



2025

Annual Radiological Environmental Operating Report

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TABLE OF CONTENTS

1.0 LIST OF ACRONYMS AND DEFINITIONS 3

2.0 EXECUTIVE SUMMARY 5

 2.1 Summary of Conclusions: 6

3.0 INTRODUCTION 9

4.0 SITE DESCRIPTION AND SAMPLE LOCATIONS 10

5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM REQUIREMENTS 11

6.0 MAPS OF COLLECTION SITES 18

7.0 REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES 21

8.0 SAMPLING PROGRAM, PROGRAM MODIFICATION AND INTEPRETATION OF RESULTS 22

 8.1 Environmental Direct Radiation Dosimetry Results 22

 8.2 Air Particulate and Radioiodine Sample Results 23

 8.3 Waterborne Sample Results 24

 8.4 Ingestion Pathway Sample Results 28

9.0 LAND USE CENSUS 29

10.0 SAMPLE DEVIATIONS, ANOMALIES AND UNAVAILABILITY 30

11.0 OTHER SUPPLEMENTAL INFORMATION 31

 11.1 NEI 07-07 Onsite Radiological Groundwater Monitoring Program 31

 11.2 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Program 31

 11.3 Corrections to Previous Reports 32

12.0 BIBLIOGRAPHY 33

TABLES

Table 1: Radiological Environmental Monitoring Program – Direct Radiation 11

Table 2: Radiological Environmental Monitoring Program – Airborne 12

Table 3: Radiological Environmental Monitoring Program – Waterborne 13

Table 4: Radiological Environmental Monitoring Program – Ingestion 14

Table 5: REMP Sampling Locations – Direct Radiation 16

Table 6: Reporting Levels for Radioactivity Concentrations in Environmental Samples 21

Table 7: Maximum Values for the Limit of Detection 21

Table 8: Land Use Census – Nearest Receptors within 5 miles 30

Table 9: Sample Deviation Summary 31

Table 10: Monthly Drinking Water Results 37

Table 11: Monthly Surface Water Results 38

Table 12: Monthly Vegetation Results 39

Table 13: Monthly Milk Results 41

Table 14: Weekly Airborne I-131 Results 42

Table 15: Weekly Airborne Gross Beta Results 46

Table 16: Quarterly Isotopic Data for Air Filters, Water, Milk and Fish 50

Table 17: Gamma Isotopic Results for Fish 51

Table 18: Gamma Isotopic Results for Sediment 51

Table 19: CGS Cross Check Intercomparison Results..... 54

Table 20: Interlaboratory Split Sample Results 60

Table 21: Comparison of Gross Beta Results from Split Samples of 1Z and 1A 65

Table 22: Comparison of I-131 Results from Split Samples of 1Z and 1A 67

Table 23: Complete RGPP Results..... 75

Table 24: Concentration of Tritium in Groundwater (in pCi/L)..... 76

Table 25: Concentration of Tritium in Precipitation Recapture (pCi/L)..... 77

FIGURES

Figure 1: Potential exposure pathways to Members of the Public due to Plant Operations [7] 9

Figure 2: REMP Sample Locations (Near Field/Site Boundary) 18

Figure 3: REMP Sample Locations (Far Field)..... 19

Figure 4: REMP Sample Locations (Onsite)..... 20

Figure 5: Air Particulate: Analysis for Gross beta, Indicator Group 1 vs. Indicator Group 2 vs. Control 23

Figure 6: Surface Water Tritium Data: Indicator vs. Control vs EPA Limit 24

Figure 7: Comparison of Beta Emitters in Split Samples CGS and TBE Analysis of 4L..... 25

Figure 8: Drinking Water Gross Beta Data: Indicator vs. Control..... 26

Figure 9: Drinking Water Tritium Sample Results: Indicator vs. Control 27

Figure 10: Surface Water and Overburden RGPP Monitoring Locations 72

Figure 11: Bedrock Seep and Bedrock RGPP Monitoring Locations 73

Figure 12: Precipitation Recapture Sample Locations..... 74

ATTACHMENTS

Attachment 1: Data Table Summary 36

Attachment 2: Complete Data Table for All Analysis Results Obtained In 2025 37

Attachment 3: Cross Check Intercomparison Program..... 52

Attachment 4: Environmental Direct Radiation Dosimetry Results 68

Attachment 5, Radiological Groundwater Protection Program..... 70

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 3 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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 3.7×10^{10} disintegrations per second, or 2.22×10^{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.

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 4 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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: 3.7×10^4 disintegrations per second, or 2.22×10^6 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

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 5 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

2.0 EXECUTIVE SUMMARY

Peach Bottom Atomic Power Station 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 PBAPS 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) and ODCM Specifications (ODCMS). 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 PBAPS for the reporting period of January 1st through December 31st, 2025. During that time period, 1637 analyses were performed on 1306 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 PBAPS did not result in detection of plant related radionuclides in the environment.

Results of OSLD measurements are listed in Attachment 4. In 2019, six years of OSLD data (2012-2018) were re-evaluated with the new methodology presented in Constellation Nuclear corporate procedure CY-AA-170-1001, to determine a background dose and baseline for each location in the REMP. Detectable Facility Dose is any normalized net dose above the sum of the normalized mean background dose and minimum differential dose (BQ/A + MDDQ/A) and is reported both quarterly and annually for each location. Quarterly and Annual Normalized Net Dose for each location is reported in Attachment 4. The net dose is calculated by subtracting a control transit dosimeter and extraneous dose rather than a control or background location dose. The net dose is normalized to a standard 91-day quarter. Detectable annual facility related dose was identified at the ISFSI dosimeter location, 1R, (described below). There is no detectable ambient gamma radiation to the members of the public due to PBAPS operations.

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 6 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

2.1 Summary of Conclusions:

No measurable activities above background levels were detected. All values were consistent with historical results which indicate no adverse radiological environmental impacts associated with the operation of PBAPS. Naturally occurring radionuclides are present in the Earth's crust and atmosphere and exists in detectable quantities throughout the world. It is common to detect naturally occurring radionuclides in many of the samples collected for REMP. Some examples of naturally occurring radionuclides that are frequently seen in samples are potassium-40, beryllium-7, actinium-228 (present as a decay product of radium-228), and radium-226. Additionally, some relatively long-lived anthropogenic radioisotopes, such as strontium-90 and cesium-137, are also seen in some REMP samples; these radionuclides exist in measurable quantities throughout the world as a result of fallout from historic atmospheric nuclear weapons testing and other nuclear events worldwide such as Fukushima and Chernobyl. Detailed information on the exposure of the U.S. population to ionizing radiation can be found in NCRP Report No. 160 [1].

In 2025, the doses from both liquid and gaseous effluents were conservatively calculated for the Maximum Exposed Member of the Public due to PBAPS Operation. Doses calculated were well below all Offsite Dose Calculations Manual (ODCM) limits. The results of those calculations were as follows:

Peach Bottom Atomic Power Station Units 2 and 3 Dose Summary¹

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Liquid Effluents					
Limit	3 mrem	3 mrem	3 mrem	3 mrem	6 mrem
Total Body Dose ²	4.17E-05	1.60E-06	9.60E-06	1.46E-04	1.99E-04
% Of Limit	1.39E-03	5.34E-05	3.20E-04	4.85E-03	3.31E-03
Limit	10 mrem	10 mrem	10 mrem	10 mrem	20 mrem
Maximum Organ Dose ³	4.22E-05	2.06E-06	1.02E-05	1.45E-04	2.00E-04
% Of Limit	4.22E-04	2.06E-05	1.02E-04	1.45E-03	1.00E-03
Gaseous Effluents					
Limit	10 mrad	10 mrad	10 mrad	10 mrad	20 mrad
Gamma Air Dose ⁴	7.19E-03	<LLD	<LLD	1.08E-02	1.80E-02
% Of Limit	7.19E-02	N/A	N/A	1.08E-01	9.00E-02
Limit	20 mrad	20 mrad	20 mrad	20 mrad	40 mrad
Beta Air Dose ⁵	4.87E-03	<LLD	<LLD	7.55E-03	1.24E-02
% Of Limit	2.44E-02	N/A	N/A	3.78E-02	3.10E-02
Limit	5 mrem	5 mrem	5 mrem	5 mrem	10 mrem
NG Total Body Dose ⁶	6.95E-03	<LLD	<LLD	1.05E-02	1.74E-02
% Of Limit	1.39E-01	N/A	N/A	2.10E-01	1.74E-01
Limit	15 mrem	15 mrem	15 mrem	15 mrem	30 mrem
NG Skin Dose ⁷	9.03E-03	<LLD	<LLD	1.39E-02	2.29E-02
% Of Limit	6.02E-02	N/A	N/A	9.27E-02	7.63E-02
Limit	15 mrem	15 mrem	15 mrem	15 mrem	30 mrem
Maximum Organ Dose ⁸	2.91E-04	2.13E-04	2.57E-04	7.65E-04	1.53E-03
% Of Limit	1.94E-03	1.42E-03	1.71E-03	5.10E-03	5.08E-03

¹ This table demonstrates compliance with 10 CFR Part 50, App. I Limits. C-14 dose is not included in this table but is included in the 40 CFR 190 table doses.

² Liquid/ Child in mrem

³ Liquid Child Liver in mrem

⁴ SW-1500m / All Age Groups in mrem

⁵ SSE 1100m / All Age Groups in mrem

⁶ SW 1500 / All Age Groups in mrem

⁷ SSE 1100m / All Age Groups in mrem

⁸ SW 1500m / Infant Thyroid in mrem

Total Annual Offsite-Dose Comparison to 40 CFR 190 Limits for PBAPS⁹

	Whole Body	Thyroid	Max Other Organ¹²
Gaseous ¹⁰ (mrem)	1.82E-02	1.89E-02	2.37E-02
Carbon-14 (mrem)	1.75E-02	1.75E-02	8.21E-02
Liquid (mrem)	1.98E-04	1.98E-04	2.00E-04
Direct Shine (mrem)	0	0	0
Other Nearby Facilities ¹¹ (mrem)	0	0	0
Total Site Dose (mrem)	3.60E-02	3.66E-02	1.06E-01
Limit (mrem)	25	75	25
% of Limit	1.44E-01	4.89E-02	4.24E-01

⁹ This table is a summation of Units to show compliance with 40 CFR Part 190 Limits.

¹⁰ Gaseous dose values in this table include organ dose from Noble Gas, Iodine, Tritium, and Particulates.

¹¹ Other fuel cycle sources within 5 miles of the site are considered in this analysis.

¹² Max Other organ was Bone for C-14 and Liver for Liquid. Gaseous was the sum Iodine, Tritium, and Particulates Liver dose and Noble Gas Skin dose.

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 [2], 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 [3], NUREG 1301/1302 [4] [5], and the 1979 NRC Branch Technical Position [6].

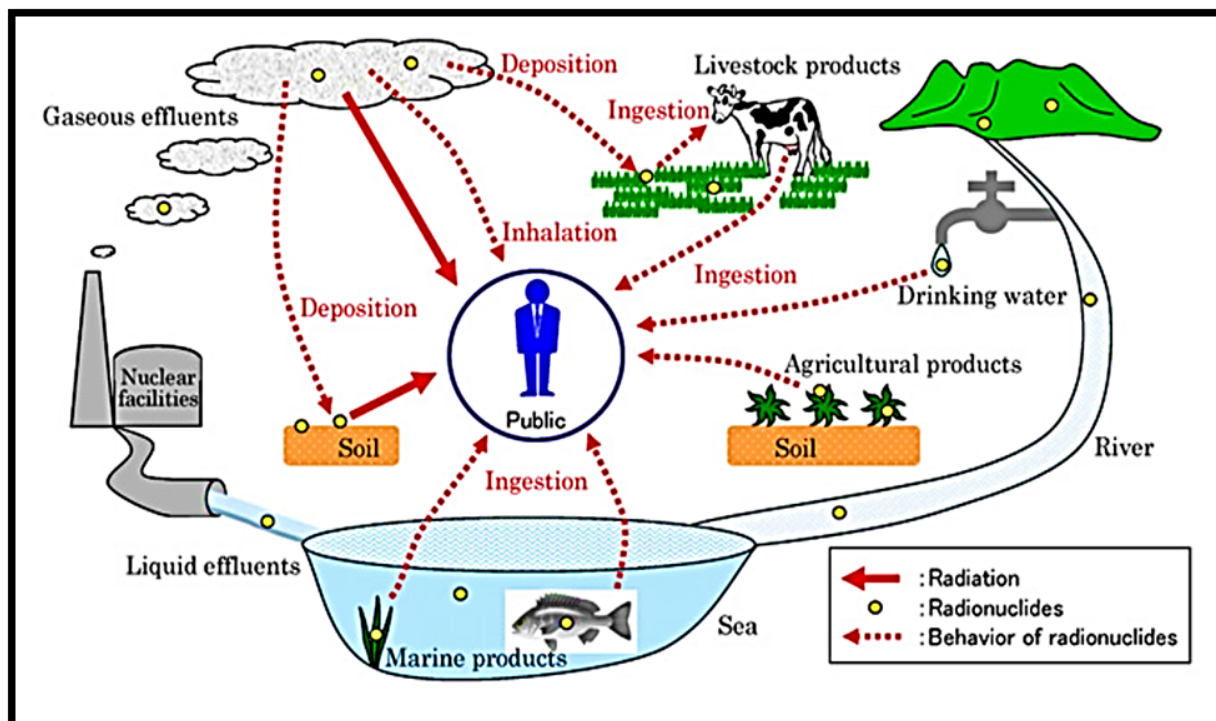


Figure 1: Potential exposure pathways to Members of the Public due to Plant Operations [7]

Quality assurance aspects of the sampling program and OSLD data collection are conducted in accordance with Regulatory Guides 4.15 [8] and 4.13 [9]. REMP also adheres to the requirements of PA, PBAPS 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

PBAPS is located along the Susquehanna River between Holtwood and Conowingo Dams in Peach Bottom Township, York County, Pennsylvania. The initial loading of fuel into Unit 1, a 40 MWe (net) high temperature gas-cooled reactor, began on 5 February 1966, and initial criticality was achieved on 3 March 1966. Shutdown of Peach Bottom Unit 1 for decommissioning was on 31 October 1974. For the purposes of the monitoring program, the beginning of the operational period for Unit 1 was considered to be 5 February 1966. A summary of the Unit 1 preoperational monitoring program was presented in a previous report (1). PBAPS Units 2 and 3 are boiling water reactors, each with a power output of approximately 1385 MWe. The first fuel was loaded into Peach Bottom Unit 2 on 9 August 1973. Criticality was achieved on 16 September 1973 and full power was reached on 16 June 1974. The first fuel was loaded into Peach Bottom Unit 3 on 5 July 1974. Criticality was achieved on 7 August 1974 and full power was first reached on 21 December 1974. Preoperational summary reports (2)(3) for Units 2 and 3 have been previously issued and summarize the results of all analyses performed on samples collected from 5 February 1966 through 8 August 1973.

