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102-08595-MSC/SMK April 13, 2023

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

Subject: Palo Verde Nuclear Generating Station Units 1, 2, and 3 Renewed Operating License Nos. NPF-41, NPF-51, and NPF-74 Docket Nos. STN 50-528, STN 50-529, and STN 50-530 Annual Radiological Environmental Operating Report 2022

Enclosed please find the Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 Annual Radiological Environmental Operating Report for 2022. Arizona Public Service Company is submitting this report pursuant to the PVNGS Technical Specification Reporting Requirement, Section 5.6.2.

No new commitments are being made to the Nuclear Regulatory Commission by this letter.

Should you need further information regarding this submittal, please contact me at (623) 393-5753.

Sincerely,

Cox, Matthew S(Z05628)

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Matthew S. Cox Licensing Department Leader, Nuclear Regulatory Affairs

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Enclosure: Palo Verde Nuclear Generating Station Annual Radiological Environmental Operating Report 2022

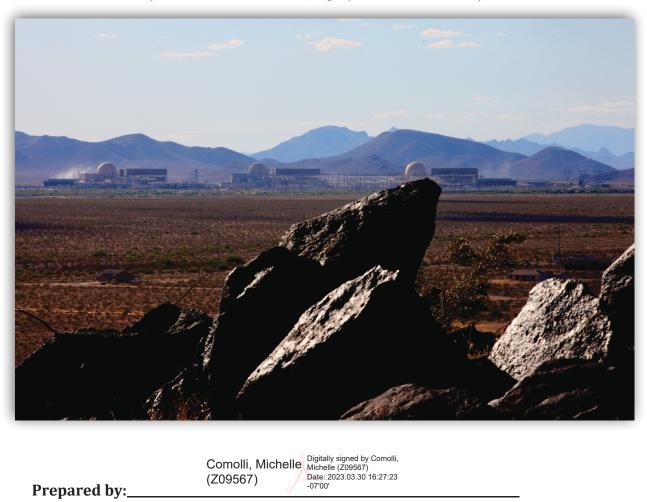
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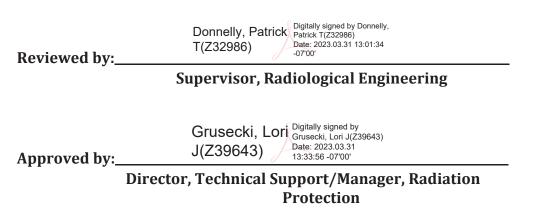
Enclosure

Palo Verde Nuclear Generating Station Annual Radiological Environmental Operating Report 2022

PALO VERDE NUCLEAR GENERATING STATION ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT 2022

(Reference: RCTSAI 1643, Legacy Item No.036843.01)





1. TABLE OF CONTENTS

1. Inte	roduction	2
1.1	Overview	2
1.2	Radiation and Radioactivity	3
2. De	scription of the Monitoring Program	4
2.1	Radiological Environmental Monitoring Program	4
2.2	Radiological Environmental Monitoring Program Changes for 2022	4
2.3	REMP Deviations/Abnormal Events Summary	4
2.4	Groundwater Protection	5
3. Sar	nple Collection Program	12
3.1	Water	12
3.2	Vegetation	12
3.3	Milk	12
3.4	Air	12
3.5	Soil, Sludge, and Sediment	12
4. An	alytical Procedures	13
4.1	Air Particulate	13
4.1	.1 Gross Beta	13
4.1	.2 Gamma Spectroscopy	13
4.2	Airborne Radioiodine	13
4.2	.1 Gamma Spectroscopy	13
4.3	Milk	13
4.3	.1 Gamma Spectroscopy	13
4.3	.2 Radiochemical I-131 Separation	13
4.4	Vegetation	13
4.4	.1 Gamma Spectroscopy	13
4.5	Sludge/Sediment	14
4.5	.1 Gamma Spectroscopy	14
4.6	Water	14
4.6	.1 Gamma Spectroscopy	14
4.6	.2 Tritium	14
4.6	.3 Gross Beta	14
PV	/NGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022	

4.′	7	Soil	. 14
	4.7	.1 Gamma Spectroscopy	. 14
5.	Nu	clear Instrumentation	. 15
5.	1	Gamma Spectrometer	. 15
5.2	2	Liquid Scintillation Spectrometer	. 15
5.3	3	Gas Flow Proportional Counter	. 15
6.	Iso	topic Detection Limits and Reporting Criteria	. 16
6.	1	Lower Limits of Detection	. 16
6.2	2	Data Reporting Criteria	. 16
6.3	3	LLD and Reporting Criteria Overview	. 16
7.	Int	erlaboratory Comparison Program	. 20
7.	1	Quality Control Program	20
7.2	2	Intercomparison Results	. 20
8.	Da	ta Interpretation and Conclusions	. 22
8.	1	Air Particulates	. 22
8.2	2	Airborne Radioiodine	. 22
8.3	3	Vegetation	. 22
8.4	4	Milk	. 23
8.:	5	Drinking Water	. 23
8.0	6	Groundwater	. 23
8.′	7	Surface Water	. 23
8.8	8	Sludge and Sediment	. 24
	8.8	.1 Water Resources Centrifuge Waste Sludge	. 24
	8.8	.2 Cooling Tower Sludge	. 24
8.9	9	Data Trends	. 24
8.	10	Hard-To-Detect Radionuclide Results	. 24
9.	Th	ermoluminescent Dosimeter (TLD) Results and Data	. 46
10.	L	and Use Census	. 51
10).1	Introduction	. 51
10).2	Census Results	. 51
11.	S	ummary and Conclusions	. 56
12.	R	Leferences	. 60

LIST OF TABLES

Table 2-1 Sample Collection Locations	
Table 2-2 Sample Collection Schedule	7
Table 2-3 Summaries of the REMP Deviations/Abnormal Events	
Table 6-1 ODCM Required Lower Limits of Detection (a priori)	. 18
Table 6-2 ODCM Required Reporting Levels	. 19
Table 6-3 Typical MDA Values	
Table 7-1 Interlaboratory Comparison Results	
Table 8-1 Particulate Gross Beta in Air 1st-2nd Quarter	
Table 8-2 Particulate Gross Beta in Air 3rd-4th Quarter	. 26
Table 8-3 Gamma in Air Filter Composites	. 27
Table 8-4 Radioiodine in Air 1st-2nd Quarter	. 28
Table 8-5 Radioiodine in Air 3rd-4th Quarter	. 29
Table 8-6 Vegetation	. 30
Table 8-7 Milk	. 31
Table 8-8 Drinking Water	. 32
Table 8-9 Groundwater	. 34
Table 8-10 Surface Water	. 35
Table 8-11 Sludge/Sediment	. 40
Table 8-12 Hard -To-Detect Radionuclide Results	. 41
Table 9-1 TLD Site Locations	. 47
Table 9-2 Environmental TLD Results	. 48
Table 10-1 Land Use Census	. 52
Table 11-1 Environmental Radiological Monitoring Program Annual Summary	

TABLE OF FIGURES

Figure 1-1 Sources of Radiation Exposure in the United States	3
Figure 2-1 REMP Sample Sites- Map (0-10 miles) 10	
Figure 2-2 REMP Sample Sites- Map (10-35 Miles) 1	
Figure 8-1 Gross Beta in Air, 1st-2nd Quarter	2
Figure 8-2 Gross Beta in Air, 3rd-4th Quarter	2
Figure 8-3 Historical Gross Beta in Air (Weekly System Average)	3
Figure 8-4 Historical Gross Beta in Air (Annual Site to Site Comparisons) Compared to Pre-Op	
	3
Figure 8-5 Gross Beta in Drinking Water	4
Figure 8-6 Evaporation Pond Tritium Activity (Pre-Op- 2008)	4
Figure 8-7 Evaporation Pond Tritium Activity (2009-2022)	5
Figure 8-8 Sedimentation Basin 2 Cs-137	5
Figure 9-1 Network Environmental TLD Exposure Rates	9
Figure 9-2 Environmental TLD Comparison: Pre-Operational versus 2022)
Figure 10-1 Historical Comparison of Nearest Resident Dose	3
Figure 10-2 Historical Comparison of Nearest Milk Animal Dose	4
Figure 10-3 Historical Comparison of Nearest Garden Dose	5

TABLE OF APPENDICIES

ABSTRACT

The Radiological Environmental Monitoring Program (REMP) is an ongoing program conducted by Arizona Public Service Company (APS) for the Palo Verde Nuclear Generating Station (PVNGS). Various types of environmental samples are collected near PVNGS and analyzed for plant-related radionuclide concentrations.

During 2022, the following categories of samples were collected by APS:

- Broadleaf vegetation
- Groundwater
- Drinking water
- Surface water
- Airborne particulate and radioiodine
- Goat milk
- Sludge

Thermoluminescent dosimeters (TLDs) were used to measure environmental gamma radiation. The Environmental TLD program is also conducted by APS.

The Arizona Department of Health Services, Bureau of Radiation Control (BRC) performs radiochemistry analyses on various duplicate samples provided to them by APS. Samples analyzed by BRC include onsite samples from the Reservoirs, Evaporation Ponds, and two (2) Deep Wells. Offsite samples analyzed by BRC include two (2) local resident wells. BRC also performs air sampling at seven (7) offsite locations identical to APS and maintains approximately fifty (50) environmental TLD monitoring locations, eighteen (18) of which are duplicates of APS locations.

A comparison of pre-operational and operational data indicates no changes to environmental radiation levels.

(NOTE: Reference to APS throughout this report refers to PVNGS personnel)

1. Introduction

This report presents the results of the operational Radiological Environmental Monitoring Program conducted by Arizona Public Service Company (APS). The Radiological Environmental Monitoring Program (REMP) was established for the Palo Verde Nuclear Generating Station (PVNGS) by APS in 1979.

This report contains the measurements and findings for 2022. All references are specifically identified in Section 12.

1.1 Overview

The Radiological Environmental Monitoring Program (REMP) provides representative measurements of radiation and radioactive materials in exposure pathways. REMP measures radionuclides that lead to the highest potential radiation exposures to members of the public resulting from station operation. This monitoring program implements Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix I, Section IV.B.2., and thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. Guidance for this monitoring program is provided by the US Nuclear Regulatory Commission (USNRC) in their Radiological Assessment Branch Technical Position on Environmental Monitoring, Revision 1, November 1979 (incorporated into NUREG 1301). Results from the REMP help to evaluate sources of elevated levels of radioactivity in the environment (i.e., atmospheric nuclear detonations or abnormal plant releases).

The Land Use Census ensures that changes in the use of areas at, and beyond the site boundary, are identified and that modifications to the REMP are made if required by the results of this census. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50.

The Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices. The interlaboratory comparisons are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are valid for the purposes of 10 CFR 50, Appendix I, Section IV.B.2.

Results of the PVNGS pre-operational environmental monitoring program are presented in Reference 1.

The initial criticality of Unit 1 occurred May 25, 1985. Initial criticality for Units 2 and 3 were April 18, 1986, and October 25, 1987, respectively. PVNGS operational findings (historical) are presented in Reference 2.

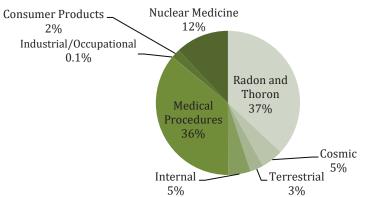
1.2 Radiation and Radioactivity

Atoms are the basic building blocks of matter. Unstable atoms emit radiation; material that spontaneously emits radiation is referred to as radioactive. Radioactive material is frequently categorized as either "Natural" or "Man-made"

Natural sources of radiation exist naturally in the environment and include radon, thoron, cosmic, terrestrial, and internal. The sun and stars are a source of cosmic radiation. Atmospheric conditions, the Earth's magnetic field, and differences in elevation can affect the amount, or dose, of cosmic radiation an individual receives. The Earth is a source of terrestrial radiation. Uranium, thorium, and radium exist naturally in rock and soil. All organic matter contains carbon and potassium, and water contains small amounts of dissolved uranium and thorium. The largest contributor of dose to Americans from natural sources is attributed to radon which is found in air. All people are a source of internal radiation. Potassium-40 and carbon-14 are radioactive nuclides and inside all people from birth, making people a source of exposure.

Man-made sources of radiation include consumer products, nuclear medicine, and medical procedures. There are a number of occupational areas which result in exposure to individuals of varying amounts of radiation such as: radiography, radiology, radiation oncology, power generation, and research laboratories. The Nuclear Regulatory Commission (NRC) requires licensees to monitor exposure to workers and limit occupational exposure to 5,000 millirem per year. Several consumer products contain radioactive material such as: some ceramics, thorium lantern mantles, luminous watches containing tritium, smoke detectors, and tobacco. Other consumer product sources of radiation can come from building and road construction materials, combustible fuels (i.e., gas, coal), and x-ray security systems. The most significant contributor to radiation exposure from man-made sources is medical procedures. Diagnostic x-rays and nuclear medicine procedures, such as those that use iodine-131 or cesium-137, are examples of man-made medical sources.

The average member of the public receives a total annual dose of approximately 620 millirem from ionizing radiation. Approximately half of the exposure is attributed to natural sources, and the other half to manmade sources. Figure 1-1 illustrates the contribution of various sources of radiation and the contribution to exposure in the United States (NCRP Report No.160 (2009)).



Sources of Radiation Exposure in the United States



2. Description of the Monitoring Program

APS and vendor organizations performed the pre-operational Radiological Environmental Monitoring Program between 1979 and 1985. APS and vendors continued the program into the operational phase.

2.1 Radiological Environmental Monitoring Program

The assessment program consists of routine measurements of environmental gamma radiation and radionuclide concentrations in media such as air, groundwater, drinking water, surface water, vegetation, milk, sludge, and sediment.

Samples were collected by APS at the monitoring sites shown in Figures 2-1 and 2-2. The specific sample types, sampling locations, and sampling frequencies, as set forth in the PVNGS Offsite Dose Calculation Manual (ODCM), Reference 4, are presented in Tables 2-1, 2-2, and 9-1. Additional onsite sampling (outside the scope of the ODCM) is performed to supplement the REMP. Results are included in this report. Routine sample analyses were performed at the onsite Central Chemistry Laboratory and Operating Unit laboratories. Analyses for hard-to-detect radionuclides were performed by GEL Laboratories LLC.

Environmental gamma radiation measurements were performed by APS using TLDs at fifty (50) locations near PVNGS. The PVNGS Dosimetry Department is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) to process personnel ionizing radiation dosimeters.

In addition to monitoring environmental media, a Land Use Census is performed annually to identify the nearest milk animals, residents, and gardens. This information is used to evaluate the potential dose to members of the public for those exposure pathways that are indicated.

2.2 Radiological Environmental Monitoring Program Changes for 2022

Changes to the REMP occurred in October 2022. The PVNGS REMP lost a long-time milk and vegetation donor (Site 51) due to relocation outside the 5-mile radius. A donor who has been in the REMP as a Drinking Water (Site 49) donor agreed to participate as a Milk and Vegetation donor in addition to Drinking Water. Groundwater sample locations have been updated in the ODCM to reflect current well availability; Site 58 (Well 34abb) has been capped and was removed from the ODCM and Site 58A (Well 27dcb) has been added to the ODCM. Well 27dcb has been sampled as a supplemental sampling location since it went into service, and became an official ODCM Sampling Location in 2022.

2.3 REMP Deviations/Abnormal Events Summary

During calendar year 2022, there were fifteen (15) deviations/abnormal events with regards to the monitoring program. Refer to Table 2-3 for more detail and corrective actions taken.

There were three (3) events involving environmental dosimetry. The 2nd quarter dosimetry from Site 8 was not turned in for processing with the remainder of the quarterly dosimetry; once

identified, the dosimetry from Site 8 was processed with an adjusted transit dose. The remaining 2 events involving environmental dosimetry were due to missing stanchion and dosimetry for Site 44 during the 2nd Quarter changeout. Dosimetry data was unavailable for Site 44 for 2nd Quarter. The location was evaluated for a more discrete location, resulting in delayed placement for Site 44 for 3rd Quarter and an adjusted transit dose for the Site 44 3rd Quarter data.

One (1) event involved the June Drinking Water Samples. All weekly samples for the monthly composite drinking water samples were collected; however, the gamma isotopic analysis was not completed as scheduled. The failure to analyze was not identified in time to conduct the analysis with reasonable lower limits of detection capabilities. Gross beta and tritium analysis were performed with as-expected results. The sampling periods immediately preceding and following the June sample period had less than detectable gamma isotopic activity and it is reasonable to conclude that there would have been similar results for the June samples of well drinking water

Two (2) events were due to power interruptions to the Multi-Channel Analyzer (MCA) while analyzing Milk Samples. Both events occurred while analyzing Milk from Site 54, April and June respectively. Both samples resulted in a higher than desired MDA for I-131; however, both samples, when reduced to one (1) significant figure, met the ODCM required LLD of 1 pCi/L.

Nine (9) events involved Air Sample data collection; four (4) of the events resulted in INVALID data and five (5) of the events resulted in data that remained VALID. Two (2) of the events were due to loss of power at Site 15, resulting in insufficient data collection over the span of 2 sampling periods. Two (2) events, one at Site 29 and one at 35 resulted from an inoperable pump with a running ETM, limiting the determination of sample collection time. Three (3) events, one (1) at Site 7 and two (2) at Site 29, were due to malfunctioning ETM; sample collection time was calculated, enabling successful analysis of VALID air sample data. One (1) event was the identification and degraded airflow at Air Sample Site 40; data was sufficient for data collection and analysis and pump was replaced, successfully restoring desired pump flow. One (1) event was due to a mass flow meter that was found to be out of tolerance during normal calibration. Mass Flow Meter, used to adjust air flow of the air sampling pumps, was found to be out of tolerance, impacting data for sample collection Weeks 17-33. Impacted sample data was reviewed and found to have sufficient margin to accommodate for the recorded variance of the mass flow meter. Adjusted data met the required LLDs. All data is VALID. Event documented through CRs 22-11503; evaluation documented through Level 3 Evaluations 22-11503-001.

2.4 Groundwater Protection

PVNGS has implemented a groundwater protection initiative developed by the Nuclear Energy Institute (NEI). The implementing guidance of this initiative, NEI 07-07 (Industry Ground Water Protection Initiative – Final Guidance Document, August 2007), and later revised in March of 2019, provides added assurance that groundwater will not be adversely affected by PVNGS operations.

