| | | | | | Name Distance and Direction | Mean[8] (f[9]) Range[8] | | |
| Air Particulates (pCi/m$^3$) | Gross Beta, 457 | | 0.01 | 19.8 (405/405) (6.0/49.6) | L-10 Streator 13.5 miles SW | 21.3 (52/52) (9.5/60.3) | 21.3 (52/52) (9.5/60.3) | 0 |
| | Gamma, 36 | Mn-54 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | I-131 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 0.05 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 0.06 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| Airborne Radioiodine (pCi/m3) | Gamma, 457 I-131 | | 0.07 | < LLD | < LLD | < LLD | < LLD | 0 |
| Direct Radiation (mrem/qtr.) | Gamma Dose, 168 | | N/A | 18.5 (164/164) (14.3/22) | L-102 0.6 miles NNE | 20.5 (4/4) (19/21.4) | 15.7 (4/4) (14.7/16.4) | 0 |

[8] Mean and range are based on detectable measurements only.

[9] Fraction are based on detectable measurements at specified locations is indicated in parentheses

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| Medium or Pathway Sampled (Units) | Type, Total Number of Analyses performed (e.g., I-131, 400) | | Lower Limit of Detection (LLD) | Indicator Mean[8]; (f[9]). Range[8] | Location with Highest Annual Mean | | Control Mean[8] (f[9]). Range[8] | Number of Nonroutine Reported Measurements |
|---|---|---|---|---|---|---|---|---|
| | | | | | Name Distance and Direction | Mean[8] (f[9]) Range[8] | | |
| Food Products (pCi/kg-wet) | Gamma, 10 | Mn-54 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | I-131 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 80 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| Vegetation (pCi/Kg-wet) | Gamma, 41 | Mn-54 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | I-131 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 80 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |

[8] Mean and range are based on detectable measurements only.
[9] Fraction are based on detectable measurements at specified locations is indicated in parentheses

## Attachment 1, Data Table Summary

Table 10: LaSalle Data Summary Table

| Medium or Pathway Sampled (Units) | Type, Total Number of Analyses performed (e.g., I-131, 400) | | Lower Limit of Detection (LLD) | Indicator Mean[8]; (f[9]). Range[8] | Location with Highest Annual Mean | | Control Mean[8] (f[9]). Range[8] | Number of Nonroutine Reported Measurements |
|---|---|---|---|---|---|---|---|---|
| | | | | | Name Distance and Direction | Mean[8] (f[9]) Range[8] | | |
| Surface Water (pCi/IL) | Gross Beta, 24 | | 4 | 9.4 (12/12) (4.4/13.9) | L-21 Illinois River at Seneca - Upstream 4.0 miles NE | 8.2 (12/12) (4.4/12.5) | 8.2 (12/12) (4.4/12.5) | 0 |
| | H-3, 15 | | 200 | 401 (6/7) (283/500) | L-40 Illinois River - Downstream 5.2 miles NNW | 401 (6/7) (283/500) | 329 (8/8) (201/471) | 0 |
| | Gamma, 24 | Mn-54 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | I-131 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 18 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |

[8] Mean and range are based on detectable measurements only.

[9] Fraction are based on detectable measurements at specified locations is indicated in parentheses

**Attachment 1, Data Table Summary**

Table 10: LaSalle Data Summary Table

| Medium or Pathway Sampled (Units) | Type, Total Number of Analyses performed (e.g., I-131, 400) | | Lower Limit of Detection (LLD) | Indicator Mean[8]; (f[9]). Range[8] | Location with Highest Annual Mean | | Control Mean[8] (f[9]). Range[8] | Number of Nonroutine Reported Measurements |
|---|---|---|---|---|---|---|---|---|
| | | | | | Name Distance and Direction | Mean[8] (f[9]) Range[8] | | |
| Ground Water (pCi/IL) | H-3, 12 | | 200 | <LLD | <LLD | <LLD | <LLD | 0 |
| | Gamma, 12 | Mn-54 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | 30 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | I-131 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 18 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | 60 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | 15 | < LLD | < LLD | < LLD | < LLD | 0 |

[8] Mean and range are based on detectable measurements only.

[9] Fraction are based on detectable measurements at specified locations is indicated in parentheses

**Attachment 1, Data Table Summary**

Table 10: LaSalle Data Summary Table

| Medium or Pathway Sampled (Units) | Type, Total Number of Analyses performed (e.g., I-131, 400) | | Lower Limit of Detection (LLD) | Indicator Mean[8]; (f[9]). Range[8] | Location with Highest Annual Mean | | Control Mean[8] (f[9]). Range[8] | Number of Nonroutine Reported Measurements |
|---|---|---|---|---|---|---|---|---|
| | | | | | Name Distance and Direction | Mean[8] (f[9]) Range[8] | | |
| Fish (pCi/kg Wet) | Gamma, 12 | Mn-54 | 130 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | 130 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | 260 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | 130 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | 260 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 130 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 150 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| Sediment (pCi/kg Dry) | Gamma, 6 | Mn-54 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-58 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Fe-59 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Co-60 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zn-65 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Nb-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Zr-95 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-134 | 150 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Cs-137 | 180 | < LLD | < LLD | < LLD | < LLD | 0 |
| | | Ba-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |
| | | La-140 | N/A | < LLD | < LLD | < LLD | < LLD | 0 |

[8] Mean and range are based on detectable measurements only.

[9] Fraction are based on detectable measurements at specified locations is indicated in parentheses

## Attachment 2, Complete Data Table for All Analysis Results Obtained In 2025

*Note: Throughout Attachment 2, bold data entries are for the reported concentration*

Table 11, Weekly Air Particulate Gross Beta ($E^{-3}$ pCi/$m^3$)

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 12/31/2024 | **14** ± 4 | **17** ± 4 | **18** ± 4 | **17** ± 4 | **16** ± 4 | **16** ± 4 | **18** ± 4 | **20** ± 4 | **18** ± 4 |
| 1/8/2025 | **28** ± 4 | **26** ± 4 | **25** ± 4 | **25** ± 4 | **25** ± 4 | **25** ± 4 | **27** ± 4 | **32** ± 5 | **25** ± 4 |
| 1/16/2025 | **21** ± 5 | **16** ± 4 | **14** ± 4 | **17** ± 4 | **17** ± 4 | **16** ± 4 | **19** ± 4 | **15** ± 4 | **19** ± 4 |
| 1/23/2025 | **25** ± 5 | **21** ± 5 | **21** ± 5 | **17** ± 4 | **19** ± 4 | **23** ± 5 | **20** ± 4 | **22** ± 5 | **22** ± 5 |
| 1/30/2025 | **13** ± 4 | **13** ± 4 | **15** ± 5 | **13** ± 4 | **14** ± 4 | **16** ± 5 | **15** ± 4 | **14** ± 5 | **20** ± 5 |
| 2/5/2025 | **18** ± 4 | **17** ± 4 | **19** ± 4 | **16** ± 4 | **17** ± 4 | **19** ± 4 | **17** ± 3 | **14** ± 3 | **13** ± 3 |
| 2/13/2025 | **24** ± 4 | **24** ± 5 | **26** ± 5 | **26** ± 5 | **28** ± 5 | **26** ± 5 | **25** ± 4 | **25** ± 5 | **27** ± 5 |
| 2/20/2025 | **23** ± 5 | **20** ± 5 | **19** ± 5 | **23** ± 5 | **17** ± 4 | **22** ± 5 | **20** ± 5 | **20** ± 5 | **22** ± 5 |
| 2/27/2025 | **13** ± 5 | **12** ± 5 | **12** ± 5 | **14** ± 5 | **12** ± 5 | **13** ± 5 | **14** ± 5 | **15** ± 5 | **12** ± 5 |
| 3/5/2025 | **17** ± 4 | **15** ± 4 | **15** ± 4 | **13** ± 4 | **14** ± 4 | **15** ± 4 | **15** ± 4 | **16** ± 4 | **12** ± 4 |
| 3/13/2025 | **18** ± 4 | **14** ± 4 | **20** ± 4 | (1) | **15** ± 4 | **17** ± 4 | **15** ± 4 | **17** ± 4 | **18** ± 4 |
| 3/20/2025 | **16** ± 4 | **11** ± 4 | **16** ± 4 | (1) | **11** ± 4 | **17** ± 5 | **17** ± 4 | **15** ± 4 | **19** ± 4 |
| 3/27/2025 | **12** ± 3 | **15** ± 4 | **12** ± 4 | (1) | **15** ± 4 | **14** ± 4 | **13** ± 4 | **13** ± 4 | **12** ± 4 |
| 4/3/2025 | **16** ± 5 | **11** ± 4 | **17** ± 5 | (1) | **13** ± 4 | **19** ± 5 | **13** ± 4 | **15** ± 4 | **15** ± 5 |
| 4/9/2025 | **14** ± 4 | **13** ± 4 | **17** ± 4 | (1) | **13** ± 4 | **13** ± 4 | **16** ± 4 | **16** ± 4 | **16** ± 4 |
| 4/17/2025 | **15** ± 4 | **17** ± 4 | **13** ± 4 | (1) | **15** ± 4 | **15** ± 4 | **14** ± 4 | **18** ± 4 | **15** ± 4 |
| 4/24/2025 | **15** ± 4 | **13** ± 4 | **15** ± 4 | (1) | **14** ± 4 | **15** ± 4 | **16** ± 4 | **15** ± 4 | **12** ± 4 |
| 4/30/2025 | **10** ± 3 | **11** ± 3 | **12** ± 3 | (1) | **10** ± 3 | **9** ± 3 | **10** ± 3 | **9** ± 3 | **10** ± 3 |
| 5/8/2025 | **12** ± 4 | **11** ± 4 | **13** ± 4 | (1) | **14** ± 4 | **13** ± 4 | **13** ± 4 | **15** ± 4 | **13** ± 4 |
| 5/15/2025 | **10** ± 4 | **9** ± 3 | **9** ± 3 | **6** ± 3 | **8** ± 3 | **10** ± 4 | **9** ± 3 | **11** ± 4 | **10** ± 4 |
| 5/22/2025 | **6** ± 4 | **8** ± 4 | **8** ± 4 | **8** ± 4 | **8** ± 4 | **7** ± 4 | **8** ± 4 | **7** ± 4 | **10** ± 4 |

(1) See Sample Deviation Table

Table 11, Weekly Air Particulate Gross Beta (E-3 pCi/m3) Cont'd

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 5/29/2025 | **13** ± 4 | **15** ± 4 | **16** ± 5 | **17** ± 5 | **15** ± 5 | **18** ± 5 | **18** ± 5 | **16** ± 5 | **17** ± 5 |
| 6/4/2025 | **15** ± 4 | **12** ± 4 | **12** ± 4 | **13** ± 4 | **12** ± 4 | **13** ± 4 | **11** ± 3 | **13** ± 4 | **12** ± 4 |
| 6/12/2025 | **18** ± 5 | **16** ± 5 | **17** ± 5 | **15** ± 5 | **15** ± 5 | **14** ± 5 | **14** ± 5 | **17** ± 5 | **17** ± 5 |
| 6/18/2025 | **19** ± 4 | **18** ± 4 | **16** ± 4 | **18** ± 4 | **18** ± 4 | **14** ± 4 | **17** ± 4 | **23** ± 5 | **22** ± 5 |
| 6/25/2025 | **15** ± 5 | **15** ± 5 | **15** ± 5 | **12** ± 4 | **14** ± 5 | **18** ± 5 | **13** ± 4 | **15** ± 5 | **18** ± 5 |
| 7/1/2025 | **21** ± 4 | **19** ± 4 | **14** ± 4 | **18** ± 4 | **19** ± 4 | **23** ± 4 | **20** ± 4 | **16** ± 4 | **19** ± 4 |
| 7/9/2025 | **13** ± 4 | **16** ± 4 | **20** ± 4 | **17** ± 4 | **15** ± 4 | **21** ± 4 | **17** ± 4 | **18** ± 4 | **19** ± 4 |
| 7/17/2025 | **18** ± 4 | **17** ± 4 | **17** ± 4 | **15** ± 4 | **15** ± 4 | **16** ± 4 | **18** ± 4 | **17** ± 4 | **16** ± 4 |
| 7/24/2025 | **14** ± 4 | **18** ± 4 | **16** ± 4 | **16** ± 4 | **19** ± 4 | **20** ± 4 | **19** ± 4 | **16** ± 4 | **19** ± 4 |
| 7/31/2025 | **22** ± 5 | **18** ± 5 | **12** ± 5 | **20** ± 5 | **14** ± 5 | **18** ± 5 | **18** ± 5 | **17** ± 5 | **21** ± 5 |
| 8/6/2025 | **26** ± 4 | **28** ± 4 | **28** ± 4 | **30** ± 4 | **30** ± 4 | **33** ± 5 | **26** ± 4 | **33** ± 5 | **30** ± 4 |
| 8/14/2025 | **19** ± 4 | **19** ± 4 | **23** ± 4 | **20** ± 4 | **18** ± 4 | **20** ± 4 | **23** ± 4 | **23** ± 4 | **21** ± 4 |
| 8/21/2025 | **14** ± 4 | **16** ± 4 | **15** ± 4 | **15** ± 4 | **14** ± 4 | **16** ± 4 | **18** ± 4 | **13** ± 4 | **13** ± 4 |
| 8/28/2025 | **21** ± 5 | **18** ± 5 | **21** ± 5 | **23** ± 5 | **13** ± 4 | **21** ± 5 | **18** ± 5 | **24** ± 5 | **21** ± 5 |
| 9/3/2025 | **21** ± 4 | **17** ± 4 | **20** ± 4 | **15** ± 4 | **23** ± 4 | **24** ± 4 | **20** ± 4 | **17** ± 4 | **25** ± 4 |
| 9/11/2025 | **42** ± 5 | **47** ± 6 | **46** ± 6 | **41** ± 6 | **40** ± 6 | **46** ± 6 | **44** ± 6 | **50** ± 6 | **53** ± 7 |
| 9/18/2025 | **29** ± 5 | **36** ± 5 | **28** ± 5 | **34** ± 5 | **34** ± 5 | **34** ± 5 | **32** ± 5 | **31** ± 5 | **35** ± 5 |
| 9/25/2025 | **47** ± 6 | **46** ± 6 | **50** ± 6 | **49** ± 6 | **47** ± 6 | **41** ± 6 | **45** ± 6 | **49** ± 6 | **60** ± 7 |
| 10/1/2025 | **31** ± 5 | **35** ± 5 | **32** ± 5 | **25** ± 5 | **31** ± 5 | **32** ± 5 | **32** ± 5 | **28** ± 5 | **33** ± 5 |
| 10/8/2025 | **26** ± 5 | **26** ± 5 | **24** ± 4 | **23** ± 4 | **22** ± 4 | **25** ± 5 | **32** ± 5 | **27** ± 5 | **26** ± 5 |
| 10/16/2025 | **19** ± 4 | **18** ± 4 | **22** ± 5 | **19** ± 4 | **16** ± 4 | **19** ± 4 | **18** ± 4 | **17** ± 4 | **21** ± 4 |
| 10/23/2025 | **13** ± 4 | **13** ± 4 | **14** ± 4 | **12** ± 4 | **15** ± 4 | **17** ± 5 | **17** ± 4 | **15** ± 4 | **14** ± 4 |

Table 11, Weekly Air Particulate Gross Beta (E-3 pCi/m3) Cont'd

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 10/30/2025 | **18** ± 5 | **18** ± 5 | **20** ± 5 | **21** ± 5 | **17** ± 5 | **21** ± 5 | **22** ± 5 | **18** ± 5 | **21** ± 5 |
| 11/5/2025 | **16** ± 4 | **12**[(1)] ± 3 | **15** ± 4 | **12** ± 3 | **16** ± 4 | **16** ± 4 | **15** ± 3 | **18** ± 4 | **18** ± 4 |
| 11/13/2025 | **24** ± 5 | **20** ± 4 | **22** ± 5 | **22** ± 5 | **24** ± 5 | **21** ± 5 | **24** ± 5 | **22** ± 5 | **26** ± 5 |
| 11/20/2025 | **36** ± 6 | **36** ± 6 | **32** ± 6 | **34** ± 6 | **39** ± 6 | **34** ± 6 | **33** ± 6 | **35** ± 6 | **37** ± 6 |
| 11/26/2025 | **17** ± 3 | **19** ± 3 | **15** ± 4 | **15** ± 4 | **21** ± 5 | **21** ± 4 | **17** ± 4 | **17** ± 4 | **18** ± 4 |
| 12/3/2025 | (1) | (1) | **27** ± 5 | **26** ± 5 | **24** ± 5 | **25** ± 5 | **29** ± 5 | **25** ± 5 | **27** ± 5 |
| 12/11/2025 | **34** ± 5 | **27** ± 5 | **30** ± 5 | **31** ± 5 | **33** ± 5 | **31** ± 5 | **33** ± 5 | **30** ± 5 | **35** ± 5 |
| 12/18/2025 | **15** ± 5 | **22** ± 6 | **21** ± 6 | **20** ± 5 | **19** ± 5 | **19** ± 6 | **18** ± 5 | **20** ± 6 | **23** ± 6 |
| 12/23/2025 | **22** ± 4 | **26** ± 5 | **31** ± 5 | **28** ± 5 | **31** ± 5 | **35** ± 5 | **32** ± 5 | **33** ± 5 | **34** ± 5 |