PBAPS 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 Monitoring Program – Direct Radiation
- Table 2: Radiological Environmental Monitoring Program – Airborne
- Table 3: Radiological Environmental Monitoring Program – Waterborne
- Table 4: Radiological Environmental Monitoring Program – Ingestion
- Table 5: REMP Sampling Locations – Direct Radiation
- Figure 2: REMP Sample Locations (Near Field/Site Boundary)
- Figure 3: REMP Sample Locations (Far Field)
- Figure 4: REMP Sample Locations (Onsite)

5.0 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM REQUIREMENTS

Table 1: Radiological Environmental Monitoring Program – Direct Radiation

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection/ Frequency	Type and Frequency of Analyses
<p><u>Direct Radiation</u> At least 40 routine monitoring stations either with two or more dosimeters or with one instrument for measuring and recording dose rate continuously to be placed as follows: An inner ring of stations in the general area of the SITE BOUNDARY and an outer ring in the 3 to 6 mile range from the site. A station is in each sector of each ring except as dictated by local geography. The balance of the stations are in special interest areas such as population centers, nearby residences, schools, and in areas to service as control locations.</p>	<p>See Table 5</p>	<p>Quarterly (Every 92 days)</p>	<p>Gamma dose/Quarterly</p>

Table 2: Radiological Environmental Monitoring Program – Airborne

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection/ Frequency	Type and Frequency of Analyses
<p><u>Airborne Radioiodine and Particulates</u></p> <p>Samples from 5 locations:</p> <p>3 samples from close to the SITE BOUNDARY locations (in different sectors) of the highest calculated annual average ground level D/Q.</p> <p>1 sample from the vicinity of a community having the highest calculated annual average ground level D/Q.</p> <p>1 sample from a control location unlikely to be affected by the plant.</p>	<p>1Z 1,500 feet SE of site 1A^{^,QC} collocated with 1Z Weather Station #1</p> <p>1B 2,500 feet NW of site Weather Station #2</p> <p>1C 4,700 feet SSE of site South Sub Road</p> <p>3A 19,300 feet SW of site Delta Station</p> <p>5H2^c 162,400 feet NE of site Manor Substation (LGS)</p>	<p>Approximately 1 cfm continuous flow through glass fiber filter which is collected weekly.</p> <p>A TEDA impregnated flow-through cartridge is connected to air sampler and is collected weekly at site filter change.</p> <p>Continuous sampler operation with sample collection every 7 days or required by dust loading, whichever is more frequent.</p>	<p>Gross beta analysis on each weekly sample. Gamma spectrometry shall be done when gross beta exceeds ten times the yearly mean of control station value.</p> <p>Gross beta analysis done ≥24 hr. after sampling to allow for Radon and Thoron daughter decay.</p> <p>Gamma Spec on quarterly (92 days) composite by location.</p> <p>Radioiodine canisters: I-131 analysis every 7 days</p>

^c Indicates a Control location

^{QC} Indicates a Quality Control duplicate sample location

[^] Indicates a sample location that is sampled and analyzed routinely, but is not listed as a sample location in the ODCM

Table 3: Radiological Environmental Monitoring Program – Waterborne

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection/ Frequency	Type and Frequency of Analyses
<p>Surface Water</p> <p>1 sample upstream (control) and 1 sample downstream (indicator)</p>	<p>1LL^c 1,200 feet ENE of site U2 and U3 Intake Composite</p> <p>1MM 5,500 feet SE of site Canal Discharge</p>	<p>Sample collected from a continuous water sampler, monthly. In event, sampler is inoperable, grab samples will be collected each calendar day until sampler returned to service.</p>	<p>Gamma isotopic analysis monthly,</p> <p>H-3 on quarterly composite</p>
<p>Drinking Water</p> <p>1 sample of each of 1 to 3 of the nearest water supplies that could be affected by its discharge.</p> <p>1 sample from a control location.</p>	<p>4L 45,900 feet SE of site Conowingo Dam</p> <p>6I^c 30,500 feet NW of site Holtwood Dam</p> <p>13B 13,300 feet ESE of site Susquehanna Pumping Station</p>	<p>Sample collected from a continuous water sampler, monthly. In event, sampler is inoperable, weekly grab samples will be collected until sampler returned to service.</p>	<p>Gross beta and gamma isotopic monthly,</p> <p>H-3 on quarterly composite</p>
<p>Sediment from Shoreline</p> <p>1 sample from downstream area with existing or potential recreational value.</p>	<p>4J 7,400 feet SE of site Down River from Plant Discharge Area</p> <p>4T[^] 41,800 feet SE of site Conowingo Pond near Conowingo Dam</p> <p>6F^{c^} 31,500 feet NW of site Holtwood Dam</p>	<p>A sediment sample is taken down stream of discharge semi-annually.</p>	<p>Gamma isotopic analysis of each sample</p>

^c Indicates a Control location

[^] Indicates a sample location that is sampled and analyzed routinely, but is not listed as a sample location in the ODCM

Table 4: Radiological Environmental Monitoring Program – Ingestion

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection/Frequency	Type and Frequency of Analyses
<p>Milk: Samples from milking animals in 3 locations within 3 miles distance having the highest dose potential.</p> <p>1 sample from milking animals at a control location (unlikely to be affected by the plant).</p>	M-13F C 32,600 feet W of site	Sample of fresh milk is collected from each farm biweekly when cows are on pasture (April through October), monthly at other times.	I-131 analyses on each sample. Gamma isotopic analysis or Cs-134, Cs-137 by chemical separation quarterly
	M-11A 4,900 feet SW of site		
	M-7D 19,100 feet SE of site		
	M-15B 9,500 feet NW of site		
	M-4C 10,900 feet ENE of site		
	M-1C 15,000 feet N of site		
	M-3D^ 18,500 feet NE of site	Sample of fresh milk is collected from each farm quarterly.	
	M-1F^C 46,100 feet N of site		
	M-3B^ 10,500 feet NE of site		
	M-9G^ 89,200 feet S of site		
M-15G^ 9,500 feet NW of site			

Table 4: Radiological Environmental Monitoring Program – Ingestion

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection/ Frequency	Type and Frequency of Analyses
<p>Fish and Invertebrates:</p> <p>1 sample of each commercially and recreationally important species in vicinity of discharge point when available.</p> <p>1 sample of same species in areas not influenced by plant discharge when available.</p>	<p>4 6,000-10,000 feet SE of site PBAPS Discharge Area</p> <p>6^c 50,000-70,000 feet NNW of site Area not influenced by Plant Discharge</p>	<p>Two species of recreationally important fish (predator and bottom feeder) sampled in season or semiannually if not seasonal.</p>	<p>Gamma isotopic analyses on edible portions.</p>
<p>Food Products:</p> <p>Samples of 3 different kinds of broad leaf vegetation grown nearest offsite garden of highest annual average ground level D/Q if milk sampling is not performed.</p> <p>1 sample of each of the similar broad leaf vegetation grown 15-30 km distant in the least prevalent wind direction if milk sampling is not performed.</p>	<p>1C 4,700 feet SSE of site</p> <p>55^c 51,900 feet NE of site</p> <p>2Q[^] 9,504 feet SW of site</p> <p>3Q[^] 9,504 feet SW of site</p>	<p>Samples of three (3) different kinds of broad leaf vegetation monthly when available if milk sampling is not performed.</p>	<p>Gamma isotopic and I-131 analysis</p>

^c Indicates a Control location

[^] Indicates a sample location that is sampled and analyzed routinely, but is not listed as a sample location in the ODCM

Table 5: REMP Sampling Locations – Direct Radiation

Site #	Location Type	Sector	Distance	Description
1L	Inner ring	NE	1,100 feet	Just before intake building on pipe by shoreline
1A	Inner ring	SE	1,500 feet	Located at 1A air sample site on pole
2	Inner ring	SE	4,700 feet	Back corner of orchard walk through woods to fenced cage at cliff's edge
1I	Inner ring	SSE	2,900 feet	Walk on left side of perimeter fence around south substation located attached to fence
1C	Inner ring	SSE	4,700 feet	Located on pole at 1C air sample site
1J	Inner ring	S	4,000 feet	Follow field dirt road to top of field & woods, on left side at edge of woods on pole
1F	Inner ring	SSW	2,900 feet	Off Atom Rd. through gate, follow dirt rd. to top near powerlines inside fenced area on pole
40	Inner ring	SW	8,000 feet	Address 43 Atom Rd. behind house on end of wash line pole
1NN	Inner ring	WSW	2,700 feet	Drive past N. Substation on right maint. buildings drive past & on pole in field
1H	Inner ring	W	3,200 feet	At N. Substation drive through gate & turn to right follow field road to pole on right
1G	Inner ring	WNW	3,100 feet	At N. Substation on left side of perimeter fence follow along fence to where attached to fence
1B	Inner ring	NW	2,500 feet	Located on pole at 1B air sample site
1E	Inner ring	NNW	3,000 feet	Onsite behind Dorsey Park boat launch inside fenced area on pole
1K	Inner ring	SW	4,700 feet	Off Booker Rd. Ben Blank milk farm behind house on pole
1P	Inner ring	ESE	2,200 feet	Onsite located on fence near shoreline by cooling tower #2
15	Outer ring	N	19,300 feet	Off Silver Spring Rd. turn right on dirt lane in field inside fenced area on pole
22	Outer ring	NNE	12,500 feet	Along Eagle Rd. under power line tower on pole just off roadway
44	Outer ring	NE	26,700 feet	Along Goshen Rd. on pole just off roadway
32	Outer ring	ENE	14,400 feet	Along Slate Hill Rd. inside fenced area on pole
45	Outer ring	ENE	18,500 feet	Along Peach Bottom Rd. up farm lane in field on leg of Power line tower – Keeney Line
14	Outer ring	E	10,300 feet	Along Peters Creek Rd. on right inside fenced area on pole
17	Outer ring	ESE	21,500 feet	Along Riverview Rd. in field inside fenced area on pole
31A	Outer ring	SE	24,100 feet	Along dirt Rd. Eckerman Rd. on left side on pole
4K	Outer ring	SE	45,900 feet	On rooftop on West side of Conowingo Dam
23	Outer ring	SSE	5,500 feet	Off Burke Rd. turn into driveway & proceed into orchard located on pole near water tower

Table 5: REMP Sampling Locations – Direct Radiation

Site #	Location Type	Sector	Distance	Description
27	Outer ring	S	14,400 feet	Along Cooper dirt Rd. along field edge on pole
48	Outer ring	SSW	26,500 feet	Along Route 136 Substation in Md. behind station in grass on pole
3A	Outer ring	SW	19,300 feet	Located on pole outside of fenced area for 3A air station in Delta
49	Outer ring	WSW	21,500 feet	Along Route 74 S. turn onto September Lane follow dirt rd. to pole on right side along edge of field
50	Outer ring	W	26,400 feet	Along Route 851 W. to Trans Pipeline on left side of road outside of fence on a pole
51	Outer ring	WNW	21,000 feet	Along McKinley Rd. on fence at Sub Station
26	Outer ring	NW	21,800 feet	Along Slab Rd. park on right in field follow field fence line to Power Line Tower on leg of tower
6B	Outer ring	NW	30,400 feet	At Holtwood Dam on rooftop of original powerhouse
42	Outer ring	NNW	21,500 feet	Across from Muddy Run Plant driveway located on fence along this driveway
43	Special interest	NNE	26,200 feet	Behind Rental business follow farm lane to pole on left
5	Special interest	E	24,400 feet	Near Wakefield off Pilottown Rd. inside fenced area on pole
16	Special interest	E	67,100 feet	Nottingham Substation on right side on pole
24	Special interest	ESE	58,200 feet	Harris Substation toward left side on fence
2B	Special interest	SSE	3,900 feet	870 Burke Rd. follow lane to house off left side of yard on T-pole
46	Special interest	SSE	23,800 feet	Off Flintville Rd. turn onto Bryce Lane dirt Rd. follow to pole on right side of lane
47	Special interest	S	22,700 feet	Off Susquehanna Hall Rd. turn into Scout camp take first dirt rd. on left follow to fence where attached
18	Special interest	W	52,200 feet	Near Fawn Grove Reid's residence on pole in driveway
19 ^c	Special interest	WNW	124,000 feet	Red Lion, Pa. along Railwood Lane/Alley on T-pole
1T	Special interest	WNW	3,100 feet	Along Lay Rd. near P.B. nuclear plant on T-pole near house

^c Control location

6.0 MAPS OF COLLECTION SITES

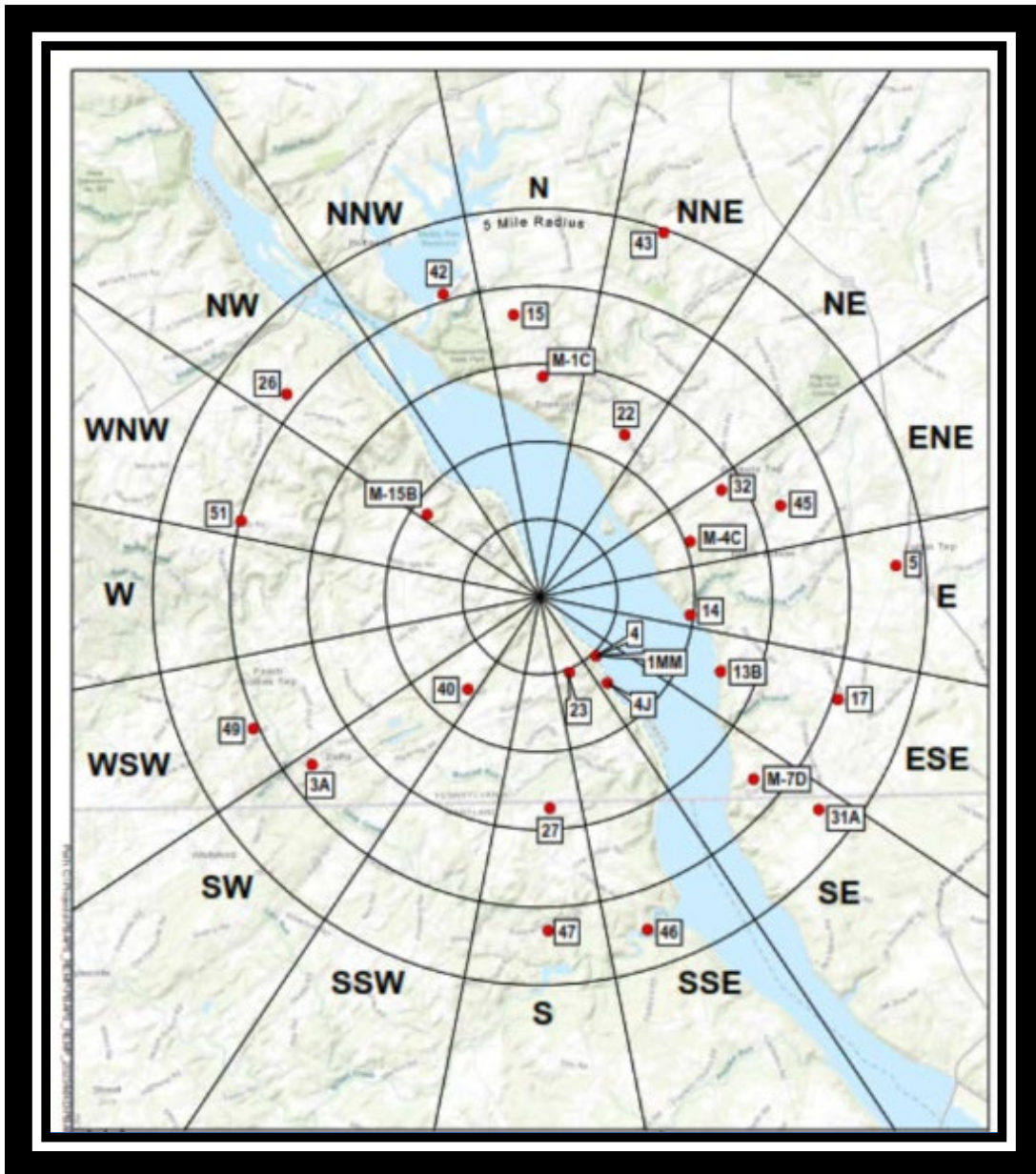


Figure 2: REMP Sample Locations (Near Field/Site Boundary)