Monitoring wells have been installed to monitor the subsurface water and shallow aquifer at Units 1, 2, and 3. Many of these wells were previously monitored in accordance with the State of Arizona Aquifer Protection Permit (Area-Wide) No. P-100388 (APP). The APP was revised in 2018, which included the removal of several of the wells from mandated sampling. Now referred to as Legacy Wells, they continue to be sampled for data continuity and in support of the

Groundwater Protection Initiative. Sample results for the shallow aquifer wells are reported in the PVNGS Annual Radioactive Effluent Release Report (ARERR). No changes to the APP occurred in 2022.

Three subsurface samples were obtained, one each from Units 2 and 3 tritium monitoring wells, and one from the shallow aquifer outside of the Unit 1 Radiologically Controlled Area (RCA). These samples were analyzed for hard-to-detect radionuclides (i.e., C-14, Fe-55, Ni-63, Sr-90) as verification that there are no underground leaks from plant systems that may affect groundwater. All results were <MDA. Refer to Table 8-12 for sample results.

Table 2-1 Sample Collection Locations							
SAMPLE SITE #SAMPLE TYPELOCATION (a)LOCATION DESCRIPTION							
4	Air	E16	APS Office				
6A*	Air	SSE13	Old US 80				
7A	Air	ESE3	Arlington School				
14A	Air	NNE2	371 st Ave. and Buckeye-Salome Rd.				
15	Air	NE2	NE Site Boundary				
17A	Air	E3	351 st Ave.				
21	Air	S3	S Site Boundary				
29	Air	W1	W Site Boundary				
35	Air	NNW8	Tonopah				
40	Air	N2	Transmission Rd				
46	Drinking Water	NNW8	Local resident				
47	Vegetation	N3	Local resident				
48	Drinking Water	SW1	Local resident				
49	Drinking Water Milk- goat Vegetation	N2	Local resident				
53*	Milk- goat	NE30	Local resident				
54	Milk- goat	NNE4	Local resident				
55	Drinking Water (Supplemental)	SW3	Local resident				
57	Groundwater	ONSITE	Well 27ddc				
58	Groundwater	ONSITE	Well 34abb				
58A	Groundwater	ONSITE	Well 27dcb				
59	Surface Water	ONSITE	Evaporation Pond 1				
60	Surface Water	ONSITE	85 Acre Reservoir				
61	Surface Water	ONSITE	45 Acre Reservoir				
62*	Vegetation	ENE26	Commercial Farm				
63	Surface Water	ONSITE	Evaporation Pond 2				
64	Surface Water	ONSITE	Evaporation Pond 3				
65	Groundwater	ONSITE	Well 34aab				

Table 2-1 Sample Collection Locations

NOTES:

*Designates a control site

(a) Direction and distances are from the centerline of Unit 2 containment and rounded to the nearest mile.

Air sample sites designated with the letter 'A' are sites that have the same site number as a TLD location, but are not in the same location (i.e., site #6 TLD location is different from site #6A air sample location; site #4 TLD location is the same as site #4 air sample location)

SAMPLE	AIRBORNE		AIRBORNE		GROUND	DRINKING	SURFACE
SITE #	PARTICULATE	MILK	RADIOIODINE	VEGETATION		WATER	WATER
4	W		W				
6A	W		W				
7A	W		W				
14A	W		W				
15	W		W				
17A	W		W				
21	W		W				
29	W		W				
35	W		W				
40	W		W				
46						W	
47				M/AA			
48						W	
49		M/AA		M/AA		W	
53		M/AA					
54		M/AA					
55						W	
57					Q		
58A					Q		
59 (A,B,&C)							Q
60							Q
61							Q
62				M/AA			
63 (A&B)							Q
64 (A&B)							Q
65					Q		

Table 2-2 Sample Collection Schedule

W = WEEKLY

$$M/AA = MONTH$$

 $HLY AS AVAILABLE \qquad Q = QUARTERLY$

Deviation/Abnormal Event	Actions Taken				
1. Dosimetry for Site 8 was later than scheduled, requiring adjusted transit dose for 2 nd Quarter 2022.	Site 8 Dosimetry was found to have been left in the monitoring containers following the processing of the remainder of the Environmental Dosimetry from 2 nd Quarter 2022. Once located, the dosimetry was processed, and the transit dose was adjusted accordingly. The data is VALID. Event documented through CR 22-07921 (Table 9-2, Note 1).				
2. Dosimetry for monitoring location 44 were missing for the 2 nd Quarter, 2022.	The dosimetry and stanchion used for monitoring location 44 were missing for 2nd Quarter, 2022. The M_A and L_A were calculated using 1st, 3rd, and 4th Quarter Data. BA was calculated using B_Q *3. Documented through CR 22-07142 (Table 9-2, Note 2).				
3. Placement of dosimetry for monitoring location 44 was delayed for 3 rd Quarter, 2022 monitoring cycle, requiring adjusted transit dose.	The dosimetry and stanchion used for monitoring location 44 were missing for 2nd Quarter, 2022. Due to repeated events at this location, the location was evaluated for a more discrete stanchion placement to mitigate future loss of equipment and data. The 3 rd Quarter dosimetry was delayed in placement; transit dose was adjusted accordingly. The data is VALID. Event documented through CR 22-07142 (Table 9-2, Note 3).				
4. Drinking Water Samples for June Sampling period failed to receive gamma isotopic analysis.	The June Drinking Water Samples for Sites 46, 48, 49, and 55 were collected weekly for the monthly composite sample; however, the monthly gamma isotopic analysis was not conducted. The failure to analyze was in identified in time to conduct the analysis with reasonable lower limits of detection capabilities. Gross beta and tritium analysis were performed with as expected results. The sampling periods immediately preceding and following the June sample had less than detectable gamma isotopic activity and it is reasonable to conclude that there would have been similar results for the June samples of well drinking water. Event Document through CR 22-09005 (Table 8-8, Note 1)				
5. Milk Sample Site 54 count interruption during analysis resulting in higher I-131 MDA than desired for April 2022 sample period.	A power interruption resulted in higher than usual MDA for I-131 for Milk Sample Site 54. MDA achieved was 1.43 pCi/L; ODCM requirement is 1 pCi/L. Reporting to 1 significant digit meets the required I-131 LLD; however, the event is still noteworthy for trending. Sample is VALID. Event documented through CR 22-04327 (Table 8-7, Note 1).				
6. Milk Sample Site 54 count interruption during analysis resulting in higher I-131 MDA than desired for June 2022 sample period	A power interruption resulted in higher than usual MDA for I-131 for Milk Sample Site 54. MDA achieved was 1.02 pCi/L; ODCM requirement is 1 pCi/L. Reporting to 1 significant digit meets the required I-131 LLD; however, the event is still noteworthy for trending. Sample is VALID. Event documented through CR 22-06461 (Table 8-7, Note 2).				
7. Air Sample Site 15 INVALID due to loss of power and insufficient sample collection for sample period 3/8/2022- 3/15/2022.	Site was found to be without power; power lost at the pole. Approximately 30 hours of collection time was recorded; insufficient data collection for statistical analysis. Sample is INVALID, and data is for INFO ONLY for Week 11. Event documented through CR 22-02637 (Table 8-1 and Table 8-4, Note 1).				
8. Air Sample Site 15 INVALID due to loss of power and insufficient sample collection for sample period 3/15/2022- 3/22/2022.	Site was found to be without power; power lost at the pole during Sample Week 11. Power was restored on 3/18/2022; insufficient data collection for statistical analysis. Sample is INVALID, and data is for INFO ONLY for Week 11. Event documented through CR 22-02896 (Table 8-1 and Table 8-4, Note 2).				
9. Air Sample Site 35 INVALID due to having an operable ETM with an inoperable pump for sampling period 5/10/2022-5/17/2022.	Site 35 ETM was found to be running with an inoperable pump. The dust loading was lighter than usual and there was no way to accurately estimate the sample volume. The pump was found to have broken carbon vanes. Sample is INVALID and the data is included as INFO ONLY. Event Documented through CR 22-05573 Table 8-1 and Table 8-4, Note 3).				

Table 2-3 Summaries of the REMP Deviations/Abnormal Events

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022

10. Air Sample Site 29 INVALID due to pump failure for sample period 8/17/2022- 8/23/2022.	Pump found inoperable at time of sample change out. ETM continued operating, so sample collection time could not be calculated. Pump replaced. Sample volume unknown and conservative values used for analysis; sample is INVALID, and data is for INFO ONLY for Week 34. Event documented through CR 22-08850 (Table 8-1 and Table 8-4, Note 4).		
11. Air Sample Site 29 VALID- use of calculated volume due to loss of ETM function for sample period 8/23/2022- 8/30/2022.	ETM was found to be nonfunctional at Air Sample Site 29. Pump continued operating; volume was calculated based on document in-service/out-of-service times. Sample is VALID for Week 35. Event documented through CR 22-09144 (Table 8-1 and Table 8-4, Note 5).		
12. Air Sample Site 29 VALID- use of calculated volume due to loss of ETM function for sample period 8/30/2022- 8/6/2022.	ETM was found to be nonfunctional at Air Sample Site 29. Pump continued operating; volume was calculated based on document in-service/out-of-service times. Sample is VALID for Week 36. Event documented through CR 22-09372 (Table 8-1 and Table 8-4, Note 6).		
13. Air Sample Site 7 VALID- ETM value differed from calculated value for sample period 12/13/2022- 12/20/2022.	ETM value differed from calculated volume at Air Sample Site 7. ETM was functional and sample appeared to have normal dust loading. Possible cause may be due to temporary power outage at pump site. ETM value used for sample volume for conservatism. Sample is VALID for Week 51. Event documented through CR 22-13436 (Table 8-1 and Table 8-4, Note 7).		
14. Air Sample Pump for Site 40 replaced due to degraded flow. No data impacted.	Air Sample Pump at Site 40 was found to have degraded flow on 12/20/2022. Sample had normal dust loading and ample volume for statistical analysis. Event document for trending. Sample data was not impacted and is VALID for Week 51. Event documented through CR 22-13436 (Table 8-1 and Table 8-4, Note 8).		
15.Mass Flow Meter, used for air sample pump adjustments, found to be out of tolerance for Weeks 17-33. Data is VALID	Mass Flow Meter, used to adjust air flow of the air sampling pumps, was found to be out of tolerance. The impacted data was for sample collection Weeks 17-33. Pump flow adjustment data was reviewed, and impacted flow meter adjustments appear to be isolated to Week 33. All impacted sample data was reviewed and found to have sufficient margin to accommodate for the recorded variance of the mass flow meter. Adjusted data met the required LLDs. All data is VALID. Event documented through CR 22-11503; evaluation documented through Level 3 Evaluation 22-11503-001.		

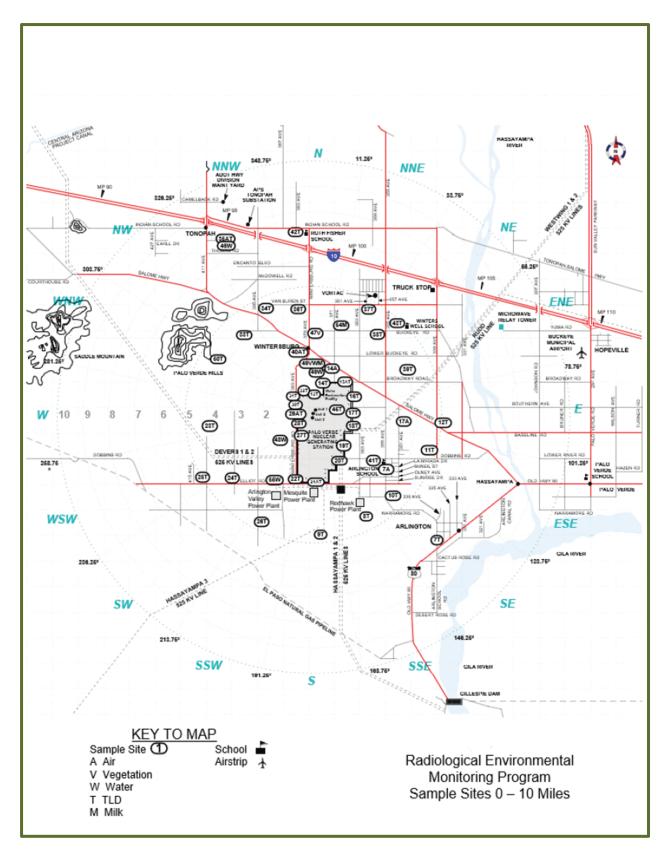


Figure 2-1 REMP Sample Sites- Map (0-10 miles)

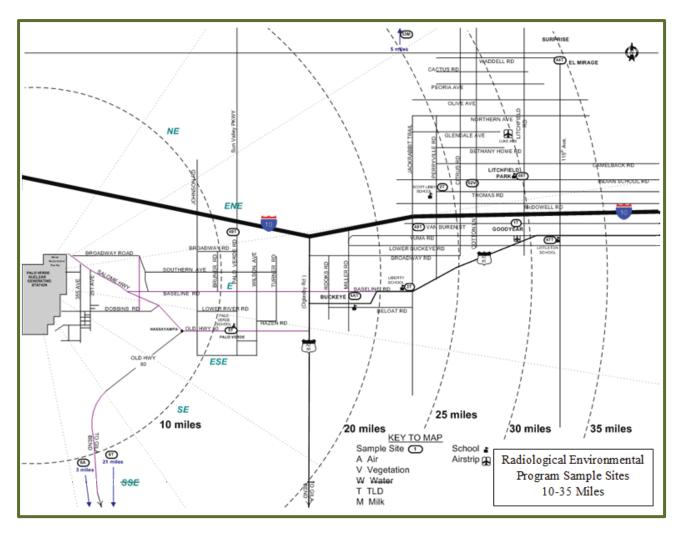


Figure 2-2 REMP Sample Sites- Map (10-35 Miles)

3. Sample Collection Program

APS Personnel, using PVNGS procedures, collected all samples.

3.1 Water

Weekly samples were collected from four (4) residence wells for monthly and quarterly composites. Samples were collected in one-gallon containers (plastic cubitainers) and 500 mL glass bottles. The samples were analyzed for gross beta, gamma-emitting radionuclides, and tritium.

Quarterly grab samples were collected from the 45-acre and 85-acre Reservoirs, active Evaporation Ponds 1A/B/C, 2A/B, and 3A/B, and onsite wells 27ddc, 34aab, and 27dcb. Samples were collected in one-gallon containers (plastic cubitainers) and 500 mL glass bottles. Samples were analyzed for gamma-emitting radionuclides and tritium.

Treated sewage effluent from the City of Phoenix was sampled as a weekly composite at the onsite Water Resources (WR) and analyzed for gamma-emitting radionuclides. A monthly composite was analyzed for tritium.

3.2 Vegetation

Vegetation samples were collected monthly, as available, and were analyzed for gammaemitting radionuclides.

3.3 Milk

Goat milk samples were collected monthly, as available, and were analyzed for gammaemitting radionuclides, including low level I-131.

3.4 Air

Air particulate filters and charcoal cartridges were collected at ten (10) sites on a weekly basis. Particulate filters were analyzed for gross beta. Charcoal cartridges were analyzed for Iodine-131. Particulate filters were composited quarterly, by location, and analyzed for gamma-emitting radionuclides.

3.5 Soil, Sludge, and Sediment

Sludge samples were obtained weekly from the WR waste centrifuge (during operational periods) and analyzed for gamma-emitting radionuclides. Cooling tower sludge was analyzed for gamma-emitting radionuclides prior to disposal in the WR sludge landfill.

4. Analytical Procedures

The procedures described in this report are those used by APS to routinely analyze samples

4.1 Air Particulate

4.1.1 Gross Beta

A glass fiber filter sample is placed in a stainless steel planchet and counted for gross beta activity utilizing a low background gas flow proportional counter.

4.1.2 Gamma Spectroscopy

The glass fiber filters are counted on a multichannel analyzer equipped with a Highpurity Germanium (HPGe) detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

4.2 Airborne Radioiodine

4.2.1 Gamma Spectroscopy

The charcoal cartridge is counted on a multichannel analyzer equipped with an HPGe detector. The resulting spectrum is analyzed by a computer for Iodine-131.

4.3 Milk

4.3.1 Gamma Spectroscopy

The sample is placed in a plastic marinelli beaker and counted on a multichannel analyzer equipped with an HPGe detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

4.3.2 Radiochemical I-131 Separation

Iodine in milk sample is reduced with sodium bisulfite and iodine is absorbed by the anion exchange resin. The iodine is eluted with NaOCl. Iodine is extracted from the sample with carbon tetrachloride. The iodine is back extracted from the organic phase with water containing sodium bisulfate and then precipitated as CuI. The precipitate is mounted in a planchet and counted for gross beta.

4.4 Vegetation

4.4.1 Gamma Spectroscopy

The sample is pureed in a food processor, placed in a one-liter plastic marinelli beaker, weighed, and counted on a multichannel analyzer equipped with an HPGe detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

4.5 Sludge/Sediment

4.5.1 Gamma Spectroscopy

The wet/dry sample is placed in a one-liter plastic marinelli beaker, weighed, and counted on a multichannel analyzer equipped with an HPGe detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

4.6 Water

4.6.1 Gamma Spectroscopy

The sample is placed in a one-liter plastic marinelli beaker and counted on a multichannel analyzer equipped with a HPGe detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

4.6.2 Tritium

The sample is evaluated to determine the appropriate method of preparation prior to counting. If the sample contains suspended solids or is turbid, it may be filtered, distilled, and/or de-ionized, as appropriate. Eight (8) milliliters of sample are mixed with fifteen (15) milliliters of liquid scintillation cocktail. The mixture is dark adapted and counted for tritium activity using a liquid scintillation counting system.

4.6.3 Gross Beta

A 200-250 milliliter sample is placed in a beaker. Five (5) milliliters of concentrated nitric (HNO₃) acid is added and the sample is evaporated down to approximately twenty (20) milliliters. The remaining sample is transferred to a stainless steel planchet. The sample is heated to dryness and counted for gross beta in a gas flow proportional counter.

4.7 Soil

4.7.1 Gamma Spectroscopy

The samples are sieved, placed in a one-liter plastic marinelli beaker, and weighed. The samples are then counted on a multichannel analyzer equipped with an HPGe detector. The resulting spectrum is analyzed by a computer for specific radionuclides and verified by trained technicians.

5.1 Gamma Spectrometer

The Canberra Gamma Spectrometer consists of a Canberra System equipped with HPGe detectors, having resolutions of 1.73 keV and 1.88 keV (as determined by full width half max with an energy of 0.5 keV per channel) and respective efficiencies of 21.5% and 38.4% (as determined by the manufacturer with Co-60). The Canberra System is used for all gamma counting. The system uses Canberra developed software to search, identify, and quantify the peaks of interest.