(1) See Sample Deviation Table

Table 12: Quarterly Air Particulate Gamma Isotopic (E-3 pCi/$m^3$ ± 2 Sigma)

| Station | Nuclide | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| L-03 | Mn-54 | < 3 | < 2 | < 3 | < 3 |
| | Co-58 | < 4 | < 5 | < 6 | < 4 |
| | Fe-59 | < 9 | < 15 | < 25 | < 15 |
| | Co-60 | < 2 | < 3 | < 3 | < 2 |
| | Zn-65 | < 6 | < 7 | < 9 | < 9 |
| | Nb-95 | < 4 | < 4 | < 9 | < 6 |
| | Zr-95 | < 8 | < 8 | < 12 | < 11 |
| | Cs-134 | < 2 | < 2 | < 4 | < 2 |
| | Cs-137 | < 2 | < 2 | < 3 | < 3 |
| | Ba-140 | < 210 | < 775 | < 1373 | < 372 |
| | La-140 | < 99 | < 395 | < 577 | < 228 |
| L-05 | Mn-54 | < 3 | < 3 | < 3 | < 3 |
| | Co-58 | < 3 | < 3 | < 7 | < 4 |
| | Fe-59 | < 13 | < 19 | < 19 | < 13 |
| | Co-60 | < 2 | < 2 | < 3 | < 2 |
| | Zn-65 | < 7 | < 4 | < 7 | < 7 |
| | Nb-95 | < 5 | < 5 | < 7 | < 5 |
| | Zr-95 | < 8 | < 7 | < 11 | < 6 |
| | Cs-134 | < 2 | < 3 | < 3 | < 2 |
| | Cs-137 | < 2 | < 2 | < 3 | < 2 |
| | Ba-140 | < 242 | < 810 | < 1283 | < 379 |
| | La-140 | < 111 | < 348 | < 385 | < 147 |

| Station | Nuclide | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| L-01 | Mn-54 | < 3 | < 4 | < 3 | < 2 |
| | Co-58 | < 4 | < 7 | < 4 | < 4 |
| | Fe-59 | < 16 | < 27 | < 18 | < 14 |
| | Co-60 | < 3 | < 4 | < 3 | < 2 |
| | Zn-65 | < 9 | < 10 | < 8 | < 6 |
| | Nb-95 | < 5 | < 8 | < 8 | < 4 |
| | Zr-95 | < 8 | < 15 | < 10 | < 5 |
| | Cs-134 | < 3 | < 4 | < 2 | < 2 |
| | Cs-137 | < 3 | < 3 | < 2 | < 2 |
| | Ba-140 | < 338 | < 1331 | < 1022 | < 302 |
| | La-140 | < 112 | < 514 | < 437 | < 108 |
| L-06 | Mn-54 | < 3 | < 6 | < 4 | < 4 |
| | Co-58 | < 4 | < 12 | < 9 | < 7 |
| | Fe-59 | < 17 | < 41 | < 33 | < 20 |
| | Co-60 | < 4 | < 7 | < 5 | < 3 |
| | Zn-65 | < 8 | < 17 | < 10 | < 9 |
| | Nb-95 | < 4 | < 13 | < 8 | < 6 |
| | Zr-95 | < 9 | < 23 | < 17 | < 11 |
| | Cs-134 | < 3 | < 8 | < 5 | < 3 |
| | Cs-137 | < 2 | < 7 | < 4 | < 4 |
| | Ba-140 | < 499 | < 1018 | < 1544 | < 568 |
| | La-140 | < 210 | < 450 | < 886 | < 272 |

Table 12: Quarterly Air Particulate Gamma Isotopic (E-3 pCi/m$^3$ ± 2 Sigma) Cont'd

| Station | Nuclide | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| L-04 | Mn-54 | < 3 | < 3 | < 4 | < 2 |
| | Co-58 | < 3 | < 7 | < 7 | < 4 |
| | Fe-59 | < 10 | < 22 | < 18 | < 15 |
| | Co-60 | < 1 | < 3 | < 4 | < 3 |
| | Zn-65 | < 4 | < 9 | < 9 | < 8 |
| | Nb-95 | < 4 | < 7 | < 7 | < 5 |
| | Zr-95 | < 3 | < 13 | < 11 | < 8 |
| | Cs-134 | < 1 | < 3 | < 3 | < 3 |
| | Cs-137 | < 2 | < 3 | < 3 | < 3 |
| | Ba-140 | < 182 | < 1362 | < 1396 | < 462 |
| | La-140 | < 80 | < 590 | < 338 | < 131 |
| L-07 | Mn-54 | < 2 | < 3 | < 2 | < 2 |
| | Co-58 | < 4 | < 4 | < 3 | < 3 |
| | Fe-59 | < 4 | < 13 | < 13 | < 12 |
| | Co-60 | < 2 | < 2 | < 2 | < 2 |
| | Zn-65 | < 6 | < 6 | < 7 | < 7 |
| | Nb-95 | < 4 | < 4 | < 4 | < 5 |
| | Zr-95 | < 7 | < 10 | < 8 | < 5 |
| | Cs-134 | < 3 | < 2 | < 2 | < 2 |
| | Cs-137 | < 2 | < 2 | < 2 | < 2 |
| | Ba-140 | < 159 | < 778 | < 770 | < 346 |
| | La-140 | < 78 | < 358 | < 291 | < 96 |

| Station | Nuclide | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| L-08 | Mn-54 | < 3 | < 3 | < 3 | < 3 |
| | Co-58 | < 4 | < 6 | < 4 | < 5 |
| | Fe-59 | < 12 | < 25 | < 20 | < 16 |
| | Co-60 | < 3 | < 3 | < 2 | < 4 |
| | Zn-65 | < 8 | < 8 | < 5 | < 8 |
| | Nb-95 | < 5 | < 7 | < 5 | < 5 |
| | Zr-95 | < 8 | < 13 | < 8 | < 10 |
| | Cs-134 | < 3 | < 2 | < 2 | < 3 |
| | Cs-137 | < 2 | < 2 | < 2 | < 2 |
| | Ba-140 | < 300 | < 1266 | < 902 | < 447 |
| | La-140 | < 117 | < 433 | < 258 | < 184 |
| L-11A | Mn-54 | < 3 | < 2 | < 2 | < 3 |
| | Co-58 | < 3 | < 5 | < 3 | < 5 |
| | Fe-59 | < 11 | < 13 | < 17 | < 16 |
| | Co-60 | < 3 | < 3 | < 2 | < 2 |
| | Zn-65 | < 5 | < 6 | < 6 | < 6 |
| | Nb-95 | < 3 | < 4 | < 5 | < 5 |
| | Zr-95 | < 6 | < 8 | < 10 | < 6 |
| | Cs-134 | < 2 | < 2 | < 2 | < 2 |
| | Cs-137 | < 2 | < 2 | < 2 | < 2 |
| | Ba-140 | < 156 | < 1044 | < 866 | < 388 |
| | La-140 | < 79 | < 446 | < 535 | < 145 |

Table 12: Quarterly Air Particulate Gamma Isotopic (E-3 pCi/$m^3$ ± 2 Sigma) Cont'd

| Station | Nuclide | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|
| L-10 | Mn-54 | < 2 | < 1 | < 2 | < 3 |
| | Co-58 | < 4 | < 5 | < 4 | < 4 |
| | Fe-59 | < 14 | < 14 | < 17 | < 13 |
| | Co-60 | < 2 | < 3 | < 2 | < 3 |
| | Zn-65 | < 4 | < 6 | < 5 | < 7 |
| | Nb-95 | < 4 | < 6 | < 4 | < 5 |
| | Zr-95 | < 7 | < 9 | < 7 | < 10 |
| | Cs-134 | < 2 | < 3 | < 2 | < 3 |
| | Cs-137 | < 2 | < 2 | < 1 | < 2 |
| | Ba-140 | < 193 | < 921 | < 894 | < 431 |
| | La-140 | < 81 | < 286 | < 361 | < 156 |

Table 13, Weekly Air Iodine I-131 (E-3 pCi/m$^3$)

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 12/31/2024 | < 34 | < 23 | < 35 | < 35 | < 33 | < 43 | < 44 | < 22 | < 43 |
| 1/8/2025 | < 42 | < 44 | < 22 | < 34 | < 42 | < 33 | < 33 | < 23 | < 33 |
| 1/16/2025 | < 51 | < 51 | < 52 | < 63 | < 52 | < 63 | < 61 | < 47 | < 62 |
| 1/23/2025 | < 48 | < 48 | < 33 | < 31 | < 47 | < 56 | < 54 | < 57 | < 56 |
| 1/30/2025 | < 54 | < 53 | < 27 | < 29 | < 54 | < 31 | < 29 | < 20 | < 30 |
| 2/5/2025 | < 31 | < 31 | < 15 | < 21 | < 31 | < 14 | < 19 | < 20 | < 20 |
| 2/13/2025 | < 25 | < 26 | < 18 | < 26 | < 26 | < 51 | < 49 | < 51 | < 50 |
| 2/20/2025 | < 36 | < 25 | < 37 | < 24 | < 35 | < 50 | < 47 | < 48 | < 49 |
| 2/27/2025 | < 55 | < 54 | < 62 | < 26 | < 55 | < 55 | < 54 | < 54 | < 53 |
| 3/5/2025 | < 45 | < 47 | < 46 | < 23 | < 46 | < 31 | < 29 | < 32 | < 21 |
| 3/13/2025 | < 31 | < 31 | < 32 | (1) | < 31 | < 36 | < 34 | < 33 | < 33 |
| 3/20/2025 | < 39 | < 29 | < 19 | (1) | < 39 | < 21 | < 30 | < 30 | < 30 |
| 3/27/2025 | < 36 | < 34 | < 36 | (1) | < 18 | < 41 | < 35 | < 35 | < 35 |
| 4/3/2025 | < 57 | < 28 | < 57 | (1) | < 57 | < 57 | < 59 | < 59 | < 25 |
| 4/9/2025 | < 33 | < 28 | < 33 | (1) | < 33 | < 15 | < 27 | < 28 | < 28 |
| 4/17/2025 | < 47 | < 60 | < 46 | (1) | < 47 | < 62 | < 61 | < 60 | < 31 |
| 4/24/2025 | < 63 | < 63 | < 64 | (1) | < 63 | < 28 | < 62 | < 64 | < 63 |
| 4/30/2025 | < 47 | < 24 | < 47 | (1) | < 47 | < 48 | < 39 | < 39 | < 39 |
| 5/8/2025 | < 61 | < 61 | < 61 | (1) | < 60 | < 31 | < 61 | < 61 | < 64 |
| 5/15/2025 | < 57 | < 58 | < 57 | < 65 | < 57 | < 33 | < 60 | < 61 | < 61 |
| 5/22/2025 | < 46 | < 46 | < 45 | < 49 | < 45 | < 24 | < 47 | < 48 | < 48 |

(1) See Sample Deviation Table

Table 13, Weekly Air Iodine I-131 (E-3 pCi/m3) Cont'd

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 5/29/2025 | < 63 | < 62 | < 64 | < 63 | < 70 | < 25 | < 55 | < 57 | < 56 |
| 6/4/2025 | < 44 | < 24 | < 44 | < 44 | < 45 | < 59 | < 55 | < 58 | < 28 |
| 6/12/2025 | < 47 | < 24 | < 49 | < 52 | < 49 | < 54 | < 50 | < 52 | < 60 |
| 6/18/2025 | < 52 | < 28 | < 53 | < 60 | < 53 | < 62 | < 57 | < 60 | < 69 |
| 6/25/2025 | < 68 | < 68 | < 68 | < 62 | < 35 | < 29 | < 62 | < 63 | < 62 |
| 7/1/2025 | < 53 | < 59 | < 52 | < 52 | < 52 | < 28 | < 52 | < 53 | < 53 |
| 7/9/2025 | < 43 | < 43 | < 44 | < 43 | < 43 | < 35 | < 42 | < 43 | < 42 |
| 7/17/2025 | < 53 | < 53 | < 53 | < 56 | < 52 | < 28 | < 57 | < 58 | < 56 |
| 7/24/2025 | < 42 | < 21 | < 42 | < 37 | < 42 | < 44 | < 37 | < 37 | < 39 |
| 7/31/2025 | < 62 | < 62 | < 49 | < 59 | < 63 | < 61 | < 57 | < 60 | < 29 |
| 8/6/2025 | < 21 | < 41 | < 40 | < 34 | < 40 | < 16 | < 35 | < 35 | < 34 |
| 8/14/2025 | < 66 | < 68 | < 67 | < 63 | < 66 | < 32 | < 62 | < 67 | < 61 |
| 8/21/2025 | < 53 | < 53 | < 53 | < 43 | < 53 | < 20 | < 42 | < 43 | < 43 |
| 8/28/2025 | < 66 | < 65 | < 67 | < 64 | < 66 | < 35 | < 63 | < 64 | < 67 |
| 9/3/2025 | < 52 | < 25 | < 52 | < 66 | < 51 | < 69 | < 64 | < 66 | < 32 |
| 9/11/2025 | < 52 | < 61 | < 61 | < 64 | < 60 | < 67 | < 63 | < 65 | < 32 |
| 9/18/2025 | < 10 | < 21 | < 21 | < 22 | < 22 | < 17 | < 20 | < 21 | < 21 |
| 9/25/2025 | < 65 | < 46 | < 66 | < 65 | < 67 | < 66 | < 52 | < 65 | < 64 |
| 10/1/2025 | < 30 | < 41 | < 41 | < 50 | < 41 | < 52 | < 26 | < 52 | < 51 |
| 10/8/2025 | < 59 | < 58 | < 59 | < 39 | < 43 | < 40 | < 32 | < 40 | < 39 |
| 10/16/2025 | < 67 | < 66 | < 34 | < 67 | < 68 | < 23 | < 47 | < 46 | < 46 |
| 10/23/2025 | < 29 | < 28 | < 28 | < 66 | < 23 | < 33 | < 67 | < 65 | < 67 |

Table 13, Weekly Air Iodine I-131 (E-3 pCi/m3) Cont'd

| Collection Date | L-03 | L-05 | L-01 | L-06 | L-04 | L-07 | L-08 | L-11A | L-10 |
|---|---|---|---|---|---|---|---|---|---|
| 10/30/2025 | < 65 | < 65 | < 66 | < 65 | < 67 | < 36 | < 66 | < 66 | < 65 |
| 11/5/2025 | < 48 | < 48 | < 48 | < 47 | < 25 | < 42 | < 52 | < 53 | < 53 |
| 11/13/2025 | < 66 | < 68 | < 67 | < 65 | < 24 | < 33 | < 66 | < 64 | < 64 |
| 11/20/2025 | < 64 | < 65 | < 65 | < 67 | < 32 | < 37 | < 67 | < 69 | < 69 |
| 11/26/2025 | < 17 | < 51 | < 65 | < 64 | < 24 | < 68 | < 65 | < 28 | < 67 |
| 12/3/2025 | (1) | (1) | < 36 | < 37 | < 20 | < 61 | < 58 | < 59 | < 58 |
| 12/11/2025 | < 69 | < 69 | < 69 | < 69 | < 37 | < 36 | < 67 | < 65 | < 68 |
| 12/18/2025 | < 67 | < 66 | < 66 | < 59 | < 51 | < 29 | < 59 | < 60 | < 60 |
| 12/23/2025 | < 62 | < 63 | < 62 | < 69 | < 34 | < 25 | < 66 | < 68 | < 68 |