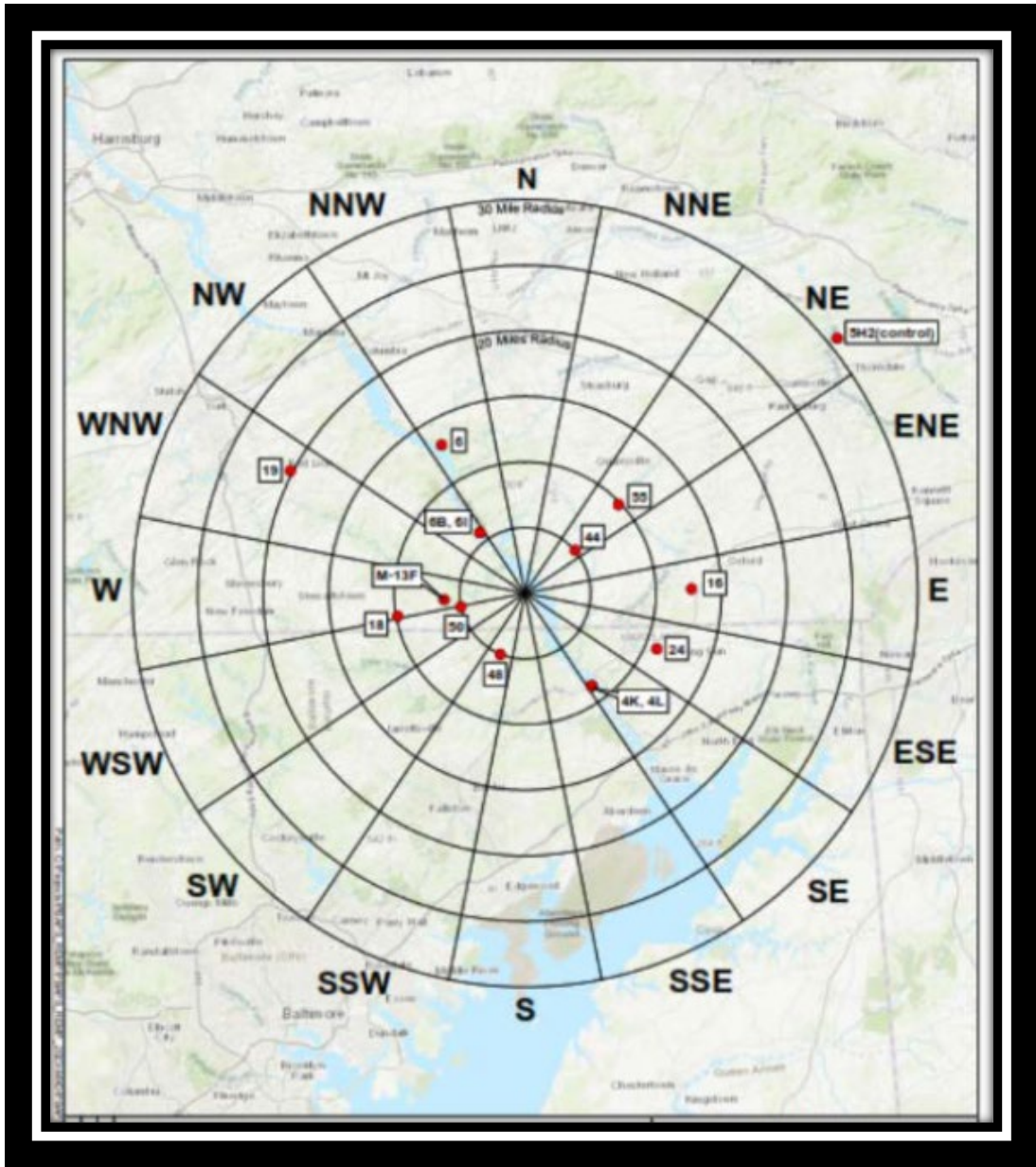


Figure 3: REMP Sample Locations (Far Field)

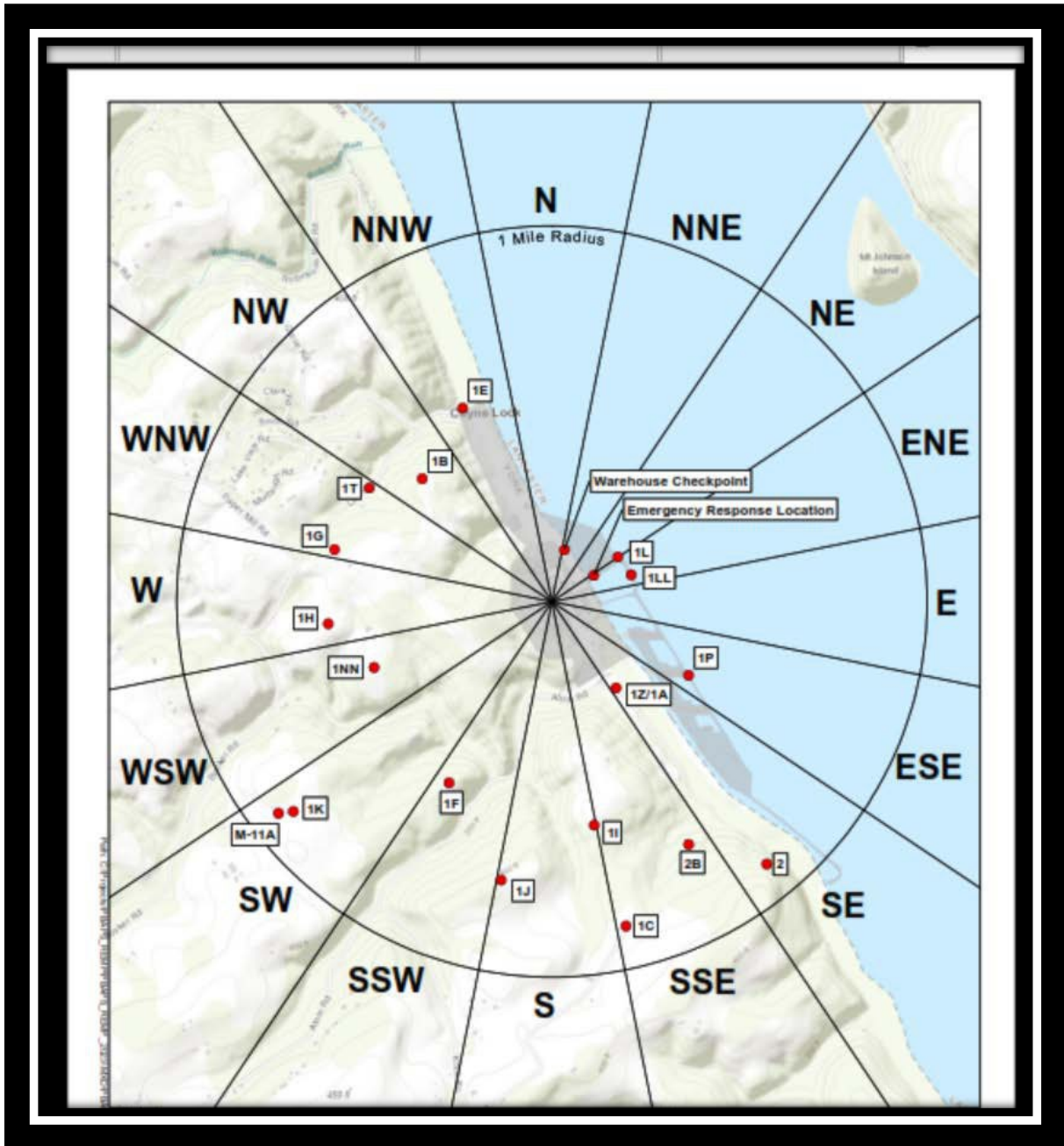


Figure 4: REMP Sample Locations (Onsite)

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 ⁽¹²⁾				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-Nb-95	400				
I-131	2 ⁽¹³⁾	0.9		3	100
Cs-134	30	10	1,000	60	1,000
Cs-137	50	20	2,000	70	2,000
Ba-La-140	200			300	

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	0.01				
H-3	2,000 ⁽¹⁴⁾					
Mn-54	15		130			
Fe-59	30		260			
Co-58, Co-60	15		130			
Zn-65	30		260			
Zr-95, Nb-95	30, 15					
I-131	1 ⁽¹⁵⁾	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
Ba-140, La-140	60, 15			15		

¹² For drinking water samples: If no drinking water pathway exists, a value of **30,000 pCi/L** may be used.

¹³ If no drinking water pathway exists, a value of 20 pCi/l may be used

¹⁴ If no drinking water pathway exists, a value of **3,000 pCi/L** may be used. Some states may require a lower LLD for drinking water sources- per 40 CFR 141 Safe drinking water ACT.

¹⁵ If no drinking water pathway exists, a value of 15 pCi/l may be used

8.0 SAMPLING PROGRAM, PROGRAM MODIFICATION AND INTEPRETATION OF RESULTS

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 results 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.

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 48 locations were monitored and data analyzed in accordance with the requirements in Table 1: Radiological Environmental Monitoring Program – Direct Radiation. Attachment 4: Environmental Direct Radiation Dosimetry Results, provides the annual direct radiation dosimetry analysis.

8.2 Air Particulate and Radioiodine Sample Results

Air particulate filters and charcoal canisters were collected from locations specified in Table 2: Radiological Environmental Monitoring Program – Airborne. During the calendar year 2025, a total of 260 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.

Air particulate samples were analyzed for concentrations of gross beta and gamma-emitting nuclides. Gross beta and cosmogenic naturally occurring beryllium-7 (Be-7) were detected at levels consistent with those detected in previous years. No fission or activation products were detected. High-sensitivity I-131 analyses were performed on weekly air samples. All I-131 results were less than minimum detectable activity. Gross Beta results are plotted in Figure 5, below.

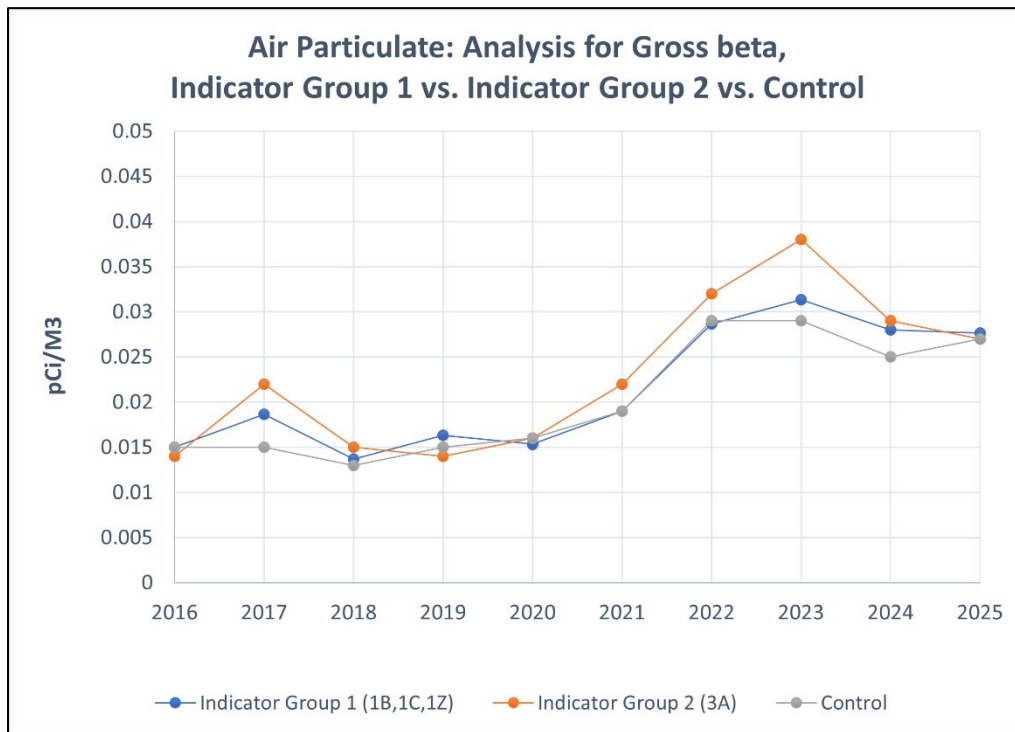


Figure 5: Air Particulate: Analysis for Gross beta, Indicator Group 1 vs. Indicator Group 2 vs. Control

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 (i.e., Bay, Lake etc.)

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 24 surface water samples were collected and analyzed in accordance with the requirements in the ODCM and shown in Table 3: Radiological Environmental Monitoring Program – Waterborne. Tritium concentrations in surface water were well below the EPA tritium drinking water limit of 20,000 pCi/L.

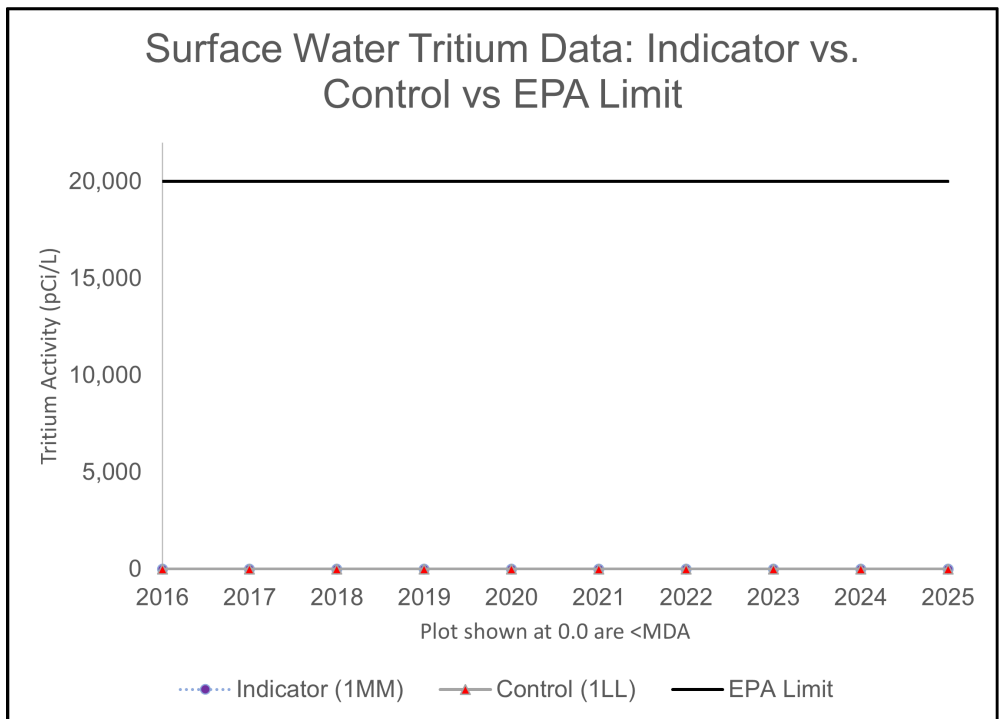


Figure 6: Surface Water Tritium Data: Indicator vs. Control vs EPA Limit

8.3.2 Beta Analysis Comparison; CGS vs. TBE 2025

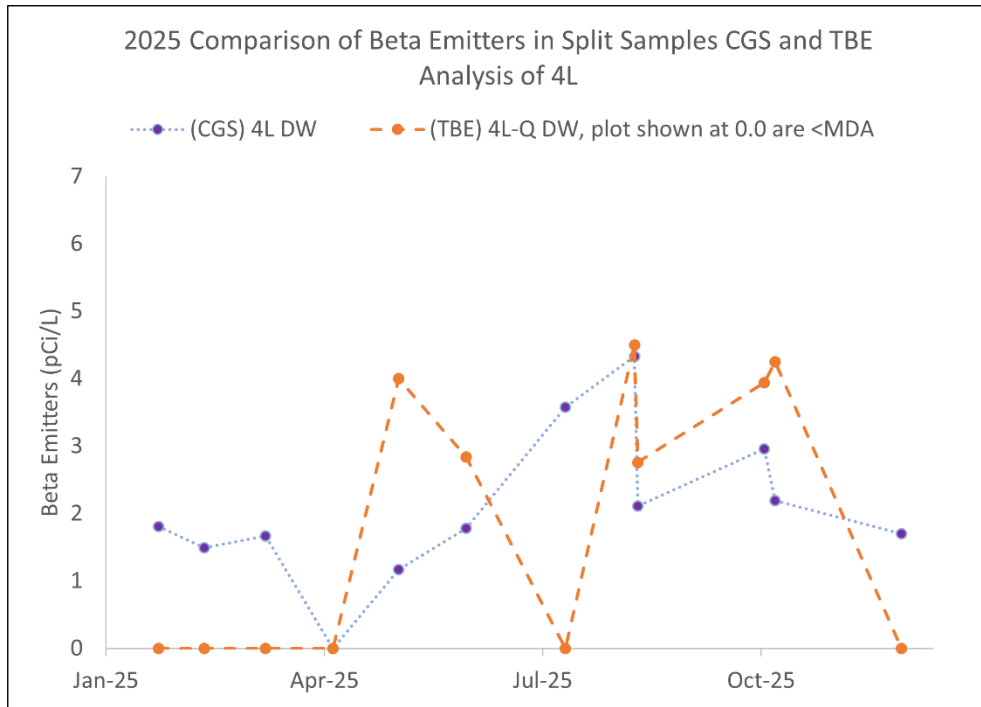


Figure 7: Comparison of Beta Emitters in Split Samples CGS and TBE Analysis of 4L

8.3.3 Drinking Water

A total of 36 drinking water samples were obtained in 2025. These samples were analyzed for gross beta, low level iodine, and gamma analysis monthly. These samples were analyzed for tritium quarterly in accordance with requirements in the ODCM and shown in Table 3, Radiological Environmental Monitoring Program – Waterborne. Total gross beta activities detected were consistent with those detected in previous years. No other fission or activation products were detected. Tritium concentrations in drinking water were less than MDA, thus far below the EPA tritium drinking water limit of 20,000 pCi/L and the alert level for tritium of 2,000 pCi/L.