5.2 Liquid Scintillation Spectrometer

A Beckman LS-6500 Liquid Scintillation Counter is used for tritium determinations. The system background averages approximately 12-16 cpm with a counting efficiency of approximately 40% using a quenched standard.

5.3 Gas Flow Proportional Counter

The Tennelec S5E is a low background gas flow proportional counter for gross beta analysis. The system contains an automatic sample changer capable of counting 50 samples in succession. Average beta background count rate is about 1-2 cpm with a beta efficiency of approximately 30% for Cs-137.

6. Isotopic Detection Limits and Reporting Criteria

6.1 Lower Limits of Detection

The lower limits of detection (LLD) and the method for calculation are specified in the PVNGS ODCM, Reference 4. The ODCM required *a priori* LLDs are presented in Table 6-1.

6.2 Data Reporting Criteria

All results that are greater than the Minimum Detectable Activity (MDA) (*a posteriori* LLD) are reported as positive activity with its associated 2σ counting error. All results that are less than the MDA are reported as less than values at the associated MDA. For example, if the MDA is 12 pCi/liter, the value is reported as <12.

Typical MDA values are presented in Table 6-3.

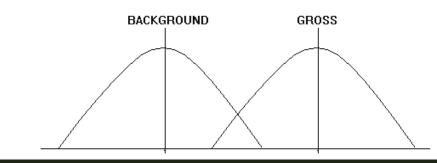
Occasionally, the PVNGS ODCM a priori LLDs may not be achieved as a result of:

- Background fluctuations
- Unavoidably small sample sizes
- The presence of interfering radionuclides
- Self-absorption corrections
- Decay corrections for short half-life radionuclides
- Other uncontrollable circumstances

In these instances, the contributing factors will be noted in the table where the data are presented. A summary of deviations/abnormal events is presented in Table 2-3 Summaries of the REMP Deviations/Abnormal Events and includes a description of any sample results that did not meet *a priori* LLD requirements.

6.3 LLD and Reporting Criteria Overview

Making a reasonable estimate of the limits of detection for a counting procedure or a radiochemical method is usually complicated by the presence of significant background. It must be considered that the background or blank is not a fixed value but that a series of replicates would be normally distributed. The desired net activity is the difference between the gross and background activity distributions. The interpretation of this difference becomes a problem if the two distributions intersect as indicated in the diagram.



If a sufficient number of replicate analyses are run, it is expected that the results would fall in a normal Gaussian distribution. Standard statistics allow an estimate of the probability of any particular deviation from the mean value. It is common practice to report the mean \pm one or two standard deviations as the result. In routine analysis, such replication is not carried out, and it is not possible to report a Gaussian standard deviation. With counting procedures, however, it is possible to estimate a Poisson standard deviation directly from the count. Data are commonly reported as the measured value \pm one or two Poisson standard deviations. The reported values are then considered to give some indication of the range in which the true value might be expected to occur.

LLD is the smallest amount of sample activity that will yield a net count for which there is confidence at a predetermined level that activity is present. LLDs are calculated values for individual radionuclides based on a number of different factors including sample size, counting efficiency and background count rate of the instrument, the background and sample counting time, the decay time, and the chemical recovery of the analytical procedures. A minimum detectable activity value (MDA) is the smallest amount of activity that can be detected in an actual sample and uses the values obtained from the instrument and outcome of the analytical process. Therefore, the MDA values may differ from the calculated LLD values if the sample size and chemical recovery, decay values, or the instrument efficiency, background, or count time differed from those used in the LLD calculation.

The factors governing the calculation of the LLD and MDA values are discussed below:

- 1. Sample Size: The number of observations included in a statistical analysis. Sample size dictates the amount of information available about a studied subject to make accurate inferences.
- 2. Counting Efficiency: The fundamental quantity in the measurement of a radioactive substance is the number of disintegrations per unit time. As with most physical measurements in analytical chemistry, an absolute measurement of the disintegration rate is seldom possible, rather it is necessary to compare the sample with one or more standards. The standards determine the counter efficiency that may then be used to convert sample counts per minute (cpm) to disintegrations per minute (dpm).
- **3. Background Count Rate**: Any counter will show a certain counting rate without a sample in position. This background counting rate comes from several sources: 1) natural environmental radiation from the surrounding materials, 2) cosmic radiation, and 3) the natural radioactivity in the counter material itself. The background counting rate will depend on the amounts of these types of radiation and the sensitivity of the counter to the radiation.

- **4. Background and Sample Counting Time**: The amount of time devoted to the counting of the background depends on the level of activity being measured. In general, with low level samples, this time should be about equal to that devoted to counting a sample.
- 5. Time Interval between Sample Collection and Counting: Decay measurements are useful in identifying certain short-lived nuclides. The disintegration constant is one of the basic characteristics of a specific radionuclide and is readily determined if the half-life is sufficiently short. To ensure the required LLDs are achieved, appropriate decay correction values are used to account for radioactive decay during transit time and sample processing.

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m ³)	Fresh Milk (pCi/l)	Food Products (pCi/kg, wet)
Gross Beta	4	0.01		
H-3	2000*		*	
Mn-54	15			
Fe-59	30			
Co-58, -60	15			
Zn-65	30			
Zr-95	30			
Nb-95	15			
I-131	1**	0.07	1	60
Cs-134	15	0.05	15	60
Cs-137	18	0.06	18	80
Ba-140	60		60	
La-140	15		15	

Table 6-1 ODCM Required Lower Limits of Detection (a priori)

* If no drinking water pathway exists, a value of 3000 pCi/liter may be used

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

NOTES:

This list does not mean that only these nuclides are to be detected and reported. Other peaks that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m ³)	Fresh Milk (pCi/l)	Food Products (pCi/kg, wet)
H-3	20,000 *			
Mn-54	1,000	-		
Fe-59	400			
Co-58	1,000			
Co-60	300			
Zn-65	300			
Zr-Nb-95	400			
I-131	2 **	0.9	3	100
Cs-134	30	10	60	1,000
Cs-137	50	20	70	2,000
Ba-La-140	200		300	

Table 6-2 ODCM Required Reporting Levels

* For drinking water samples. This is a 40 CFR 141 value. If no drinking water pathway exists, a value of 30,000 pCi/L may be used.

** If no drinking water pathway exists, a reporting level of 20 pCi/L may be used.

Table	6-3	Турі	ical	MDA	Values
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Analysis/Nuclide	Water (pCi/liter)	Milk (pCi/liter)	Airborne Particulate or Gas (pCi/m ³)	Vegetation (pCi/kg, wet)
Gross Beta	2.08		0.004	
H-3	326			
Mn-54	10			
Fe-59	20			
Co-58	9			
Co-60	11			
Zn-65	22			
Zr-95	16			
Nb-95	10			
I-131	10 ^a	1	0.04 ^b	49
Cs-134	9	1	0.003 ^b	47
Cs-137	10	1	0.003 ^b	61
Ba-140	33	3		
La-140	13	1		

NOTES:

a - low level I-131 is not required since there is no drinking water pathway

b - Based on 433 m³, the normal weekly sample volume

7. Interlaboratory Comparison Program

7.1 Quality Control Program

APS maintains an extensive QA/QC Program to provide assurance that samples are collected, handled, tracked, and analyzed to specified requirements. This program includes appropriate elements of USNRC Regulatory Guide 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment, Revision 1. The program includes procedures for sample collection preparation and tracking, sample analysis, equipment calibration and checks, and ongoing participation in an interlaboratory comparison program. Duplicate/replicate samples are analyzed to verify analytical precision and sample methodology. Comprehensive data reviews are performed including trending of data where appropriate.

During 2022, APS analyzed the following sample types under the interlaboratory comparison program:

- Beta/Gamma/ in Air Filter
- I-131 in Air
- Beta in Water
- Gamma in Water
- Tritium in Water
- Gamma in Milk

7.2 Intercomparison Results

APS participates in a crosscheck program using vendor supplied blind radionuclide samples. Results for the interlaboratory comparison program are presented in Table 7-1

					-	ental Cross C			
Sample	Analysis	Nuclide	PVNGS	1 sigma	Known	Resolution*	Ratio	NRC	Results
Туре E13671	Type Gamma	Ce-141	Value 7.38E+01	Error 1.08E+01	Value 7.61E+01	7	0.97	Range 0.50 - 2.0	
DET2	Water	Co-58	1.89E+02	1.79E+01	1.93E+02	11	0.97	0.60 - 1.6	-
		Co-60	3.48E+02	2.09E+01	3.55E+02	17	0.98	0.75 - 1.3	-
		Cr-51	4.12E+02	6.62E+01	4.00E+02	6	1.03	0.50 - 2.0	· ·
		Cs-134	1.91E+02	1.23E+01	2.14E+02	16	0.89	0.75 - 1.3	-
		Cs-137	2.44E+02	2.25E+01	2.63E+02	11	0.93	0.60 - 1.6	-
		Fe-59 Mn-54	2.18E+02 1.97E+02	1.72E+01 1.82E+01	2.18E+02 1.93E+02	13 11	1.00 1.02	0.60 - 1.6	-
		Zn-65	2.96E+02	2.81E+01	2.90E+02	11	1.02	0.60 - 1.6	· ·
		I-131	9.53E+01	1.73E+01	8.76E+01	6	1.09	0.50 - 2.0	0 Acceptable
E13671 DET3	Gamma Water	Ce-141	7.39E+01	8.60E+00	7.61E+01	9	0.97	0.60 - 1.6	6 Acceptable
		Co-58	1.86E+02	1.41E+01	1.93E+02	13	0.96	0.60 - 1.6	6 Acceptable
		Co-60	3.56E+02	1.55E+01	3.55E+02	23	1.00	0.75 - 1.3	-
		Cr-51	3.87E+02	5.97E+01	4.00E+02	6	0.97	0.50 - 2.0	
		Cs-134 Cs-137	1.96E+02 2.53E+02	9.60E+00 1.71E+01	2.14E+02 2.63E+02	20 15	0.92 0.96	0.75 - 1.3 0.60 - 1.6	-
		Fe-59	2.28E+02	1.53E+01	2.18E+02	15	1.05	0.60 - 1.6	-
		Mn-54	1.98E+02	1.46E+01	1.93E+02	14	1.03	0.60 - 1.6	-
		Zn-65	2.91E+02	2.26E+01	2.90E+02	13	1.00	0.60 - 1.6	· ·
E13674	Gamma	I-131	1.01E+02	1.63E+01	8.76E+01	6	1.15	0.50 - 2.0	
DET2	Filter	Ce-141	4.62E+01	9.61E+00	4.25E+01	5	1.09	0.50 - 2.0	
		Co-58	1.15E+02	1.91E+01	1.08E+02 1.98E+02	6	1.06	0.50 - 2.0	-
		Co-60 Cr-51	2.08E+02 2.13E+02	1.73E+01 7.35E+01	1.98E+02 2.23E+02	12 3	1.05 0.96	0.60 - 1.6 0.40 - 2.5	· ·
		Cs-134	1.04E+02	1.24E+01	1.20E+02	8	0.90	0.60 - 1.6	-
		Cs-137	1.74E+02	2.93E+01	1.47E+02	6	1.18	0.50 - 2.0	-
		Fe-59	1.45E+02	2.14E+01	1.21E+02	7	1.20	0.50 - 2.0	-
		Mn-54 Zn-65	1.18E+02	1.82E+01	1.08E+02	6	1.09	0.50 - 2.0	· ·
E13674	Gamma	Ce-141	1.96E+02 4.97E+01	3.24E+01 9.51E+00	1.62E+02 4.25E+01	6 5	1.21	0.50 - 2.0	
DET3	Filter	Co-58	1.03E+02	2.01E+01	1.08E+02	5	0.95	0.50 - 2.0	
		Co-60	2.03E+02	1.77E+01	1.98E+02	11	1.03	0.60 - 1.6	-
		Cr-51	2.41E+02	6.92E+01	2.23E+02	3	1.08	0.40 - 2.5	0 Acceptable
		Cs-134	9.60E+01	1.01E+01	1.20E+02	10	0.80	0.60 - 1.6	· ·
		Cs-137	1.46E+02	2.22E+01	1.47E+02	7	0.99	0.50 - 2.0	-
		Fe-59 Mn-54	1.41E+02 1.27E+02	2.17E+01 1.97E+01	1.21E+02 1.08E+02	6	1.17 1.18	0.50 - 2.0	-
		Zn-65	1.79E+02	3.22E+01	1.62E+02	6	1.10	0.50 - 2.0	-
E13673A DET2	I-131 Cartridge	I-131	7.45E+01	7.39E+00	8.74E+01	10	0.85	0.60 - 1.6	6 Acceptable
E13673A DET3	I-131 Cartridge	I-131	8.37E+01	6.92E+00	8.74E+01	12	0.96	0.60 - 1.6	6 Acceptable
E13672	Gross Beta Air	g beta	5.37E+01	1.70E+00	6.09E+01	32	0.88	0.75 - 1.3	3 Acceptable
E13675 DET 2	Gamma Milk	I-131	4.52E+01	4.52E+00	4.42E+01	10	1.02	0.60 - 1.6	6 Acceptable
~		Ce-141	9.72E+00	1.29E+00	1.03E+01	8	0.94	0.60 - 1.6	6 Acceptable
		Co-58	2.52E+01	2.63E+00	2.60E+01	10	0.97	0.60 - 1.6	6 Acceptable
		Co-60	4.90E+01	3.32E+00	4.79E+01	15	1.02	0.60 - 1.6	-
		Cr-51 Cs-134	5.03E+01 2.66E+01	1.34E+01 1.52E+00	5.39E+01 2.89E+01	4 18	0.93 0.92	0.50 - 2.00 0.75 - 1.3	-
		Cs-134 Cs-137	2.66E+01 3.62E+01	1.52E+00 3.54E+00	2.89E+01 3.55E+01	18	1.02	0.60 - 1.6	-
		Fe-59	3.24E+01	2.98E+00	2.93E+01	11	1.11	0.60 - 1.6	-
		Mn-54	2.67E+01	3.02E+00	2.61E+01	9	1.02	0.60 - 1.6	6 Acceptable
E12675 DET		Zn-65	4.10E+01	3.88E+00	3.91E+01	11	1.05	0.60 - 1.6	6 Acceptable
E13675 DET 3	Gamma Milk	I-131	4.61E+01	4.57E+00	4.42E+01	10	1.04	0.60 - 1.6	
		Ce-141	1.03E+01	2.28E+00	1.03E+01	5	1.00	0.50 - 2.0	-
		Co 59	2.67E+01	3.09E+00	2.60E+01	9	1.03	0.60 - 1.6	-
		Co-58		2 22E+00		15			6 Acceptable
		Co-60	4.86E+01	3.22E+00 1.04E+01	4.79E+01 5.39E+01	15 5	1.01 0.90		Accentable
				3.22E+00 1.04E+01 1.70E+00	4.79E+01 5.39E+01 2.89E+01	15 5 16	0.90 0.94	0.50 - 2.0	-
		Co-60 Cr-51	4.86E+01 4.86E+01 2.72E+01 3.67E+01	1.04E+01	5.39E+01	5	0.90	0.50 - 2.0	3 Acceptable
		Co-60 Cr-51 Cs-134 Cs-137 Fe-59	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01	1.04E+01 1.70E+00 3.63E+00 3.09E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01	5 16 10 10	0.90 0.94 1.03 1.08	0.50 - 2.0 0.75 - 1.3 0.60 - 1.6 0.60 - 1.6	 Acceptable Acceptable Acceptable Acceptable
		Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01	5 16 10 10 8	0.90 0.94 1.03 1.08 1.02	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	 Acceptable Acceptable Acceptable Acceptable Acceptable
E13676	Gross Beta	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01	1.04E+01 1.70E+00 3.63E+00 3.09E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01	5 16 10 10	0.90 0.94 1.03 1.08	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13676 E13677	Gross Beta Water H-3 Water	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01	5 16 10 10 8 8	0.90 0.94 1.03 1.08 1.02 1.06	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13677 Resolution	Water H-3 Water Ratio	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65 g beta	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01 2.45E+02	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00 5.22E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01 2.22E+02 1.43E+04 * calculated	5 16 10 10 8 8 47 36 from PVNGS va	0.90 0.94 1.03 1.08 1.02 1.06 1.10 0.94	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13677 Resolution <4	Water H-3 Water Ratio 0.4-2.5	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65 g beta	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01 2.45E+02	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00 5.22E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01 2.22E+02 1.43E+04 * calculated NRC Accepts	5 16 10 8 8 47 36 from PVNGS va ance Criteria ¹	0.90 0.94 1.03 1.08 1.02 1.06 1.10 0.94 hue/1 sigma er	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13677 Resolution <4 4-7	Water H-3 Water Ratio 0.4-2.5 0.5-2.0	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65 g beta	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01 2.45E+02	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00 5.22E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01 2.22E+02 1.43E+04 * calculated NRC Accepts	5 16 10 10 8 8 47 36 from PVNGS va	0.90 0.94 1.03 1.08 1.02 1.06 1.10 0.94 hue/1 sigma er	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13677 Resolution <4	Water H-3 Water Ratio 0.4-2.5	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65 g beta	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01 2.45E+02	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00 5.22E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01 2.22E+02 1.43E+04 * calculated NRC Accepts	5 16 10 8 8 47 36 from PVNGS va ance Criteria ¹	0.90 0.94 1.03 1.08 1.02 1.06 1.10 0.94 hue/1 sigma er	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable
E13677 Resolution <4 4-7 8-15	Water H-3 Water Ratio 0.4-2.5 0.5-2.0 0.6-1.66	Co-60 Cr-51 Cs-134 Cs-137 Fe-59 Mn-54 Zn-65 g beta	4.86E+01 4.86E+01 2.72E+01 3.67E+01 3.16E+01 2.66E+01 4.15E+01 2.45E+02	1.04E+01 1.70E+00 3.63E+00 3.09E+00 3.16E+00 5.19E+00 5.22E+00	5.39E+01 2.89E+01 3.55E+01 2.93E+01 2.61E+01 3.91E+01 2.22E+02 1.43E+04 * calculated NRC Accepts	5 16 10 8 8 47 36 from PVNGS va ance Criteria ¹	0.90 0.94 1.03 1.08 1.02 1.06 1.10 0.94 hue/1 sigma er	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	 Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable Acceptable

Table 7-1	Interlaborator	y Comparisor	n Results

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022 Page 21

8. Data Interpretation and Conclusions

Associated with the analytical process are potential random and systematic errors. Systematic errors can be caused by instrument malfunctions, incomplete precipitation, back scattering, and self-absorption.