(1) See Sample Deviation Table

Table 14: Annual Food Products Gamma Isotopic (pCi/kg Wet ± 2 Sigma)

| Station | | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-QUAD 1 | Cabbage | 7/24/2025 | < 20 | < 17 | < 39 | < 24 | < 36 | < 21 | < 37 | < 22 | < 19 | < 19 | < 88 | < 23 |
| | Potato | 7/24/2025 | < 14 | < 14 | < 24 | < 18 | < 31 | < 14 | < 27 | < 21 | < 18 | < 14 | < 56 | < 19 |
| L-QUAD 2 | Cabbage | 7/17/2025 | < 38 | < 27 | < 90 | < 48 | < 58 | < 40 | < 75 | < 47 | < 43 | < 46 | < 164 | < 38 |
| | Horseradish | 7/31/2025 | < 26 | < 32 | < 63 | < 42 | < 69 | < 35 | < 54 | < 49 | < 35 | < 42 | < 169 | < 39 |
| L-QUAD 3 | Lettuce | 7/17/2025 | < 23 | < 27 | < 53 | < 30 | < 59 | < 22 | < 47 | < 38 | < 28 | < 28 | < 110 | < 27 |
| | Swiss Chard | 7/17/2025 | < 33 | < 29 | < 83 | < 37 | < 67 | < 37 | < 52 | < 51 | < 40 | < 31 | < 138 | < 42 |
| | Turnip | 7/17/2025 | < 24 | < 28 | < 56 | < 25 | < 62 | < 33 | < 45 | < 38 | < 33 | < 26 | < 117 | < 36 |
| L-QUAD 4 | Cabbage | 7/17/2025 | < 27 | < 30 | < 71 | < 34 | < 69 | < 31 | < 52 | < 53 | < 34 | < 33 | < 150 | < 45 |
| | Kale | 7/17/2025 | < 33 | < 33 | < 77 | < 45 | < 71 | < 31 | < 64 | < 55 | < 35 | < 34 | < 137 | < 41 |
| | Red Beets | 7/17/2025 | < 30 | < 30 | < 63 | < 38 | < 76 | < 30 | < 53 | < 39 | < 33 | < 28 | < 114 | < 34 |

Table 15: Monthly Vegetation Gamma Isotopic (pCi/Kg Wet ± 2 Sigma)

| Station | | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-CONTROL | Clover | 6/19/2025 | < 14 | < 14 | < 29 | < 15 | < 28 | < 15 | < 25 | < 21 | < 15 | < 15 | < 61 | < 19 |
| | Grass | 6/19/2025 | < 25 | < 24 | < 46 | < 25 | < 51 | < 24 | < 43 | < 34 | < 28 | < 24 | < 104 | < 32 |
| | Cottonwood leaves | 7/17/2025 | < 27 | < 27 | < 49 | < 28 | < 52 | < 26 | < 46 | < 39 | < 29 | < 30 | < 124 | < 37 |
| | Clover | 7/17/2025 | < 17 | < 19 | < 41 | < 20 | < 42 | < 18 | < 30 | < 27 | < 21 | < 19 | < 85 | < 24 |
| | Milkweed | 7/17/2025 | < 31 | < 25 | < 72 | < 29 | < 90 | < 35 | < 55 | < 48 | < 37 | < 31 | < 127 | < 43 |
| | Collard greens | 7/18/2025 | < 19 | < 17 | < 36 | < 19 | < 38 | < 20 | < 31 | < 28 | < 21 | < 20 | < 80 | < 18 |
| | Swiss chard | 7/18/2025 | < 18 | < 16 | < 32 | < 20 | < 37 | < 15 | < 27 | < 24 | < 19 | < 17 | < 72 | < 19 |
| | Turnip | 7/18/2025 | < 35 | < 35 | < 71 | < 39 | < 81 | < 32 | < 60 | < 50 | < 34 | < 32 | < 139 | < 41 |
| | Clover | 8/20/2025 | < 28 | < 29 | < 77 | < 30 | < 69 | < 29 | < 53 | < 52 | < 34 | < 31 | < 150 | < 60 |
| | Grass | 8/20/2025 | < 36 | < 30 | < 76 | < 26 | < 77 | < 35 | < 61 | < 54 | < 33 | < 36 | < 174 | < 62 |
| | Milkweed | 8/20/2025 | < 31 | < 23 | < 81 | < 41 | < 82 | < 28 | < 55 | < 53 | < 33 | < 31 | < 160 | < 39 |
| | Clover | 9/17/2025 | < 26 | < 29 | < 74 | < 32 | < 73 | < 32 | < 60 | < 55 | < 33 | < 28 | < 144 | < 50 |
| | Grass | 9/17/2025 | < 28 | < 33 | < 70 | < 27 | < 69 | < 30 | < 54 | < 53 | < 31 | < 32 | < 161 | < 34 |
| | Milkweed | 9/17/2025 | < 32 | < 30 | < 92 | < 34 | < 70 | < 30 | < 58 | < 48 | < 33 | < 27 | < 151 | < 51 |
| | Clover | 10/16/2025 | < 34 | < 29 | < 68 | < 39 | < 73 | < 31 | < 58 | < 54 | < 40 | < 29 | < 150 | < 46 |
| | Cottonwood | 10/16/2025 | < 17 | < 17 | < 34 | < 18 | < 39 | < 18 | < 34 | < 28 | < 20 | < 18 | < 82 | < 23 |

Table 15: Monthly Vegetation Gamma Isotopic (pCi/Kg Wet ± 2 Sigma) Cont'd

| Station | | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-ESE-1 | Clover | 6/18/2025 | < 14 | < 13 | < 31 | < 17 | < 32 | < 15 | < 24 | < 19 | < 14 | < 13 | < 60 | < 20 |
| | Dandelion | 6/18/2025 | < 18 | < 17 | < 37 | < 18 | < 39 | < 19 | < 30 | < 27 | < 19 | < 19 | < 77 | < 22 |
| | Clover | 7/17/2025 | < 20 | < 18 | < 43 | < 20 | < 39 | < 20 | < 32 | < 27 | < 21 | < 21 | < 79 | < 26 |
| | Dandelion | 7/17/2025 | < 25 | < 24 | < 47 | < 25 | < 52 | < 23 | < 43 | < 32 | < 25 | < 25 | < 111 | < 36 |
| | Grass | 7/17/2025 | < 26 | < 25 | < 50 | < 29 | < 54 | < 26 | < 42 | < 38 | < 27 | < 27 | < 113 | < 28 |
| | Clover | 8/20/2025 | < 31 | < 31 | < 64 | < 36 | < 68 | < 29 | < 43 | < 52 | < 37 | < 26 | < 141 | < 40 |
| | Dandelion | 8/20/2025 | < 37 | < 29 | < 65 | < 33 | < 69 | < 33 | < 60 | < 49 | < 31 | < 34 | < 138 | < 39 |
| | Grass | 8/20/2025 | < 22 | < 22 | < 48 | < 22 | < 49 | < 24 | < 41 | < 40 | < 26 | < 25 | < 111 | < 33 |
| | Dandelion | 9/17/2025 | < 30 | < 32 | < 93 | < 38 | < 80 | < 31 | < 60 | < 54 | < 37 | < 32 | < 159 | < 33 |
| | Grass | 9/17/2025 | < 21 | < 21 | < 46 | < 21 | < 49 | < 23 | < 38 | < 41 | < 25 | < 23 | < 106 | < 27 |
| | Dandelion | 10/16/2025 | < 12 | < 12 | < 27 | < 15 | < 27 | < 12 | < 20 | < 20 | < 13 | < 12 | < 57 | < 16 |
| | Grass | 10/16/2025 | < 19 | < 18 | < 40 | < 20 | < 44 | < 21 | < 36 | < 30 | < 21 | < 20 | < 93 | < 23 |
| L-ESE-2 | Clover | 6/18/2025 | < 11 | < 11 | < 25 | < 11 | < 25 | < 11 | < 18 | < 15 | < 12 | < 12 | < 47 | < 14 |
| | Dandelion | 6/18/2025 | < 27 | < 30 | < 51 | < 34 | < 70 | < 25 | < 56 | < 45 | < 33 | < 30 | < 124 | < 36 |
| | Clover | 7/17/2025 | < 15 | < 15 | < 32 | < 17 | < 35 | < 15 | < 26 | < 21 | < 19 | < 17 | < 69 | < 24 |
| | Grass | 7/17/2025 | < 25 | < 26 | < 51 | < 29 | < 60 | < 26 | < 46 | < 39 | < 31 | < 27 | < 119 | < 35 |
| | Milkweed | 7/17/2025 | < 21 | < 21 | < 45 | < 27 | < 41 | < 18 | < 35 | < 32 | < 21 | < 21 | < 93 | < 29 |
| | Clover | 8/20/2025 | < 29 | < 18 | < 71 | < 34 | < 64 | < 28 | < 39 | < 48 | < 27 | < 28 | < 151 | < 44 |
| | Dandelion | 8/20/2025 | < 25 | < 27 | < 54 | < 26 | < 72 | < 35 | < 41 | < 53 | < 29 | < 25 | < 152 | < 39 |
| | Grass | 8/20/2025 | < 32 | < 32 | < 58 | < 30 | < 74 | < 30 | < 47 | < 56 | < 24 | < 35 | < 141 | < 41 |
| | Clover | 9/17/2025 | < 45 | < 40 | < 93 | < 43 | < 70 | < 37 | < 80 | < 52 | < 48 | < 37 | < 181 | < 68 |
| | Milkweed | 9/17/2025 | < 24 | < 23 | < 48 | < 23 | < 51 | < 24 | < 39 | < 39 | < 26 | < 25 | < 112 | < 35 |
| | Plantain | 9/17/2025 | < 30 | < 30 | < 60 | < 32 | < 62 | < 28 | < 55 | < 50 | < 35 | < 30 | < 122 | < 41 |
| | Clover | 10/16/2025 | < 32 | < 27 | < 59 | < 43 | < 70 | < 30 | < 43 | < 53 | < 36 | < 34 | < 145 | < 50 |
| | Plantain | 10/16/2025 | < 18 | < 17 | < 34 | < 18 | < 35 | < 17 | < 26 | < 30 | < 18 | < 21 | < 85 | < 26 |

Table 16, Monthly Surface Water Gross Beta (pCi/L ± 2 Sigma)

| Collection Date | L-21 | L-40 |
|---|---|---|
| 1/8/2025 | **9** ± 6 | **14** ± 7 |
| 2/5/2025 | **8** ± 3 | **11** ± 3 |
| 3/5/2025 | **9** ± 3 | **7** ± 3 |
| 4/3/2025 | **5** ± 2 | **9** ± 3 |
| 5/8/2025 | **6** ± 2 | **9** ± 3 |
| 6/4/2025 | **7** ± 3 | **7** ± 3 |
| 7/1/2025 | **5** ± 3 | **9** ± 3 |
| 8/6/2025 | **9** ± 3 | **7** ± 3 |
| 9/3/2025 | **10** ± 3 | **4** ± 2 |
| 10/1/2025 | **9** ± 3 | **11** ± 3 |
| 11/5/2025 | **10** ± 3 | **11** ± 3 |
| 12/3/2025 | **10** ± 3 | **14** ± 4 |

Table 17: Monthly Surface Water Gamma Isotopic (pCi/L± 2 Sigma )

| Station | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-21 | 1/8/2025 - 1/23/2025 | < 2 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 2 | < 15 | < 5 |
| | 2/5/2025 - 2/27/2025 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 6 | < 2 | < 2 | < 11 | < 5 |
| | 3/5/2025 - 3/27/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 3 | < 7 | < 2 | < 2 | < 14 | < 5 |
| | 4/3/2025 - 4/30/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 12 | < 2 | < 2 | < 20 | < 7 |
| | 5/8/2025 - 5/29/2025 | < 2 | < 2 | < 5 | < 2 | < 5 | < 2 | < 4 | < 8 | < 2 | < 2 | < 15 | < 6 |
| | 6/4/2025 - 6/25/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 8 | < 2 | < 2 | < 15 | < 5 |
| | 7/1/2025 - 7/31/2025 | < 1 | < 1 | < 3 | < 1 | < 2 | < 1 | < 2 | < 13 | < 1 | < 1 | < 16 | < 5 |
| | 8/6/2025 - 8/28/2025 | < 2 | < 2 | < 5 | < 3 | < 5 | < 2 | < 4 | < 10 | < 2 | < 2 | < 20 | < 7 |
| | 9/3/2025 - 9/25/2025 | < 2 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 2 | < 16 | < 5 |
| | 10/1/2025 - 10/30/2025 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 3 | < 10 | < 2 | < 2 | < 17 | < 6 |
| | 11/5/2025 - 11/26/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 15 | < 2 | < 2 | < 23 | < 8 |
| | 12/3/2025 - 12/30/2025 | < 2 | < 2 | < 5 | < 2 | < 3 | < 2 | < 4 | < 8 | < 2 | < 2 | < 23 | < 8 |

Table 17: Monthly Surface Water Gamma Isotopic (pCi/L± 2 Sigma ) Cont'd

| Station | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-40 | 1/8/2025 - 1/23/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 10 | < 2 | < 2 | < 18 | < 6 |
| | 2/5/2025 - 2/27/2025 | < 2 | < 2 | < 5 | < 3 | < 5 | < 3 | < 4 | < 9 | < 2 | < 2 | < 18 | < 6 |
| | 3/5/2025 - 3/27/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 8 | < 2 | < 2 | < 16 | < 6 |
| | 4/3/2025 - 4/30/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 13 | < 2 | < 2 | < 21 | < 7 |
| | 5/8/2025 - 5/29/2025 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 4 | < 7 | < 2 | < 2 | < 15 | < 6 |
| | 6/4/2025 - 6/25/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 8 | < 2 | < 2 | < 15 | < 5 |
| | 7/1/2025 - 7/31/2025 | < 1 | < 1 | < 4 | < 2 | < 3 | < 2 | < 3 | < 13 | < 1 | < 1 | < 18 | < 6 |
| | 8/6/2025 - 8/28/2025 | < 2 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 9 | < 2 | < 2 | < 16 | < 5 |
| | 9/3/2025 - 9/25/2025 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 4 | < 9 | < 2 | < 2 | < 15 | < 6 |
| | 10/1/2025 - 10/30/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 11 | < 2 | < 2 | < 19 | < 6 |
| | 11/5/2025 - 11/26/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 15 | < 2 | < 2 | < 22 | < 7 |
| | 12/3/2025 - 12/30/2025 | < 2 | < 2 | < 5 | < 2 | < 4 | < 3 | < 4 | < 9 | < 2 | < 2 | < 29 | < 9 |

Table 18: Quarterly Surface Water Tritium (pCi/L ± 2 Sigma)

| Station | Collection Dates | H-3 |
|---|---|---|
| L-21 | 01/08/2025 - 03/27/2025 | **258** ± 139 |
| | 01/08/2025 - 03/27/2025 [A] | **220** ± 138 |
| | 01/08/2025 - 03/27/2025 [B] | **231** ± 126 |
| | 04/03/2025 - 06/25/2025 | **201** ± 131 |
| | 04/03/2025 - 06/25/2025 [B] | **279** ± 131 |
| | 06/04/2025 - 09/25/2025 | **427** ± 132 |
| | 06/04/2025 - 09/25/2025 [B] | **383** ± 134 |
| | 10/01/2025 - 12/30/2025 | **452** ± 131 |
| | 10/01/2025 - 12/30/2025 [A] | **364** ± 134 |
| | 10/01/2025 - 12/30/2025 [B] | **471** ± 143 |
| L-40 | 01/08/2025 - 03/27/2025 | **396** ± 138 |
| | 01/08/2025 - 03/27/2025 [A] | **283** ± 134 |
| | 01/08/2025 - 03/27/2025 [B] | **376** ± 132 |
| | 04/03/2025 - 06/25/2025 | < 195 |
| | 06/04/2025 - 09/25/2025 | **449** ± 132 |
| | 06/04/2025 - 09/25/2025 [B] | **364** ± 135 |
| | 10/01/2025 - 12/30/2025 | **439** ± 132 |
| | 10/01/2025 - 12/30/2025 [A] | **500** ± 145 |
| | 10/01/2025 - 12/30/2025 [B] | **428** ± 139 |

[A] Recount
[B] Reanalysis

Table 19, Quarterly Ground Water Tritium (pCi/L ± 2 Sigma)

| Collection Date | L-27 | L-28-W4 | L-28-W5 | L-28-W6 |
|---|---|---|---|---|
| 1/8/2025 | < 183 | < 180 | (1) | < 177 |
| 4/9/2025 | < 197 | (1) | < 187 | < 188 |
| 7/9/2025 | < 184 | < 186 | (1) | < 183 |
| 10/8/2025 | < 182 | (1) | < 181 | < 182 |

(1) Samples not required for this quarter.