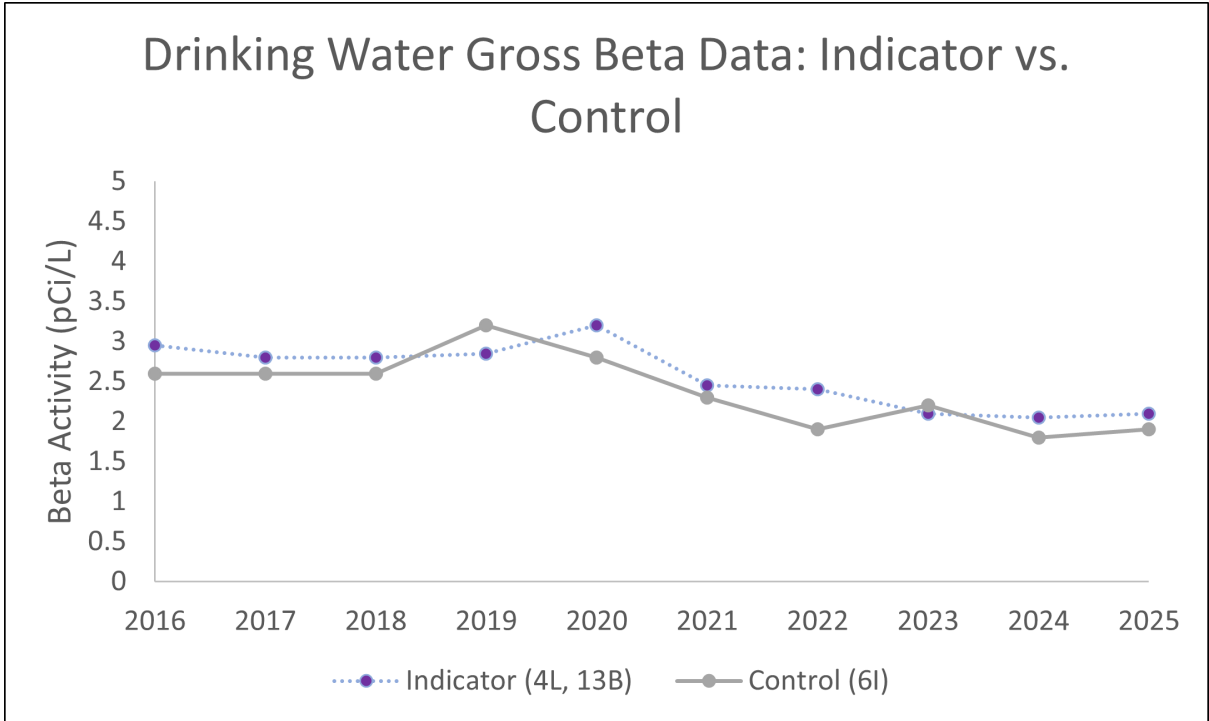


Figure 8: Drinking Water Gross Beta Data: Indicator vs. Control

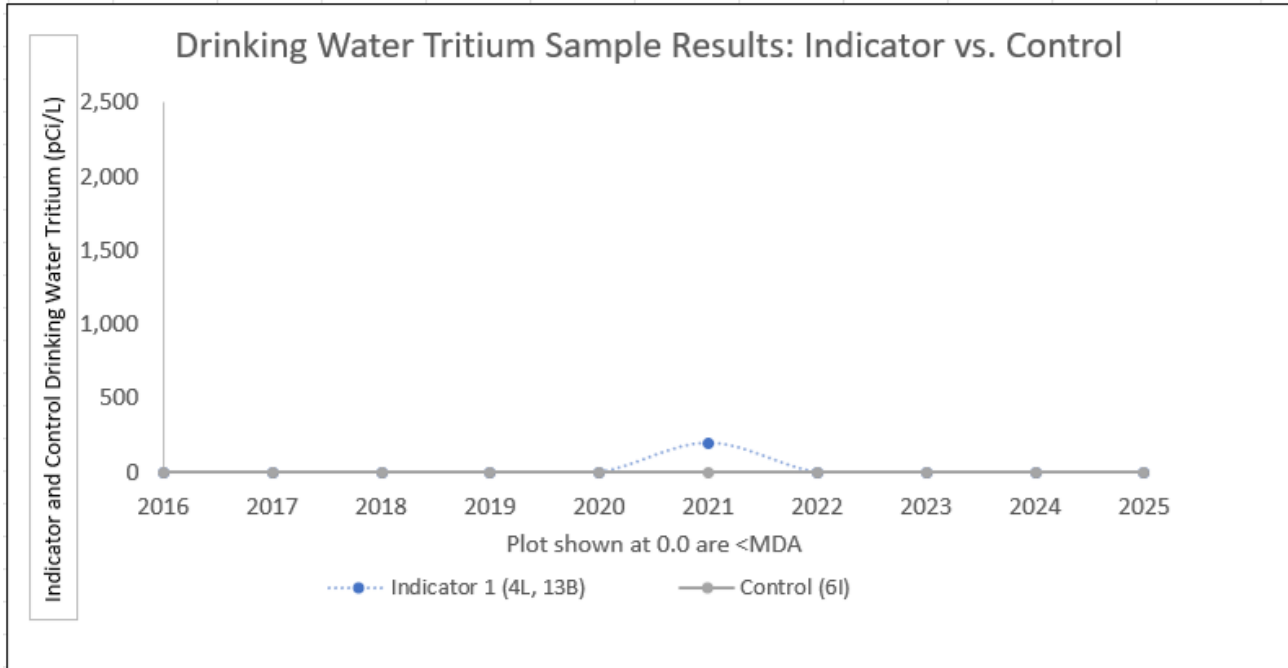


Figure 9: Drinking Water Tritium Sample Results: Indicator vs. Control

8.3.4 Sediment from Shoreline

Shoreline sediment collections were made in June and December 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 Monitoring Program – Waterborne.

Sediment samples from all locations were analyzed for gamma-emitting nuclides. All analyses met minimum detectable activities. No fission or activation products were detected.

8.4 Ingestion Pathway Sample Results

8.4.1 Milk

Milk samples from milking animals were collected at 5 locations within 5 km having the highest dose potential, along with samples collected from a control location 15-30 km in the least prevalent wind direction. Samples were collected and analyzed monthly when cows were not on pasture and biweekly when cows were on pasture. Samples were analyzed for low level iodine and gamma-emitting nuclides. Samples were also collected and analyzed quarterly from 5 additional milk locations. Concentrations of naturally occurring potassium-40 were consistent with those detected in previous years. No fission or activation products were found.

8.4.2 Fish and Invertebrates

A total of 8 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 Monitoring Program – Ingestion. These samples are collected from the indicator and control areas as required by the ODCM (with bottom feeder species and predator species collected at each location). All non-natural gamma emitters were less than the minimal detectable activity. Concentrations of naturally occurring potassium-40 (K-40) were consistent with those detected in previous years.

8.4.3 Food Products

A total of 48 vegetation samples were analyzed in 2025 for gamma emitting radionuclides in accordance with requirements of the ODCM, as summarized in Table 4, Radiological Environmental Monitoring Program – Ingestion.

8.4.4 Leafy Vegetation

In accordance with the ODCM and as described in Table 4: Radiological Environmental Monitoring Program – Ingestion, 48 broad leaf vegetation samples were collected from growing locations nearest the site boundary in areas of highest predicted annual average ground level D/Q. Samples are collected and analyzed for gamma isotopic activity from the indicator and control locations monthly during growing season. It is common to detect Cs-137 in broadleaf samples at both indicator and control locations. Cs-137 can be attributed to offsite sources such as weapons testing, Chernobyl, and Fukushima events. All non-natural gamma emitters were less than the minimal detectable activity.

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 [2]. NUREG-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 m² (500 ft²) producing broad leaf vegetation". Note, per NUREG-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. The nearest gardens in all other sectors reported in the 2025 report are the same as the previous year's report.

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

Sector	Direction	Residence		Garden ⁽¹⁾		Dairy	
		in ft	In miles	in ft	In miles	in ft	In miles
A	N	12,362	2.34	14,183	2.69	14,183	2.69
B	NNE	11,112	2.10	11,041	2.09	22,387	4.24
C	NE	10,080	1.91	10,004	1.89	10,080	1.91
D	ENE	10,495	1.99	11,867	2.25	10,925*	2.07
E	E	10,066	1.91	14,471	2.74	14,471	2.74
F	ESE	16,085	3.05	16,085	3.05	20,154	3.82
G	SE	10,772	2.04	19,134	3.62	19,134	3.62
H	SSE	3,912	0.74	3,912	0.74	-	-
J	S	5,545	1.05	5,545	1.05	-	-
K	SSW	6,072	1.15	5,837	1.11	11,602	2.20
L	SW	4,755	0.90	4,865	0.92	4,860*	0.92
M	WSW	4,036	0.76	12,698	2.40	-	-
N	W	4,204	0.80	4,204	0.80	4,204	0.80
P	WNW	2,928	0.55	4,192	0.79	22,124	4.19
Q	NW	2,948	0.56	4,806	0.91	9,545	1.81
R	NNW	5,124	0.97	-	-	-	-

(1) Larger than 500 square feet (as can best be determined from a distance)

* Denotes current REMP milk sample location

- Not found in sector

Red denotes the site/site information has been updated from the previous year's Land Use Census

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:

Sample Type and Analysis	Location	Collection Date or Period	Reason for not conducting REMP sampling as required by ODCM	Plans for preventing reoccurrence
Air Particulate and Iodine Cartridge	1C	12/23/25	Power outage at air sampling location.	Power was restored to air sampler.
Air Particulate and Iodine Cartridge	1A	12/23/25	A pole was found to be down, and the 1A air sampler equipment was damaged and fell into the wrong orientation.	Redundant sampler 1Z air sampler remained intact. The pole was replaced and the air sampler housing boxes were returned to the correct orientation.
Sediment	4J,4T, and 6F	6/9/25	Sediment samples were collected after the latest date available to meet required ODCM frequency. Lack of awareness of frequency requirements and previous collection date led to this issue.	Track sediment collection dates with action in software.
Water	4L QA	November 2025	Sample was lost by vendor lab and replacement sample was unable to be analyzed in time to meet I-131 LLI LLD. Thus, comparison to CGS values was not possible for the QA sample this period. Annual limit of missed QA samples was not exceeded and there was no impact.	Vendor labs to analyze samples in a timely manner.

11.0 OTHER SUPPLEMENTAL INFORMATION

11.1 NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Peach Bottom Atomic Power Station has developed a Groundwater Protection Initiative (GPI) program in accordance with NEI 07-07, Industry Ground Water Protection Initiative – Final Guidance Document. The groundwater monitoring program is discussed in Attachment 5.

11.2 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Program

In 2023, an evaluation of the background data set for all dosimeters was completed to determine if any changes were required. It was determined the background for dosimeter 1R

should be updated. Due to casks being on the ISFSI pad, the dose for this location is elevated and not suitable to be used for the background. Pre-operational dose studies did not use dosimeters that are comparable to OSLDs, therefore, the background of the surrounding dosimeter locations were reviewed, and an average of those backgrounds was applied to the 1R calculations. Detectable facility-related dose at 1R was identified as expected following the change. No annual facility dose was detected at any surrounding dosimeters.

11.3 Corrections to Previous Reports

The 2024 AREOR Table 12, had a row of data missing for the 9/10/24 samples from Garden 2Q. The highlighted row below shows the data that was missing.

Radionuclides in Vegetation (pCi/kg wet)				
Date	Sample Code	Sample Type	Gamma Emitters	
6/18/2024	2Q	Cabbage	*	
6/18/2024		Broccoli	*	
6/18/2024		Cauliflower	*	
7/16/2024		Cabbage	*	
7/16/2024		Broccoli	*	
7/16/2024		Squash	*	
8/14/2024		Cabbage	*	
8/14/2024		Broccoli	*	
8/14/2024		Squash Leaves	*	
9/10/2024		Cabbage	*	
9/10/2024		Broccoli	*	
9/10/2024			Pumpkin Leaves	*

* All Non Natural Radionuclides <MDA

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 33 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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Annual Radiological Environmental Operating Report	YEAR: 2025	Page 34 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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Annual Radiological Environmental Operating Report	YEAR: 2025	Page 35 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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Attachment 1: Data Table Summary

Medium or Pathway Sampled (Units)	Type, Total Number of Analyses performed (e.g., I-131, 400)	Lower Limit of Detection (LLD)	Indicator Mean ¹⁶ ; (f ¹⁷). Range ¹⁶	Location with Highest Annual Mean		Control Mean ¹⁶ (f ¹⁷). Range ¹⁶	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean ¹⁶ (f ¹⁷). Range ¹⁶		
Air Particulates (pCi/m ³)	Beta, 260	(0.01)	2.76E-02 (208/208) (7.40E-03 - 5.70E-02)	1Z	2.83E-02 (52/52) (8.98E-03 -5.70E-02)	2.65E-02 (52/52) (8.70E-03 -4.23E-02)	0
Direct Radiation (mrem/qtr.)	Gamma Dose, 384	N/A	19.79 (376/376) (7.60-31.60)	1R ISFSI Pad	30.20 (8/8) (28.9-31.6)	15.35 (8/8) (14.0-16.0)	0
Drinking Water (pCi/L)	Gross Beta, 36	4	2.07 (22/24) (1.17-4.33)	4L Conowingo Dam	2.25 (11/12) (1.17-4.33)	1.90 (11/12) (1.20-2.51)	0

¹⁶ Mean and range are based on detectable measurements only.

¹⁷ Fraction of detectable measurements at specified locations is indicated in parentheses.