Efforts are made to minimize both systematic and random errors in the data reported. Systematic errors are minimized by performing reviews throughout the analysis. For example, instruments are checked routinely with radioactive sources, and recovery and self-absorption factors based on individual sample analyses are incorporated into the calculation equations where necessary. Random errors are reduced by comparing all data to historical data for the same site and performing comparisons between analytical results when available. In addition, when data appears to not match historical results, analyses may be rerun on a separate aliquot of the sample to verify the presence of the activity. The acceptance of data is dependent upon the results of quality control samples and is part of the data review process for all analytical results.

The "plus or minus value" reported with each analytical result represents the counting error associated with the result and gives the 95% confidence (2σ) interval around the data.

Most samples contain radioactivity associated with natural background/cosmic radioactivity (i.e., K-40, Th-234, Be-7). Gross beta results for drinking water and air are due to natural background. Gamma-emitting radionuclides, which can be attributed to natural background sources, are not indicated in this report.

Results and interpretation of the data for samples analyzed during 2022 are presented in the following sections.

8.1 Air Particulates

Weekly gross beta results, in quarterly format, are presented in Table 8-1 and Table 8-2. Gross beta activity at indicator locations ranged from 0.012 to 0.056 pCi/m³. Mean quarterly activity is normally calculated using weekly activity over a thirteen (13) week period. Also presented in the tables are the weekly mean values of all the sites as well as the percent relative standard deviation (RSD %) for the data.

Table 8-3 displays the results of gamma spectroscopy on the quarterly composites of the weekly samples. No plant-related activity was identified

8.2 Airborne Radioiodine

Table 8-4 and Table 8-5 present the quarterly radioiodine results. Radioiodine was not observed in any samples.

8.3 Vegetation

Table 8-6 presents gamma isotopic data for the vegetation samples. No gamma-emitting radionuclides were observed in any of the samples.

8.4 Milk

Table 8-7 presents gamma isotopic data for the goat milk samples. No gamma-emitting radionuclides were observed in any of the samples.

8.5 Drinking Water

Samples were analyzed for gross beta, tritium, and gamma-emitting radionuclides. Results of these analyses are presented in Table 8-8. No tritium or gamma-emitting radionuclides were detected in any samples. Gross beta activity ranged from less than detectable to a high of 8.44 pCi/liter. The gross beta activity is attributable to natural (background) radioactive materials.

8.6 Groundwater

Groundwater samples were analyzed from three onsite wells (regional aquifer) for tritium and gammaemitting radionuclides. Results obtained from the analysis of the samples are presented in Table 8-9.

No tritium or gamma-emitting radionuclides were observed in any of the samples.

8.7 Surface Water

Surface water samples from the Reservoirs and Evaporation Ponds were analyzed for tritium and gammaemitting radionuclides. The two Reservoirs contain processed sewage water from the City of Phoenix and are approximately 45 and 85 acres in size. The three Evaporation Ponds receive mostly circulating water from main turbine condenser cooling and are about 200-250 acres each.

Sample results are presented in Table 8-10. I-131 is sometimes observed in Reservoirs and Evaporation Ponds, which is the result of radiopharmaceutical I-131 in the Phoenix sewage effluent and is not attributable to plant effluents. However, I-131 was not observed in these surface water samples during 2022.

Tritium was routinely observed in the Evaporation Ponds. The highest concentration was 999 pCi/liter. Tritium was not detected in the Reservoirs. The tritium identified in the Evaporation Ponds has been attributed to permitted plant gaseous effluent releases and secondary plant liquid discharges (i.e., condensate overboard discharge, secondary side steam generator drains, secondary plant sumps, demineralizer regeneration waste). The tritium concentrations were compared to historical values and are considered typical for the Evaporation Ponds.

Evaporation Pond 3A has been drained for liner repairs and has not received any influent from the plant since 2016. Due to the negligible inventory and lack of influent in the past 7 years, no sample was obtained from Evaporation Pond 3A.

8.8 Sludge and Sediment

8.8.1 Water Resources Centrifuge Waste Sludge

Sludge samples were obtained from the Water Resources (WR) centrifuge and analyzed by gamma spectroscopy. I-131 activity in the sludge is consistent with historical values and, as previously discussed, is due to radiopharmaceuticals in the WR Influent. The concentration of I-131 ranged from "no detectable" to 1020 pCi/kg.

Results for WR centrifuge waste sludge can be found in Table 8-11.

8.8.2 Cooling Tower Sludge

Sludge/sediment originating from the Unit 1 and Unit 2 Cooling Towers and Circulating Water canals was disposed of in the WR sludge landfill during 2022. Sample results can be found in Table 8-11.

8.9 Data Trends

Figure 8-1 through Figure 8-8 present data in graphical format. Historical data are displayed for comparison where practical.

8.10 Hard-To-Detect Radionuclide Results

Table 8-12 shows the results of the three subsurface samples obtained from 3 tritium monitoring points. These samples were analyzed for hard-to-detect radionuclides (i.e., C-14, Fe-55, Ni-63, Sr-90) and all results were <MDA. These results indicate that no leaks from plant systems have affected groundwater.

						0200110	units are	mples den	ote a by						
				(1)			units are	pCI/m							
	START	STOP	Site	(control) Site	Site	Site	Site	Site	Site	Site	Site	Site		RSD	
Veek #	DATE	DATE	4	6A*	7A	14A*	15*	17A	21	29*	35	40*	Mean	(%)	⊥Note
veek #	Ĩ.														Trote
1	28-Dec-21	4-Jan-22	0.015	0.015	0.015	0.014	0.012	0.013	0.014	0.013	0.014	0.014	0.014	5.9	
2	4-Jan-22	11-Jan-22	0.044	0.044	0.039	0.039	0.040	0.041	0.037	0.041	0.038	0.039	0.040	5.9	
3	11-Jan-22	18-Jan-22	0.041	0.043	0.038	0.038	0.033	0.038	0.039	0.039	0.036	0.033	0.038	8.6	
4	18-Jan-22	25-Jan-22	0.051	0.045	0.048	0.039	0.045	0.044	0.044	0.046	0.042	0.046	0.045	7.2	
5 6	25-Jan-22	1-Feb-22	0.041 0.033	0.043 0.032	0.037	0.035 0.028	0.036	0.039 0.027	0.040	0.036 0.028	0.037 0.027	0.037	0.038 0.029	7.1 8.1	
7	1-Feb-22 8-Feb-22	8-Feb-22 15-Feb-22	0.033	0.032	0.032	0.028	0.026 0.023	0.027	0.030	0.028	0.027	0.028	0.029	8.6	
8	15-Feb-22	22-Feb-22	0.025	0.028	0.023	0.022	0.023	0.024	0.027	0.023	0.021	0.022	0.024	5.6	
9	22-Feb-22	1-Mar-22	0.020	0.023	0.022	0.023	0.025	0.023	0.025	0.023	0.023	0.022	0.025	5.7	
10	1-Mar-22	8-Mar-22	0.027	0.027	0.025	0.025	0.026	0.027	0.028	0.020	0.025	0.023	0.028	7.8	
10	8-Mar-22	15-Mar-22	0.032	0.030	0.025	0.027	±0.0054	0.028	0.028	0.027	0.023	0.027	0.025	5.6	1
12	15-Mar-22	22-Mar-22	0.025	0.026	0.019	0.024	+0.0218	0.020	0.020	0.025	0.024	0.023	0.023	11.4	2
13	22-Mar-22	29-Mar-22	0.022	0.022	0.020	0.022	0.019	0.019	0.022	0.022	0.020	0.020	0.021	5.8	-
	Mean		0.031	0.031	0.028	0.028	0.028	0.029	0.029	0.029	0.027	0.027	0.029	5.3	
		e data provideo	is for INFO	ONLY. CR 2 3/18/2022. Ins	2-02637 ufficient data	a for statistica	al analysis fo	r this sampli	ng period. Sa	mple counted	l for INFO ON			sampie analy	zeu using
	default; volum	e data provided	is for INFO	ONLY. CR 2 3/18/2022. Ins	2-02637 ufficient data	a for statistica	al analysis fo COSS BE quired sa	r this sampli CTA IN A mples den	ng period. Sa	mple counted	l for INFO ON			sampie analy	zeu using
	default; volum	e data provided	is for INFO	ONLY. CR 2 3/18/2022. Ins PAI	2-02637 ufficient data	a for statistica	al analysis fo	r this sampli CTA IN A mples den	ng period. Sa	mple counted	l for INFO ON			sampie analy	zeu using
	default; volum Note 2: Site 15	æ data providec	l is for INFO	ONLY. CR 2: 3/18/2022. Ins PAI (control)	2-02637 sufficient data	a for statistica ATE GR ODCM re	al analysis fo COSS BE equired sa units are	r this sampli CTA IN A mples den pCi/m ³	ng period. Sa AIR 2nd (oted by *	mple countee	l for INFO ON E R	LY. CR 22-02			20 using
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Veek #	default; volum Note 2: Site 15 START DATE	e data providec did not regain STOP DATE	is for INFO power until : Site 4	ONLY. CR 2: 3/18/2022. Ins PAI (control) Site 6A*	2-02637 aufficient data RTICUL Site 7A	a for statistica ATE GR ODCM re Site 14A*	al analysis fo COSS BE equired sa units are Site 15*	r this sampli CTA IN 4 mples den pCi/m ³ Site 17A	ng period. Sa AIR 2nd (oted by * Site 21	nple counted QUART Site 29*	I for INFO ON ER Site 35	LY. CR 22-02 Site 40*	1896 Mean	RSD (%)	⊥Note
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14 15 16 17 18 19 20 21	default; volum Note 2: Site 15 START DATE 29-Mar-22 5-Apr-22 19-Apr-22 19-Apr-22 26-Apr-22 19-Apr-22 10-May-22 10-May-22	E data provided did not regain STOP DATE 5-Apr-22 19-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22 24-May-22	Site 4 0.021 0.024 0.023 0.040 0.027 0.028 0.026	ONLY. CR 2: //18/2022. Ins PAI (control) Site 6A* 0.018 0.022 0.039 0.023 0.039 0.026 0.029 0.025	2-02637 urflicient data RTICUL Site 7A 0.020 0.023 0.023 0.023 0.023 0.023 0.023 0.023 0.023	a for statistica ATE GR ODCM re Site 14A* 0.020 0.022 0.022 0.019 0.038 0.025 0.025 0.025 0.017	al analysis for COSS BE quired sa units are Site 15* 0.019 0.023 0.022 0.028 0.024 0.024 0.022	r this sampli CTA IN 2 mples den pCi/m³ Site 17A 0.020 0.023 0.023 0.023 0.024 0.023	ng period. Sa AIR 2nd 6 oted by * Site 21 0.018 0.022 0.027 0.020 0.038 0.025 0.027 0.017	mple counted QUART Site 29* 0.019 0.021 0.024 0.017 0.041 0.025 0.024 0.022	i for INFO ON ER 35 0.018 0.023 0.021 0.036 0.026 0.024 0.021	LY. CR 22-02 Site 40* 0.019 0.018 0.023 0.017 0.024 0.020	Mean 0.019 0.022 0.027 0.020 0.035 0.025 0.026 0.021	RSD (%) 5.3 7.9 10.3 15.5 16.0 11.9 7.6 13.8	±Note
14 15 16 17 18 19 20 21 22	default; volum Note 2: Site 15 START DATE 29-Mar-22 12-Apr-22 12-Apr-22 12-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22 24-May-22	E data provided did not regain STOP DATE 5-Apr-22 12-Apr-22 19-Apr-22 19-Apr-22 10-May-22 10-May-22 10-May-22 24-May-22 31-May-22	L is for INFO power until :	ONLY. CR 2: //18/2022. Ins PAI (control) Site 6A* 0.018 0.022 0.030 0.023 0.023 0.023 0.026 0.029 0.025 0.024	2-02637 urficient data RTICUL Site 7A 0.020 0.023 0.026 0.023 0.023 0.028 0.024 0.024 0.021	a for statistica ATE GR ODCM re Site 14A* 0.020 0.022 0.019 0.038 0.025 0.025 0.025 0.025	al analysis fo COSS BE quired sa units are Site 15* 0.019 0.023 0.022 0.020 0.028 0.024 0.025 0.024	r this sampli CTA IN A mples den pCi/m ³ Site 17A 0.020 0.023 0.027 0.023 0.027 0.023 0.024 0.029 0.029 0.027	ng period. Sa AIR 2nd o oted by * Site 21 0.018 0.022 0.027 0.020 0.038 0.025 0.027 0.027 0.027 0.027	mple counted QUART 29* 0.019 0.021 0.028 0.017 0.025 0.024 0.022 0.024	l for INFO ON ER 35 0.018 0.023 0.027 0.021 0.026 0241 0.022	Site 40* 0.019 0.013 0.023	Mean 0.019 0.022 0.027 0.020 0.035 0.025 0.026 0.021 0.024	RSD (%) 5.3 7.9 10.3 15.5 16.0 11.9 7.6 13.8 7.2	±Note
14 15 16 17 18 19 20 21 22 23 24 25	default; volum Note 2: Site 15 START DATE 29-Mar-22 19-Apr-22 19-Apr-22 19-Apr-22 10-May-22 10-May-22 10-May-22 24-May-22 31-May-22	E data provided did not regain STOP DATE 5-Apr-22 12-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-May-22 10-May-22 31-May-22 31-May-22 7-Jun-22	L is for INFO power until : Site 4 0.021 0.023 0.040 0.023 0.028 0.026 0.024 0.023	ONLY. CR 2: //18/2022. Ins PAI (control) Site 6A* 0.018 0.023 0.030 0.022 0.025 0.025	2-02637 urficient data RTICUL Site 7A 0.020 0.023 0.026 0.023 0.026 0.023 0.026 0.023 0.022 0.022 0.021	a for statistica ATE GR ODCM re Site 14A* 0.020 0.022 0.022 0.019 0.038 0.025 0.025 0.025 0.017 0.023 0.020	al analysis for COSS BE quired sa units are Site 15* 0.023 0.022 0.020 0.028 0.024	r this sampli CTA IN A mples den pCi/m ³ Site 17A 0.020 0.023 0.027 0.023 0.027 0.024 0.029 0.023 0.027 0.024 0.020 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.023 0.024 0.029 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.025 0.024 0.023 0.027 0.024 0.023 0.027 0.024 0.024 0.023 0.027 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.0300 0.0300	ng period. Sa AIR 2 nd 6 oted by * Site 21 0.018 0.022 0.027 0.020 0.038 0.025 0.027 0.027 0.027 0.027 0.027 0.020 0.031 0.031	mple counted QUART 29* 0.019 0.021 0.028 0.017 0.041 0.025 0.024 0.022 0.024	l for INFO ON ER 35 0.018 0.023 0.027 0.021 0.026 0.0241 0.021 0.022	LY. CR 22-02 Site 40* 0.019 0.018 0.026 0.013 0.023 0.017 0.024 0.020 0.020 0.022	Mean 0.019 0.022 0.027 0.020 0.035 0.025 0.026 0.021 0.024 0.023	RSD (%) 5.3 7.9 10.3 15.5 16.0 11.9 7.6 13.8 7.2 6.9 13.1 10.3	±Note
14 15 16 17 18 19 20 21 22 23 24	default; volum Note 2: Site 15 START DATE 29-Mar-22 5-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-May-22 10-May-22 24-May-22 31-May-22 31-May-22	E data provided did not regain DATE 5-Apr-22 19-Apr-22 19-Apr-22 10-May-22 10-May-22 10-May-22 24-May-22 31-May-22 24-May-22 31-May-22 14-Jun-22	Site 4 0.021 0.024 0.023 0.040 0.023 0.040 0.027 0.028 0.026 0.024 0.029	ONLY. CR 2: //18/2022. Ins PAI (control) Site <u>6A*</u> 0.018 0.022 0.030 0.023 0.023 0.023 0.029 0.025 0.024 0.024	2-02637 urflicient data RTICUL Site 7A 0.020 0.023 0.026 0.023 0.023 0.023 0.023 0.023 0.023 0.024 0.022 0.021	a for statistica ATE GR ODCM re Site 14A* 0.020 0.022 0.019 0.038 0.025 0.017 0.023 0.020 0.017 0.023 0.020	al analysis for COSS BE quired sa units are Site <u>15*</u> 0.019 0.023 0.022 0.020 0.028 0.022 0.022 0.022 0.024 0.021	r this sampli CTA IN 2 mples dem pCi/m ³ Site 17A 0.020 0.023 0.027 0.023 0.024 0.020 0.023 0.025 0.055 0	ng period. Sa AIR 2nd 0 oted by * Site 21 0.018 0.022 0.027 0.020 0.038 0.025 0.027 0.017 0.024 0.022 0.021	mple counted QUART 29* 0.019 0.021 0.028 0.017 0.041 0.025	l for INFO ON ER Site 35 0.018 0.027 0.021 0.036 0.026 0.021 0.021 0.022 0.022 0.022	LY. CR 22-02 Site 40* 0.019 0.018 0.026 0.013 0.023 0.023 0.023 0.023 0.022 0.022 0.022	Mean 0.019 0.022 0.027 0.020 0.035 0.025 0.026 0.021 0.024 0.023 0.024	RSD (%) 5.3 7.9 10.3 15.5 16.0 11.9 7.6 13.8 7.2 6.9 13.1	±Note
14 15 16 17 18 19 20 21 22 23 24 25	default; volum Note 2: Site 15 START DATE 29-Mar-22 3-Apr-22 12-Apr-22 12-Apr-22 12-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22 24-May-22 31-May-22 7-Jun-22 14-Jun-22	E data provided did not regain (DATE) 5-Apr-22 12-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 10-May-22 17-May-22 11-May-22 31-May-22 14-Jun-22 14-Jun-22	l is for INFO power until :	ONLY. CR 2: //18/2022. Ins PAI (control) Site 6A* 0.018 0.022 0.030 0.023 0.023 0.029 0.026 0.029 0.022 0.024 0.022 0.024 0.025 0.024	2-02637 urficient data XTICUL Site 7A 0.020 0.023 0.026 0.023 0.026 0.023 0.028 0.024 0.022 0.021 0.024 0.021 0.024 0.021	a for statistics ATE GR ODCM re Site 14A* 0.020 0.022 0.022 0.022 0.038 0.025 0.025 0.017 0.023 0.020 0.022 0.019 0.038	al analysis fo COSS BE quired sa units are Site 15* 0.019 0.023 0.022 0.020 0.028 0.024 0.025 0.022 0.024 0.024 0.024 0.024 0.024 0.029	r this sampli CTA IN A mples den pCi/m ³ Site 17A 0.020 0.023 0.027 0.023 0.027 0.024 0.029 0.023 0.027 0.024 0.020 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.024 0.020 0.023 0.027 0.023 0.024 0.029 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.020 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.027 0.023 0.024 0.023 0.027 0.023 0.025 0.024 0.023 0.027 0.024 0.023 0.027 0.024 0.024 0.023 0.027 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.0300 0.0300	ng period. Sa AIR 2 nd 6 oted by * Site 21 0.018 0.022 0.027 0.020 0.038 0.025 0.027 0.027 0.027 0.027 0.027 0.020 0.031 0.031	mple counted QUART 29* 0.019 0.021 0.028 0.017 0.041 0.025 0.024 0.022 0.024	l for INFO ON ER 35 0.018 0.023 0.027 0.021 0.026 0.0241 0.022 0.022 0.022 0.022 0.027	Site 40* 0.019 0.018 0.026 0.013 0.023 0.017 0.024 0.023 0.023 0.022 0.028 0.027	Mean 0.019 0.022 0.027 0.020 0.035 0.025 0.025 0.021 0.024 0.024 0.024 0.024 0.023	RSD (%) 5.3 7.9 10.3 15.5 16.0 11.9 7.6 13.8 7.2 6.9 13.1 10.3	±Note