Table 20: Quarterly Ground Water Gamma Isotopic (pCi/L ± 2 Sigma)

| Station | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-27 | 1/8/2025 - 1/8/2025 | < 3 | < 4 | < 7 | < 6 | < 7 | < 4 | < 8 | < 4 | < 4 | < 19 | < 7 |
| | 4/9/2025 - 4/9/2025 | < 5 | < 5 | < 9 | < 7 | < 12 | < 6 | < 14 | < 7 | < 7 | < 37 | < 5 |
| | 7/9/2025 - 7/9/2025 | < 8 | < 7 | < 15 | < 8 | < 18 | < 8 | < 11 | < 8 | < 9 | < 36 | < 15 |
| | 10/8/2025 - 10/8/2025 | < 7 | < 9 | < 11 | < 6 | < 14 | < 7 | < 8 | < 6 | < 7 | < 32 | < 13 |
| L-28-W4 | 1/8/2025 - 1/8/2025 | < 4 | < 5 | < 10 | < 4 | < 11 | < 6 | < 9 | < 5 | < 3 | < 18 | < 8 |
| | 7/9/2025 - 7/9/2025 | < 8 | < 6 | < 11 | < 7 | < 11 | < 8 | < 13 | < 8 | < 8 | < 38 | < 12 |
| L-28-W5 | 4/9/2025 - 4/9/2025 | < 6 | < 5 | < 12 | < 7 | < 12 | < 6 | < 10 | < 6 | < 7 | < 29 | < 9 |
| | 10/8/2025 - 10/8/2025 | < 7 | < 7 | < 18 | < 9 | < 18 | < 6 | < 12 | < 8 | < 7 | < 36 | < 12 |
| L-28-W6 | 1/8/2025 - 1/8/2025 | < 4 | < 5 | < 9 | < 6 | < 11 | < 6 | < 9 | < 5 | < 5 | < 20 | < 8 |
| | 4/9/2025 - 4/9/2025 | < 5 | < 6 | < 11 | < 5 | < 11 | < 7 | < 13 | < 6 | < 5 | < 32 | < 9 |
| | 7/9/2025 - 7/9/2025 | < 6 | < 7 | < 15 | < 6 | < 15 | < 7 | < 11 | < 7 | < 6 | < 34 | < 10 |
| | 10/8/2025 - 10/8/2025 | < 6 | < 9 | < 15 | < 6 | < 15 | < 5 | < 13 | < 7 | < 7 | < 40 | < 10 |

Table 21: Semi-Annual Fish Gamma Isotopic (pCi/kg Wet ± 2 Sigma)

| Station | | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-34 | Common Carp | 5/6/2025 | < 81 | < 88 | < 183 | < 92 | < 173 | < 79 | < 163 | < 95 | < 82 | < 466 | < 171 |
| | Largemouth Bass | 5/6/2025 | < 68 | < 82 | < 140 | < 70 | < 160 | < 79 | < 115 | < 83 | < 55 | < 425 | < 104 |
| | Channel Catfish | 10/1/2025 | < 98 | < 109 | < 185 | < 80 | < 153 | < 103 | < 191 | < 86 | < 79 | < 1331 | < 386 |
| | Largemouth Bass | 10/1/2025 | < 80 | < 71 | < 239 | < 103 | < 194 | < 101 | < 192 | < 92 | < 90 | < 1271 | < 286 |
| L-35 | Black Buffalo | 5/6/2025 | < 82 | < 79 | < 200 | < 66 | < 164 | < 83 | < 150 | < 92 | < 93 | < 446 | < 164 |
| | Channel Catfish | 5/6/2025 | < 69 | < 47 | < 146 | < 83 | < 157 | < 71 | < 134 | < 62 | < 67 | < 375 | < 149 |
| | Black Buffalo | 10/1/2025 | < 87 | < 94 | < 251 | < 115 | < 186 | < 110 | < 193 | < 74 | < 84 | < 1137 | < 396 |
| | Silver Carp | 10/1/2025 | < 48 | < 73 | < 183 | < 86 | < 111 | < 71 | < 110 | < 80 | < 71 | < 1028 | < 148 |
| L-36 | Black Buffalo | 5/6/2025 | < 75 | < 82 | < 183 | < 103 | < 188 | < 95 | < 135 | < 97 | < 94 | < 454 | < 157 |
| | Common Carp | 5/6/2025 | < 41 | < 48 | < 122 | < 74 | < 119 | < 60 | < 92 | < 48 | < 50 | < 304 | < 152 |
| | Black Buffalo | 10/1/2025 | < 80 | < 100 | < 156 | < 99 | < 186 | < 110 | < 165 | < 94 | < 78 | < 1293 | < 218 |
| | Common Carp | 10/1/2025 | < 77 | < 75 | < 224 | < 74 | < 176 | < 100 | < 157 | < 74 | < 83 | < 1174 | < 461 |

Table 22: Semi-Annual Shoreline Sediment Gamma Isotopic (pCi/kg Dry ± 2 Sigma)

| Station | Collection Dates | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-21 | 5/27/2025 | < 99 | < 89 | < 198 | < 103 | < 216 | < 98 | < 135 | < 92 | < 103 | < 342 | < 132 |
| | 10/22/2025 | < 63 | < 73 | < 239 | < 72 | < 164 | < 95 | < 146 | < 73 | < 74 | < 1274 | < 394 |
| L-40 | 5/27/2025 | < 97 | < 68 | < 183 | < 128 | < 172 | < 85 | < 123 | < 101 | < 95 | < 403 | < 122 |
| | 10/22/2025 | < 62 | < 79 | < 229 | < 86 | < 166 | < 97 | < 153 | < 81 | < 79 | < 1400 | < 396 |
| L-41 | 5/6/2025 | < 102 | < 83 | < 225 | < 88 | < 177 | < 82 | < 149 | < 91 | < 80 | < 489 | < 213 |
| | 10/1/2025 | < 102 | < 89 | < 288 | < 101 | < 220 | < 134 | < 201 | < 101 | < 80 | < 1529 | < 398 |

## Attachment 3, Cross Check Intercomparison Program

Participation in cross check intercomparison studies is mandatory for laboratories performing analyses of REMP samples satisfying the requirements in the Offsite Site Dose Calculation Manual. Intercomparison studies provide a consistent and effective means to evaluate the accuracy and precision of analyses performed by a laboratory. Study results should fall within specified control limits and results that fall outside the control limits are investigated and corrected.

Teledyne Brown Engineering Inc. (TBE) participated in the following proficiency testing studies provided by Eckert Ziegler Analytics, DOE's Mixed Analyte Performance Evaluation Program (MAPEP), and/or Environmental Resource Associates (ERA) in 2025. The Laboratory's intercomparison program results for 2025 are summarized below.

For the TBE laboratory, 157 out of 164 analyses performed met the specified acceptance criteria. Seven analyses did not meet the specified acceptance criteria and were addressed through the TBE Corrective Action Program. A summary is found below:

I. NCR 25-04: MAPEP 25, RdV52 vegetation study for Sr-90 evaluated as "Not Acceptable." Possible sample interference issue. Study results stated 8 out of 18 participants passed the study. All internal data reviewed and deemed accurate with internal quality control measures for sample also passing. The laboratory performed testing with Sr-85 spike with successful outcomes. The following provider study, RdV53, returned with passing results.

II. NCR 25-05: Interlaboratory crosscheck failure: MAPEP 25-MaS52 Ni-63 in soil. A manual data-entry error in the carrier volume for one nuclide/matrix led to an incorrect LIMS value. Manual verification showed that the crosscheck would have passed with the correct volume. The procedure has been revised with more prominent notation to assist technicians. No recurrence identified and the following crosscheck study did not result in repeated error supporting effectiveness of corrective action.

III. NCR 25-06: Interlaboratory crosscheck failure: ERA RAD141 Gr-A in water. The provider's acceptance range was 10.0–21.2, and their reported value of 15.6 fell within this interval. TBE-ES obtained 22.2 ± 3.76, which satisfied internal QC criteria and would have aligned with the acceptance range if error margins had been considered. The QC duplicate result of 17.8 met internal requirements, and the 22% RPD demonstrated internal consistency. The provider's Gr-A samples have historically been the lowest spiked. No internal failures identified so no corrective action deemed necessary. The following ERA RAD143 study's performance evaluation results returned acceptable/passing.

IV. NCR 25-10: *IN-PROGRESS* Interlaboratory crosscheck failure: ERA MRAD 43, PU-239/240 (AS) in Air Particulate (filter).

V. NCR 25-11: Interlaboratory crosscheck failure: ERA RAD-143 crosscheck failure of Uranium in water. Provider acceptance range: 48.0 – 60.0. TBE-ES result of 47.1 with internal acceptance ratio of 87.2 and no prior failures. No corrective action deemed necessary.

VI. NCR 25-12: *IN-PROGRESS* Interlaboratory crosscheck failure: MAPEP Series 53, Ni-63 in Soil.

VII. NCR 25-13: Interlaboratory crosscheck failure: MAPEP Series 53, Th-232 in soil. Subsequent reanalysis by another qualified technician identified no anomalies, and the original submitted result was marginally outside the acceptance range (0.1) with overlapping uncertainty; associated thorium isotopes were passing. The laboratory will update the analytical procedure as the corrective action.

## Table 23, DOE Mixed Analyte Performance Evaluation Program (MAPEP)

## Teledyne Brown Engineering - Environmental Services

| Month/Year | Identification Number | Matrix | Nuclide | Units | TBE Reported Value | Known Value (a) | Acceptance Range | Acceptance Ratio (%) | Evaluation (b) |
|---|---|---|---|---|---|---|---|---|---|
| Mar 2025 | 25-MaS52 | Soil | Ni-63 | Bq/kg | 964 | 1560 | 1092-2028 | 61.8 | N(1) |
| Mar 2025 | 25-MaS52 | Soil | Tc-99 | Bq/kg | 659 | 725 | 508-943 | 90.9 | A |
| Mar 2025 | 25-MaS52 | Soil | Th-228 | Bq/kg | 44.3 | 44.4 | 31.1-57.7 | 99.8 | A |
| Mar 2025 | 25-MaS52 | Soil | Th-230 | Bq/kg | 46.4 | 47 | 32.9-61.1 | 98.7 | A |
| Mar 2025 | 25-MaS52 | Soil | Th-232 | Bq/kg | 39.9 | 41.4 | 29.0-53.8 | 96.4 | A |
| Mar 2025 | 25-MaSU52 | Urine | Cs-134 | Bq/L | -0.0104 | | False Positive | N/A | A |
| Mar 2025 | 25-MaSU52 | Urine | Cs-137 | Bq/L | 0.497 | 0.608 | 0.426-0.490 | 81.7 | A |
| Mar 2025 | 25-MaSU52 | Urine | Co-57 | Bq/L | 0.0472 | | False Positive | N/A | A |
| Mar 2025 | 25-MaSU52 | Urine | Co-60 | Bq/L | 0.104 | 0.0765 | Sensitivity Eval | N/A | A |
| Mar 2025 | 25-MaSU52 | Urine | Mn-54 | Bq/L | 0.0365 | | False Positive | N/A | A |
| Mar 2025 | 25-MaSU52 | Urine | U-234 | Bq/L | 0.0963 | 0.105 | 0.074-0.137 | 91.7 | A |
| Mar 2025 | 25-MaSU52 | Urine | U-238 | Bq/L | 0.108 | 0.109 | 0.076-0.142 | 99.1 | A |
| Mar 2025 | 25-MaSU52 | Urine | Zn-65 | Bq/L | -0.278 | | False Positive | N/A | A |
| Mar 2025 | 25-MaW52 | Water | Ni-63 | Bq/L | 37.3 | 38.9 | 27.2-50.6 | 95.9 | A |
| Mar 2025 | 25-MaW52 | Water | Tc-99 | Bq/L | 6.64 | 6.34 | 4.44-8.24 | 104.7 | A |
| Mar 2025 | 25-RdV52 | Vegetation | Cs-134 | Bq/sample | 0.0452 | | False Positive | N/A | A |
| Mar 2025 | 25-RdV52 | Vegetation | Cs-137 | Bq/sample | 0.558 | 0.707 | 0.495-0.919 | 78.9 | W |
| Mar 2025 | 25-RdV52 | Vegetation | Co-57 | Bq/sample | 2.86 | 3.40 | 2.38-4.42 | 84.1 | A |
| Mar 2025 | 25-RdV52 | Vegetation | Co-60 | Bq/sample | 0.0284 | | False Positive | N/A | A |
| Mar 2025 | 25-RdV52 | Vegetation | Mn-54 | Bq/sample | 2.22 | 2.72 | 1.90-3.54 | 81.6 | A |
| Mar 2025 | 25-RdV52 | Vegetation | Sr-90 | Bq/sample | 0.222 | 0.370 | 0.259-0.481 | 60.0 | N(2) |
| Mar 2025 | 25-RdV52 | Vegetation | Zn-65 | Bq/sample | 1.5 | 1.87 | 1.31-2.43 | 80.2 | A |
| Mar 2025 | 25-RdV52 (R) | Vegetation | Sr-90 | Bq/sample | 0.356 | 0.370 | 0.259-0.481 | 96.2 | A |
| Mar 2025 | 25-RdV52 (R) | Vegetation | Sr-90 | Bq/sample | 0.4 | 0.370 | 0.259-0.481 | 108.1 | A |
| Sep 2025 | 25-MaS53 | Soil | Ni-63 | Bq/kg | 865 | 1474 | 1032-1916 | 58.7 | N(3) |
| Sep 2025 | 25-MaS53 | Soil | Tc-99 | Bq/kg | 314 | 370 | 259-481 | 84.9 | A |
| Sep 2025 | 25-MaS53 | Soil | Th-228 | Bq/kg | 51.2 | 41.7 | 29.2-54.2 | 123 | W |
| Sep 2025 | 25-MaS53 | Soil | Th-230 | Bq/kg | 54.8 | 45.6 | 31.9-59.3 | 120 | W |
| Sep 2025 | 25-MaS53 | Soil | Th-232 | Bq/kg | 50.4 | 38.7 | 27.1-50.3 | 130 | N(4) |
| Sep 2025 | 25-MaW53 | Water | Ni-63 | Bq/L | 23.0 | 25.0 | 17.5-32.5 | 92 | A |
| Sep 2025 | 25-MaW53 | Water | Tc-99 | Bq/L | 0.17 | | *False Pos* | N/A | A |
| Sep 2025 | 25-RdV53 | Vegetation | Cs-134 | Bq/sample | 0.1051 | | *False Pos* | N/A | A |
| Sep 2025 | 25-RdV53 | Vegetation | Cs-137 | Bq/sample | 0.9581 | 0.986 | 0.69-1.282 | 97 | A |
| Sep 2025 | 25-RdV53 | Vegetation | Co-57 | Bq/sample | 4.54 | 4.47 | 3.13-5.81 | 102 | A |
| Sep 2025 | 25-RdV53 | Vegetation | Co-60 | Bq/sample | 2.08 | 2.3 | 1.61-2.99 | 90 | A |
| Sep 2025 | 25-RdV53 | Vegetation | Mn-54 | Bq/sample | 2.64 | 3.1 | 2.17-4.03 | 85 | A |
| Sep 2025 | 25-RdV53 | Vegetation | Sr-90 | Bq/sample | 1.5 | 1.43 | 1.00-1.86 | 105 | A |
| Sep 2025 | 25-RdV53 | Vegetation | Zn-65 | Bq/sample | 8.39 | 9.29 | 6.50-12.08 | 90 | A |

(a)The MAPEP known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.
(b)DOE/MAPEP evaluation:
A = Acceptable - reported result falls within ratio limits of 0.80-1.20
W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30
N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

Results Flags:
A = Result acceptable. |Bias| <= 20%
W = Result acceptable with warning. 20% < |Bias| <= 30%
N = Result not acceptable. |Bias| > 30%
RW = Report Warning NR = Not Reported
Uncertainty Flags:
NOT ACCEPTABLE. RP < 2%
ACCEPTABLE. 2% <= RP <= 15%
ACCEPTABLE WITH WARNING. 15% < RP <= 30%
NOT ACCEPTABLE. RP > 30%
Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