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

Table 10: Monthly Drinking Water Results									
Monthly Radionuclides in Drinking Water (pCi/L)									
Location	13B			4L			6I (Control)		
Date	Gamma Emitters	Gross Beta Activity	Uncertainty (2-σ)	Gamma Emitters	Gross Beta Activity	Uncertainty (2-σ)	Gamma Emitters	Gross Beta Activity	Uncertainty (2-σ)
1/27/25	*	1.31E+00	6.62E-01						
1/29/25				*	1.81E+00	7.03E-01	*	1.39E+00	6.69E-01
2/24/25	*	1.55E+00	7.10E-01						
2/26/25				*	1.49E+00	7.06E-01	*	1.89E+00	7.36E-01
3/31/25	*	1.31E+00	7.23E-01						
4/2/25				*	1.67E+00	7.52E-01	*	1.20E+00	7.14E-01
4/28/25	*	1.28E+00	7.43E-01						
4/30/25				*	<MDA		*	<MDA	
5/27/25	*	1.83E+00	7.40E-01						
5/28/25				*	1.17E+00	6.90E-01	*	1.28E+00	6.97E-01
6/30/25	*	1.95E+00	7.30E-01						
7/2/25				*	1.78E+00	7.16E-01	*	2.00E+00	7.33E-01
7/28/25	*	1.28E+00	7.77E-01						
7/30/25				*	3.58E+00	9.29E-01	*	1.90E+00	8.21E-01
9/2/25	*	2.17E+00	8.06E-01						
9/3/25				*	4.33E+00	9.45E-01	*	2.39E+00	8.20E-01
9/29/25	*	2.56E+00	8.11E-01						
10/1/25				*	2.11E+00	7.78E-01	*	2.20E+00	7.86E-01
10/27/25	*	3.19E+00	8.63E-01						
10/29/25				*	2.96E+00	8.47E-01	*	2.51E+00	8.16E-01
12/1/25	*	<MDA							
12/3/25				*	2.19E+00	8.28E-01	*	2.01E+00	8.14E-01
12/29/25	*	2.29E+00	7.40E-01						
12/31/2025				*	1.70E+00	6.94E-01	*	2.09E+00	7.25E-01

Table 11: Monthly Surface Water Results						
Monthly Radionuclides in Surface Water (pCi/L)						
Location	1LL (Control)			1MM		
Date	Gamma Emitters	Gross Beta Activity	Uncertainty	Gamma Emitters	Gross Beta Activity	Uncertainty
1/29/2025	*	ND	ND	*	ND	ND
2/26/2025	*	ND	ND	*	ND	ND
4/2/2025	*	ND	ND	*	ND	ND
4/30/2025	*	ND	ND	*	ND	ND
5/28/2025	*	ND	ND	*	ND	ND
7/2/2025	*	ND	ND	*	ND	ND
7/30/2025	*	ND	ND	*	ND	ND
9/3/2025	*	ND	ND	*	ND	ND
10/1/2025	*	ND	ND	*	ND	ND
10/29/2025	*	ND	ND	*	ND	ND
12/3/2025	*	ND	ND	*	ND	ND
12/31/2025	*	ND	ND	*	ND	ND

* All Non Natural Radionuclides <MDA
 ND No Data, sample collected as required

Table 12: Monthly Vegetation Results
Radionuclides in Vegetation (pCi/kg wet)

Date	Sample Code	Sample Type	Gamma Emitters	
6/17/2025	1C	Collards	*	
6/17/2025		Kale	*	
6/17/2025		Cabbage	*	
7/15/2025		Collards	*	
7/15/2025		Kale	*	
7/15/2025		Cabbage	*	
8/12/2025		Collards	*	
8/12/2025		Kale	*	
8/12/2025		Horseradish	*	
9/9/2025		Kale	*	
9/9/2025		Collards	*	
9/9/2025		Horseradish	*	
6/17/2025		2Q	Zucchini	*
6/17/2025			Cauliflower	*
6/17/2025	Broccoli		*	
7/15/2025	Kale		*	
7/15/2025	Eggplant Leaves		*	
7/15/2025	Zucchini		*	
8/12/2025	Kale		*	
8/12/2025	Eggplant Leaves		*	
8/12/2025	Pumpkin Leaves		*	
9/9/2025	Kale		*	
9/9/2025	Broccoli		*	
9/9/2025	Brussels Sprouts		*	

* All Non Natural Radionuclides <MDA

**Table 12: Monthly Vegetation Results
Radionuclides in Vegetation (pCi/kg wet)**

Date	Sample Code	Sample Type	Gamma Emitters	
6/17/2025	3Q	Cabbage	*	
6/17/2025		Broccoli	*	
6/17/2025		Brussels Sprouts	*	
7/15/2025		Cabbage	*	
7/15/2025		Broccoli	*	
7/15/2025		Collards	*	
8/12/2025		Cabbage	*	
8/12/2025		Broccoli	*	
8/12/2025		Collards	*	
9/9/2025		Broccoli	*	
9/9/2025		Sunflower Leaves	*	
9/9/2025		Collards	*	
6/17/2025		55 (Control)	Cabbage	*
6/17/2025			Collards	*
6/17/2025	Kale		*	
7/15/2025	Cabbage		*	
7/15/2025	Collards		*	
7/15/2025	Kale		*	
8/12/2025	Swiss Chard		*	
8/12/2025	Collards		*	
8/12/2025	Kale		*	
9/9/2025	Swiss Chard		*	
9/9/2025	Zucchini		*	
9/9/2025	Pumpkin Leaves	*		

* All Non Natural Radionuclides <MDA

Table 13: Monthly Milk Results

Monthly Gamma Emitters in Milk (pCi/L)

Date	M-11A	M-7D	M-15B	M-4C	M-1C	M-13F (Control)
1/14/2025	*	*	*	*	*	*
2/18/2025	*	*	*	*	*	*
3/18/2025	*	*	*	*	*	*
4/1/2025	*	*	*	*	*	*
4/16/2025	*	*	*	*	*	*
4/30/2025	*	*	*	*	*	*
5/13/2025	*	*	*	*	*	*
5/28/2025	*	*	*	*	*	*
6/10/2025	*	*	*	*	*	*
6/24/2025	*	*	*	*	*	*
7/8/2025	*	*	*	*	*	*
7/22/2025	*	*	*	*	*	*
8/5/2025	*	*	*	*	*	*
8/20/2025	*	*	*	*	*	*
9/3/2025	*	*	*	*	*	*
9/16/2025	*	*	*	*	*	*
10/1/2025	*	*	*	*	*	*
10/15/2025	*	*	*	*	*	*
10/29/2025	*	*	*	*	*	*
11/11/2025	*	*	*	*	*	*
11/25/2025	*	*	*	*	*	*
12/9/2025	*	*	*	*	*	*

* All Non Natural Radionuclides <MDA

Table 14: Weekly Airborne I-131 Results

Concentration of Iodine-131 in Filtered Air (pCi/m³)

Date	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2 (Control)
01/06/25					*
01/09/25	*	*	*	*	
01/13/25					*
01/16/25	*	*	*	*	
01/21/25					*
01/23/25	*	*	*	*	
01/27/25					*
01/29/25	*	*	*	*	
02/03/25					*
02/05/25	*	*	*	*	
02/11/25					*
02/13/25	*	*	*	*	
02/17/25					*
02/20/25	*	*	*	*	
02/24/25					*
02/26/25	*	*	*	*	
03/03/25					*
03/06/25	*	*	*	*	
03/10/25					*
03/13/25	*	*	*	*	
03/17/25					*
03/20/25	*	*	*	*	
03/24/25					*
03/27/25	*	*	*	*	

Table 14: Weekly Airborne I-131 Results

Concentration of Iodine-131 in Filtered Air (pCi/m³)

Date	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2 (Control)
03/31/25					*
04/02/25	*	*	*	*	
04/07/25					*
04/09/25	*	*	*	*	
04/14/25					*
04/17/25	*	*	*	*	
04/21/25					*
04/24/25	*	*	*	*	
04/28/25					*
04/30/25	*	*	*	*	
05/05/25					*
05/08/25	*	*	*	*	
05/12/25					*
05/15/25	*	*	*	*	
05/19/25					*
05/21/25	*	*	*	*	
05/27/25					*
05/28/25	*	*	*	*	
06/02/25					*
06/05/25	*	*	*	*	
06/10/25					*
06/11/25	*	*	*	*	
06/16/25					*
06/18/25	*	*	*	*	
06/24/25					*
06/25/25	*	*	*	*	
06/30/25					*
07/02/25	*	*	*	*	

Table 14: Weekly Airborne I-131 Results

Concentration of Iodine-131 in Filtered Air (pCi/m³)

Date	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2 (Control)
07/07/25					*
07/10/25	*	*	*	*	
07/14/25					*
07/17/25	*	*	*	*	
07/22/25					*
07/23/25	*	*	*	*	
07/29/25					*
07/30/25	*	*	*	*	
08/04/25					*
08/06/25	*	*	*	*	
08/11/25					*
08/14/25	*	*	*	*	
08/19/25					*
08/20/25	*	*	*	*	
08/25/25					*
08/28/25	*	*	*	*	
09/02/25					*
09/03/25	*	*	*	*	
09/08/25					*
09/11/25	*	*	*	*	
09/16/25					*
09/17/25	*	*	*	*	
09/22/25					*
09/25/25	*	*	*	*	
09/30/25					*
10/01/25	*	*	*	*	
10/06/25					*
10/09/25	*	*	*	*	
10/13/25					*
10/16/25	*	*	*	*	

Table 14: Weekly Airborne I-131 Results

Concentration of Iodine-131 in Filtered Air (pCi/m³)

Date	GROUP I			GROUP II	GROUP III
	1B	1C	1Z	3A	5H2 (Control)
10/20/25					*
10/22/25	*	*	*	*	
10/27/25					*
10/29/25	*	*	*	*	
11/03/25					*
11/06/25	*	*	*	*	
11/10/25					*
11/12/25	*	*	*	*	
11/17/25					*
11/19/25	*	*	*	*	
11/24/25					*
11/25/25	*	*	*	*	
12/01/25					*
12/03/25	*	*	*	*	
12/08/25					*
12/10/25	*	*	*	*	
12/15/25					*
12/17/25	*	*	*	*	
12/22/25					*
12/23/25	*	*	*	*	
12/29/25					*
12/31/25	*	*	*	*	

* All Non Natural Radionuclides <MDA

Table 15: Weekly Airborne Gross Beta Results										
Gross Beta Activity in Air Particulates (pCi/m ³)										
Date	GROUP I						GROUP II		GROUP III	
	1B		1C		1Z		3A		5H2 (Control)	
	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)
01/06/25									2.24E-02	2.17E-03
01/09/25	2.50E-02	2.28E-03	2.64E-02	2.32E-03	2.71E-02	2.34E-03	2.79E-02	2.38E-03		
01/13/25									2.47E-02	2.28E-03
01/16/25	4.15E-02	2.79E-03	4.34E-02	2.84E-03	3.84E-02	2.70E-03	3.90E-02	2.72E-03		
01/21/25									2.96E-02	2.30E-03
01/23/25	3.44E-02	2.65E-03	3.90E-02	2.77E-03	3.58E-02	2.68E-03	3.62E-02	2.69E-03		
01/27/25									3.64E-02	2.96E-03
01/29/25	4.41E-02	3.07E-03	4.66E-02	3.17E-03	4.40E-02	3.09E-03	3.94E-02	2.95E-03		
02/03/25									2.00E-02	2.14E-03
02/05/25	2.46E-02	2.35E-03	2.45E-02	2.35E-03	2.39E-02	2.32E-03	2.41E-02	2.33E-03		
02/11/25									3.05E-02	2.28E-03
02/13/25	2.66E-02	2.23E-03	2.70E-02	2.23E-03	2.63E-02	2.21E-03	2.51E-02	2.17E-03		
02/17/25									2.02E-02	2.49E-03
02/20/25	2.16E-02	2.27E-03	2.22E-02	2.30E-03	2.05E-02	2.23E-03	1.98E-02	2.17E-03		
02/24/25									2.71E-02	2.37E-03
02/26/25	3.00E-02	2.63E-03	3.12E-02	2.69E-03	2.87E-02	2.60E-03	2.90E-02	2.62E-03		
03/03/25									3.24E-02	2.53E-03
03/06/25	2.37E-02	2.07E-03	2.71E-02	2.30E-03	2.27E-02	2.03E-03	2.57E-02	2.11E-03		
03/10/25									2.20E-02	2.17E-03
03/13/25	2.63E-02	2.34E-03	2.88E-02	2.43E-03	2.69E-02	2.37E-03	2.97E-02	2.47E-03		
03/17/25									2.69E-02	2.34E-03
03/20/25	2.11E-02	2.15E-03	2.44E-02	2.27E-03	2.09E-02	2.14E-03	2.26E-02	2.19E-03		
03/24/25									2.05E-02	2.20E-03
03/27/25	2.52E-02	2.31E-03	2.76E-02	2.25E-03	2.50E-02	2.30E-03	2.54E-02	2.18E-03		
03/31/25									2.51E-02	2.35E-03

Table 15: Weekly Airborne Gross Beta Results										
Gross Beta Activity in Air Particulates (pCi/m ³)										
Date	GROUP I						GROUP II		GROUP III	
	1B		1C		1Z		3A		5H2 (Control)	
	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)
04/02/25	2.45E-02	2.59E-03	2.61E-02	2.66E-03	2.07E-02	2.47E-03	2.36E-02	2.42E-03		
04/07/25									1.95E-02	2.17E-03
04/09/25	2.49E-02	2.36E-03	2.59E-02	2.59E-03	2.20E-02	2.26E-03	2.28E-02	2.29E-03		
04/14/25									2.43E-02	2.23E-03
04/17/25	2.06E-02	1.98E-03	2.71E-02	2.18E-03	2.08E-02	1.98E-03	2.30E-02	2.05E-03		
04/21/25									2.84E-02	2.49E-03
04/24/25	2.49E-02	2.34E-03	3.13E-02	2.57E-03	2.45E-02	2.32E-03	2.64E-02	2.38E-03		
04/28/25									2.68E-02	2.41E-03
04/30/25	2.50E-02	2.52E-03	2.37E-02	2.49E-03	2.20E-02	2.42E-03	2.19E-02	2.44E-03		
05/05/25									2.60E-02	2.33E-03
05/08/25	2.02E-02	2.00E-03	2.26E-02	2.07E-03	2.05E-02	2.00E-03	2.14E-02	2.02E-03		
05/12/25									1.52E-02	1.99E-03
05/15/25	1.91E-02	2.14E-03	2.07E-02	2.19E-03	1.77E-02	2.08E-03	2.12E-02	2.21E-03		
05/19/25									1.83E-02	2.08E-03
05/21/25	1.31E-02	2.10E-03	1.60E-02	2.23E-03	1.34E-02	2.12E-03	1.41E-02	2.16E-03		
05/27/25									8.70E-03	1.52E-03
05/28/25	8.30E-03	1.61E-03	7.40E-03	1.57E-03	8.98E-03	1.65E-03	8.94E-03	1.64E-03		
06/02/25									1.58E-02	2.14E-03
06/05/25	1.90E-02	1.92E-03	1.92E-02	1.91E-03	2.00E-02	1.94E-03	2.05E-02	1.95E-03		
06/10/25									2.17E-02	1.96E-03
06/11/25	1.66E-02	2.15E-03	2.03E-02	2.31E-03	2.02E-02	2.30E-03	1.77E-02	2.22E-03		
06/16/25									2.18E-02	2.49E-03
06/18/25	1.64E-02	2.05E-03	1.93E-02	2.16E-03	1.58E-02	2.11E-03	1.91E-02	2.13E-03		
06/24/25									2.56E-02	2.34E-03
06/25/25	3.19E-02	3.12E-03	3.32E-02	3.18E-03	3.50E-02	3.23E-03	3.37E-02	2.57E-03		
06/30/25									3.12E-02	2.76E-03
07/02/25	2.42E-02	2.32E-03	2.67E-02	2.38E-03	2.62E-02	2.36E-03	2.39E-02	2.30E-03		

Table 15: Weekly Airborne Gross Beta Results

Gross Beta Activity in Air Particulates (pCi/m³)

Date	GROUP I						GROUP II		GROUP III	
	1B		1C		1Z		3A		5H2 (Control)	
	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)
07/07/25									2.33E-02	2.26E-03
07/10/25	2.45E-02	2.08E-03	2.70E-02	2.28E-03	2.63E-02	2.14E-03	2.42E-02	2.06E-03		
07/14/25									2.26E-02	2.29E-03
07/17/25	1.83E-02	2.21E-03	2.07E-02	2.29E-03	2.06E-02	2.29E-03	2.15E-02	2.34E-03		
07/22/25									2.30E-02	2.08E-03
07/23/25	2.32E-02	2.48E-03	2.56E-02	2.58E-03	2.61E-02	2.59E-03	2.33E-02	2.49E-03		
07/29/25									2.51E-02	2.29E-03
07/30/25	2.99E-02	2.44E-03	1.29E-02	3.06E-03	3.32E-02	2.55E-03	2.76E-02	2.38E-03		
08/04/25									3.23E-02	2.82E-03
08/06/25	2.78E-02	2.40E-03	2.83E-02	2.44E-03	2.95E-02	2.46E-03	2.85E-02	2.42E-03		
08/11/25									2.82E-02	2.43E-03
08/14/25	2.20E-02	2.06E-03	2.16E-02	2.05E-03	2.42E-02	2.13E-03	2.16E-02	2.05E-03		
08/19/25									3.00E-02	2.28E-03
08/20/25	2.60E-02	2.63E-03	2.60E-02	2.53E-03	2.69E-02	2.57E-03	2.67E-02	2.63E-03		
08/25/25									2.09E-02	2.37E-03
08/28/25	1.89E-02	1.93E-03	2.18E-02	2.02E-03	2.28E-02	2.05E-03	2.08E-02	1.99E-03		
09/02/25									2.60E-02	2.14E-03
09/03/25	2.93E-02	2.81E-03	3.12E-02	2.80E-03	3.07E-02	2.77E-03	2.93E-02	2.82E-03		
09/08/25									3.47E-02	2.90E-03
09/11/25	2.86E-02	2.27E-03	2.84E-02	2.25E-03	2.85E-02	2.34E-03	3.06E-02	2.32E-03		
09/16/25									3.68E-02	2.47E-03
09/17/25	5.10E-02	3.30E-03	4.93E-02	3.28E-03	5.29E-02	3.36E-03	5.24E-02	3.37E-03		
09/22/25									3.11E-02	2.68E-03
09/25/25	3.34E-02	2.38E-03	3.42E-02	2.41E-03	3.76E-02	2.50E-03	3.13E-02	2.32E-03		
09/30/25									4.23E-02	2.68E-03
10/01/25	5.13E-02	3.34E-03	5.69E-02	3.69E-03	5.70E-02	3.47E-03	4.93E-02	3.36E-03		
10/06/25									2.98E-02	2.77E-03
10/09/25	2.84E-02	2.28E-03	2.83E-02	2.27E-03	2.97E-02	2.31E-03	2.83E-02	2.27E-03		
10/13/25									2.01E-02	2.20E-03