Table 8-1 Particulate Gross Beta in Air 1st-2nd Quarter

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022

Page 25

				PA	RTICUL	ATE GF	KO22 RI	ETA IN A	AIR 3rd	QUARTI	ER				
						ODCM re	equired sa	amples den	oted by *						
							units are	pCi/m ³							
							3rd Q	uarte r							
				(control)											
	START	STOP	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site		RSD	
Week #	DATE	DATE	4	6A*	7A	14A*	15*	17A	21	29*	35	40*	Mean	(%)	⊥Note
	28-Jun-22								0.022					. /	-11010
27 28	5-Jul-22	5-Jul-22 12-Jul-22	0.026 0.025	0.028	0.024 0.025	0.024	0.026 0.024	0.027 0.025	0.022	0.024 0.025	0.025 0.026	0.023 0.025	0.025	7.1 3.4	
28 29	12-Jul-22	12-Jul-22 19-Jul-22	0.023	0.023	0.023	0.024	0.024	0.025	0.024	0.023	0.020	0.023	0.023	11.4	
30	12-Jul-22	26-Jul-22	0.026	0.028	0.029	0.031	0.021	0.020	0.024	0.030	0.030	0.028	0.028	9.9	
31	26-Jul-22	2-Aug-22	0.026	0.033	0.030	0.025	0.028	0.032	0.026	0.027	0.028	0.029	0.028	9.5	
32	2-Aug-22	9-Aug-22	0.033	0.030	0.033	0.033	0.026	0.031	0.034	0.035	0.033	0.032	0.032	7.6	
33	9-Aug-22	17-Aug-22	0.025	0.018	0.027	0.028	0.018	0.021	0.015	0.028	0.029	0.025	0.023	21.9	
34	17-Aug-22	23-Aug-22	0.027	0.027	0.029	0.026	0.029	0.026	0.029	⊥0.0329	0.029	0.025	0.027	6.2	3
35	23-Aug-22	30-Aug-22	0.030	0.038	0.038	0.028	0.036	0.040	0.033	0.041	0.037	0.035	0.036	11.9	4
36	30-Aug-22	6-Sep-22	0.034	0.035	0.032	0.028	0.035	0.033	0.030	0.033	0.033	0.033	0.033	6.4	5
37	6-Sep-22	13-Sep-22	0.019	0.019	0.020	0.019	0.017	0.019	0.017	0.021	0.020	0.015	0.019	8.7	
38	13-Sep-22	20-Sep-22	0.029	0.029	0.029	0.028	0.029	0.030	0.024	0.029	0.025	0.029	0.028	7.3	
39	20-Sep-22	27-Sep-22	0.026	0.028	0.028	0.023	0.026	0.029	0.026	0.028	0.026	0.020	0.026	10.3	
	Mean		0.027	0.028	0.029	0.027	0.026	0.029	0.025	0.029	0.028	0.027	0.028	4.9	
	CR 22-09144	ETM stopped w	orking during	g the Week 35 g the Week 36	sample period; sample period;	however, pun however, pun	np continued	operating. San	ple time and v	olume was calo	culated via reco				
	Note 5: Site 29 CR 22-09144 Note 6: Site 29	ETM stopped w	orking during	g the Week 35 g the Week 36	sample period;	however, pun however, pun ATE GH	np continued o	operating. San	nple time and v AIR 4th	olume was calo	culated via reco				
	Note 5: Site 29 CR 22-09144 Note 6: Site 29	ETM stopped w	orking during	g the Week 35 g the Week 36	sample period; sample period;	however, pun however, pun ATE GH	np continued or ROSS Blequired sa	operating. San ETA IN A amples den	nple time and v AIR 4th	olume was calo	culated via reco				
	Note 5: Site 29 CR 22-09144 Note 6: Site 29	ETM stopped w	orking during	g the Week 35 g the Week 36 PA	sample period; sample period;	however, pun however, pun ATE GH	np continued o	operating. San ETA IN A amples den	nple time and v AIR 4th	olume was calo	culated via reco				
	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372	ETM stopped w	orking during	g the Week 35 g the Week 36 PA (control)	sample period; sample period; RTICUL	however, pun however, pun ATE GH ODCM re	np continued of ROSS Bl equired sa units are	ETA IN A amples den pCi/m ³	AIR 4th oted by *	olume was calo	culated via reco	rds of in/out of		nentation. Dat	
Week #	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START	ETM stopped w ETM stopped w STOP	vorking during vorking during Site	g the Week 35 g the Week 36 PA (control) Site	sample period; sample period; RTICUL Site	however, pun however, pun ATE GH ODCM ro Site	np continued of ROSS Bl equired sa units are Site	operating. San ETA IN A amples den e pCi/m ³ Site	AIR 4th oted by *	olume was cale QUARTI Site	eulated via reco ER Site	rds of in/out of Site	f service docun	nentation. Dat RSD	a is for VALIE
	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE	ETM stopped w ETM stopped w STOP DATE	orking during orking during Site 4	g the Week 35 g the Week 36 PA (control) Site 6A*	sample period; sample period; RTICUL Site 7A	however, pun however, pun ATE GH ODCM re Site 14A*	np continued of ROSS Bl equired sa units are Site 15*	e pCi/m ³ Site 17A	AIR 4th oted by *	olume was calo QUARTI Site 29*	ER Site 35	rds of in/out of Site 40*	f service docun Me an	nentation. Dat RSD (%)	
40	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22	ETM stopped w ETM stopped w STOP DATE 4-Oct-22	Site 4 0.038	g the Week 35 g the Week 36 PA (control) Site <u>6A*</u> 0.036	sample period; sample period; RTICUL Site 7A 0.037	however, pun however, pun ATE GH ODCM re Site 14A* 0.037	np continued of ROSS Bl equired sa units are Site 15* 0.037	e pCi/m ³ Site 17A 0.038	AIR 4th oted by * 	Olume was calo QUARTI Site 29* 0.040	ER Site 35 0.039	rds of in/out of Site <u>40*</u> 0.042	f service docun Mean 0.038	RSD (%) 4.9	a is for VALIE
40 41	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22	ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22	vorking during vorking during Site 4 0.038 0.038	gthe Week 35 gthe Week 36 PA (control) Site <u>6A*</u> 0.036 0.039	sample period; sample period; RTICUL Site 7A 0.037 0.040	however, pun however, pun ATE GH ODCM ro Site 14A* 0.037 0.042	np continued of ROSS Bl equired sa units are Site 15*	e pCi/m ³ Site 17A 0.038 0.039	AIR 4th (oted by *	Olume was cale QUARTI Site 29* 0.040 0.041	ER Site 35 0.039 0.040	rds of in/out of Site <u>40*</u> 0.042 0.043	f service docun Mean 0.038 0.039	RSD (%) 4.9 5.0	a is for VALIE
40 41 42	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22	ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22	Site 4 0.038 0.038 0.035	(control) Site 6A* 0.036 0.039 0.034	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027	however, pun however, pun ATE GH ODCM re Site 14A* 0.037 0.042 0.032	np continued of ROSS Bl equired sa units are Site 15* 0.037 0.038 0.027	ETA IN 2 amples den e pCi/m ³ Site 17A 0.038 0.039 0.029	AIR 4th oted by * 	Colume was cald QUARTI Site 29* 0.040 0.041 0.037	ER Site 35 0.039 0.040 0.034	Site 40* 0.042 0.043 0.036	f service docum Mean 0.038 0.039 0.033	RSD (%) 4.9 5.0 11.0	a is for VALIE
40 41	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22	ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22	vorking during vorking during Site 4 0.038 0.038	gthe Week 35 gthe Week 36 PA (control) Site <u>6A*</u> 0.036 0.039	sample period; sample period; RTICUL Site 7A 0.037 0.040	however, pun however, pun ATE GH ODCM ro Site 14A* 0.037 0.042	np continued of ROSS Bl equired sa units are Site 15*	e pCi/m ³ Site 17A 0.038 0.039	AIR 4th oted by *	Site 29* 0.040 0.041 0.037 0.028	ER Site 35 0.039 0.040	rds of in/out of Site <u>40*</u> 0.042 0.043	f service docun Mean 0.038 0.039	RSD (%) 4.9 5.0	a is for VALIE
41 42 43	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 18-Oct-22	ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22	vorking during vorking during Site <u>4</u> 0.038 0.038 0.035 0.029	gthe Week 35 gthe Week 36 PA (control) Site 6A* 0.036 0.039 0.034 0.027	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025	however, pun however, pun ATE GH ODCM re Site 14A* 0.037 0.042 0.032 0.025	np continued of ROSS Bl equired sa units are Site 15* 0.037 0.038 0.027 0.026	Deperating. San ETA IN 2 amples den pCi/m ³ Site 17A 0.038 0.039 0.029 0.029	AIR 4th (oted by * 	Site 29* 0.040 0.041 0.037 0.028 0.034 0.034	Site 35 0.039 0.034 0.025	Site 40* 0.042 0.043 0.036 0.024	f service docum Mean 0.038 0.039 0.033 0.026	RSD (%) 4.9 5.0 11.0 7.2	a is for VALIE
40 41 42 43 44 45	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22	ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22	Site 4 0.038 0.035 0.025	(control) Site 6A* 0.036 0.039 0.034 0.027 0.039	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025 0.035	however, pun however, pun ATE GH ODCM re <u>Site</u> <u>14A*</u> 0.037 0.042 0.025 0.036	np continued of ROSS B1 equired sa units are Site 15* 0.037 0.038 0.027 0.026 0.027	Deperating. Sam ETA IN amples den pCi/m ³ Site 17A 0.038 0.039 0.029 0.029 0.034	AIR 4th 0 oted by * Site 21 0.036 0.035 0.025 0.036	Site 29* 0.040 0.041 0.037 0.028	ER Site 35 0.039 0.040 0.034 0.025 0.025 0.031	Site 40* 0.042 0.043 0.036 0.024 0.037	f service docum Mean 0.038 0.039 0.033 0.026 0.034	RSD (%) 4.9 5.0 11.0 7.2 13.1	a is for VALIE
40 41 42 43 44	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 2-S-Oct-22 1-Nov-22	ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 1-Nov-22	orking during orking during 0.038 0.038 0.038 0.035 0.029 0.037	the Week 35 gthe Week 36 PA (control) Site 6A* 0.036 0.039 0.034 0.027 0.039 0.033	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025 0.033	however, pun however, pun ATE GH ODCM re 14A* 0.037 0.042 0.032 0.032 0.036 0.029	np continued of ROSS Bl equired sa units are Site 15* 0.037 0.038 0.027 0.028	ETA IN 2 amples den e pCi/m ³ Site 17A 0.038 0.039 0.029 0.034 0.034	time and w the time and w AIR 4th to toted by *	Site 29* 0.040 0.041 0.037 0.028 0.024 0.024	ER Site 35 0.039 0.040 0.034 0.025 0.025	Site 40* 0.042 0.043 0.036 0.024 0.037 0.030	f service docum Mean 0.038 0.039 0.033 0.026 0.034 0.030	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3	a is for VALIE
40 41 42 43 44 45 46	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22	ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 15-Nov-22	orking during orking during Site 4 0.038 0.038 0.038 0.035 0.029 0.037 0.030 0.028	the Week 35 (control) Site 6A* 0.036 0.039 0.039 0.039 0.039 0.039 0.039 0.039 0.039	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025 0.035 0.035 0.024	however, pun however, pun ATE GH ODCM re 14A* 0.037 0.042 0.032 0.025 0.036 0.029 0.027	np continued of ROSS B1 equired sa units arc Site 15* 0.037 0.038 0.027 0.026 0.027 0.022	Deperating. San ETAIN amples den pCi/m ³ Site 17A 0.038 0.029 0.029 0.029 0.029 0.029 0.029 0.034 0.033 0.025	AIR 4th oted by *	Site 29* 0.040 0.041 0.037 0.028 0.034 0.034 0.025 0.025	ER Site 35 0.039 0.034 0.025 0.031 0.025	rds of in/out of Site 40* 0.042 0.042 0.042 0.036 0.024 0.037 0.030 0.024	f service docun Me an 0.038 0.039 0.033 0.026 0.034 0.030 0.025	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 7.5	a is for VALIE
40 41 42 43 44 45 46 47	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 1-Nov-22 7-Nov-22 15-Nov-22	ETM stopped w ETM stopped w ETM stopped w ETM stopped w ETM stopped w ETM stopped w 4-Oct-22 11-Oct-22 18-Oct-22 13-Oct-22 13-Nov-22 15-Nov-22 21-Nov-22	vorking during vorking during Site 4 0.038 0.035 0.029 0.037 0.030 0.028 0.046	gthe Week 35 gthe Week 36 PA (control) Site 6A* 0.036 0.039 0.034 0.027 0.039 0.033 0.024 0.033	sample period; sample period; RTICUL Site 7A 0.037 0.027 0.027 0.035 0.033 0.033 0.033 0.024 0.040	however, pun however, pun ATE GH ODCM ro Site 14A* 0.037 0.042 0.025 0.036 0.029 0.029 0.027 0.042	np continued of ROSS Bl equired sa units are <u>Site</u> 15* 0.037 0.038 0.027 0.026 0.027 0.028 0.027 0.028 0.027 0.037	ETA IN 2 amples den pCi/m ³ Site 17A 0.038 0.029 0.029 0.034 0.029 0.034 0.033 0.025 0.045	AIR 4th (oted by * Site 21 0.036 0.036 0.035 0.025 0.036 0.030 0.024 0.030 0.024 0.045	Site 29* 0.040 0.041 0.037 0.034 0.024 0.034 0.025 0.035	ER Site 35 0.039 0.040 0.025 0.031 0.025 0.031 0.025 0.042	rds of in/out of Site 40* 0.042 0.043 0.024 0.024 0.024 0.037 0.030 0.030 0.037	Me an 0.038 0.039 0.033 0.026 0.034 0.030 0.032	RSD (%) 5.0 11.0 7.2 13.1 9.3 7.5 9.3	a is for VALIE
40 41 42 43 44 45 46 47 48 49 50	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 1-Nov-22 25-Oct-22 15-Nov-22 21-Nov-22 29-Nov-22 29-Nov-22 29-Nov-22 29-Nov-22	ETM stopped w ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 13-Oct-22 15-Nov-22 21-Nov-22 21-Nov-22 29-Nov-22 29-Nov-22 29-Nov-22 29-Nov-22	vorking during vorking during Site 4 0.038 0.035 0.039 0.030 0.030 0.028 0.046 0.053 0.049 0.027	the Week 35 g the Week 36 PA (control) Site 6A* 0.036 0.039 0.034 0.027 0.039 0.033 0.024 0.040 0.050 0.050	sample period; sample period; RTICUL Site 7A 0.037 0.027 0.025 0.033 0.033 0.033 0.033 0.033 0.040 0.040 0.043 0.040 0.023	however, pun however, pun ATE GH ODCM n 0.037 0.042 0.032 0.025 0.036 0.029 0.027 0.042 0.029 0.029 0.042 0.042 0.048 0.043 0.026	np continued of ROSS Bl equired sa units are site 15* 0.037 0.026 0.027 0.026 0.027 0.028 0.022 0.037 0.030 0.041 0.018	ETA IN A mples den prime solutions of the solution site 17A 0.038 0.029 0.029 0.033 0.025 0.045 0.044 0.033 0.025 0.044 0.044 0.023	uple time and v AIR 4th 0 oted by * Site 21 0.036 0.035 0.025 0.036 0.030 0.024 0.036 0.030 0.025 0.030 0.025 0.030 0.030 0.035 0.025 0.030 0.035 0.036 0.035 0.035 0.035 0.035 0.035 0.035 0.035 0.035 0.036 0.035 0.035 0.035 0.025 0.036 0.036 0.036 0.036 0.035 0.035 0.035 0.035 0.035 0.035 0.035 0.035 0.032 0.036 0.035 0.035 0.035 0.032 0.036 0.035 0.035 0.035 0.032 0.036 0.035 0.035 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.032 0.036 0.032 0.036 0.032 0.032 0.045 0.042 0.022 0.045 0.022 0.022 0.022 0.022 0.042 0.042 0.042 0.022 0.042 0.022 0.042	Site 29* 0.040 0.041 0.037 0.028 0.034 0.024 0.025 0.037 0.035 0.037	ER Site 35 0.039 0.040 0.034 0.025 0.025 0.031 0.025 0.042 0.041 0.041 0.023	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.030 0.024 0.037 0.030 0.024 0.037 0.049 0.049 0.002	Mean 0.038 0.039 0.033 0.026 0.034 0.030 0.025 0.041 0.044 0.044 0.024	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 7.5 9.3 15.4 5.2 11.8	a is for VALIE ≁Note
40 41 42 43 44 45 46 47 48 49 50 51	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 CR 22-09372 START DATE 27-Sep-22 4-Oet-22 18-Oet-22 18-Oet-22 18-Oet-22 18-Oet-22 1-Nov-22 25-Nov-22 21-Nov-22 29-Nov-22 29-Nov-22 6-Dec-22	ETM stopped w ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 19-Nov-22 29-Nov-22 6-Dec-22 13-Dec-22 20-Dec-22	Site 4 0.038 0.035 0.029 0.030 0.028 0.030 0.028 0.035 0.030 0.028 0.039 0.039 0.039 0.045	the Week 35 (control) Site 6A* 0.036 0.034 0.027 0.033 0.024 0.003 0.024 0.003 0.024 0.003 0.024 0.003 0.024	sample period; sample period; RTICUL Site 7A 0.037 0.027 0.025 0.033 0.024 0.003 0.024 0.043 0.040 0.043 0.041	however, pun however, pun ATE GH ODCM n Site 14A* 0.037 0.042 0.032 0.025 0.036 0.029 0.027 0.048 0.029 0.027 0.048 0.048 0.043 0.026	np continued of ROSS Bl equired sa units are <u>Site</u> <u>15*</u> 0.037 0.038 0.027 0.026 0.027 0.028 0.027 0.028 0.027 0.030 0.041 0.041 0.042	State State TA IN J amples den amples den c pCi/m ³ Site 17A 0.038 0.029 0.029 0.033 0.029 0.034 0.033 0.025 0.045 0.044 0.039 0.025 0.045	AIR 4th 0 oted by * Site 21 0.036 0.035 0.025 0.036 0.036 0.030 0.024 0.042 0.036 0.036	Site 29* 0.040 0.041 0.037 0.028 0.040 0.041 0.037 0.038 0.034 0.025 0.037 0.038 0.038 0.024	Site 35 0.039 0.040 0.034 0.025 0.025 0.025 0.042 0.041 0.036 0.036 0.041	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.037 0.030 0.024 0.037 0.049 0.040 0.040 0.040	Mean 0.038 0.039 0.033 0.026 0.034 0.025 0.041 0.044 0.039 0.044 0.039	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 7.5 9.3 7.5 9.3 15.4 5.2 11.8 6.0	a is for VALIE
40 41 42 43 44 45 46 47 48 49 50	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 4-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 12-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 22-Nov-22 6-Dec-22 13-Dec-22	ETM stopped w ETM stopped w ETM stopped w ETM stopped w BACt2 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 25-Oct-22 15-Nov-22 21-Nov-22 21-Nov-22 20-Dec-22 20-Dec-22 20-Dec-22	Site 4 0.038 0.038 0.037 0.030 0.029 0.037 0.030 0.028 0.046 0.053 0.027 0.054	(control) Site 6A* 0.036 0.039 0.034 0.027 0.030 0.040 0.050 0.041 0.027 0.061	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025 0.033 0.024 0.040 0.040 0.043 0.040 0.023 0.044	however, pun however, pun ATE GH 0DCM n 14A* 0.037 0.042 0.025 0.036 0.029 0.027 0.042 0.042 0.042 0.043 0.026 0.048 0.040	np continued of COSS B1 equired sa units are Site 15* 0.037 0.038 0.027 0.026 0.027 0.026 0.027 0.026 0.027 0.037 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.038 0.027 0.026 0.022 0.037 0.038 0.027 0.026 0.022 0.037 0.038 0.027 0.038 0.027 0.038 0.027 0.026 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.037 0.038 0.022 0.041 0.041 0.045 0.045 0.045 0.044 0.045 0.045 0.045 0.044 0.045 0.	2009erating: San ETAIN amples den : pCi/m ³ Site 17A 0.038 0.029 0.034 0.029 0.029 0.034 0.025 0.045 0.045 0.045 0.023 0.023 0.023 0.025	AIR 4th oted by * Site 21 0.036 0.035 0.025 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.022 0.036 0.022 0.036 0.022 0.036	Site 29* 0.040 0.041 0.028 0.034 0.025 0.035 0.038 0.024 0.024 0.038	Site 35 0.039 0.040 0.025 0.025 0.025 0.025 0.042 0.042 0.041 0.025 0.042 0.041 0.036 0.023 0.041 0.036	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.037 0.030 0.024 0.037 0.040 0.026 0.040 0.026 0.040 0.026	Mean 0.038 0.039 0.033 0.026 0.034 0.025 0.041 0.042 0.025 0.041 0.039 0.022 0.034	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 15.4 9.3 15.4 5.2 11.8 6.0 7.9	a is for VALIE ⊥Note 6,7
40 41 42 43 44 45 46 47 48 49 50 51	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 H-Oct-22 H-Oct-22 H-Nov-22 25-Oct-22 H-Nov-22 25-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 20-Dec-22 H3-Dec-22 13-Dec-22 Note 7: Site 7 F functionality at	ETM stopped w ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 11-Oct-22 13-Oct-22 2-Nov-22 2-Nov-22 21-Nov-22 21-Nov-22 29-Nov-22 6-Dec-22 27-Dec-22 20-Dec-22 27-Dec-22 20-Dec-22 27-M value differ next sample char	Site 4 0.038 0.035 0.035 0.037 0.030 0.028 0.046 0.039 0.027 0.045 0.045 odf from calcul nge-out.	the Week 35 (control) Site 6A* (control) Site 6A* 0.039 0.034 0.039 0.034 0.039 0.033 0.024 0.040 0.050 0.041 0.027 0.045 0.0061 Intel or un time s is for VALIE	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.025 0.033 0.024 0.043 0.040 0.043 0.040 0.043 0.044 0.040 0.024 0.043 0.044 0.040 0.024 0.043 0.044 0.043 0.044 0.043 0.044 0.045 1.55 0.045	however, pun however, pun ATE GH ODCM rr 14A* 0.037 0.042 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.048 0.048 0.048 0.043 0.026 0.040	np continued of ROSS B1 equired sa units are <u>Site</u> <u>15*</u> 0.037 0.026 0.027 0.026 0.027 0.028 0.022 0.030 0.041 0.041 0.042 0.045 1000ever, pum	ETA IN ETA IN mples de m provint in the second sec	AIR 4th oted by * Site 21 0.036 0.035 0.025 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.022 0.036 0.022 0.036 0.022 0.036	Site 29* 0.040 0.041 0.028 0.034 0.025 0.035 0.038 0.024 0.024 0.038	Site 35 0.039 0.040 0.025 0.025 0.025 0.025 0.042 0.042 0.041 0.025 0.042 0.041 0.036 0.023 0.041 0.036	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.037 0.030 0.024 0.037 0.040 0.026 0.040 0.026 0.040 0.026	Mean 0.038 0.039 0.033 0.026 0.034 0.025 0.041 0.042 0.025 0.041 0.039 0.022 0.034	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 15.4 9.3 15.4 5.2 11.8 6.0 7.9	a is for VALIE ⊥Note 6,7
40 41 42 43 44 45 46 47 48 49 50 51	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 CR 22-09372 CR 22-09372 CR 22-09372 ZR 22-09372 ZR 22-09372 ZR 20-022 ZR 20-022	ETM stopped w ETM stopped w ETM stopped w ETM stopped w BACT2 4-Oct-22 11-Oct-22 18-Oct-22 13-Oct-22 15-Nov-22 25-Oct-22 15-Nov-22 29-Nov-22 29-Nov-22 29-Nov-22 20-Dec-22 27-Dec-22 TM value differ	Site 4 0.038 0.038 0.037 0.030 0.022 0.046 0.053 0.027 0.046 0.053 0.054	the Week 35 (control) Site 6A* 0.039 0.034 0.027 0.039 0.034 0.027 0.039 0.024 0.040 0.050 0.041 0.027 0.045 0.061 lated run time is for VALIE raded flow. I	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.027 0.025 0.033 0.024 0.040 0.045 0.040 0	however, pun however, pun ATE GH 0DCM n 14A* 0.037 0.042 0.035 0.025 0.036 0.029 0.027 0.042 0.042 0.043 0.026 0.043 0.043 0.043 0.043 0.043 0.043 0.043 0.045 0.044 0.045 0.0	np continued of COSS B1 equired sa units arc Site 15* 0.037 0.038 0.027 0.026 0.027 0.028 0.022 0.037 0.028 0.022 0.037 0.028 0.027 0.037 0.037 0.041 0.045 0.	2 operating. San ETAIN amples den : pCi/m ³ Site 17A 0.038 0.039 0.029 0.034 0.034 0.025 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.039 0.022 0.045 0.039 0.022 0.045 0.039 0.025 0.045 0.039 0.025 0.045 0.039 0.025 0.045 0.039 0.025 0.045 0.045 0.056 p continued op g.	AIR 4th oted by * Site 21 0.036 0.035 0.025 0.036 0.022 0.036 0.036 0.036 0.036 0.022 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.022 0.036	Site 29* 0.040 0.041 0.034 0.028 0.034 0.025 0.035 0.035 0.038 0.024 0.024 0.024 0.040 0.041	Site 35 0.039 0.040 0.034 0.025 0.035 0.025 0.031 0.025 0.041 0.025 0.041 0.025 0.041 0.036 0.023 0.041 0.031 uure was based	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.037 0.030 0.024 0.037 0.040 0.026 0.040 0.026 0.040 0.026 0.040 0.056 I on ETM valu	Mean 0.038 0.039 0.033 0.026 0.034 0.035 0.041 0.041 0.042 0.054 e for conservat	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 15.4 5.2 11.8 6.0 7.9 ism. ETM wi	a is for VALIE ⊥Note 6, 7
40 41 42 43 44 45 46 47 48 49 50 51 52	Note 5: Site 29 CR 22-09144 Note 6: Site 29 CR 22-09372 START DATE 27-Sep-22 H-Oct-22 H-Oct-22 H-Nov-22 25-Oct-22 H-Nov-22 25-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 21-Nov-22 20-Dec-22 H3-Dec-22 13-Dec-22 Note 7: Site 7 F functionality at	ETM stopped w ETM stopped w ETM stopped w ETM stopped w STOP DATE 4-Oct-22 11-Oct-22 11-Oct-22 13-Oct-22 2-Nov-22 2-Nov-22 21-Nov-22 21-Nov-22 29-Nov-22 6-Dec-22 27-Dec-22 20-Dec-22 27-Dec-22 20-Dec-22 27-M value differ next sample char	Site 4 0.038 0.035 0.035 0.037 0.030 0.028 0.046 0.039 0.027 0.045 0.045 odf from calcul nge-out.	the Week 35 (control) Site 6A* (control) Site 6A* 0.039 0.034 0.039 0.034 0.039 0.033 0.024 0.040 0.050 0.041 0.027 0.045 0.0061 Intel or un time s is for VALIE	sample period; sample period; RTICUL Site 7A 0.037 0.040 0.025 0.033 0.024 0.043 0.040 0.043 0.040 0.043 0.044 0.040 0.024 0.043 0.044 0.043 0.044 0.043 0.044 0.045 1.55 0.045	however, pun however, pun ATE GH ODCM rr 14A* 0.037 0.042 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.048 0.048 0.048 0.043 0.026 0.040	np continued of ROSS B1 equired sa units are <u>Site</u> <u>15*</u> 0.037 0.026 0.027 0.026 0.027 0.028 0.022 0.030 0.041 0.041 0.042 0.045 1000ever, pum	ETA IN ETA IN mples de m provint in the second sec	AIR 4th oted by * Site 21 0.036 0.035 0.025 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.022 0.036 0.022 0.036 0.022 0.036	Site 29* 0.040 0.041 0.028 0.034 0.025 0.035 0.038 0.024 0.024 0.038	Site 35 0.039 0.040 0.025 0.025 0.025 0.025 0.042 0.042 0.041 0.025 0.042 0.041 0.036 0.023 0.041 0.036	rds of in/out of Site 40* 0.042 0.043 0.036 0.024 0.037 0.030 0.024 0.037 0.040 0.026 0.040 0.026 0.040 0.026	Mean 0.038 0.039 0.033 0.026 0.034 0.025 0.041 0.042 0.025 0.041 0.039 0.022 0.034	RSD (%) 4.9 5.0 11.0 7.2 13.1 9.3 15.4 9.3 15.4 5.2 11.8 6.0 7.9	a is for VALID ⊥Note 6, 7