N(1) = NCR 25-05 N(2) = NCR 25-04
(R) = Additional Study for N(2) failure N(3) = NCR 25-12
N(4) = NCR 25-13

## Table 24, ERA Environmental Radioactivity Crosscheck Program

## Teledyne Brown Engineering - Environmental Services

| Month Year | Identification Number | Matrix | Nuclide | Units | TBE Reported Value | Known Value (a) | Acceptance Range | Acceptance Ratio (%) | Evaluation (b) |
|---|---|---|---|---|---|---|---|---|---|
| Mar 2025 | MRAD-42 | Soil | Am-241 | pCi/kg | 955 | 1060 | 572-1500 | 90.1 | A |
| Mar 2025 | MRAD-42 | Soil | Pu-238 | pCi/kg | 1010 | 1070 | 534-1630 | 94.4 | A |
| Mar 2025 | MRAD-42 | Soil | Pu-239 | pCi/kg | 1020 | 1150 | 627-1650 | 88.7 | A |
| Mar 2025 | MRAD-42 | Soil | Sr-90 | pCi/kg | 3540 | 5710 | 1780-8890 | 62.0 | A |
| Mar 2025 | MRAD-42 | Soil | U-234 | pCi/kg | 3598 | 3500 | 1640-4590 | 103 | A |
| Mar 2025 | MRAD-42 | Soil | U-238 | pCi/kg | 3857 | 3470 | 1900-4660 | 111 | A |
| Mar 2025 | MRAD-42 | AP | Am-241 | pCi/Filter | 73.5 | 67.7 | 48.3-90.3 | 109 | A |
| Mar 2025 | MRAD-42 | AP | Fe-55 | pCi/Filter | 224 | 181 | 66.1-289 | 124 | A |
| Mar 2025 | MRAD-42 | AP | Pu-238 | pCi/Filter | 41.7 | 40.2 | 30.4-49.4 | 104 | A |
| Mar 2025 | MRAD-42 | AP | Pu-239 | pCi/Filter | 64.5 | 62.3 | 46.6-75.2 | 104 | A |
| Mar 2025 | MRAD-42 | AP | U-234 | pCi/Filter | 30.8 | 34.2 | 25.4-40.1 | 90.1 | A |
| Mar 2025 | MRAD-42 | AP | U-238 | pCi/Filter | 29.4 | 33.9 | 25.6-40.4 | 86.7 | A |
| Mar 2025 | MRAD-42 | AP | Gr-A (Th-230) | pCi/Filter | 44.8 | 39.5 | 20.6-65.1 | 113 | A |
| Mar 2025 | MRAD-42 | AP | Gr-B (CS-137) | pCi/Filter | 62.6 | 55.2 | 33.5-83.4 | 113 | A |
| Mar 2025 | MRAD-42 | Water | Am-241 | pCi/L | 40.5 | 39.5 | 27.1-50.5 | 103 | A |
| Mar 2025 | MRAD-42 | Water | Fe-55 | pCi/L | 892.6 | 1460 | 858-2120 | 61.1 | A |
| Mar 2025 | MRAD-42 | Water | Pu-238 | pCi/L | 74.9 | 77.2 | 46.4-100 | 97.0 | A |
| Mar 2025 | MRAD-42 | Water | Pu-239 | pCi/L | 59.2 | 58.4 | 36.1-72.0 | 101 | A |
| Apr 2025 | RAD-141 | Water | Ba-133 | pCi/L | 42.7 | 48.3 | 34.3-62.3 | 88.4 | A |
| Apr 2025 | RAD-141 | Water | Cs-134 | pCi/L | 19.5 | 16.5 | 5.65-27.4 | 118 | A |
| Apr 2025 | RAD-141 | Water | Cs-137 | pCi/L | 47.3 | 50.8 | 27.3-74.3 | 93.1 | A |
| Apr 2025 | RAD-141 | Water | Co-60 | pCi/L | 99.2 | 104 | 84.4-124 | 95.4 | A |
| Apr 2025 | RAD-141 | Water | Zn-65 | pCi/L | 317 | 341 | 279-403 | 93.0 | A |
| Apr 2025 | RAD-141 | Water | GR-A | pCi/L | 22.2 | 15.6 | 10.0-21.2 | 142.3 | N(1) |
| Apr 2025 | RAD-141 | Water | GR-B | pCi/L | 21.6 | 22.9 | 15.0-30.8 | 94.3 | A |
| Apr 2025 | RAD-141 | Water | H-3 | pCi/L | 19900 | 21200 | 18200-24200 | 93.9 | A |
| Apr 2025 | RAD-141 | Water | I-131 (Low Level) | pCi/L | 26.1 | 26.8 | 23.2-30.4 | 97.4 | A |
| Apr 2025 | RAD-141 | Water | Sr-89 | pCi/L | 70.8 | 67.1 | 51.2-83.0 | 106 | A |
| Apr 2025 | RAD-141 | Water | Sr-90 | pCi/L | 22.5 | 23.9 | 19.7-28.1 | 94.1 | A |
| Apr 2025 | RAD-141 | Water | U (Total) | pCi/L | 48.0 | 49.6 | 44.0-55.2 | 96.8 | A |
| Sept 2025 | MRAD-43 | Soil | Sr-90 | pCi/kg | 6790 | 9490 | 2950-14800 | 71.5 | A |
| Sept 2025 | MRAD-43 | AP | Am-241 | pCi/Filter | 40.2 | 39.8 | 28.4-53.1 | 101 | A |
| Sept 2025 | MRAD-43 | AP | Fe-55 | pCi/Filter | 125 | 166 | 60.6-265 | 75.3 | A |
| Sept 2025 | MRAD-43 | AP | Pu-238 | pCi/Filter | 26 | 15.1 | 11.4-18.6 | 172 | N(3) |
| Sept 2025 | MRAD-43 | AP | U-234 | pCi/Filter | 57.7 | 63.4 | 47.0-74.3 | 91.0 | A |
| Sept 2025 | MRAD-43 | AP | U-238 | pCi/Filter | 63.1 | 62.9 | 47.5-75.0 | 100 | A |
| Sept 2025 | MRAD-43 | AP | Gr-A (Th-230) | pCi/Filter | 28.2 | 22 | 11.5-36.2 | 128 | A |
| Sept 2025 | MRAD-43 | AP | Gr-B (CS-137) | pCi/Filter | 38.6 | 40.5 | 24.6-61.2 | 95.3 | A |
| Sept 2025 | MRAD-43 | Water | Am-241 | pCi/L | 69.2 | 68.6 | 47.1-87.7 | 101 | A |
| Sept 2025 | MRAD-43 | Water | Fe-55 | pCi/L | 304 | 399 | 234-580 | 76.2 | A |
| Sept 2025 | MRAD-43 | Water | Pu-238 | pCi/L | 104 | 115 | 56.7-122 | 90.4 | A |
| Sept 2025 | MRAD-43 | Water | Pu-239 | pCi/L | 37.8 | 39.8 | 24.6-49.0 | 95.0 | A |
| Oct 2025 | RAD | Water | Ba-133 | pCi/L | 21.3 | 17.5 | 6.55-28.5 | 122 | A |
| Oct 2025 | RAD | Water | Cs-134 | pCi/L | 53.8 | 58 | 43.0-73.0 | 92.8 | A |
| Oct 2025 | RAD | Water | Cs-137 | pCi/L | 179.5 | 178 | 142-214 | 101 | A |
| Oct 2025 | RAD | Water | Co-60 | pCi/L | 58.3 | 55 | 40.3-69.7 | 106 | A |
| Oct 2025 | RAD | Water | Zn-65 | pCi/L | 37.04 | 36.8 | 5.51-68.1 | 101 | A |
| Oct 2025 | RAD | Water | GR-A | pCi/L | 64.8 | 59.9 | 45.5-74.3 | 108 | A |
| Oct 2025 | RAD | Water | GR-B | pCi/L | 19.3 | 19.3 | 12.2-26.4 | 100 | A |
| Oct 2025 | RAD | Water | H-3 | pCi/L | 18400 | 21200 | 18200-24200 | 86.8 | A |
| Oct 2025 | RAD | Water | I-131 (Low Level) | pCi/L | 23.9 | 24.3 | 20.9-27.7 | 98.4 | A |
| Oct 2025 | RAD | Water | Sr-89 | pCi/L | 69.7 | 64.2 | 48.6-79.8 | 109 | A |
| Oct 2025 | RAD | Water | Sr-90 | pCi/L | 39.8 | 43.8 | 37.6-50.0 | 90.9 | A |
| Oct 2025 | RAD | Water | U (Total) | pCi/L | 47.1 | 54 | 48.0-60.0 | 87.2 | N(2) |

(a)The ERA known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(b)ERA evaluation:
A = Acceptable - Reported value falls within the Acceptance Limits
N = Not Acceptable - Reported value falls outside of the Acceptance Limits
N(1) = NCR 25-06 N(2) = NCR 25-11 N(3) = NCR 25

## Table 25: Eckert & Ziegler Analytics Environmental Radioactivity Crosscheck Program

## Teledyne Brown Engineering - Environmental Services

| Month/Year | Identification Number | Matrix | Nuclide | Units | TBE Reported Value | Known Value (a) | Acceptance Ratio (%) | Evaluation (b) |
|---|---|---|---|---|---|---|---|---|
| March 2025 | E14230 | Milk | Ce-141 | pCi/L | 68.1 | 75.8 | 90 | A |
| March 2025 | E14230 | Milk | Cs-134 | pCi/L | 121 | 142 | 85 | A |
| March 2025 | E14230 | Milk | Cs-137 | pCi/L | 154 | 168 | 92 | A |
| March 2025 | E14230 | Milk | Cr-51 | pCi/L | 278 | 291 | 96 | A |
| March 2025 | E14230 | Milk | Co-58 | pCi/L | 95.4 | 105 | 91 | A |
| March 2025 | E14230 | Milk | Co-60 | pCi/L | 169 | 193 | 88 | A |
| March 2025 | E14230 | Milk | Fe-59 | pCi/L | 125 | 135 | 93 | A |
| March 2025 | E14230 | Milk | Mn-54 | pCi/L | 172 | 189 | 91 | A |
| March 2025 | E14230 | Milk | Zn-65 | pCi/L | 229 | 251 | 91 | A |
| March 2025 | E14230 | Milk | I-131 (Low Level) | pCi/L | 88.4 | 94.7 | 93 | A |
| March 2025 | E14229 | Milk | Sr-89 | pCi/L | 84.9 | 91.9 | 92 | A |
| March 2025 | E14229 | Milk | Sr-90 | pCi/L | 11.1 | 15.6 | 71 | W |
| March 2025 | E14323 | AP | Ce-141 | pCi | 55.9 | 54.2 | 103 | A |
| March 2025 | E14323 | AP | Cs-134 | pCi | 93.0 | 102 | 91 | A |
| March 2025 | E14323 | AP | Cs-137 | pCi | 107 | 120 | 89 | A |
| March 2025 | E14323 | AP | Cr-51 | pCi | 194 | 208 | 93 | A |
| March 2025 | E14323 | AP | Co-58 | pCi | 68.4 | 75.2 | 91 | A |
| March 2025 | E14323 | AP | Co-60 | pCi | 142 | 138 | 103 | A |
| March 2025 | E14323 | AP | Fe-59 | pCi | 95.0 | 96.3 | 99 | A |
| March 2025 | E14323 | AP | Mn-54 | pCi | 123 | 135 | 91 | A |
| March 2025 | E14234 | AP | Zn-65 | pCi | 181 | 179 | 101 | A |
| March 2025 | E14336 | AP | Ni-63 | pCi/Total | 81.5 | 87.4 | 93 | A |
| March 2025 | E14234 | AP | Sr-89 | pCi | 81.6 | 88.5 | 92 | A |
| March 2025 | E14234 | AP | Sr-90 | pCi | 13.6 | 15 | 90 | A |
| March 2025 | E14231 | Charcoal | I-131 | pCi | 70.3 | 66.3 | 106 | A |
| March 2025 | E14233 | Soil | Ce-141 | pCi/g | 0.124 | 0.129 | 96 | A |
| March 2025 | E14233 | Soil | Cs-134 | pCi/g | 0.283 | 0.242 | 117 | A |
| March 2025 | E14233 | Soil | Cs-137 | pCi/g | 0.333 | 0.351 | 95 | A |
| March 2025 | E14233 | Soil | Cr-51 | pCi/g | 0.495 | 0.494 | 100 | A |
| March 2025 | E14233 | Soil | Co-58 | pCi/g | 0.193 | 0.179 | 108 | A |
| March 2025 | E14233 | Soil | Co-60 | pCi/g | 0.323 | 0.327 | 99 | A |
| March 2025 | E14233 | Soil | Fe-59 | pCi/g | 0.231 | 0.229 | 101 | A |
| March 2025 | E14233 | Soil | Mn-54 | pCi/g | 0.325 | 0.321 | 101 | A |
| March 2025 | E14233 | Soil | Zn-65 | pCi/g | 0.446 | 0.426 | 105 | A |
| March 2025 | E14235 | Water | Gr-A (Am-241) | pCi/L | 79.6 | 89.4 | 89 | A |
| March 2025 | E14235 | Water | Gr-B (Cs-137) | pCi/L | 242 | 285 | 85 | A |

Table 25: Eckert & Ziegler Analytics Environmental Radioactivity Crosscheck Program

Teledyne Brown Engineering - Environmental Services

| Month/Year | Identification Number | Matrix | Nuclide | Units | TBE Reported Value | Known Value (a) | Acceptance Ratio (%) | Evaluation (b) |
|---|---|---|---|---|---|---|---|---|
| Sept 2025 | E14237 | Milk | Ce-141 | pCi/L | 91.6 | 89.5 | 102 | A |
| Sept 2025 | E14237 | Milk | Cs-134 | pCi/L | 121 | 142 | 85 | A |
| Sept 2025 | E14237 | Milk | Cs-137 | pCi/L | 115 | 126 | 91 | A |
| Sept 2025 | E14237 | Milk | Cr-51 | pCi/L | 280 | 260 | 108 | A |
| Sept 2025 | E14237 | Milk | Co-58 | pCi/L | 104 | 105 | 99 | A |
| Sept 2025 | E14237 | Milk | Co-60 | pCi/L | 145 | 150 | 97 | A |
| Sept 2025 | E14237 | Milk | Fe-59 | pCi/L | 91.4 | 98.6 | 93 | A |
| Sept 2025 | E14237 | Milk | Mn-54 | pCi/L | 159 | 161 | 99 | A |
| Sept 2025 | E14237 | Milk | Zn-65 | pCi/L | 205 | 196 | 105 | A |
| Sept 2025 | E14237 | Milk | I-131 (Low Level) | pCi/L | 79.5 | 76.3 | 104 | A |
| Sept 2025 | E14236 | Milk | Sr-89 | pCi/L | 109 | 89.8 | 121 | W |
| Sept 2025 | E14236 | Milk | Sr-90 | pCi/L | 10.9 | 13.1 | 83 | A |
| Sept 2025 | E14239 | AP | Ce-141 | pCi | 67.5 | 68.1 | 99 | A |
| Sept 2025 | E14239 | AP | Cs-134 | pCi | 103 | 108 | 95 | A |
| Sept 2025 | E14239 | AP | Cs-137 | pCi | 98.4 | 96.1 | 102 | A |
| Sept 2025 | E14239 | AP | Cr-51 | pCi | 227 | 197 | 115 | A |
| Sept 2025 | E14239 | AP | Co-58 | pCi | 79.6 | 79.9 | 100 | A |
| Sept 2025 | E14239 | AP | Co-60 | pCi | 131 | 114 | 115 | A |
| Sept 2025 | E14239 | AP | Fe-59 | pCi | 74.7 | 75 | 100 | A |
| Sept 2025 | E14239 | AP | Mn-54 | pCi | 120 | 123 | 98 | A |
| Sept 2025 | E14239 | AP | Zn-65 | pCi | 133 | 149 | 89 | A |
| Sept 2025 | E14337 | AP | Ni-63 | pCi/Total | 71.4 | 85.1 | 84 | A |
| Sept 2025 | E14241 | AP | Sr-89 | pCi | 78.2 | 84.2 | 93 | A |
| Sept 2025 | E14241 | AP | Sr-90 | pCi | 13.7 | 12.2 | 112 | A |
| Sept 2025 | E14238 | Charcoal | I-131 | pCi | 80.8 | 79 | 102 | A |
| Sept 2025 | E14240 | Soil | Ce-141 | pCi/g | 0.133 | 0.149 | 89 | A |
| Sept 2025 | E14240 | Soil | Cs-134 | pCi/g | 0.166 | 0.236 | 70 | W |
| Sept 2025 | E14240 | Soil | Cs-137 | pCi/g | 0.22 | 0.276 | 80 | A |
| Sept 2025 | E14240 | Soil | Cr-51 | pCi/g | 0.486 | 0.432 | 112 | A |
| Sept 2025 | E14240 | Soil | Co-58 | pCi/g | 0.16 | 0.175 | 91 | A |
| Sept 2025 | E14240 | Soil | Co-60 | pCi/g | 0.234 | 0.251 | 93 | A |
| Sept 2025 | E14240 | Soil | Fe-59 | pCi/g | 0.154 | 0.164 | 94 | A |
| Sept 2025 | E14240 | Soil | Mn-54 | pCi/g | 0.241 | 0.269 | 90 | A |
| Sept 2025 | E14240 | Soil | Zn-65 | pCi/g | 0.308 | 0.326 | 94 | A |
| Sept 2025 | E14242 | Water | Gr-A (Am-241) | pCi/L | 97.2 | 99.7 | 97 | A |
| Sept 2025 | E14242 | Water | Gr-B (Cs-137) | pCi/L | 200 | 201 | 100 | A |

(a) The Analytics known value is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation.