Table 15: Weekly Airborne Gross Beta Results

Gross Beta Activity in Air Particulates (pCi/m³)

Date	GROUP I						GROUP II		GROUP III	
	1B		1C		1Z		3A		5H2 (Control)	
	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)	Gross Beta Activity	(2-σ)
10/16/25	1.77E-02	2.13E-03	1.74E-02	2.13E-03	1.87E-02	2.17E-03	1.60E-02	2.09E-03		
10/20/25									2.23E-02	2.19E-03
10/22/25	3.28E-02	2.83E-03	3.23E-02	2.80E-03	3.63E-02	2.93E-03	3.13E-02	2.76E-03		
10/27/25									2.08E-02	2.22E-03
10/29/25	2.24E-02	2.20E-03	2.05E-02	2.14E-03	2.28E-02	2.22E-03	2.12E-02	2.17E-03		
11/03/25									2.35E-02	2.26E-03
11/06/25	2.97E-02	2.31E-03	3.02E-02	2.33E-03	3.00E-02	2.32E-03	2.63E-02	2.22E-03		
11/10/25									3.72E-02	2.80E-03
11/12/25	2.85E-02	2.75E-03	3.10E-02	2.83E-03	3.37E-02	2.91E-03	2.88E-02	2.75E-03		
11/17/25									2.68E-02	2.42E-03
11/19/25	3.04E-02	2.60E-03	3.06E-02	2.59E-03	2.96E-02	2.56E-03	3.20E-02	2.62E-03		
11/24/25									3.96E-02	2.71E-03
11/25/25	4.72E-02	3.17E-03	4.87E-02	3.19E-03	5.15E-02	3.26E-03	4.64E-02	3.12E-03		
12/01/25									3.38E-02	2.64E-03
12/03/25	2.23E-02	2.05E-03	2.45E-02	2.15E-03	2.56E-02	2.18E-03	1.95E-02	1.98E-03		
12/08/25									3.50E-02	2.69E-03
12/10/25	3.73E-02	2.75E-03	3.56E-02	2.70E-03	3.92E-02	2.80E-03	2.82E-02	2.48E-03		
12/15/25									2.48E-02	2.32E-03
12/17/25	2.96E-02	2.47E-03	3.29E-02	2.57E-03	3.70E-02	2.69E-03	2.51E-02	2.33E-03		
12/22/25									4.18E-02	2.83E-03
12/23/25	4.17E-02	3.10E-03	4.04E-02	4.40E-03	4.46E-02	3.19E-03	3.40E-02	2.88E-03		
12/29/25									2.53E-02	2.37E-03
12/31/25	2.38E-02	2.13E-03	1.90E-02	5.67E-03	2.82E-02	2.26E-03	2.15E-02	2.05E-03		

Table 16: Quarterly Isotopic Data for Air Filters, Water, Milk and Fish

Location	Nuclide	Q1	Q2	Q3	Q4
Quarterly Air Filter Composite for Gamma Emitters (pCi/m³)					
5H2 (Control)	Cs134, Cs137	<MDAs	<MDAs	<MDAs	<MDAs
3A	Cs134, Cs137	<MDAs	<MDAs	<MDAs	<MDAs
1Z	Cs134, Cs137	<MDAs	<MDAs	<MDAs	<MDAs
1B	Cs134, Cs137	<MDAs	<MDAs	<MDAs	<MDAs
1C	Cs134, Cs137	<MDAs	<MDAs	<MDAs	<MDAs
Quarterly Tritium in Water (pCi/L)					
1LL	H-3	<MDA	<MDA	<MDA	<MDA
1MM	H-3	<MDA	<MDA	<MDA	<MDA
6I	H-3	<MDA	<MDA	<MDA	<MDA
4L	H-3	<MDA	<MDA	<MDA	<MDA
13B	H-3	<MDA	<MDA	<MDA	<MDA
Quarterly Milk Samples for Gamma Emitters (pCi/m³)					
M-3D	Gamma Emitters	<MDAs	<MDAs	<MDAs	<MDAs
M-1F	Gamma Emitters	<MDAs	<MDAs	<MDAs	<MDAs
M-3B	Gamma Emitters	<MDAs	<MDAs	<MDAs	<MDAs
M-9G	Gamma Emitters	<MDAs	<MDAs	<MDAs	<MDAs
M-15G	Gamma Emitters	<MDAs	<MDAs	<MDAs	<MDAs

Table 17: Gamma Isotopic Results for Fish

Radionuclides in Fish (pCi/kg wet)			
Sample Date	Sample Code	Sample Type	Gamma Emitters
6/3/25	4	Bottom Feeder	*
6/3/25		Predator Fish	*
9/24/25		Bottom Feeder	*
9/24/25		Predator Fish	*
6/18/25	6	Bottom Feeder	*
6/18/25		Predator Fish	*
10/7/25		Predator Fish	*
10/7/25		Bottom Feeder	*

*All Non-Natural Gamma Emitters <MDA

Table 18: Gamma Isotopic Results for Sediment

Radionuclides in Sediment (pCi/kg dry)		
Sample Date	Sample Code	Gamma Emitters
6/11/25	4J	*
12/22/25	4J	*
6/11/25	4T	*
12/22/25	4T	*
6/11/25	6F	*
12/22/25	6F	*

*All Non-Natural Gamma Emitters <MDA

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 52 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

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.

Constellation Generation Solutions Laboratory participated in the following proficiency testing studies provided by Environmental Resource Associates (ERA) and Eckert Ziegler Analytics (EZA) in 2025. The Laboratory's intercomparison program results for 2025 are summarized below.

Attachment 3 is a summary of Constellation Generation Solutions (CGS) laboratory's quality assurance program. It consists of Table 19 which is a compilation of the results of the CGS laboratory's participation in an interlaboratory comparison program with Environmental Resource Associates (ERA) located in Arvada, Colorado and Eckert and Ziegler Analytics, Inc. (EZA) located in Atlanta, Georgia.

It also includes Table 20, a compilation of the results of the Constellation Generation Solutions (CGS) Laboratory's participation in a split sample program with Teledyne Brown Engineering located in Knoxville, Tennessee.

The CGS laboratory's intercomparison crosscheck results are in full agreement when they were evaluated using designated acceptance ranges and the Resolution Test Criteria in accordance with the Constellation Radiochemistry Quality Control procedure. The CGS laboratory's split sample results are provided with their analytical uncertainties of 2 sigma. When evaluating with the Resolution Test a one sigma uncertainty is used to determine Pass or Fail and noted accordingly.

Co-located air samplers provide the opportunity to perform interlaboratory comparisons of beta particulate and radioiodine filters that due to the nature of the sample precludes them from splitting for analysis. Results of 1Z analyzed by CGS and 1A analyzed by TBE for beta particulates and radioiodine are provided at the end of this table for review and are generally in good agreement.

All samples split between CGS and TBE passed acceptance criteria with the exception of 4L collected in May 2025. Upon review of the data, it was observed that the CGS laboratory counts samples to a lower uncertainty than TBE which results in a very tight calculated acceptance ratio 0.4-2.5. CGS reported 1.17 ± 0.69 compared to TBE's reported 4.00 ± 1.53 pCi/L for the May 2025 sample. The Gross beta analysis for CGS and TBE failed resolution test criteria with a ratio of 0.29 for the May 2025 sample due to the different analytical parameters of the laboratories.

The vendor laboratories used by CGS for subcontracting and interlaboratory comparison samples, GEL Laboratories and Teledyne Brown Engineering (TBE), also participate in the ERA and EZA interlaboratory comparison program. A presentation of their full data report is provided in their Annual Environmental Quality Assurance Program Reports, (Ref 41,42). In

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 53 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

summary TBE reported results met vendor and laboratory acceptance ranges for relevant media types.

In summary, GEL reported results met vendor and laboratory acceptance ranges with the following exceptions described here.

For the GEL Laboratory, the following study reported data that did not meet the specified acceptance criteria and was addressed through GEL's internal nonconformance system. A summary is found below:

GEL crosscheck MRAD-42 failed low for Tritium in water, 2nd quarter 2025. The laboratory reviewed the data and counting process for this sample and no errors were noted. It was noted that the duplicate met acceptance criteria in the original preparation. The sample was prepared again in duplicate, and the results were within the acceptance criteria of the PT. The laboratory will scrutinize dilutions to determine the most appropriate level to lessen the impact on the detection limits and non-detected results. The lab will continue to monitor the recoveries of these parameters to ensure that there are no continued issues. During the analysis time period for MRAD-42, the laboratory successfully completed the analysis of other uranium isotopes in water and filters as well as Tritium in water in PT study MAPEP-52. The samples were prepared and analyzed by the same processes and procedures.

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 19 Continued: CGS Cross Check Intercomparison Results

Study Date	Study ID	Units	Radionuclide	Reported Value	Assigned Value	Acceptance		Performance Evaluation
						Lower Limit	Upper Limit	
06/12/2025	E14258 Soil	pCi/g	Cs-134	0.301	0.347	0.243	0.451	Pass
			Cs-137	0.282	0.319	0.223	0.415	Pass
06/12/2025	E14258 Soil	pCi/g	Cs-134	0.312	0.347	0.243	0.451	Pass
			Cs-137	0.309	0.319	0.223	0.415	Pass
06/12/2025	E14265 Water	pCi/L	Beta Cs-137	201	204	143	265	Pass
06/12/2025	E14266 Water	pCi/L	Ce-141	140	138	96.6	179	Pass
			Co-58	155	160	112	208	Pass
			Co-60	229	211	148	274	Pass
06/12/2025	E14266 Water	pCi/L	Cr-51	320	283	198	368	Pass
			Cs-134	194	204	143	265	Pass
			Cs-137	152	149	104	194	Pass
			Fe-59	159	135	94.5	176	Pass
			I-131	73.8	62.5	43.8	81.3	Pass
			Mn-54	157	150	105	195	Pass
			Zn-65	286	282	197	367	Pass
06/12/2025	E14266 Water	pCi/L	Ce-141	128	138	96.6	179	Pass
			Co-58	156	160	112	208	Pass
			Co-60	211	211	148	274	Pass
			Cr-51	261	283	198	368	Pass
			Cs-134	203	204	143	265	Pass
			Cs-137	147	149	104	194	Pass
			Fe-59	151	135	94.5	176	Pass
			I-131	60.8	62.5	43.8	81.3	Pass
			Mn-54	164	150	105	195	Pass
			Zn-65	285	282	197	367	Pass
06/12/2025	E14267 Filter	pCi	Ce-141	88.4	89.9	62.9	117	Pass
			Co-58	105	104	72.8	135	Pass
			Co-60	139	137	95.9	178	Pass
			Cr-51	198	184	128.80	239	Pass

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 19 Continued: CGS Cross Check Intercomparison Results

Study Date	Study ID	Units	Radionuclide	Reported Value	Assigned Value	Acceptance		Performance Evaluation
						Lower Limit	Upper Limit	
06/12/2025	E14267 Filter	pCi	Cs-134	108	133	93.1	173	Pass
			Cs-137	100	96.8	67.8	126	Pass
			Fe-59	101	87.5	61.3	114	Pass
			Mn-54	102	97.4	68.2	127	Pass
			Zn-65	195	183	128.1	238	Pass
06/12/2025	E14267 Filter	pCi	Ce-141	87.5	89.9	62.9	117	Pass
			Co-58	103	104	72.8	135	Pass
			Co-60	138	137	95.9	178.1	Pass
			Cr-51	174	184	129	239.2	Pass
			Cs-134	114	133	93.1	172.9	Pass
			Cs-137	95.3	96.8	67.8	125.84	Pass
			Fe-59	97.2	87.5	61.3	113.75	Pass
			Mn-54	110	97.4	68.2	126.62	Pass
			Zn-65	180	183	128	237.9	Pass
06/12/2025	E14268 Filter	pCi	Beta Cs-137	243	196	137	254.8	Pass
06/12/2025	E14268 Filter	pCi	Beta Cs-137	239	196	137	254.8	Pass
09/11/2025	E14269 Filter	pCi	Beta Cs-137	135	119	83	155	Pass
09/11/2025	E14259 Soil	pCi/g	Cs-134	0.216	0.236	0.165	0.307	Pass
			Cs-137	0.301	0.276	0.193	0.359	Pass
09/11/2025	E14259 Soil	pCi/g	Cs-134	0.213	0.236	0.165	0.307	Pass
			Cs-137	0.276	0.276	0.193	0.359	Pass
09/22/2025	MRAD43	pCi	Cs-134	293	341	221	418	Pass
	Filter		Cs-137	376	379	311	497	Pass
			Co-60	307	322	274	409	Pass
			Zn-65	194	193	158	295	Pass
09/22/2025	MRAD43	pCi	Cs-134	282	341	221	418	Pass
	Filter		Cs-137	356	379	311	497	Pass

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 19 Continued: CGS Cross Check Intercomparison Results

Study Date	Study ID	Units	Radionuclide	Reported Value	Assigned Value	Acceptance		Performance Evaluation
						Lower Limit	Upper Limit	
09/22/2025	MRAD43	pCi	Co-60	322	322	274	409	Pass
	Filter		Zn-65	197	193	158	295	Pass
			Cs-134	296	341	221	418	Pass
			Cs-137	357	379	311	497	Pass
			Co-60	342	322	274	409	Pass
			Zn-65	225	193	158	295	Pass
10/03/2025	RAD143	pCi/L	Cs-134	59.8	58.0	43.0	73.0	Pass
	Water		Cs-137	182	178	142	214	Pass
			Co-60	55.4	55.0	40.3	69.7	Pass
			Zn-65	34.4	36.8	5.51	68.1	Pass
10/03/2025	RAD143 Water	pCi/L	Cs-134	57.7	58.0	43.0	73.0	Pass
			Cs-137	181	178	142	214	Pass
10/03/2025	RAD143	pCi/L	Co-60	58.5	55.0	40.3	69.7	Pass
10/03/2025	RAD143 Water	pCi/L	Zn-65	34.3	36.8	5.51	68.1	Pass
10/03/2025	RAD143 Water	pCi/L	I-131	23.2	24.3	20.9	27.7	Pass
10/03/2025	RAD143 Water	pCi/L	I-131	24.8	24.3	20.9	27.7	Pass
12/04/2025	E14271 Water	pCi/L	Beta Cs-137	278	257	180	334	Pass
12/04/2025	E14272 Charcoal	pCi	I-131	78.2	88.8	62.2	115	Pass
12/04/2025	E14272 Charcoal	pCi	I-131	77.8	88.8	62.2	115	Pass
12/04/2025	E14273	pCi/L	Ce-141	155	143	100	186	Pass
			Co-58	171	169	118	220	Pass
			Co-60	236	217	152	282	Pass
			Cr-51	298	299	209	389	Pass
			Cs-134	142	139	97.3	181	Pass
			Cs-137	177	168	118	218	Pass

Table 19 Continued: CGS Cross Check Intercomparison Results

Study Date	Study ID	Units	Radionuclide	Reported Value	Assigned Value	Acceptance		Performance Evaluation
						Lower Limit	Upper Limit	
12/04/2025	E14273	pCi/L	Fe-59	161	134	93.8	174	Pass
			I-131	80.6	86	60.2	112	Pass
			Mn-54	212	187	131	243	Pass
			Zn-65	259	244	171	317	Pass

See discussion at the beginning of Attachment 3 describes the interlaboratory split program.