Table 8-2 Particulate Gross Beta in Air 3rd-4th Quarter

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022

Page 26

			01		N AIR F 1 required							
					units	are pCi/m ³						
QUARTER ENDPOINT	NUCLIDE	Site 4	(control) Site 6A*	Site 7A	Site 14A*	Site 15*	Site 17A	Site 21	Site 29*	Site 35	Site 40*	⊥Note
29-Mar-22	Cs-134 Cs-137	<0.0023 <0.0034	<0.0023 <0.0041	<0.0019 <0.0009	<0.0018 <0.0029	<0.0011 <0.0024	<0.0027 <0.0023	<0.0018 <0.0040	<0.0011 <0.0024	<0.0032 <0.0037	<0.0024 <0.0024	1,2
28-Jun-22	Cs-134 Cs-137	<0.0020 <0.0009	<0.0019 <0.0046	<0.0011 <0.0025	<0.0019 <0.0009	<0.0007 <0.0009	<0.0019 <0.0030	<0.0011 <0.0009	<0.0027 <0.0034	<0.0025 <0.0025	<0.0019 <0.0029	
27-Sep-22	Cs-134 Cs-137	<0.0011 <0.0009	<0.0028 <0.0038	<0.0029 <0.0009	<0.0007 <0.0029	<0.0024 <0.0031	<0.0028 <0.0034	<0.0031 <0.0009	<0.0035 <0.0031	<0.0025 <0.0024	<0.0019 <0.0023	3, 4, 5
27-Dec-22	Cs-134 Cs-137	<0.0025 <0.0032	<0.0019 <0.0035	<0.0020 <0.0009	<0.0024 <0.0030	<0.0007 <0.0024	<0.0010 <0.0035	<0.0024 <0.0024	<0.0023 <0.0033	<0.0025 <0.0025	<0.0025 <0.0025	6, 7
Note 1: Site 15 fo sample analyzed Note 2: Site 15 di Note 3: Site 35 E	using default; v d not regain po	volume data p wer until 3/18	rovided is for /2022. Insuffic	INFO ONLY	CR 22-02637 statistical an	alysis for this	sampling p	eriod. Sample	e counted for	INFO ONLY.	CR 22-02896	
volume. The pur Note 4: Site 29 sto	np was found to	have broker	i carbon vane	s. Sample is	INVALID and	l the data is i	ncluded as I	NFO ONLY.	CR 22-05573			
Note 5: Site 29 ET documentation. D	1 1	0 0	1	le period; how	ever, pump co	ntinued operat	ing. Sample t	ime and volun	ne was calculate	ed via records o	of in/out of serv	vice
Note 6: Site 29 ET documentation. D Note 7: Site 7 ETM ETM will be evalu Note 8: Site 40 pu	ata is for VALID A value differed f ated for function	. CR 22-09372 rom calculated ality at next sa	run time for W mple change-ou	eek 51 sample it. Data is for	e period; howev VALID. CR 2	ver, pump con 2-13436	0 1					