(b) Analytics evaluation based on TBE internal QC limits:
A = Acceptable - reported result falls within ratio limits of 0.80-1.20
W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30
N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

Attachment 4, Environmental Direct Radiation Dosimetry Results

| Monitoring Location | Quarterly Baseline, $B_Q$ (mrem) | $B_Q$ + $MDD_Q$ (mrem) | Normalized Quarterly Monitoring Data, $M_Q$ (mrem) | | | | Quarterly Facility Dose, $F_Q=M_Q-B_Q$ (mrem, or "ND" if $F_Q \leq MDD_Q$) | | | | Annual Baseline, $B_A$ (mrem) | $B_A$ + $MDD_A$ (mrem) | Annual Monitoring Data, $M_A$ (mrem) | Annual Facility Dose, $F_A=M_A-B_A$ (mrem, or "ND" if $F_A \leq MDD_A$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| L-01 | 18.8 | 23.4 | 18.5 | 18.4 | 20.0 | 19.9 | ND | ND | ND | ND | 75.1 | 86.8 | 76.7 | ND |
| L-03 | 17.9 | 22.6 | 18.8 | 16.6 | 18.4 | 19.8 | ND | ND | ND | ND | 71.8 | 83.4 | 73.6 | ND |
| L-04 | 17.1 | 21.8 | 16.9 | 18.0 | 17.7 | 18.2 | ND | ND | ND | ND | 68.6 | 80.2 | 70.8 | ND |
| L-05 | 17.6 | 22.2 | 17.3 | 17.6 | 18.6 | 20.3 | ND | ND | ND | ND | 70.2 | 81.9 | 73.9 | ND |
| L-06 | 18.4 | 23.1 | 18.8 | 18.4 | 19.4 | 17.4 | ND | ND | ND | ND | 73.7 | 85.3 | 74.0 | ND |
| L-07 | 18.0 | 22.7 | 18.2 | 18.2 | 19.9 | 19.3 | ND | ND | ND | ND | 72.1 | 83.8 | 75.5 | ND |
| L-08 | 16.3 | 21.0 | 16.9 | 17.2 | 17.5 | 17.5 | ND | ND | ND | ND | 65.3 | 77.0 | 69.2 | ND |
| L-10 | 15.2 | 19.8 | 16.4 | 15.3 | 14.7 | 16.4 | ND | ND | ND | ND | 60.7 | 72.4 | 62.8 | ND |
| L-101 | 18.8 | 23.4 | 18.6 | 18.0 | 19.9 | 19.4 | ND | ND | ND | ND | 75.0 | 86.7 | 75.9 | ND |
| L-102 | 20.0 | 24.6 | 19.0 | 20.9 | 20.8 | 21.4 | ND | ND | ND | ND | 79.9 | 91.6 | 82.0 | ND |
| L-103 | 18.0 | 22.7 | 18.6 | 16.4 | 17.8 | 18.9 | ND | ND | ND | ND | 72.1 | 83.8 | 71.8 | ND |
| L-104 | 17.7 | 22.3 | 17.4 | 18.2 | 17.9 | 18.1 | ND | ND | ND | ND | 70.8 | 82.5 | 71.5 | ND |
| L-105 | 19.0 | 23.7 | 19.0 | 19.1 | 21.2 | 19.4 | ND | ND | ND | ND | 76.1 | 87.7 | 78.7 | ND |
| L-106 | 18.0 | 22.6 | 17.5 | 17.4 | 19.0 | 19.8 | ND | ND | ND | ND | 72.0 | 83.6 | 73.7 | ND |
| L-107 | 18.8 | 23.4 | 19.3 | 17.5 | 20.7 | 20.6 | ND | ND | ND | ND | 75.2 | 86.9 | 78.2 | ND |
| L-108 | 18.7 | 23.4 | 19.2 | 16.8 | 19.6 | 17.8 | ND | ND | ND | ND | 74.9 | 86.5 | 73.3 | ND |
| L-109 | 18.1 | 22.8 | 18.8 | 19.8 | 18.9 | 19.8 | ND | ND | ND | ND | 72.5 | 84.2 | 77.3 | ND |
| L-110 | 18.3 | 22.9 | 17.7 | 18.1 | 19.1 | 17.8 | ND | ND | ND | ND | 73.2 | 84.8 | 72.7 | ND |
| L-111B | 18.9 | 23.5 | 19.7 | 18.3 | 20.9 | 18.9 | ND | ND | ND | ND | 75.6 | 87.2 | 77.8 | ND |

$MDD_Q$ = Quarterly Minimum Differential Dose = 4.6 mrem
$MDD_A$ = Annual Minimum Differential Dose = 10.8 mrem
ND = Not Detected, where $M_Q \leq (B_Q+MDD_Q)$ or $M_A \leq (B_A+MDD_A)$

Attachment 4, Environmental Direct Radiation Dosimetry Results Cont'd

| Monitoring Location | Quarterly Baseline, $B_Q$ (mrem) | $B_Q$ + $MDD_Q$ (mrem) | Normalized Quarterly Monitoring Data, $M_Q$ (mrem) | | | | Quarterly Facility Dose, $F_Q=M_Q-B_Q$ (mrem, or "ND" if $F_Q \leq MDD_Q$) | | | | Annual Baseline, $B_A$ (mrem) | $B_A$ + $MDD_A$ (mrem) | Annual Monitoring Data, $M_A$ (mrem) | Annual Facility Dose, $F_A=M_A-B_A$ (mrem, or "ND" if $F_A \leq MDD_A$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| L-112 | 17.5 | 22.2 | 17.4 | 15.6 | 18.9 | 18.4 | ND | ND | ND | ND | 70.1 | 81.8 | 70.3 | ND |
| L-113A | 19.8 | 24.4 | 18.5 | 17.6 | 21.3 | 21.4 | ND | ND | ND | ND | 79.1 | 90.8 | 78.8 | ND |
| L-114 | 18.5 | 23.2 | 17.6 | 16.8 | 18.7 | 20.2 | ND | ND | ND | ND | 74.1 | 85.8 | 73.3 | ND |
| L-115 | 17.5 | 22.2 | 16.8 | 17.6 | 18.9 | 19.7 | ND | ND | ND | ND | 70.1 | 81.8 | 72.9 | ND |
| L-116 | 17.4 | 22.0 | 18.0 | 17.7 | 18.1 | 17.6 | ND | ND | ND | ND | 69.5 | 81.2 | 71.3 | ND |
| L-11A | 17.2 | 21.8 | 17.4 | 16.6 | 18.3 | 18.4 | ND | ND | ND | ND | 68.7 | 80.4 | 70.7 | ND |
| L-201 | 14.9 | 19.6 | 14.8 | 14.3 | 15.7 | 15.5 | ND | ND | ND | ND | 59.8 | 71.4 | 60.3 | ND |
| L-202 | 15.8 | 20.5 | 16.3 | 15.6 | 15.6 | 16.6 | ND | ND | ND | ND | 63.3 | 75.0 | 64.0 | ND |
| L-203 | 17.9 | 22.6 | 17.2 | 16.8 | 19.4 | 19.9 | ND | ND | ND | ND | 71.7 | 83.3 | 73.4 | ND |
| L-204 | 19.2 | 23.8 | 19.2 | 19.6 | 20.5 | 19.8 | ND | ND | ND | ND | 76.6 | 88.3 | 79.2 | ND |
| L-205-1 | 18.5 | 23.1 | 19.0 | 17.9 | 16.9 | 18.2 | ND | ND | ND | ND | 74.0 | 85.7 | 71.9 | ND |
| L-205-3 | 17.6 | 22.3 | 18.1 | 17.4 | 17.5 | 19.2 | ND | ND | ND | ND | 70.5 | 82.2 | 72.2 | ND |
| L-206 | 18.7 | 23.3 | 17.8 | 18.0 | 18.6 | 18.2 | ND | ND | ND | ND | 74.7 | 86.3 | 72.6 | ND |
| L-207 | 18.3 | 22.9 | 18.0 | 18.9 | 19.6 | 19.4 | ND | ND | ND | ND | 73.0 | 84.7 | 75.9 | ND |
| L-208 | 19.1 | 23.7 | 19.3 | 18.9 | 21.0 | 18.0 | ND | ND | ND | ND | 76.4 | 88.0 | 77.1 | ND |
| L-209 | 18.1 | 22.7 | 18.6 | 18.0 | 19.0 | 18.8 | ND | ND | ND | ND | 72.3 | 84.0 | 74.5 | ND |
| L-210 | 19.6 | 24.3 | 18.9 | 18.2 | 18.6 | 21.0 | ND | ND | ND | ND | 78.5 | 90.1 | 76.7 | ND |
| L-211 | 18.7 | 23.4 | 17.1 | 19.4 | 20.7 | 20.9 | ND | ND | ND | ND | 74.9 | 86.6 | 78.1 | ND |

$MDD_Q$ = Quarterly Minimum Differential Dose = 4.6 mrem
$MDD_A$ = Annual Minimum Differential Dose = 10.8 mrem
ND = Not Detected, where $M_Q \leq (B_Q+MDD_Q)$ or $M_A \leq (B_A+MDD_A)$

Attachment 4, Environmental Direct Radiation Dosimetry Results Cont'd

| Monitoring Location | Quarterly Baseline, $B_Q$ (mrem) | $B_Q$ + $MDD_Q$ (mrem) | Normalized Quarterly Monitoring Data, $M_Q$ (mrem) | | | | Quarterly Facility Dose, $F_Q=M_Q-B_Q$ (mrem, or "ND" if $F_Q \leq MDD_Q$) | | | | Annual Baseline, $B_A$ (mrem) | $B_A$ + $MDD_A$ (mrem) | Annual Monitoring Data, $M_A$ (mrem) | Annual Facility Dose, $F_A=M_A-B_A$ (mrem, or "ND" if $F_A \leq MDD_A$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| L-212 | 19.0 | 23.7 | 19.0 | 19.5 | 19.9 | 20.3 | ND | ND | ND | ND | 76.2 | 87.8 | 78.7 | ND |
| L-213 | 17.6 | 22.3 | 17.0 | 16.7 | 18.8 | 17.3 | ND | ND | ND | ND | 70.4 | 82.1 | 69.7 | ND |
| L-214 | 17.7 | 22.4 | 18.0 | 19.7 | 18.7 | 19.1 | ND | ND | ND | ND | 71.0 | 82.6 | 75.5 | ND |
| L-215 | 18.9 | 23.6 | 18.6 | 18.6 | 20.2 | 20.4 | ND | ND | ND | ND | 75.8 | 87.4 | 77.7 | ND |
| L-216 | 18.3 | 22.9 | 18.8 | 18.1 | 20.3 | 22.0 | ND | ND | ND | ND | 73.1 | 84.8 | 79.0 | ND |

$MDD_Q$ = Quarterly Minimum Differential Dose = 4.6 mrem
$MDD_A$ = Annual Minimum Differential Dose = 10.8 mrem
ND = Not Detected, where $M_Q \leq (B_Q+MDD_Q)$ or $M_A \leq (B_A+MDD_A)$

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# Annual Radiological Groundwater Protection Program Report

# 2025

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**TABLES**



**FIGURES**

## 1.0 LIST OF ACRONYMS AND DEFINITIONS

1. Alpha Particle (α): A charged particle emitted from the nucleus of an atom having a mass and charge equal in magnitude of a helium nucleus.

2. BWR: Boiling Water Reactor

3. Composite Sample: A series of single collected portions (aliquots) analyzed as one sample. The aliquots making up the sample are collected at time intervals that are very short compared to the composite period.

4. Control: A sampling station in a location not likely to be affected by plant effluents due to its distance and/or direction from the Plant.

5. Counting Error: An estimate of the two-sigma uncertainty associated with the sample results based on total counts accumulated.

6. Curie (Ci): A measure of radioactivity; equal to $3.7 \times 10^{10}$ disintegrations per second, or $2.22 \times 10^{12}$ disintegrations per minute.

7. Direct Radiation Monitoring: The measurement of radiation dose at various distances from the plant is assessed using thermoluminescent dosimeters (TLDs), optically stimulated luminescent dosimeters (OSLDs), and/or pressurized ionization chambers.

8. Grab Sample: A single discrete sample drawn at one point in time.

9. Indicator: A sampling location that is potentially affected by plant effluents due to its proximity and/or direction from the plant.

10. Ingestion Pathway: The ingestion pathway includes milk, fish, drinking water and garden produce. Also sampled (under special circumstances) are other media such as vegetation or animal products when additional information about particular radionuclides is needed.

11. ISFSI: Independent Spent Fuel Storage Installation

12. LLD: Lower Limit of Detection. An *a priori* measure of the detection capability of a radiochemistry measurement based on instrument setup, calibration, background, decay time, and sample volume. An LLD is expressed as an activity concentration. The MDA is used for reporting results. LLD are specified by a regulator, such as the NRC and are typically listed in the ODCM.

13. MDA: Minimum Detectable Activity. For radiochemistry instruments, the MDA is the *a posteriori* minimum concentration that a counting system detects. The smallest concentration or activity of radioactive material in a sample that will yield a net count above instrument background and that is detected with 95% probability, with only 5% probability of falsely concluding that a blank observation represents a true signal.

14. MDC: Minimum Detectable Concentration. Essentially synonymous with MDA for the purposes of radiological monitoring.

15. Mean: The sum of all of the values in a distribution divided by the number of values in the distribution, synonymous with average.

16. Microcurie (µCi): 3.7 x $10^4$ disintegrations per second, or 2.22 x$10^6$ disintegrations per minute.

17. millirem (mrem): 1/1000 rem; a unit of radiation dose equivalent in tissue.

18. Milliroentgen (mR): 1/1000 Roentgen; a unit of exposure to X- or gamma radiation.

19. N/A: Not Applicable

20. NEI: Nuclear Energy Institute

21. NRC: Nuclear Regulatory Commission

22. ODCM: Offsite Dose Calculation Manual

23. OSLD: Optically Stimulated Luminescence Dosimeter

24. Protected Area: A 10 CFR 73 security term is an area encompassed by physical barriers and to which access is controlled for security purposes. The fenced area immediately surrounding the plant and around ISFSI are commonly classified by the licensee as “Protected areas.” Access to the protected area requires a security badge or escort.

25. PWR: Pressurized Water Reactor

26. REC: Radiological Effluent Control

27. REMP: Radiological Environmental Monitoring Program

28. Restricted Area: A 10 CFRR 20 defined term where access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials.

29. TEDE: Total Effective Dose Equivalent (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).

30. TLD: Thermoluminescent Dosimeter

31. TRM: Technical Requirements Manual

32. TS: Technical Specification

33. Unrestricted Area: An area, access to which is neither limited nor controlled by the licensee.

## 2.0 INTRODUCTION

### 2.1 <u>About Nuclear Power</u>

Commercial nuclear power plants are generally classified as either Boiling Water Reactors (BWRs) or Pressurized Water Reactors (PWRs), based on their design. A BWR includes a single coolant system where water used as reactor coolant boils as it passes through the core and the steam generated is used to turn the turbine generator for power production. A PWR, in contrast, includes two separate water systems: radioactive reactor coolant and a secondary system. Reactor coolant is maintained under high pressure, preventing boiling. The high-pressure coolant is passed through a heat exchanger called a steam generator where the secondary system water is boiled, and the steam is used to turn the turbine generator for power production.