Table 20 Continued: Interlaboratory Split Sample Results

Sample Type	Location	Sample Date	Analysis	Result Units	CGS Results w 2σ		TBE Split Results w 2σ	Pass/Fail (Split)
Water	4L	10/1/2025	Gross Beta	pCi/L	2.11	0.78	2.76±1.73	Pass
Water	4L	10/1/2025	LLI	pCi/L	<MDA		<MDA	Pass
Water	4L	10/1/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Water	4L	10/1/2025	Tritium	pCi/L	<MDA		<MDA	Pass
Water	4L	10/29/2025	Gross Beta	pCi/L	2.96	0.85	3.94±1.76	Pass
Water	4L	10/29/2025	LLI	pCi/L	<MDA		<MDA	Pass
Water	4L	10/29/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Water	4L	12/3/2025	Gross Beta	pCi/L	2.19	0.83	4.25±1.68	Pass
Water	4L	12/3/2025	LLI	pCi/L	<MDA		#	N/A
Water	4L	12/3/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Water	4L	12/31/25	Gross Beta	pCi/L	1.70	0.69	<MDA	Pass
Water	4L	12/31/25	LLI	pCi/L	<MDA		<MDA	Pass
Water	4L	12/31/25	Gamma	pCi/L	<MDA		<MDA	Pass
Water	4L	12/31/25	Tritium	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	2/18/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	2/18/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	2/18/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	2/18/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	2/18/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	2/18/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	5/13/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	5/13/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	5/13/2025	Gamma	pCi/L	<MDA		<MDA	Pass

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Plant: Peach Bottom Atomic Power Station

Table 20 Continued: Interlaboratory Split Sample Results

Sample Type	Location	Sample Date	Analysis	Result Units	CGS Results w 2 σ		TBE Split Results w 2 σ	Pass/Fail (Split)
Milk	M-13F	5/13/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	5/13/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	5/13/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	8/5/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	8/5/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	8/5/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	8/5/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	8/5/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	8/5/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	11/11/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-11A	11/11/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	11/11/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-13F	11/11/2025	LLI	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	11/11/2025	Gamma	pCi/L	<MDA		<MDA	Pass
Milk	M-7D	11/11/2025	LLI	pCi/L	<MDA		<MDA	Pass
Filter Composite	1Z/1A	4/2/2025	Gamma	pCi/m ³	<MDA		<MDA	Pass
Filter Composite	1Z/1A	7/2/2025	Gamma	pCi/m ³	<MDA		<MDA	Pass
Filter Composite	1Z/1A	10/1/2025	Gamma	pCi/m ³	<MDA		<MDA	Pass
Filter Composite	1Z/1A	12/31/2025	Gamma	pCi/m ³	<MDA		<MDA	Pass
Vegetation	H1-2	6/23/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	H1-2	7/21/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	H1-2	8/18/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	H1-2	9/15/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 20 Continued: Interlaboratory Split Sample Results

Sample Type	Location	Sample Date	Analysis	Result Units	CGS Results w 2 σ		TBE Split Results w 2 σ	Pass/Fail (Split)
Vegetation	H1-2	6/23/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	B10-2	8/18/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Fish	INDP	10/6/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Fish	INDP	10/6/2025	Strontium-90	pCi/Kg	<MDA		<MDA	Pass
Sediment	J2-1	10/28/25	Gamma	pCi/Kg	<MDA		<MDA	Pass
Water	WA1	1/02/2026	Gamma	pCi/L	<MDA		<MDA	Pass
Water	WA2	1/02/2026	Gamma	pCi/L	<MDA		<MDA	Pass
Oysters	IA3	8/12/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Bottom Sediment	WBS4	6/18/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Bottom Sediment	WBS2	6/18/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	IB10	8/11/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	IB11	8/11/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Vegetation	IB12	8/11/2025	Gamma	pCi/Kg	<MDA		<MDA	Pass
Fish (Striped Bass)	IA1	7/8/2025	Gamma	pCi/kg	<MDA		<MDA	Pass
Fish (Spot)	IA2	7/8/2025	Gamma	pCi/kg	<MDA		<MDA	Pass
Filter Composite	CC-A1*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-A2*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-A3*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-A4*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass

Table 20 Continued: Interlaboratory Split Sample Results								
Sample Type	Location	Sample Date	Analysis	Result Units	CGS Results w 2σ		TBE Split Results w 2σ	Pass/Fail (Split)
Filter Composite	CC-A5*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-SFA1*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-SFA2*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-SFA3*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass
Filter Composite	CC-SFA4*	06/30/2025	Gamma	pCi/m3	<MDA		<MDA	Pass

LLI=Low Level Iodine

<^{MDA} All non-natural gamma emitters below Minimum Detectable Activity.

* Samples cannot be split and are analyzed first by CGS and then by TBE for comparison.

¹ See discussion in the beginning of Attachment 3

TBE's analysis of the 4L sample from 12/3/25 for LLI did not meet LLD. Please refer to Table 9, "Sample Deviation Summary" for further explanation

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Plant: Peach Bottom Atomic Power Station

Table 21: Comparison of Gross Beta Results from Split Samples of 1Z and 1A

Interlaboratory Split Sample Results (Air Particulate Beta)

Media	Location	Sample Date	Beta	pCi/M ³	(CGS)		(TBE)	
					1Z	±2σ	1A	±2σ
Filter	1Z / 1A	01/09/25	Beta	pCi/M ³	2.71E-02	2.34E-03	1.19E-02	4.20E-03
Filter	1Z / 1A	01/16/25	Beta	pCi/M ³	3.84E-02	2.70E-03	2.01E-02	4.54E-03
Filter	1Z / 1A	01/23/25	Beta	pCi/M ³	3.58E-02	2.68E-03	2.83E-02	4.95E-03
Filter	1Z / 1A	01/29/25	Beta	pCi/M ³	4.40E-02	3.09E-03	3.66E-02	5.48E-03
Filter	1Z / 1A	02/05/25	Beta	pCi/M ³	2.39E-02	2.32E-03	1.77E-02	4.20E-03
Filter	1Z / 1A	02/13/25	Beta	pCi/M ³	2.63E-02	2.21E-03	1.94E-02	3.94E-03
Filter	1Z / 1A	02/20/25	Beta	pCi/M ³	2.05E-02	2.23E-03	2.03E-02	4.15E-03
Filter	1Z / 1A	02/26/25	Beta	pCi/M ³	2.87E-02	2.60E-03	1.99E-02	4.86E-03
Filter	1Z / 1A	03/06/25	Beta	pCi/M ³	2.27E-02	2.03E-03	1.63E-02	3.79E-03
Filter	1Z / 1A	03/13/25	Beta	pCi/M ³	2.69E-02	2.37E-03	1.91E-02	4.30E-03
Filter	1Z / 1A	03/20/25	Beta	pCi/M ³	2.09E-02	2.14E-03	1.96E-02	4.06E-03
Filter	1Z / 1A	03/27/25	Beta	pCi/M ³	2.50E-02	2.30E-03	2.23E-02	4.33E-03
Filter	1Z / 1A	04/02/25	Beta	pCi/M ³	2.07E-02	2.47E-03	2.07E-02	5.06E-03
Filter	1Z / 1A	04/09/25	Beta	pCi/M ³	2.20E-02	2.26E-03	2.09E-02	4.36E-03
Filter	1Z / 1A	04/17/25	Beta	pCi/M ³	2.08E-02	1.98E-03	1.47E-02	3.67E-03
Filter	1Z / 1A	04/24/25	Beta	pCi/M ³	2.45E-02	2.32E-03	2.49E-02	4.64E-03
Filter	1Z / 1A	04/30/25	Beta	pCi/M ³	2.20E-02	2.42E-03	1.77E-02	4.54E-03
Filter	1Z / 1A	05/08/25	Beta	pCi/M ³	2.05E-02	2.00E-03	1.68E-02	3.80E-03
Filter	1Z / 1A	05/15/25	Beta	pCi/M ³	1.77E-02	2.08E-03	1.51E-02	3.94E-03
Filter	1Z / 1A	05/21/25	Beta	pCi/M ³	1.34E-02	2.12E-03	8.13E-03	4.02E-03
Filter	1Z / 1A	05/28/25	Beta	pCi/M ³	8.98E-03	1.65E-03	8.86E-03	3.45E-03
Filter	1Z / 1A	06/05/25	Beta	pCi/M ³	2.00E-02	1.94E-03	1.51E-02	3.73E-03
Filter	1Z / 1A	06/11/25	Beta	pCi/M ³	2.02E-02	2.30E-03	1.25E-02	4.14E-03
Filter	1Z / 1A	06/18/25	Beta	pCi/M ³	1.58E-02	2.11E-03	1.18E-02	4.26E-03
Filter	1Z / 1A	06/25/25	Beta	pCi/M ³	3.50E-02	3.23E-03	2.85E-02	5.84E-03
Filter	1Z / 1A	07/02/25	Beta	pCi/M ³	2.62E-02	2.36E-03	1.63E-02	4.07E-03
Filter	1Z / 1A	07/10/25	Beta	pCi/M ³	2.63E-02	2.14E-03	1.66E-02	3.60E-03
Filter	1Z / 1A	07/17/25	Beta	pCi/M ³	2.06E-02	2.29E-03	1.62E-02	4.25E-03
Filter	1Z / 1A	07/23/25	Beta	pCi/M ³	2.61E-02	2.59E-03	1.96E-02	4.76E-03
Filter	1Z / 1A	07/30/25	Beta	pCi/M ³	3.32E-02	2.55E-03	2.01E-02	4.82E-03
Filter	1Z / 1A	08/06/25	Beta	pCi/M ³	2.95E-02	2.46E-03	2.00E-02	4.58E-03
Filter	1Z / 1A	08/14/25	Beta	pCi/M ³	2.42E-02	2.13E-03	1.54E-02	3.78E-03
Filter	1Z / 1A	08/20/25	Beta	pCi/M ³	2.69E-02	2.57E-03	1.83E-02	5.00E-03
Filter	1Z / 1A	08/28/25	Beta	pCi/M ³	2.28E-02	2.05E-03	1.23E-02	3.43E-03
Filter	1Z / 1A	09/03/25	Beta	pCi/M ³	3.07E-02	2.77E-03	1.59E-02	4.58E-03
Filter	1Z / 1A	09/11/25	Beta	pCi/M ³	2.85E-02	2.34E-03	1.64E-02	4.05E-03
Filter	1Z / 1A	09/17/25	Beta	pCi/M ³	5.29E-02	3.36E-03	3.47E-02	6.05E-03
Filter	1Z / 1A	09/25/25	Beta	pCi/M ³	3.76E-02	2.50E-03	2.29E-02	4.31E-03
Filter	1Z / 1A	10/01/25	Beta	pCi/M ³	5.70E-02	3.47E-03	3.98E-02	5.98E-03
Filter	1Z / 1A	10/09/25	Beta	pCi/M ³	2.97E-02	2.31E-03	2.36E-02	4.19E-03
Filter	1Z / 1A	10/16/25	Beta	pCi/M ³	1.87E-02	2.17E-03	1.52E-02	3.79E-03
Filter	1Z / 1A	10/22/25	Beta	pCi/M ³	3.63E-02	2.93E-03	1.84E-02	4.89E-03
Filter	1Z / 1A	10/29/25	Beta	pCi/M ³	2.28E-02	2.22E-03	1.49E-02	3.80E-03
Filter	1Z / 1A	11/06/25	Beta	pCi/M ³	3.00E-02	2.32E-03	1.97E-02	4.10E-03
Filter	1Z / 1A	11/12/25	Beta	pCi/M ³	3.37E-02	2.91E-03	2.34E-02	5.06E-03
Filter	1Z / 1A	11/19/25	Beta	pCi/M ³	2.96E-02	2.56E-03	2.32E-02	4.81E-03
Filter	1Z / 1A	11/25/25	Beta	pCi/M ³	5.15E-02	3.26E-03	3.15E-02	5.53E-03

Table 21: Comparison of Gross Beta Results from Split Samples of 1Z and 1A

Interlaboratory Split Sample Results (Air Particulate Beta)								
Media	Location	Sample Date	Beta	pCi/M ³	(CGS)		(TBE)	
					1Z	±2σ	1A	±2σ
Filter	1Z / 1A	12/03/25	Beta	pCi/M ³	2.56E-02	2.18E-03	1.45E-02	3.82E-03
Filter	1Z / 1A	12/10/25	Beta	pCi/M ³	3.92E-02	2.80E-03	2.24E-02	4.66E-03
Filter	1Z / 1A	12/17/25	Beta	pCi/M ³	3.70E-02	2.69E-03	2.59E-02	4.68E-03
Filter	1Z / 1A	12/23/25	Beta	pCi/M ³	4.46E-02	3.19E-03	1.44E-02	4.40E-03
Filter	1Z / 1A	12/31/25	Beta	pCi/M ³	2.82E-02	2.26E-03	1.72E-02	4.09E-03

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 22: Comparison of I-131 Results from Split Samples of 1Z and 1A

Charcoal	1Z /1A	Sample Date	I-131	pCi/M ³	1Z	1A
Charcoal	1Z /1A	01/09/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	01/16/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	01/23/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	01/29/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	02/05/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	02/13/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	02/20/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	02/26/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	03/06/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	03/13/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	03/20/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	03/27/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	04/02/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	04/09/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	04/17/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	04/24/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	04/30/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	05/08/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	05/15/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	05/21/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	05/28/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	06/05/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	06/11/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	06/18/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	06/25/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	07/02/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	07/10/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	07/17/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	07/23/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	07/30/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	08/06/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	08/14/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	08/20/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	08/28/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	09/03/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	09/11/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	09/17/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	09/25/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	10/01/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	10/09/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	10/16/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	10/22/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	10/29/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	11/06/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	11/12/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	11/19/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	11/25/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	12/03/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	12/10/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	12/17/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	12/23/25	I-131	pCi/M ³	<MDA	<MDA
Charcoal	1Z /1A	12/31/25	I-131	pCi/M ³	<MDA	<MDA