Table 8-3 Gamma in Air Filter Composites

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022 Page 27

					ADIOIODI ODCM req		-						
					-	units are p							
				<i>.</i>									
	START	STOP	Site	(control) Site	Site	Site	uired LLD <0.0	Site	Site	Site	Site	Site	
Week #	DATE	DATE	4	6A*	7A	14A*	15*	17A	21	29*	35	40*	⊥N
1	28-Dec-22	4-Jan-22	<0.028	< 0.015	<0.021	< 0.025	<0.023	< 0.005	< 0.018	< 0.021	< 0.005	< 0.024	-14
2	4-Jan-22	11-Jan-22	< 0.021	< 0.022	< 0.022	< 0.021	< 0.025	< 0.032	< 0.022	< 0.021	< 0.028	< 0.021	
3	11-Jan-22	18-Jan-22	< 0.032	< 0.032	< 0.039	< 0.007	< 0.036	< 0.032	< 0.040	< 0.023	< 0.035	< 0.021	
4	18-Jan-22	25-Jan-22	< 0.018	< 0.027	< 0.023	< 0.023	< 0.055	< 0.023	< 0.069	< 0.026	< 0.059	< 0.023	
5	25-Jan-22	1-Feb-22	< 0.030	< 0.023	< 0.018	< 0.033	< 0.029	< 0.029	< 0.026	< 0.019	< 0.029	< 0.035	
6	1-Feb-22	8-Feb-22	< 0.007	< 0.018	< 0.031	< 0.023	< 0.033	< 0.030	< 0.033	< 0.029	< 0.035	< 0.037	
7	8-Feb-22	15-Feb-22	< 0.030	< 0.034	< 0.028	< 0.033	< 0.031	< 0.025	< 0.033	< 0.028	< 0.031	< 0.022	
8	15-Feb-22	22-Feb-22	< 0.024	< 0.027	< 0.034	< 0.030	< 0.018	< 0.031	< 0.023	< 0.024	< 0.030	< 0.027	
9	22-Feb-22	1-Mar-22	< 0.018	< 0.040	< 0.026	< 0.037	< 0.026	< 0.033	< 0.034	<0.035	< 0.032	< 0.046	
10	1-Mar-22	8-Mar-22	< 0.030	< 0.034	< 0.031	< 0.025	< 0.021	< 0.025	< 0.021	< 0.024	< 0.028	< 0.025	
11	8-Mar-22	15-Mar-22	< 0.018	< 0.023	< 0.018	< 0.026	⊥<0.032	< 0.041	< 0.026	< 0.034	< 0.018	< 0.026	
12	15-Mar-22	22-Mar-22	< 0.018	< 0.028	< 0.021	< 0.022	⊥<0.039	< 0.017	< 0.022	< 0.025	< 0.025	< 0.017	2
12				-0.024	< 0.021	< 0.025	< 0.024	< 0.017	< 0.030	< 0.031	< 0.025	< 0.028	
12	and sample ar	29-Mar-22 5 found without aalyzed using do 5 did not regain	efault; volur	ne data provid 3/18/2022. Ins	t the pole. Ap led is for INF sufficient data	oproximately O ONLY. CR 1 for statistica	30 hours of 6 22-02637 al analysis fo	data was coll or this sampli	ected and not	sufficient for	r data retrieva	l. Sample is I	
	Note 1: Site 15 and sample an	5 found without alyzed using d	power. Pov efault; volur	ver loss was a ne data provid 3/18/2022. Ins R A	it the pole. Aj led is for INF	oproximately O ONLY. CR 1 for statistica NE IN AII	30 hours of 6 22-02637 al analys is fo R 2nd QU	data was coll or this samplin J ARTER	ected and not	sufficient for	r data retrieva	l. Sample is I	
	Note 1: Site 15 and sample an	5 found without alyzed using d	power. Pov efault; volur	ver loss was a ne data provid 3/18/2022. Ins R A	it the pole. Aj ded is for INF sufficient data ADIOIODI DDCM req	oproximately O ONLY. CR 1 for statistica NE IN AII	30 hours of 6 22-02637 al analysis fo R 2nd QU bles denote	data was coll or this samplin J ARTER	ected and not	sufficient for	r data retrieva	l. Sample is I	
13	Note 1: Site 15 and sample ar Note 2: Site 15	5 found without alyzed using d 5 did not regain	power. Pov efault; volun power until	ver loss was a ne data provid 3/18/2022. Ins R A ((control)	it the pole. Aj ded is for INF sufficient data ADIOIODI DDCM req	opproximately 5 O ONLY. CR 1 for statistica NE IN AII uired samp units are p	30 hours of 6 22-02637 al analysis fo R 2nd QU bles denote Ci/m ³ uired LLD <0.4	data was colle or this sampli J ARTER ed by * 070	ected and not	sufficient fo:	r data retrieva l for INFO ON	1. Sample is I ILY. CR 22-02	896
13 Week #	Note 1: Site 15 and sample ar Note 2: Site 15 DATE	5 found without aalyzed using do 5 did not regain DATE	power. Pow efault; volum power until 4	ver loss was a ne data provid 3/18/2022. Ins RA ((control) 6A*	tt the pole. Aj ded is for INF sufficient data ADIOIODI DDCM req 7A	oproximately O ONLY. CR I for statistica NE IN AII uire d samp units are pr req 14A*	30 hours of 6 22-02637 al analysis fo R 2nd QU oles denote Ci/m ³ uired LLD <0.1 15*	data was coll or this samplin J ARTER ed by * 070 17A	ected and not ng period. Sa 21	sufficient for mple counted 29*	r data retrieva 1 for INFO ON 35	1. Sample is 11 NLY. CR 22-02 40 *	896
13 Week # 14	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22	5 found without alyzed using do 5 did not regain DATE 5-Apr-22	power. Pow efault; volur power until 4 <0.023	ver loss was a ne data provid 3/18/2022. Ins R A ((control) <u>6A*</u> <0.036	tt the pole. Aj ded is for INF sufficient data ADIOIODI DDCM req 7A <0.036	pproximately O ONLY. CR In for statistica NE IN AII uire d samp units are pr req <u>14A*</u> <0.018	30 hours of 6 22-02637 al analysis fo R 2nd QU oles denote Ci/m ³ uired LLD <0.1 <u>15*</u> <0.031	data was coll or this samplin J ARTER ed by * 070 <u>17A</u> <0.023	ected and not ng period. Sa 21 <0.041	sufficient for mple counted 29* <0.023	r data retrieva 1 for INFO ON 35 <0.035	1. Sample is 1 JLY. CR 22-02 <u>40*</u> <0.018	896
13 Week # 14 15	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22	5 found without alyzed using do 5 did not regain DATE 5-Apr-22 12-Apr-22	power. Pov efault; volur power until 4 <0.023 <0.026	ver loss was a me data provid 3/18/2022. Ins R A (control) <u>6A*</u> <0.036 <0.027	tt the pole. Aj ded is for INF sufficient data ADIOIODI DDCM req 7A <0.036 <0.037	pproximately O ONLY. CR a for statistice NE IN AII uired samp units are pr req 14A* <0.018 <0.018	30 hours of 6 22-02637 al analysis fo R 2nd QU bles denote Ci/m³ uirred LLD <0.1 15* <0.031 <0.032	data was coll or this sampli JARTER ed by * 070 17A <0.023 <0.023	ected and not ng period. Sa 21 <0.041 <0.026	sufficient for mple counted 29* <0.023 <0.023	r data retrieva 1 for INFO ON 35 <0.035 <0.038	1. Sample is I ILY. CR 22-02 40* <0.018 <0.022	896
13 Week # 14 15 16	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 12-Apr-22	5 found without alyzed using do 5 did not regain 5 did not regain 2-Apr-22 12-Apr-22 19-Apr-22	power. Pov efault; volur power until <u>4</u> <0.023 <0.026 <0.007	ver loss was a me data provid 3/18/2022. Ins R (control) <u>6A*</u> <0.036 <0.027 <0.037	tt the pole. Aj ded is for INF sufficient data DIOIODI DDCM req 7A <0.036 <0.037 <0.027	proximately O ONLY. CR a for statistica NE IN AII uire d samp units are pr req <u>14A*</u> <0.018 <0.036	30 hours of 6 22-02637 al analysis fo R 2nd QU bles denote Ci/m³ uired LLD <0.1 <u>15*</u> <0.031 <0.032 <0.029	data was coll or this samplii UARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.031	ected and not ng period. Sa 21 <0.041 <0.026 <0.030	29* <0.023 <0.023 <0.023 <0.023	r data retrieva 1 for INFO ON 4 for INFO ON 35 <0.035 <0.035 <0.038 <0.019	I. Sample is II JLY. CR 22-02 JLY. CR 22-02 <0.018	896
13 Week # 14 15 16 17	Note 1: Site 12 and sample an Note 2: Site 15 DATE 29-Mar-22 5-Apr-22 12-Apr-22 19-Apr-22	5 found without alyzed using d 5 did not regain DATE 5-Apr-22 19-Apr-22 26-Apr-22	power. Powefault; volur power until <0.023	ver loss was a me data provid 3/18/2022. Ins R A (control) <u>6A*</u> <0.036 <0.027 <0.037 <0.021	tt the pole. Aj ded is for INF sufficient data DIOIODI DDCM req <0.036 <0.037 <0.027 <0.025	proximately O ONLY. CR a for statistica NE IN AII uired samp units are pr req <u>14A*</u> <0.018 <0.018 <0.036 <0.038	30 hours of a 22-02637 al analysis for R 2nd QU bles denote Ci/m³ wired LLD <0.1 15* <0.031 <0.032 <0.029 <0.024	data was coll or this samplin JARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.031 <0.020	ected and not ng period. Sa 21 <0.041 <0.026 <0.030 <0.029	29* 29* <0.023 <0.023 <0.023 <0.023 <0.023 <0.023	r data retrieva d for INFO ON 4 on.035 <0.038 <0.019 <0.033	40* <0.018	896
13 Week # 14 15 16 17 18	Note 1: Site 12 and sample an Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 19-Apr-22 26-Apr-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 19-Apr-22 26-Apr-22 3-May-22	power. Pov efault; volur power until <0.023 <0.023 <0.007 <0.029 <0.019	ver loss was a ne data provid 3/18/2022. Ins R A (control) <u>6A*</u> <0.036 <0.027 <0.037 <0.021 <0.007	tt the pole. Aj led is for INF sufficient data DIOIODI DDCM req 7A <0.036 <0.037 <0.035 <0.036	proximately O ONLY. CR a for statistica NE IN AII uire d samp units are pr req 14A* <0.018 <0.018 <0.036 <0.038 <0.053	30 hours of 4 22-02637 al analysis for R 2nd QU oles denote Ci/m³ uired LLD <0.1	data was coll or this samplin UARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.023 <0.020 <0.020 <0.023	21 21 <0.041 <0.026 <0.030 <0.029 <0.018	29* 29* <0.023 <0.023 <0.023 <0.028 <0.032 <0.032 <0.032 <0.028	r data retrieva 1 for INFO ON 4 for INFO ON 40.035 40.038 40.019 40.033 40.034	1. Sample is I ILY. CR 22-02 ULY. CR 22-02 -0.018 -0.022 -0.024 -0.025 -0.026	896
13 Week # 14 15 16 17 18 19	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 12-Apr-22 19-Apr-22 26-Apr-22 3-May-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 12-Apr-22 19-Apr-22 26-Apr-22 26-Apr-22 10-May-22	power. Pov efault; volur power until <0.023 <0.026 <0.007 <0.029 <0.019 <0.018	ver loss was a me data provid 3/18/2022. Ins R .4 (control) 6A* <0.036 <0.027 <0.037 <0.021 <0.007 <0.026	tt the pole. Ap ded is for INF sufficient data DIOIODI DDCM req 7A <0.036 <0.037 <0.027 <0.035 <0.036 <0.036 <0.036 <0.036	proximately O ONLY. CR i for statistica NE IN AII uire d samp units are p req 14A* <0.018 <0.018 <0.018 <0.038 <0.053 <0.028	30 hours of (22-02637 Il analysis fo R 2nd QU obles denote Ci/m ³ 40.031 40.032 40.029 40.024 40.021	data was coll or this samplin JARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.031 <0.020 <0.023 <0.031	ected and not ng period. Sa 21 <0.041 <0.026 <0.030 <0.029 <0.018 <0.029	sufficient for mple counted 29*<0.023	r data retrieva 1 for INFO ON	40* <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 19-Apr-22 26-Apr-22 26-Apr-22 23-May-22 10-May-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 12-Apr-22 19-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22	power. Pow efault; volur power until 4 <0.023	ver loss was a me data provid 3/18/2022. Ins (control) <u>6A*</u> <0.036 <0.027 <0.037 <0.021 <0.007 <0.026 <0.031	tt the pole. Ap ded is for INF sufficient data DIOIODI DDCM req 7A <0.036 <0.037 <0.027 <0.035 <0.036 <0.036 <0.029 <0.017	proximately O ONLY. CR i for statistica NE IN AII uire d samp units are p req 14A* <0.018 <0.018 <0.038 <0.038 <0.033 <0.028 <0.031	30 hours of 4 22-02637 Il analysis fo R 2nd QU oles denote Ci/m³ uired LLD <0.1 15* <0.031 <0.032 <0.029 <0.024 <0.041 <0.021 <0.027	data was coll or this samplin or ARTER ed by * 070 <u>17A</u> <0.023 <0.023 <0.020 <0.023 <0.020 <0.023 <0.034 <0.032	21 21 <0.041 <0.026 <0.030 <0.029 <0.018 <0.029 <0.017 	sufficient fo mple counted 29* <0.023 <0.023 <0.028 <0.032 <0.028 <0.028 <0.028 <0.028	r data retrieva 1 for INFO ON 35 <0.035 <0.038 <0.019 <0.034 <0.017 ⊥<0.026	40* <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20 21	Note 1: Site 12 and sample an Note 2: Site 15 DATE 29-Mar-22 5-Apr-22 12-Apr-22 19-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22	5 found without alyzed using d 5 did not regain 5 did not regain 5 -Apr-22 19-Apr-22 19-Apr-22 26-Apr-22 10-May-22 17-May-22 24-May-22	power. Pov efault; volur power until <0.023 <0.026 <0.007 <0.029 <0.019 <0.019 <0.012 <0.027 <0.007	ver loss was a ne data provid 3/18/2022. Ins R A (control) <u>6A*</u> <0.036 <0.027 <0.037 <0.021 <0.007 <0.021 <0.007 <0.021 <0.0021 <0.0021 <0.0031	tt the pole. Aj led is for INF sufficient data DIOIODI DCM req 7A <0.036 <0.037 <0.027 <0.035 <0.035 <0.036 <0.029 <0.017 <0.027	proximately O ONLY. CR I for statistica NE IN AII uired samp units are pure 14A* <0.018 <0.018 <0.036 <0.038 <0.053 <0.028 <0.031 <0.023	30 hours of 4 22-02637 Il analysis fo R 2nd QU les denote Ci/m³ (0.031 (0.032) (0.024) (0.024) (0.021) (0.027) (0.023)	data was coll br this samplin b ARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.032 <0.032 <0.027	21 21 <0.041 <0.026 <0.030 <0.029 <0.018 <0.029 <0.017 <0.024 	sufficient fo mple countec 29*<0.023	r data retrieva l for INFO ON 35 <0.035 <0.038 <0.019 <0.033 <0.034 <0.017 .<0.026 <0.039	I. Sample is I JLY. CR 22-02 JLY. CR 22-02 JLY. CR 22-02 -0.018 <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20 21 22	Note 1: Site 12 and sample an Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 19-Apr-22 26-Apr-22 19-Apr-22 26-Apr-22 10-May-22 17-May-22 24-May-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 19-Apr-22 19-Apr-22 26-Apr-22 3-May-22 17-May-22 21-May-22 31-May-22 31-May-22	power. Pov efault; volur power until <0.023 <0.026 <0.007 <0.029 <0.019 <0.018 <0.007 <0.007 <0.0023	ver loss was a ne data provid 3/18/2022. Ins R A (control) <u>6A*</u> <0.036 <0.027 <0.021 <0.007 <0.021 <0.007 <0.021 <0.001 <0.031 <0.031 <0.026	tt the pole. Ap led is for INF sufficient data DIOIODI DCM req 7A <0.036 <0.037 <0.035 <0.036 <0.027 <0.035 <0.017 <0.027 <0.026	proximately O ONLY. CR a for statistica NE IN AII uire d samp units are p 14A* <0.018 <0.018 <0.018 <0.036 <0.038 <0.053 <0.028 <0.031 <0.023	30 hours of 4 22-02637 11 analysis for R 2nd QU oles denote Ci/m³ <0.031 <0.032 <0.024 <0.024 <0.021 <0.021 <0.023 <0.023	data was coll or this samplin b ARTER ed by * 070 17A 0.023 0.023 0.023 0.023 0.023 0.023 0.023 0.023 0.023 0.034 0.023 0.034 0.027 0.024	21 21 <0.041 <0.026 <0.030 <0.029 <0.018 <0.029 <0.017 <0.024 <0.030 	sufficient fo mple counter <0.023 <0.023 <0.023 <0.028 <0.032 <0.028 <0.028 <0.028 <0.028 <0.018 <0.019	r data retrieva 1 for INFO ON 35 35 <p< td=""><td>I. Sample is I ILY. CR 22-02 ILY. CR 22-02 Q.02 <0.018</td> <0.022</p<>	I. Sample is I ILY. CR 22-02 ILY. CR 22-02 Q.02 <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20 21 22 23	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 19-Apr-22 19-Apr-22 26-Apr-22 3-May-22 10-May-22 10-May-22 31-May-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 12-Apr-22 10-Apr-22 10-May-22 10-May-22 10-May-22 24-May-22 24-May-22 31-May-22 7-Jun-22	power. Powefault; volur power until power until <0.023	ver loss was a me data provid 3/18/2022. Ins R A (control) 6A* <0.036 <0.027 <0.021 <0.007 <0.021 <0.007 <0.021 <0.007 <0.026 <0.031 <0.026 <0.033	tt the pole. Ap led is for INF sufficient data DIOIODI DCM req <0.036 <0.037 <0.027 <0.035 <0.036 <0.029 <0.017 <0.026 <0.017	proximately O ONLY. CR a for statistica NE IN AII uire d samp req 14A* <0.018 <0.018 <0.018 <0.038 <0.053 <0.028 <0.023 <0.023 <0.023 <0.023 <0.026	30 hours of (22-02637 11 analysis fo R 2nd QU oles denote Ci/m³ -0.031 -0.032 -0.029 -0.024 -0.041 -0.021 -0.027 -0.023 -0.023 -0.025	data was coll or this samplin (ARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.034 <0.032 <0.032 <0.034 <0.032 <0.024 <0.024 <0.024	21 21 <0.041 <0.026 <0.029 <0.018 <0.024 <0.030 <0.022 	29* 29* <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.028 <0.028 <0.029 <0.019 <0.007 	r data retrieva 1 for INFO ON 35 <0.035 <0.038 <0.019 <0.034 <0.017 <0.026 <0.039 <0.024 <0.017	40* <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20 21 22 23 24	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 12-Apr-22 26-Apr-22 26-Apr-22 10-May-22 10-May-22 21-May-22 24-May-22 231-May-22 7-Jun-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 19-Apr-22 10-May-22 10-May-22 11-May-22 31-May-22 31-May-22 13-May-22 14-Jun-22	power. Powefault; volur power until power until <0.023	ver loss was a me data provid 3/18/2022. Ins R /4 (control) <u>6A*</u> <0.036 <0.027 <0.037 <0.021 <0.007 <0.026 <0.031 <0.026 <0.033 <0.035	t the pole. Ap ded is for INF sufficient data DIOIODI DDCM req 7A <0.036 <0.037 <0.027 <0.035 <0.036 <0.029 <0.017 <0.027 <0.027 <0.026 <0.017 <0.023	proximately O ONLY. CR i for statistica NE IN AII uire d samp units are p req 14A* <0.018 <0.018 <0.018 <0.036 <0.038 <0.023 <0.023 <0.023 <0.026 <0.034	30 hours of (22-02637 Il analysis fo R 2nd QU oles denote Ci/m ³ uired LLD <0.1 15* <0.031 <0.032 <0.029 <0.024 <0.021 <0.021 <0.023 <0.023 <0.023 <0.025 <0.029	data was coll or this samplin JARTER ed by * 070 <u>17A</u> <0.023 <0.023 <0.023 <0.023 <0.020 <0.023 <0.024 <0.022 <0.026 <0.026 <0.028	21 20,041 <0.026 <0.029 <0.018 <0.029 <0.017 <0.024 <0.030 <0.022 <0.026 	sufficient for mple counted 29* <0.023	r data retrieva 1 for INFO ON 35 <0.035 <0.038 <0.019 <0.033 <0.034 <0.017 ⊥<0.026 <0.039 <0.024 <0.017 <0.024 <0.017 <0.018	40* <0.018	896 ⊥N
13 Week # 14 15 16 17 18 19 20 21 22 23	Note 1: Site 12 and sample ar Note 2: Site 12 DATE 29-Mar-22 5-Apr-22 19-Apr-22 19-Apr-22 26-Apr-22 3-May-22 10-May-22 10-May-22 31-May-22	5 found without alyzed using do 5 did not regain 5 did not regain 5 -Apr-22 12-Apr-22 10-Apr-22 10-May-22 10-May-22 10-May-22 24-May-22 24-May-22 31-May-22 7-Jun-22	power. Powefault; volur power until power until <0.023	ver loss was a me data provid 3/18/2022. Ins R A (control) 6A* <0.036 <0.027 <0.021 <0.007 <0.021 <0.007 <0.021 <0.007 <0.026 <0.031 <0.026 <0.033	t the pole. Ap led is for INF sufficient data DIOIODI DCM req <0.036 <0.037 <0.027 <0.035 <0.036 <0.029 <0.017 <0.026 <0.017	proximately O ONLY. CR a for statistica NE IN AII uire d samp req 14A* <0.018 <0.018 <0.018 <0.038 <0.053 <0.028 <0.023 <0.023 <0.023 <0.023 <0.026	30 hours of (22-02637 11 analysis fo R 2nd QU oles denote Ci/m³ -0.031 -0.032 -0.029 -0.024 -0.041 -0.021 -0.027 -0.023 -0.023 -0.025	data was coll or this samplin (ARTER ed by * 070 17A <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.034 <0.032 <0.032 <0.034 <0.032 <0.024 <0.024 <0.024	21 21 <0.041 <0.026 <0.029 <0.018 <0.024 <0.030 <0.022 	29* 29* <0.023 <0.023 <0.023 <0.023 <0.023 <0.023 <0.028 <0.028 <0.029 <0.019 <0.007 	r data retrieva 1 for INFO ON 35 <0.035 <0.038 <0.019 <0.034 <0.017 <0.026 <0.039 <0.024 <0.017	40* <0.018	