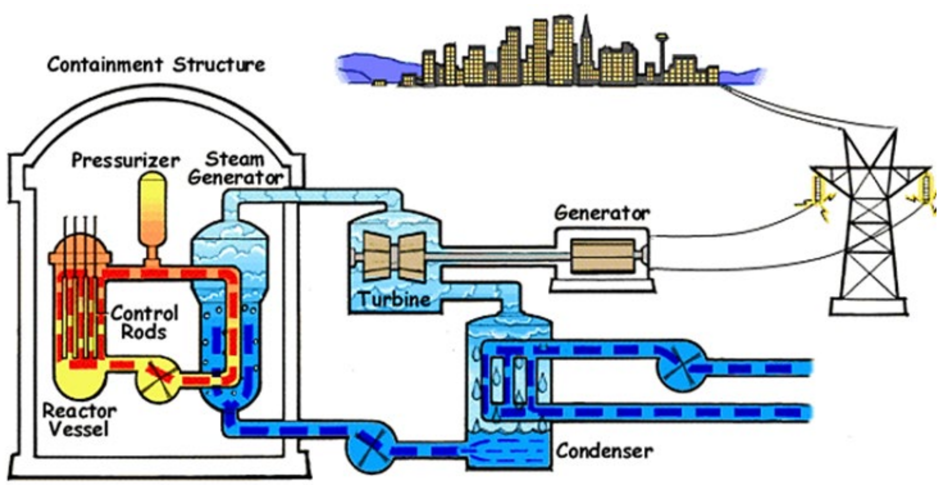


Figure 1, Pressurized Water Reactor (PWR) **[1]**

**2.1**

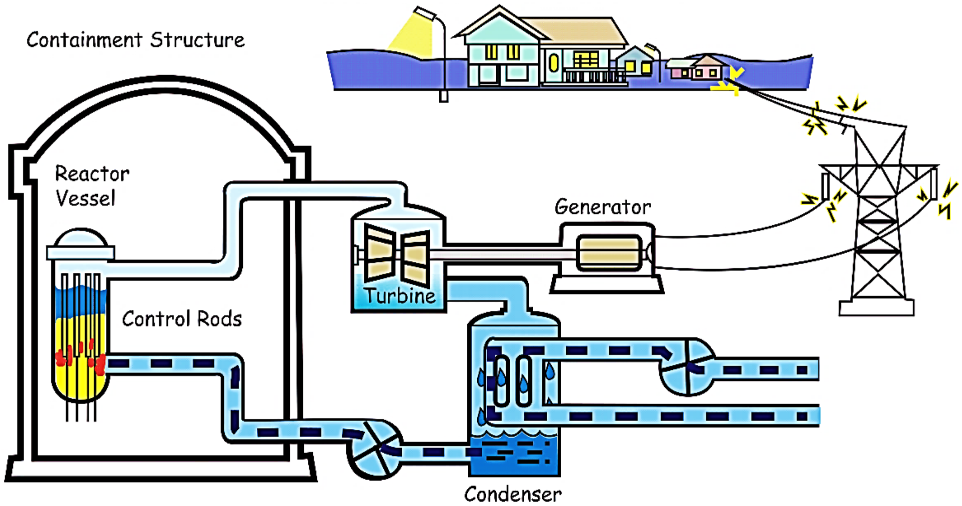


Figure 2, Boiling Water Reactor (BWR) **[2]**

Electricity is generated by a nuclear power plant similarly to the way that electricity is generated at other conventional types of power plants, such as those powered by coal or natural gas. Water is boiled to generate steam; the steam turns a turbine that is attached to a generator and the steam is condensed back into water to be returned to the boiler. What makes nuclear power different from these other types of power plants is that the heat is generated by fission and decay reactions occurring within and around the core containing fissionable uranium (U-235).

Nuclear fission occurs when certain nuclides (primarily U-233, U-235, or Pu-239) absorb a neutron and break into several smaller nuclides (called fission products) as well as producing some additional neutrons.

Fission results in production of radioactive materials including gases and solids that must be contained to prevent release or treated prior to release. These effluents are generally treated by filtration and/or hold-up prior to release. Releases are generally monitored by sampling and by continuously indicating radiation monitors. The effluent release data is used to calculate doses in order to ensure that dose to the public due to plant operation remains within required limits.

## 2.2 About Radiation Dose

Ionizing radiation, including alpha, beta, and gamma radiation from radioactive decay, has enough energy to break chemical bonds in tissues and result in damage to tissue or genetic material. The amount of ionization that will be generated by a given exposure to ionizing radiation is quantified as dose. Radiation dose is generally reported in units of millirem (mrem) in the US.

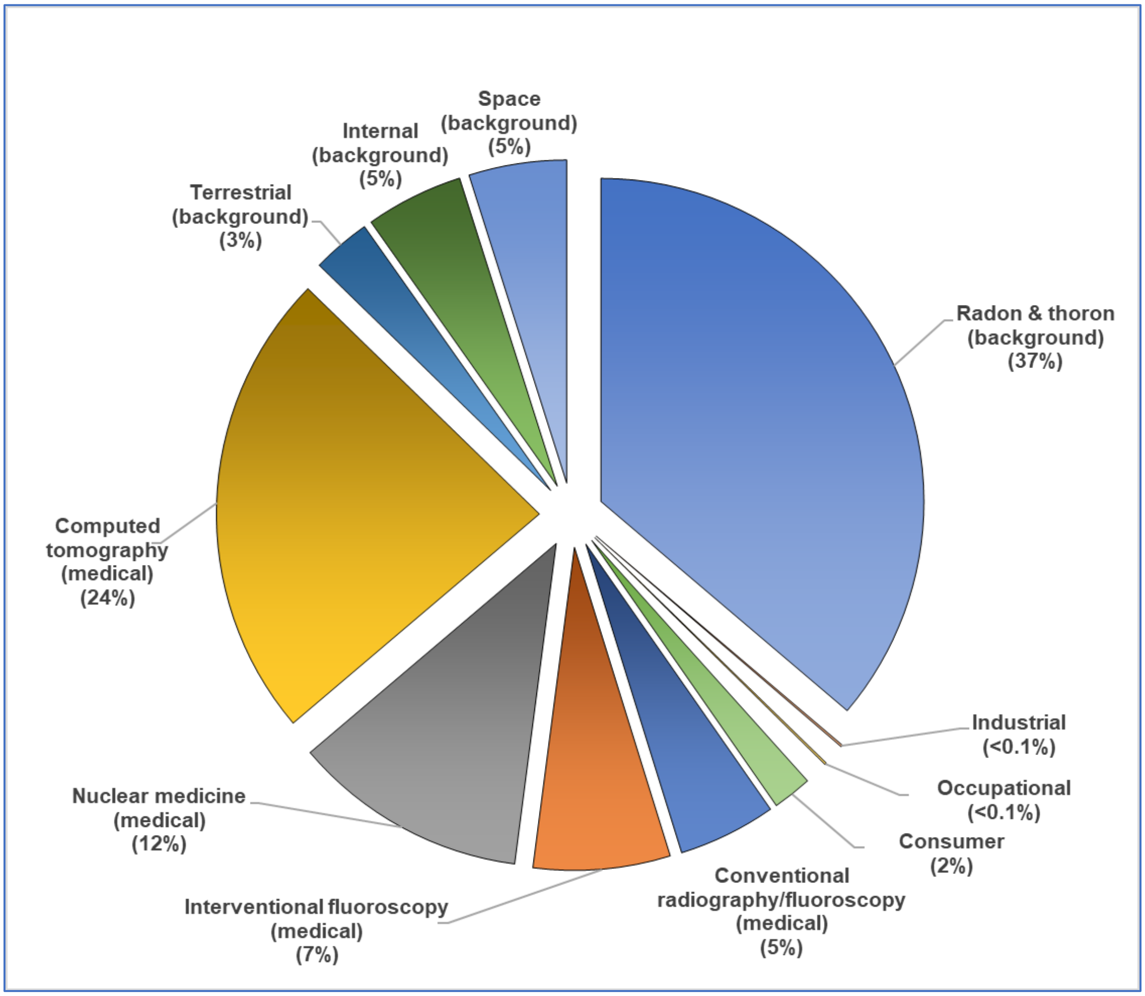


Figure 3, Sources of Radiation Exposure (NCRP Report No. 160) **[3]**

The National Council on Radiation Protection (NCRP) has evaluated the population dose for the US and determined that the average individual is exposed to approximately 620 mrem per year [3]. There are many sources for radiation dose, ranging from natural background sources to medical procedures, air travel, and industrial processes. Approximately half (310 mrem) of the average exposure is due to natural sources of radiation including exposure to radon, cosmic radiation, and internal radiation and terrestrial due to naturally occurring radionuclides. The remaining 310 mrem of exposure is due to man-made sources of exposure, with the most significant contributors being medical (48% of total mrem per year) due to radiation used in various types of medical scans and treatments. Of the remaining 2% of dose, most is due to consumer activities such as air travel, smoking cigarettes, and building materials. A small fraction of this 2% is due to industrial activities including generation of nuclear power.

Readers that are curious about common sources and effects of radiation dose that they may encounter can find excellent sources of information from the Health Physics Society, including the Radiation Fact Sheets [4], and from the US Nuclear Regulatory Commission website [5].

## 2.3 About Dose Calculation

Concentrations of radioactive material in the environment resulting from plant operations are very small and it is not possible to determine doses directly using measured activities of environmental samples. To overcome this, dose calculations based on measured activities of effluent streams are used to model the dose impact for Members of the Public due to plant operation and effluents. There are several mechanisms that can result in dose to Members of the Public, including: Ingestion of radionuclides in food or water; Inhalation of radionuclides in air; Immersion in a plume of noble gases; and Direct Radiation from the ground, the plant or from an elevated plume.

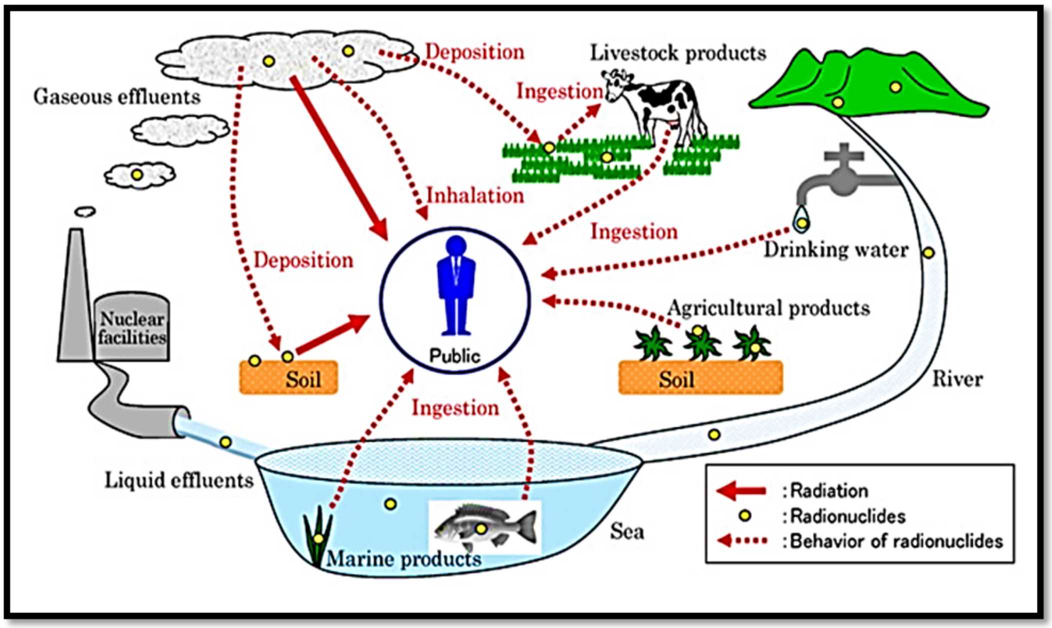


Figure 4, Potential exposure pathways to Members of the Public due to Plant Operations **[6]**

Each plant has an Offsite Dose Calculation Manual (ODCM) that specifies the methodology used to obtain the doses in the Dose Assessment section of this report. The dose assessment methodology in the ODCM is based on NRC Regulatory Guide 1.109 [7] and NUREG-0133 [8]. Doses are calculated by determining what the nuclide concentration will be in air, water, on the ground, or in food products based on plant effluent releases. Release points are continuously monitored to quantify what concentrations of nuclides are being released. For gaseous releases meteorological data is used to determine how much of the released activity will be present at a given location outside of the plant either deposited onto the ground or in gaseous form. Intake patterns and nuclide bio-concentration factors are used to determine how much activity will be transferred into animal milk or meat. Finally, human ingestion factors and dose factors are used to determine how much activity will be consumed and how much dose the consumer will receive. Inhalation dose is calculated by determining the concentration of nuclides and how much air is breathed by the individual.

For liquid releases, dilution and mixing factors are used to model the environmental concentrations in water. Drinking water pathways are modeled by determining the concentration of nuclides in the water at the point where the drinking water is sourced (e.g., taken from wells, rivers, or lakes). Fish and invertebrate pathways are determined by using concentration at the release point, bioaccumulation factors for the fish or invertebrate and an estimate of the quantity of fish consumed.

Each year a Land Use Census is performed to determine what potential dose pathways currently exist within a five-mile radius around the plant, the area most affected by plant operations. The Annual Land Use Census identifies the locations of vegetable gardens, nearest residences, milk animals and meat animals. The data from the census is used to determine who is the likely to be most exposed to radiation dose as a result of plant operation.

There is significant uncertainty in dose calculation results, due to modeling dispersion of material released and bioaccumulation factors, as well as assumptions associated with consumption and land-use patterns. Even with these sources of uncertainty, the calculations do provide a reasonable estimate of the order of magnitude of the exposure. Conservative assumptions are made in the calculation inputs such as the number of various foods and water consumed, the amount of air inhaled, and the amount of direct radiation exposure from the ground or plume, such that the actual dose received are likely lower than the calculated dose. Even with the built-in conservatism, doses calculated for the maximum exposed individual due to plant operation are a very small fraction of the annual dose that is received due to other sources. The calculated doses due to plant effluents, along with REMP results, serve to provide assurance that radioactive effluents releases are not exceeding safety standards for the environment or people living near the plant.

## 3.0 NEI 07-07 ONSITE RADIOLOGICAL GROUNDWATER MONITORING PROGRAM

LaSalle County Station Units 1 and 2 has developed a Groundwater Protection Initiative (GPI) program in accordance with NEI 07-07, Industry Ground Water Protection Initiative – Final Guidance Document [9]. The purpose of the GPI is to ensure timely detection and an effective response to situations involving inadvertent radiological releases to groundwater in order to prevent migration of licensed radioactive material off-site and to quantify impacts on decommissioning. During 2025, LaSalle Station collected and analyzed groundwater samples in accordance with the requirements of approved procedures following regulatory methods..

This section is included in this report to communicate results of NEI 07-07 Radiological Groundwater Monitoring Program. Monitoring wells installed as part of GPI program are sampled and analyzed as summarized in Table 1, Groundwater Protection Program Monitoring Well Sampling Locations. In addition to reporting results from NEI 07-07 monitoring wells, voluntary communications to offsite governmental agencies for onsite leaks or spills per NEI 07-07 Objective 2.2, are also reported as part of this report. It is important to note, samples and results taken in support of NEI 07-07 groundwater monitoring program are not part of the Radiological Environmental Monitoring Program (REMP) but should be reported as part of ARERR.