<MDA denotes a result below the required LLD of 0.07pCi/M3

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 ≤ 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 ≤ MDD _A)
			1	2	3	4	1	2	3	4				
P-TLD-14	23.2	28.6	19.7	18.6	21.1	18.9	ND	ND	ND	ND	92.8	105.9	78.3	ND
P-TLD-15	23.9	29.3	19.5	19.4	22.5	22.8	ND	ND	ND	ND	95.5	108.6	84.2	ND
P-TLD-16	23.4	28.8	19.3	18.4	20.9	19.9	ND	ND	ND	ND	93.7	106.8	78.5	ND
P-TLD-17	27.2	32.6	23.7	24.2	24.9	20.5	ND	ND	ND	ND	108.9	122.0	93.3	ND
P-TLD-18	23.9	29.3	21.9	21	15.8	16.9	ND	ND	ND	ND	95.5	108.6	75.6	ND
P-TLD-19	20.8	26.2	15.8	14	15.6	16	ND	ND	ND	ND	83.2	96.3	61.4	ND
P-TLD-1A	23.8	29.2	22.5	20.5	22.5	21.3	ND	ND	ND	ND	95	108.1	86.8	ND
P-TLD-1B	20.2	25.6	18.5	16.7	17.7	18.4	ND	ND	ND	ND	80.8	93.9	71.3	ND
P-TLD-1C	24.1	29.5	21.8	19.4	20.2	22.3	ND	ND	ND	ND	96.3	109.4	83.7	ND
P-TLD-1D	23.4	28.8	19.5	16	16.4	19.6	ND	ND	ND	ND	93.8	106.9	71.5	ND
P-TLD-1E	22.8	28.2	20.2	17.6	20.7	20.5	ND	ND	ND	ND	91.2	104.3	79	ND
P-TLD-1F	27	32.4	26.3	21.1	25.5	25.4	ND	ND	ND	ND	108	121.1	98.3	ND
P-TLD-1G	15.9	21.3	11.7	9	10.5	12.6	ND	ND	ND	ND	63.4	76.5	43.8	ND
P-TLD-1H	23.6	29.0	20.8	19	20.8	21.8	ND	ND	ND	ND	94.4	107.5	82.4	ND
P-TLD-1I	21.4	26.8	17.1	15.4	20.5	19.9	ND	ND	ND	ND	85.6	98.7	72.9	ND
P-TLD-1J	27.3	32.7	25	21.7	25.7	26.7	ND	ND	ND	ND	109	122.1	99.1	ND
P-TLD-1K	26.4	31.8	25.2	21.1	24.4	27.3	ND	ND	ND	ND	105.5	118.6	98	ND
P-TLD-1L	19.4	24.8	19	18.9	19.5	19.6	ND	ND	ND	ND	77.6	90.7	77	ND
P-TLD-1M	14	19.4	10.5	7.6	9.6	12.4	ND	ND	ND	ND	56.1	69.2	40.1	ND
P-TLD-1NN	25.5	30.9	22.5	21.8	21.9	27.3	ND	ND	ND	ND	102.1	115.2	93.5	ND
P-TLD-1P	16.1	21.5	13.1	12	14.1	15.1	ND	ND	ND	ND	64.6	77.7	54.3	ND
P-TLD-1Q	18.7	24.1	17.1	13	16	16.3	ND	ND	ND	ND	74.9	88.0	62.4	ND
P-TLD-1R	24	29.4	29.3	28.9	31	31.6	ND	ND	7	7.6	96	109.1	120.8	24.8 [^]
P-TLD-1T	24.1	29.5	21.8	21.9	21.9	22.8	ND	ND	ND	ND	96.5	109.6	88.4	ND
P-TLD-2	23	28.4	22.3	19.7	20.8	24.1	ND	ND	ND	ND	92.2	105.3	86.9	ND
P-TLD-22	24.3	29.7	19.5	21.3	21.4	22.4	ND	ND	ND	ND	97	110.1	84.6	ND
P-TLD-23	24.9	30.3	22.8	19.4	20.2	21.5	ND	ND	ND	ND	99.7	112.8	83.9	ND
P-TLD-24	18.1	23.5	13.2	12.9	13.7	13.7	ND	ND	ND	ND	72.3	85.4	53.5	ND
P-TLD-26	26	31.4	21.5	18.4	20.3	21.6	ND	ND	ND	ND	104.1	117.2	81.8	ND
P-TLD-27	24.7	30.1	20.4	20.9	20.8	24.3	ND	ND	ND	ND	98.8	111.9	86.4	ND
P-TLD-2B	22.1	27.5	19.5	18	18.3	20.3	ND	ND	ND	ND	88.4	101.5	76.1	ND
P-TLD-31A	19.9	25.3	14.7	16.3	17.8	17.8	ND	ND	ND	ND	79.6	92.7	66.6	ND
P-TLD-32	25.4	30.8	21.1	22.8	19.9	24.4	ND	ND	ND	ND	101.7	114.8	88.2	ND
P-TLD-3A	17.3	22.7	14.9	12.7	15.2	15.2	ND	ND	ND	ND	69.3	82.4	58	ND
P-TLD-40	27.8	33.2	24.4	23.8	25.7	26.4	ND	ND	ND	ND	111.2	124.3	100.3	ND

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 ≤ 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 ≤ MDD _A)
			1	2	3	4	1	2	3	4				
P-TLD-42	21	26.4	14.6	14.3	16.2	17.8	ND	ND	ND	ND	84.2	97.3	62.9	ND
P-TLD-43	26.5	31.9	25.5	21.7	24.4	26.9	ND	ND	ND	ND	106.1	119.2	98.5	ND
P-TLD-44	22.8	28.2	18.2	17.4	19	19.3	ND	ND	ND	ND	91.3	104.4	73.9	ND
P-TLD-45	24.5	29.9	20.4	20.4	22	21.1	ND	ND	ND	ND	98.2	111.3	83.9	ND
P-TLD-46	21	26.4	17.6	17.3	18.4	19.7	ND	ND	ND	ND	84.2	97.3	73	ND
P-TLD-47	26	31.4	23.1	22.9	23.1	27.1	ND	ND	ND	ND	103.8	116.9	96.2	ND
P-TLD-48	24.3	29.7	22.1	20	21.6	22.5	ND	ND	ND	ND	97.1	110.2	86.2	ND
P-TLD-49	24	29.4	21.4	17.8	19.8	21.7	ND	ND	ND	ND	95.8	108.9	80.7	ND
P-TLD-4K	15.1	20.5	12.7	10.6	11.1	12.9	ND	ND	ND	ND	60.3	73.4	47.3	ND
P-TLD-5	22	27.4	17.7	18	18.2	21.3	ND	ND	ND	ND	87.8	100.9	75.2	ND
P-TLD-50	28.1	33.5	24.4	24.8	24.8	26.3	ND	ND	ND	ND	112.2	125.3	100.3	ND
P-TLD-51	23.6	29.0	19.3	18.4	18.8	20.7	ND	ND	ND	ND	94.5	107.6	77.2	ND
P-TLD-6B	19.8	25.2	18.3	15.4	15	16.7	ND	ND	ND	ND	79.1	92.2	65.4	ND

MDD_Q = Quarterly Minimum Differential Dose = 5.4 mrem

MDD_A = Annual Minimum Differential Dose = 13.1 mrem

ND = Not Detected, where M_Q ≤ (B_Q+MDD_Q) or M_A ≤ (B_A+MDD_A)

^ Detectable facility-related dose at 1R was identified as expected; see discussion in Section 11.2.

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 70 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

Attachment 5, Radiological Groundwater Protection Program

1.0 Results Summary

Peach Bottom Generating Station has a total of 24 wells (three Background wells, four Long-Term Shutdown wells, five Mid-Field wells, three Perimeter wells, and nine Source wells), two bedrock seeps (monitored as Mid-Field sample points), and two yard drain locations (monitored as Source sample points), that are sampled as part of the Station RGPP (EN-PB-408-4160). Figure 10 shows the surface water and overburden aquifer RGPP sample locations and Figure 11 shows the bedrock aquifer RGPP sample locations.

RGPP sampling at the Station is performed by Constellation Generation Services, under contract to Constellation. Laboratory testing is performed by Teledyne Brown Engineering. The laboratory data, field data, and depth to water readings are uploaded to the RACER website, which is a data repository for the RGPP sampling rounds.

Note that previously obstructed monitoring well MW-PB-11, which was found in operable condition, east of MW-PB-30, near the Administration Building A, is being added to the RGPP as a Mid-Field designated well to better enhance the Station groundwater protection plan east of the Unit 2 Moisture Separator Room.

Tritium

Peach Bottom has 24 monitoring wells, two bedrock seeps (monitored as Mid-Field sample points), and two yard drain locations (monitored as Source sample points) that are sampled for tritium. Samples collected from Source and Long-Term designated wells are analyzed for tritium quarterly; samples collected from Mid-Field designated wells are analyzed for tritium semi-annually, and samples collected from Background and Perimeter designated wells are analyzed for tritium annually.

Gross-Alpha

Gross-alpha analysis was most recently performed on Source and Long-Term Shutdown designated wells, during the 2nd quarter 2024 RGPP sampling round. Gross-alpha (dissolved and suspended) was not detected at concentrations greater than their respective Alert Levels in the samples collected during the 2nd quarter 2024 RGPP sampling round. Gross-alpha analysis frequency is every two years.

Gamma-Radionuclides

Gamma-radionuclide analysis has been performed on RGPP samples (quarterly to annually) at Peach Bottom Generating Station since 2006. This extensive sampling and analysis produced over 10,800 data records for the Station. Gamma-radionuclides have not been detected at concentrations greater than their respective LLDs, in RGPP samples submitted to the vendor laboratory since 2006. Therefore, in the 2020 RGPP, gamma-radionuclide analysis frequency was reduced from annual to every two years.

Gamma-radionuclide analysis was most recently performed on all RGPP sampling points during the 2nd quarter 2024 RGPP sampling round. Station-related gamma radionuclides were not detected at concentrations exceeding their respective LLDs in 2024. In 2025, the sample collected from MW-PB-25 was analyzed for gamma-radionuclides. No gamma-radionuclides were detected in the sample collected from MW-PB-25 in 2025. Per the RGPP, the next time gamma-radionuclide analysis will be performed on all RGPP samples is 2026.

Annual Radiological Environmental Operating Report	YEAR: 2025	Page 71 of 77
Company: Constellation	Plant: Peach Bottom Atomic Power Station	

Select Transuranics

Select transuranics analysis is procedurally required annually for former Elevated designated (current Source designated) well MW-PB-25. Additionally, EN-PB-408-4160 requires select transuranics analysis if a gross alpha concentration exceeds the Alert Level in a particular well, there is an unexpected increase in tritium activity, and if a non-tritium licensed material result exceeds the High Level as established by the RGPP.

U-233/234 and U-238 were not detected in the sample collected from MW-PB-25 during the 2nd quarter 2025 RGPP sampling round.

Hard-to-Detects (Fe-55 and Ni-63)

Hard-to-detect analysis (Fe-55 and Ni-63) is procedurally required annually for former Elevated designated (current Source designated) well MW-PB-25, as well as Long-Term Shutdown designated wells. As part of the current EN-PB-408-4160, hard-to-detect analysis is warranted on samples collected from Source designated wells once every 5 years, starting in 2021. Additionally, hard-to-detect analyses is required if there is an unexpected increase in tritium activity, and if a non-tritium licensed material result exceeds the High Level as established by the RGPP.

The 2nd quarter 2025 samples collected from Long-Term Shutdown designated wells and Source designated well MW-PB-25 were analyzed for hard-to-detects (Fe-55 and Ni-63). Hard-to-detects (Fe-55 and Ni-63) were not detected in the samples collected during the 2nd quarter 2025. Long-Term Shutdown designated wells will have Fe-55 and Ni-63 analysis performed in 2026. Source designated wells will have Fe-55 and Ni-63 analysis performed again in 2026.

Sr-89 and Sr-90

Sr-89 and Sr-90 have been an annual procedurally required analysis on Detection, Long-Term Shutdown, and Elevated designated wells since sample point designations became part of the RGPP in 2010. EN-PB-408-4160 states that Sr-89 and 90 analyses should be performed annually for Source and Long-Term Shutdown designated sample locations. If a positive result is reported, samples collected from wells with the Sr-89 and Sr-90 detections, will be analyzed quarterly to evaluate the activity in the area of the well.

In 2025, samples collected from Source and Long-Term Shutdown designated wells were analyzed for Sr-89/90 during the 2nd quarter 2025 RGPP sampling round. Sr-89 and Sr-90 were not detected in the samples collected during the 2nd quarter 2025 RGPP sampling round.

Precipitation Recapture

Peach Bottom Generating Station is a Boiling Water Reactor (BWR) generating station. The RGPP requires BWR generating stations to sample precipitation on a semi-annual basis. In 2020, the RGPP was modified to increase the minimum number of samples to eight recapture sample locations and to focus sample locations in areas close to atmospheric release points or areas that could receive atmospheric recapture. The RGPP states that a minimum of eight samples should be collected from within the protected area in a manner that surrounds the Turbine Building and Reactor Building as well as ancillary structures that could vent tritiated vapor to the atmosphere.

RGPP precipitation samples were collected in February and September 2025. Eight precipitation samples were collected across the Station during both sampling rounds. Tritium was detected at concentrations greater than 200 pCi/L in eight of the sixteen recapture samples collected in 2025. The maximum tritium concentration in samples collected during the February 2025 sampling event was 396 pCi/L (PB-P6) and the maximum tritium concentration in the samples collected during the September 2025 sampling event was 482 pCi/L PB-P7. Figure 12 shows the precipitation recapture sample locations.



Figure 10: Surface Water and Overburden RGPP Monitoring Locations



Figure 11: Bedrock Seep and Bedrock RGPP Monitoring Locations



Figure 12: Precipitation Recapture Sample Locations

Company: Constellation

Plant: Peach Bottom Atomic Power Station

Table 23: Complete RGPP Results

Location	Sample Date	Fe-55	Sr-89/90	Ni-63	Other Gamma Radionuclides
MW-PB-1	ND	ND	ND	ND	ND
MW-PB-10	6/4/2025	<MDA	<MDA	<MDA	ND
MW-PB-12		ND	ND	ND	ND
MW-PB-13		ND	ND	ND	ND
MW-PB-15	6/4/2025	<MDA	<MDA	<MDA	ND
MW-PB-16	6/4/2025	<MDA	<MDA	<MDA	ND
MW-PB-19	6/3/2025	ND	<MDA	ND	ND
MW-PB-2		ND	ND	ND	ND
MW-PB-20	6/3/2025	ND	<MDA	ND	ND
MW-PB-22		ND	ND	ND	ND
MW-PB-24		ND	ND	ND	ND
MW-PB-25	6/3/2025	<MDA	<MDA	<MDA	<MDA
MW-PB-26	6/3/2025	ND	<MDA	ND	ND
MW-PB-27	6/3/2025	ND	<MDA	ND	ND
MW-PB-28	6/3/2025	ND	<MDA	ND	ND
MW-PB-29	6/3/2025	ND	<MDA	ND	ND
MW-PB-3		ND	ND	ND	ND
MW-PB-30	6/3/2025	ND	<MDA	ND	ND
MW-PB-31	6/3/2025	ND	<MDA	ND	ND
MW-PB-4		ND	ND	ND	ND
MW-PB-5		ND	ND	ND	ND
MW-PB-6		ND	ND	ND	ND
MW-PB-7		ND	ND	ND	ND
MW-PB-8	6/4/2025	<MDA	<MDA	<MDA	ND
SP-PB-1		ND	ND	ND	ND
SP-PB-2		ND	ND	ND	ND
U/2 YARD	6/2/2025	ND	<MDA	ND	ND
U/3 YARD	6/3/2025	ND	<MDA	ND	ND

<MDA Less than minimum detectable activity.

ND No Data, sample collected as required

Table 24: Concentration of Tritium in Groundwater (in pCi/L)

Location	Q1	Q2	Q3	Q4
MW-PB-1	ND	<MDA	ND	ND
MW-PB-10	<MDA	<MDA	<MDA	<MDA
MW-PB-12	ND	<MDA	ND	<MDA
MW-PB-13	ND	<MDA	ND	<MDA
MW-PB-15	<MDA	<MDA	<MDA	<MDA
MW-PB-16	<MDA	<MDA	<MDA	<MDA
MW-PB-19	<MDA	<MDA	271	<MDA
MW-PB-2	ND	<MDA	ND	ND
MW-PB-20	<MDA	<MDA	<MDA	<MDA
MW-PB-22	ND	204	ND	<MDA
MW-PB-24	ND	<MDA	ND	<MDA
MW-PB-25	213	<MDA	<MDA	<MDA
MW-PB-26	477	266	262	228
MW-PB-27	504	1020	1370	1360
MW-PB-28	<MDA	<MDA	<MDA	<MDA
MW-PB-29	335	287	410	367
MW-PB-3	ND	<MDA	ND	ND
MW-PB-30	238	<MDA	16900	3520
MW-PB-31	984	693	1590	2000
MW-PB-4	ND	<MDA	ND	<MDA
MW-PB-5	ND	<MDA	ND	ND
MW-PB-6	ND	<MDA	ND	ND
MW-PB-7	ND	<MDA	ND	ND
MW-PB-8	<MDA	<MDA	<MDA	<MDA
SP-PB-1	ND	<MDA	ND	Dry, unable to sample
SP-PB-2	ND	<MDA	ND	<MDA
Unit 2 YARD DRAIN	<MDA	605	210	631
Unit 3 YARD DRAIN	686	393	1200	1030

<MDA Less than minimum detectable activity.

ND No Data, sample collected as required

Table 25: Concentration of Tritium in Precipitation Recapture (pCi/L)

Location	1 st Quarter	3 rd Quarter
PB-P1	<MDA	<MDA
PB-P2	193	<MDA
PB-P3	252	<MDA
PB-P4	293	<MDA
PB-P5	290	<MDA
PB-P6	396	<MDA
PB-P7	353	482
PB-P8	242	366