Table 1, Groundwater Protection Program Monitoring Well Sampling Locations

| Site | Site Type |
|---|---|
| HP-2 | Monitoring Well |
| HP-5 | Monitoring Well |
| HP-7 | Monitoring Well |
| HP-10 | Monitoring Well |
| MW-LS-104S | Monitoring Well |
| MW-LS-105S | Monitoring Well |
| MW-LS-106S | Monitoring Well |
| MW-LS-107S | Monitoring Well |
| MW-LS-111S | Monitoring Well |
| RW-LS-100S | Extraction Well |
| TW-LS-114S | Monitoring Well |
| TW-LS-116S | Monitoring Well |
| TW-LS-117S | Monitoring Well |
| TW-LS-118S | Monitoring Well |
| TW-LS-119S | Monitoring Well |
| TW-LS-120S | Monitoring Well |
| TW-LS-121S | Monitoring Well |

**MAP OF COLLECTION SITES**

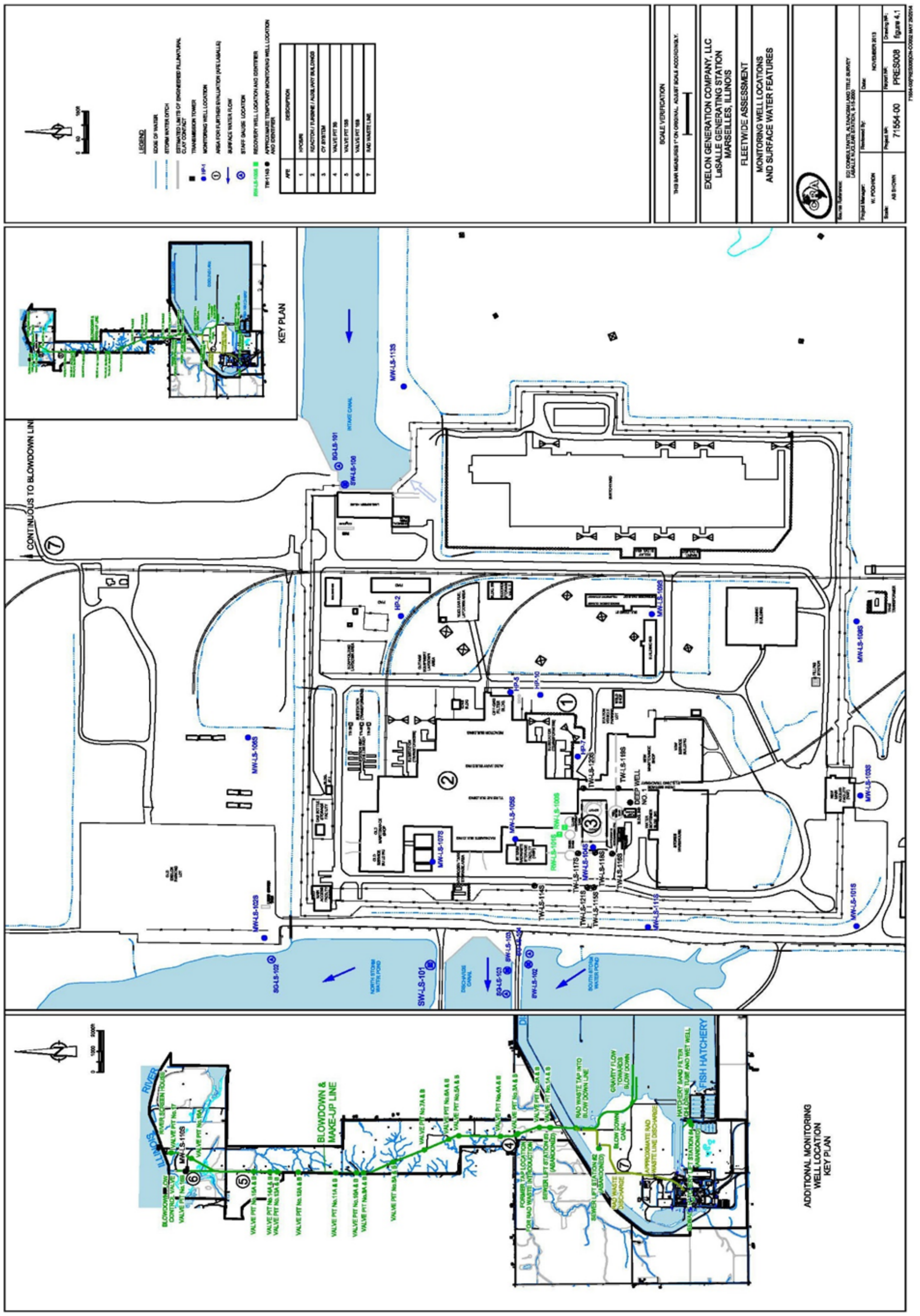


Figure 5, Ground Water and Surface Water Locations LaSalle County Station, 2025

## 3.1 Summary and Conclusions

In 2006, Constellation (formerly Exelon) instituted a comprehensive program to evaluate the impact of station operations on groundwater and surface water in the vicinity of LaSalle County Station. This evaluation involved numerous station personnel and contractor support personnel. Following baseline sampling and subsequent recommendations, LaSalle's Radiological Groundwater Protection Program (RGPP) program now consists of sixteen groundwater well sampling locations. The results for LaSalle's RGPP sampling efforts in 2025 are included in this report.

This is the nineteenth in a series of annual reports on the status of the RGPP conducted at LaSalle County Station. This report covers groundwater and surface water samples, collected from the environment, both on and off station property in 2025. During that time period, 149 analyses were performed on 43 samples from 16 groundwater locations. The monitoring was conducted by station personnel.

In assessing all the data gathered for this report, it was concluded that the operation of LaSalle County Station had no adverse radiological impact on the environment, and there are no known active releases into the groundwater at LaSalle County Station.

Strontium-89 (Sr-89) and strontium-90 (Sr-90) were not detected in any groundwater samples during 2025.

No gamma-emitting radionuclides attributable to licensed plant operations were detected in any of the groundwater or surface water samples.

In the case of tritium, Constellation specified that its laboratories achieve a lower limit of detection (LLD) 100 times lower than that required by federal regulation. The United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission Reporting Limit) is 20,000 pCi/L.

Tritium levels were detected at concentrations greater than the LLD of 200 pCi/L in 11 of 43 groundwater samples analyzed. The tritium concentrations ranged from <LLD to 3,700 ± 438 pCi/L. The elevated tritium levels (>200 pCi/L) being observed in groundwater are associated with the U1 CY tank leak that occurred in the June/July 2010 timeframe, as documented in the Station's 10 CFR 50.75(g) report.

Gross alpha analysis in the dissolved and suspended fractions was performed for 9 locations during 2025. Gross alpha (dissolved) was detected in 1 of 9 samples with a concentration of 10.4 pCi/L. Gross alpha (suspended) was detected in 4 of 9 samples. The concentrations ranged from 1.4 to 3.7 pCi/L.

Transuranic analyses were performed on 8 of the groundwater sampling locations in accordance with the LaSalle RGPP and to aid in establishing background levels. The transuranic analyses Am-241, Cm-242, Cm-243/244, Pu-238, Pu-239/240, U-234, U-235, and U-238 were performed in 2025. Fe-55 and Ni-63 were not required in 2025. Uranium-234 was detected in 6 groundwater samples in concentrations of 0.6-6.0 pCi/L ± 2 sigma. Uranium-238 was detected in 5 groundwater samples in concentrations of 0.6-6.0 pCi/L ± 2 sigma. U-234 and U-238 are commonly found in groundwater at low concentrations due to the naturally occurring Radium (Uranium) Decay Series. All others were less than LLD.

## 3.2 Complete Data Table for All Analysis Results Obtained In 2025

Table 2, Groundwater Protection Monitoring Well Tritium and Strontium in Ground Water Samples (pCi/L ± 2 sigma)

| Site | Collection Date | H-3 | Sr-89 | Sr-90 | Gr-A (DIS) | Gr-A (SUS) |
|---|---|---|---|---|---|---|
| HP-10 | 5/29/2025 | < 196 | | | | |
| HP-2 | 6/5/2025 | < 188 | | | | |
| HP-5 | 5/29/2025 | < 186 | | | | |
| HP-7 | 2/27/2025 | < 188 | < 4 | < 0.9 | < 2 | 2 ± 1 |
| HP-7 | 5/29/2025 | < 193 | | | | |
| HP-7 | 9/9/2025 | < 187 | | | | |
| HP-7 | 11/13/2025 | < 185 | | | | |
| MW-LS-104S | 3/2/2025 | 993 ± 179 | < 9 | < 0.8 | < 1 | < 4 |
| MW-LS-104S | 5/30/2025 | 835 ± 168 | | | | |
| MW-LS-104S | 9/11/2025 | 766 ± 170 | | | | |
| MW-LS-104S | 11/13/2025 | 920 ± 173 | | | | |
| MW-LS-105S | 2/27/2025 | < 185 | < 9 | < 0.8 | < 1 | 2 ± 1 |
| MW-LS-105S | 5/29/2025 | < 198 | | | | |
| MW-LS-105S | 9/9/2025 | < 185 | | | | |
| MW-LS-105S | 11/13/2025 | < 183 | | | | |
| MW-LS-107S | 2/27/2025 | < 186 | < 6 | < 0.7 | < 7 | 1 ± 1 |
| MW-LS-107S | 5/29/2025 | < 195 | | | | |
| MW-LS-107S | 9/9/2025 | < 191 | | | | |
| MW-LS-107S | 11/13/2025 | < 184 | | | | |
| RW-LS-100S | 5/30/2025 | < 192 | < 8 | < 1 | < 0.7 | < 0.3 |
| RW-LS-100S | 9/9/2025 | < 184 | | | | |
| RW-LS-100S | 11/13/2025 | < 184 | | | | |
| TW-LS-114S | 5/29/2025 | < 198 | | | | |
| TW-LS-114S | 9/9/2025 | < 186 | | | | |
| TW-LS-116S | 2/27/2025 | 2940 ± 363 | < 7 | < 0.9 | < 2 | < 0.7 |
| TW-LS-116S | 5/29/2025 | 2430 ± 313 | | | | |
| TW-LS-116S | 9/9/2025 | 3700 ± 438 | | | | |
| TW-LS-116S | 11/13/2025 | 2660 ± 334 | | | | |
| TW-LS-117S | 2/27/2025 | < 189 | < 4 | < 0.8 | 10 ± 2 | < 0.4 |
| TW-LS-117S | 5/29/2025 | < 194 | | | | |
| TW-LS-117S | 9/9/2025 | < 190 | | | | |
| TW-LS-117S | 11/13/2025 | < 183 | | | | |

Table 2, Groundwater Protection Monitoring Well Tritium and Strontium in Ground Water Samples (pCi/L ± 2 sigma) Cont'd

| Site | Collection Date | H-3 | Sr-89 | Sr-90 | Gr-A (DIS) | Gr-A (SUS) |
|---|---|---|---|---|---|---|
| TW-LS-118S | 2/27/2025 | 2840 ± 360 | | | < 2 | < 0.7 |
| TW-LS-118S | 5/29/2025 | 3210 ± 388 | | | | |
| TW-LS-118S | 9/11/2025 | 2750 ± 355 | | | | |
| TW-LS-119S | 5/29/2025 | < 194 | | | | |
| TW-LS-120S | 2/27/2025 | < 189 | | | | |
| TW-LS-120S | 5/29/2025 | < 187 | < 8 | < 0.9 | < 2 | 4 ± 1 |
| TW-LS-120S | 9/9/2025 | < 187 | | | | |
| TW-LS-120S | 11/13/2025 | < 187 | | | | |
| TW-LS-121S | 2/27/2025 | < 185 | | | | |
| TW-LS-121S | 9/9/2025 | < 183 | | | | |
| MW-LS-111S | 5/30/2025 | < 185 | | | | |

Table 3, Groundwater Protection Program Monitoring Well Gamma Isotopic in Groundwater Samples (pCi/L ± 2 sigma)

| Site | Collection Date | Be-7 | K-40 | Mn-54 | Co-58 | Fe-59 | Co-60 | Zn-65 | Nb-95 | Zr-95 | I-131 | Cs-134 | Cs-137 | Ba-140 | La-140 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HP-10 | 5/29/2025 | < 16 | < 12 | < 1 | < 2 | < 3 | < 1 | < 3 | < 2 | < 3 | < 9 | < 2 | < 2 | < 15 | < 5 |
| HP-2 | 6/5/2025 | < 15 | < 29 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 3 | < 5 | < 2 | < 2 | < 12 | < 4 |
| HP-5 | 5/29/2025 | < 15 | < 32 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 2 | < 14 | < 6 |
| HP-7 | 5/29/2025 | < 15 | < 14 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 1 | < 2 | < 15 | < 5 |
| MW-LS-104S | 3/2/2025 | < 16 | < 30 | < 2 | < 2 | < 4 | < 2 | < 4 | < 2 | < 3 | < 3 | < 2 | < 2 | < 9 | < 3 |
| MW-LS-105S | 5/29/2025 | < 15 | < 25 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 1 | < 14 | < 5 |
| MW-LS-107S | 5/29/2025 | < 15 | < 13 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 2 | < 15 | < 5 |
| MW-LS-111S | 5/30/2025 | < 15 | < 16 | < 2 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 5 | < 2 | < 2 | < 10 | < 3 |
| RW-LS-100S | 5/30/2025 | < 14 | < 14 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 7 | < 1 | < 1 | < 14 | < 4 |
| TW-LS-114S | 5/29/2025 | < 14 | < 14 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 8 | < 2 | < 1 | < 14 | < 5 |
| TW-LS-116S | 2/27/2025 | < 11 | < 11 | < 1 | < 1 | < 3 | < 1 | < 2 | < 1 | < 2 | < 6 | < 1 | < 1 | < 10 | < 4 |
| TW-LS-117S | 5/29/2025 | < 15 | < 12 | < 1 | < 1 | < 4 | < 2 | < 3 | < 2 | < 3 | < 7 | < 2 | < 2 | < 14 | < 5 |
| TW-LS-118S | 5/29/2025 | < 17 | < 20 | < 2 | < 2 | < 5 | < 2 | < 4 | < 2 | < 4 | < 5 | < 2 | < 2 | < 13 | < 5 |
| TW-LS-119S | 5/29/2025 | < 11 | < 23 | < 1 | < 1 | < 2 | < 1 | < 2 | < 1 | < 2 | < 5 | < 1 | < 1 | < 8 | < 3 |
| TW-LS-120S | 5/29/2025 | < 14 | < 13 | < 1 | < 2 | < 4 | < 2 | < 3 | < 2 | < 3 | < 7 | < 2 | < 2 | < 14 | < 5 |
| TW-LS-121S | 2/27/2025 | < 13 | < 24 | < 1 | < 1 | < 3 | < 2 | < 3 | < 1 | < 3 | < 3 | < 1 | < 1 | < 8 | < 3 |

Table 4, Groundwater Protection Program Monitoring Well Transuranic (Americium, Curium, and Plutonium) and Uranium in Groundwater Samples (pCi/L ± 2 sigma)

| Site | Collection Date | Am-241 | Cm-242 | Cm-243/244 | Pu-238 | Pu-239/240 | U-234 | U-235 | U-238 |
|---|---|---|---|---|---|---|---|---|---|
| HP-7 | 5/29/2025 | < 0.03 | < 0.09 | < 0.03 | < 0.05 | < 0.08 | 0.6 ± 0.3 | < 0.06 | < 0.1 |
| MW-LS-104S | 3/2/2025 | < 0.05 | < 0.2 | < 0.05 | < 0.06 | < 0.02 | < 0.1 | < 0.07 | < 0.1 |
| MW-LS-105S | 5/29/2025 | < 0.07 | < 0.03 | < 0.03 | < 0.04 | < 0.04 | 1 ± 0.4 | < 0.07 | 0.6 ± 0.3 |
| MW-LS-107S | 5/29/2025 | < 0.04 | < 0.04 | < 0.04 | < 0.2 | < 0.04 | 5 ± 1. | < 0.1 | 3 ± 0.9 |
| RW-LS-100S | 5/30/2025 | < 0.04 | < 0.04 | < 0.1 | < 0.05 | < 0.1 | < 0.05 | < 0.06 | < 0.05 |
| TW-LS-116S | 2/27/2025 | < 0.2 | < 0.03 | < 0.1 | < 0.1 | < 0.2 | 1 ± 0.3 | < 0.09 | 1 ± 0.3 |
| TW-LS-117S | 5/29/2025 | < 0.03 | < 0.1 | < 0.03 | < 0.2 | < 0.03 | 6 ± 1 | < 0.09 | 6 ± 1 |
| TW-LS-120S | 5/29/2025 | < 0.06 | < 0.2 | < 0.06 | < 0.09 | < 0.09 | 0.7 ± 0.4 | < 0.2 | 0.7 ± 0.3 |

### 3.3 Voluntary Notification

During 2025, LaSalle County Station Units 1 and 2 did not make a voluntary NEI 07-07 notification to State/Local officials, NRC, and to other stakeholders required by site procedures.

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