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022 Page 28

					ADIOIODI ODCM req								
				(control)		requ	uired LLD <0.	070					
	START	STOP	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	
Week#	DATE	DATE	4	6A*	7A	14A*	15*	17A	21	29*	35	40*	тĮ
27	28-Jun-22	5-Jul-22	< 0.027	< 0.030	< 0.033	< 0.18	< 0.027	< 0.031	< 0.018	< 0.024	< 0.024	< 0.027	
28	5-Jul-22	12-Jul-22	< 0.006	< 0.017	< 0.026	< 0.028	< 0.022	< 0.006	< 0.029	< 0.025	< 0.029	< 0.025	
29	12-Jul-22	19-Jul-22	< 0.026	< 0.017	< 0.025	< 0.025	< 0.026	< 0.025	< 0.031	< 0.031	< 0.032	< 0.031	
30	19-Jul-22	26-Jul-22	< 0.030	< 0.021	< 0.027	< 0.030	< 0.023	< 0.038	< 0.028	< 0.028	< 0.027	< 0.018	
31	26-Jul-22	2-Aug-22	< 0.027	< 0.007	< 0.024	< 0.007	< 0.019	< 0.040	< 0.025	< 0.025	< 0.007	< 0.029	
32	2-Aug-22	9-Aug-22	< 0.031	< 0.030	< 0.031	< 0.028	< 0.027	< 0.019	< 0.023	< 0.023	< 0.031	< 0.037	
33	9-Aug-22	17-Aug-22	< 0.023	< 0.033	< 0.031	< 0.017	< 0.034	< 0.006	< 0.034	< 0.006	< 0.030	< 0.017	
34	17-Aug-22	23-Aug-22	< 0.042	< 0.040	< 0.026	< 0.020	< 0.038	< 0.025	< 0.034	⊥<0.064	< 0.038	< 0.030	
35	23-Aug-22	30-Aug-22	< 0.018	< 0.023	< 0.023	< 0.023	< 0.018	< 0.007	< 0.033	< 0.007	< 0.030	< 0.023	
36	30-Aug-22	6-Sep-22	< 0.034	< 0.025	< 0.034	< 0.036	< 0.035	< 0.032	< 0.026	< 0.028	< 0.019	< 0.029	
37	6-Sep-22	13-Sep-22	< 0.027	< 0.032	< 0.033	< 0.029	< 0.047	< 0.023	< 0.035	< 0.027	< 0.027	< 0.029	
38	13-Sep-22	20-Sep-22	< 0.029	< 0.035	< 0.007	< 0.029	< 0.019	< 0.020	< 0.007	< 0.026	< 0.028	< 0.026	
39	20-Sep-22	27-Sep-22	< 0.019	< 0.038	< 0.044	< 0.032	< 0.028	< 0.019	< 0.024	< 0.030	< 0.028	< 0.019	
	documentation. Note 6: Site 29	ETM stopped working Data is for VAI ETM stopped w Data is for VAI	vorking during LID. CR 22-0 vorking during	g the Week 35 s 9144 g the Week 36 s 9372	sample period;	however, pum	p continued of	operating. Sam	-				
	Note 5: Site 29 documentation. Note 6: Site 29	ETM stopped w Data is for VAI ETM stopped w	vorking during LID. CR 22-0 vorking during	g the Week 35 s 9144 g the Week 36 s 9372 R A	sample period; sample period;	however, pum however, pum INE IN AII	p continued of p continued of R 4th QU	operating. Sam	-				
	Note 5: Site 29 documentation. Note 6: Site 29	ETM stopped w Data is for VAI ETM stopped w	vorking during LID. CR 22-0 vorking during	g the Week 35 s 9144 g the Week 36 s 9372 R A	sample period; sample period; ADIOIODI ODCM req	however, pum however, pum INE IN AII	p continued of p continued of R 4th QU bles denote	operating. Sam	-				
	Note 5: Site 29 documentation. Note 6: Site 29	ETM stopped w Data is for VAI ETM stopped w	vorking during LID. CR 22-0 vorking during	g the Week 35 s 9144 g the Week 36 s 9372 R A	sample period; sample period; ADIOIODI ODCM req	however, pum however, pum INE IN AII uired samp units are po	p continued of p continued of R 4th QU bles denote	ARTER ed by *	-				
	Note 5: Site 29 documentation. Note 6: Site 29	ETM stopped w Data is for VAI ETM stopped w	vorking during LID. CR 22-0 vorking during	g the Week 35 s 9144 g the Week 36 s 9372 R A	sample period; sample period; ADIOIODI ODCM req	however, pum however, pum INE IN AII uired samp units are po	p continued of p continued of R 4th QU bles denote Ci/m ³	ARTER ed by *	-				
Week #	Note 5: Site 29 documentation. Note 6: Site 29 documentation.	ETM stopped w Data is for VAI ETM stopped w Data is for VAI	vorking during LID. CR 22-0 vorking during LID. CR 22-0	g the Week 35 s 9144 g the Week 36 s 9372 R ((control)	sample period; sample period; ADIOIODI ODCM req	however, pum however, pum INE IN AII uired samp units are po requ	p continued of p continued of R 4th QU bles denote Ci/m³ uired LLD <0.	operating. Sam ARTER ed by *	ple time and v	olume was calc	ulated via reco	rds of in/out o	
Week #	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site	g the Week 35 s 9144 g the Week 36 s 9372 RA (control) Site	sample period; sample period; ADIOIODI ODCM re q Site	however, pum however, pum INE IN AII uired samp units are pt requ Site	p continued of p continued of R 4th QU bles denote Ci/m ³ uired LLD <0. Site	ARTER ed by * 070 Site	ple time and vo	olume was calc Site	ulated via reco Site	rds of in/out of Site	fservic
	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4	g the Week 35 s 9144 g the Week 36 s 9372 R A (control) Site 6A*	sample period; sample period; ADIOIODI ODCM re q Site 7A	however, pum however, pum INE IN AII uired samp units are po requ Site 14A*	p continued of p continued of R 4th QU bles denote Ci/m ³ uired LLD <0. Site 15*	pperating. Sam ARTER ed by * 070 Site 17A	ple time and vo Site 21	olume was calo Site 29*	ulated via reco Site 35	rds of in/out of Site 40*	fservic
40	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A* <0.034	sample period; sample period; ADIOIODI DDCM re q Site 7A <0.023	however, pum however, pum INE IN All uired samp units are po requ Site 14A* <0.022	p continued c p continued c R 4th QU bles denote Ci/m ³ uired LLD <0. Site 15* <0.025	opperating Sam ARTER ed by * 070 Site 17A <0.029	ple time and v Site 21 <0.038	olume was calo Site 29* <0.025	site 35 <0.027	rds of in/out of Site 40* <0.006	fservic
40 41	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site <u>4</u> <0.022 <0.006	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A* <0.034 <0.025	sample period; sample period; ADIOIODI ODCM req Site 7A <0.023 <0.037	however, pum however, pum INE IN AII uired samp units are pu requ Site 14A* <0.022 <0.035	p continued c p continued c R 4th QU bles denote Ci/m ³ uired LLD <0. Site 15* <0.025 <0.027	ARTER ed by * 070 Site 17A <0.029 <0.027	Site 21 <0.038 <0.022	Site 29* <0.025 <0.031	Site 35 <0.027 <0.032	rds of in/out of Site <u>40*</u> <0.006 <0.017	fservic
40 41 42	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017	g the Week 35 s 9144 g the Week 36 s 9372 R (control) Site 6A* <0.034 <0.025 <0.027	sample period; sample period; ADIOIODI DDCM re q Site 7A <0.023 <0.037 <0.027	however, pum however, pum INE IN AII uired samp units are po requ Site 14A* <0.022 <0.035 <0.028	p continued c p continued c R 4th QU ole s de note Ci/m ³ uired LLD <0. Site 15* <0.025 <0.027 <0.019	ARTER ed by * 070 Site 17A <0.029	Site 21 <0.038 <0.022 <0.023	Site 29* <0.025 <0.031 <0.022	Site 35 <0.027 <0.032 <0.041	rds of in/out of Site 40* <0.006 <0.017 <0.023	fservic
40 41 42 43	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A* <0.025 <0.027 <0.028	sample period; sample period; ADIOIODI ODCM re q Site 7A <0.023 <0.037 <0.027 <0.027 <0.033	however, pum however, pum INE IN AII uired samp units are p ⁰ req Site 14A* <0.022 <0.035 <0.028 <0.028 <0.036	p continued c p continued c R 4th QU oles denot: Ci/m ³ uirred LLD <0. Site 15* <0.025 <0.027 <0.019 <0.039	pperating. Sam ARTER ed by * 070 Site 17A <0.029	Site 21 <0.038 <0.022 <0.023 <0.038	Site 29* <0.025 <0.031 <0.022 <0.028	Site 35 <0.027 <0.032 <0.041 <0.038	Site 40* <0.006 <0.017 <0.023 <0.019	fservic
40 41 42 43 44	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 18-Oct-22 18-Oct-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 2-S-Oct-22 1-Nov-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037 <0.007	g the Week 35 s 9144 g the Week 36 s 9372 R 4 (control) Site 6A* <0.034 <0.025 <0.027 <0.028 <0.007	sample period; sample period; ADIOIODI ODCM req Site 7A <0.023 <0.037 <0.027 <0.033 <0.007	however, pum however, pum INE IN AII uired samp units are pu requ Site 14A* <0.022 <0.035 <0.028 <0.036 <0.037	p continued c p continued c R 4th QU bles denoto Ci/m ³ uired LLD <0. Site 15* <0.025 <0.027 <0.019 <0.039 <0.034	arrating Sam ARTER ed by * 070 Site 17A <0.029	Site 21 <0.038 <0.022 <0.023 <0.023 <0.038 <0.028	Site 29* <0.025 <0.021 <0.022 <0.028 <0.018	Site 35 <0.027 <0.032 <0.041 <0.038 <0.037	Site 40* <0.006 <0.017 <0.023 <0.019 <0.024	fservic
40 41 42 43 44 45	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 12-Soct-22 1-Nov-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 7-Nov-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037 <0.007 <0.035	g the Week 35 : 9144 g the Week 36 : 9372 R / (control) Site 6.4 * -0.034 -0.025 -0.027 -0.028 -0.007 -0.031	sample period; sample period; ADIOIODI ODCM re q ODCM re q 	however, pum however, pum INE IN AII uired samp units are pu requ Site 14A* <0.022 <0.035 <0.028 <0.035 <0.028 <0.037 <0.008	p continued of p continued of R 4th QU bles denotr Ci/m ³ uitred LLD <0. Site 15* <0.025 <0.027 <0.019 <0.034 <0.036	ARTER ed by * 070 Site 17A <0.029 <0.027 <0.023 <0.027 <0.023 <0.035	Site 21 <0.038	Site 29* <0.025	Site 35 <0.027	rds of in/out o Site 40* <0.006 <0.017 <0.023 <0.019 <0.024 <0.008	fservic
40 41 42 43 44 45 46	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 7-Nov-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 1-Nov-22 15-Nov-22	vorking durinţ LID. CR 22-0 vorking durinţ LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037 <0.007 <0.033 <0.007	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A * <0.034 <0.025 <0.027 <0.028 <0.031 <0.025	sample period; sample period; ADIOIODI ODCM re q ODCM re q <0.023 <0.037 <0.027 <0.033 <0.007 <0.045 <0.025	however, pum however, pum INE IN AII uired samp units are pi req. Site 14A* <0.022 <0.035 <0.028 <0.036 <0.036 <0.036 <0.008 <0.008 <0.029	p continued of p continued of R 4th QU bles denot Ci/m ³ uired LLD <0. Site 15* <0.025 <0.027 <0.019 <0.039 <0.034 <0.036 <0.025	ARTER ed by * 070 Site 17A <0.029	Site 21 <0.038 <0.022 <0.023 <0.038 <0.023 <0.038 <0.031 <0.019	Site 29* <0.025	Site 35 <0.021	rds of in/out or Site 40* <	fservic
40 41 42 43 44 45 46 47	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 15-Nov-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 15-Nov-22 21-Nov-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037 <0.007 <0.037 <0.003 <0.021 <0.038	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A* <0.025 <0.027 <0.028 <0.007 <0.028 <0.007 <0.028 <0.007 <0.032	sample period; sample period; ADIOIODI DDCM re q Site 7A <0.023 <0.037 <0.027 <0.033 <0.007 <0.045 <0.025 <0.027	however, pum however, pum INE IN AII uire d samp units are pu requ Site 14A* <0.022 <0.035 <0.028 <0.036 <0.037 <0.003 <0.039 <0.029 <0.028	p continued c p continued c R 4th QU bles de not Ci/m ³ uired LLD <0. Site 15* <0.025 <0.027 <0.019 <0.034 <0.034 <0.035 <0.025 <0.034 <0.034 <0.035 <0.025 <0.034 <0.034 <0.035 <0.025 <0.034 <0.034 <0.035 <0.034 <0.035 <0.034 <0.035 <0.035 <0.034 <0.035 <0.034 <0.035 <0.035 <0.034 <0.035 <0.035 <0.034 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.025 <0.035 <0.035 <0.025 <0.035 <0.025 <0.035 <0.025 <0.035 <0.025 <0.035 <0.025 <0.025 <0.025 <0.035 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.021 <0.025 <0.021 <0.025 <0.021 <0.035 <0.021 <0.025 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.021 <0.035 <0.035 <0.021 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035 <0.035	ARTER ed by * 070 Site 17A <0.029	Site 21 <0.038 <0.022 <0.023 <0.038 <0.028 <0.031 <0.011 <0.009	Site 29* <0.025	Site 35 <0.027	rds of in/out or Site 40* <0.006 <0.017 <0.023 <0.019 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.025 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.024 <0.025 <0.024 <0.024 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.02	fservic
40 41 42 43 44 45 46 47 48	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 15-Nov-22 21-Nov-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 7-Nov-22 21-Nov-22 21-Nov-22 29-Nov-22	vorking during LID. CR 22-0 vorking during LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.035 <0.007 <0.035 <0.021 <0.035 <0.021	gthe Week 35 : 9144 gthe Week 36 : 9372 R 2 (control) Site 6A* <0.034 <0.025 <0.027 <0.028 <0.007 <0.031 <0.025 <0.0032 <0.016	sample period; sample period; ADIOIODI ODCM req ODCM req <0.023 <0.037 <0.027 <0.033 <0.007 <0.045 <0.027 <0.006	however, pum however, pum INE IN AII uired samp requ Site 14A* <0.022 <0.035 <0.028 <0.035 <0.028 <0.037 <0.008 <0.037 <0.008 <0.029 <0.025	p continued of p continued of R 4th QU les denote Cl/m ³ viired LLD <0. Site 15* <0.025 <0.027 <0.019 <0.034 <0.034 <0.036 <0.021 <0.021 <0.028	ARTER ed by * 070 Site 17A <0.029 <0.027 <0.023 <0.039 <0.027 <0.035 <0.0035 <0.028 <0.028 <0.027	Site 21 <0.038 <0.022 <0.023 <0.038 <0.022 <0.038 <0.028 <0.031 <0.019 <0.008 <0.008 <0.016	Site 29* <0.025	Site 35 <0.027	rds of in/out o Site 40* <0.006 <0.017 <0.023 <0.019 <0.024 <0.008 <0.024 <0.008 <0.023 <0.033 <0.033	fservic
40 41 42 43 44 45 46 47 48 49	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 7-Nov-22 15-Nov-22 29-Nov-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 25-Oct-22 1-Nov-22 7-Nov-22 15-Nov-22 29-Nov-22 6-Dec-22	vorking durinţ LID. CR 22-0 vorking durinţ LID. CR 22-0 Site 4 -0.022 <0.006 <0.017 <0.037 <0.007 <0.035 <0.021 <0.038	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6.4 * <0.034 <0.025 <0.027 <0.028 <0.007 <0.031 <0.025 <0.031 <0.025 <0.032 <0.032 <0.032	sample period; sample period; ADIOIODI ODCM re q 7A <0.023 <0.037 <0.027 <0.033 <0.007 <0.045 <0.025 <0.027 <0.006 <0.026	however, pum however, pum INE IN AII uired samp units are pu requ Site 40.022 <0.035 <0.028 <0.035 <0.028 <0.037 <0.008 <0.037 <0.008 <0.029 <0.029 <0.029 <0.029 <0.029 <0.029 <0.029	p continued of p continued of R 4th QU bles denoti Ci/m ³ duired LLD <0. Site 15* <0.025 <0.027 <0.019 <0.034 <0.036 <0.025 <0.021 <0.028 <0.021 <0.028 <0.021 <0.028 <0.021 <0.028 <0.021 <0.028 <0.021 <0.028 <0.021 <0.025 <0.021 <0.034 <0.025 <0.021 <0.034 <0.025 <0.021 <0.034 <0.025 <0.021 <0.034 <0.025 <0.025 <0.021 <0.034 <0.025 <0.025 <0.021 <0.034 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.034 <0.025 <0.025 <0.025 <0.034 <0.025 <0.034 <0.025 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.034 <0.025 <0.025 <0.025 <0.034 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.034 <0.036 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.036 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.025 <0.	perating. Sam ARTER ed by * oro Site 17A -0.027 -0.023 -0.027 -0.023 -0.035 -0.006 -0.028 -0.006 -0.027 -0.027 -0.027 -0.027 -0.025 -0.006 -0.027 -0.027 -0.025 -0.006 -0.027 -0.027 -0.025 -0.026 -0.027 -0.025 -0.027 -0.025 -0.025 -0.027 -0.025 -0.055	Site 21 <0.038 <0.022 <0.038 <0.038 <0.038 <0.031 <0.019 <0.008 <0.019 <0.008 <0.019	Site 29* <0.025	Site 35 <0.027	rds of in/out of 40* <0.006 <0.017 <0.023 <0.019 <0.024 <0.008 <0.024 <0.033 <0.033 <0.018	fservic
40 41 42 43 44 45 46 47 48 49 50	Note 5: Site 29 documentation. Note 6: Site 29 documentation. START DATE 27-Sep-22 4-Oct-22 11-Oct-22 18-Oct-22 18-Oct-22 18-Oct-22 1-Nov-22 7-Nov-22 15-Nov-22 29-Nov-22 6-Dec-22	ETM stopped w Data is for VAI ETM stopped w Data is for VAI STOP DATE 4-Oct-22 11-Oct-22 11-Oct-22 1-Nov-22 1-Nov-22 1-Nov-22 21-Nov-221	vorking durinţ LID. CR 22-0 vorking durinţ LID. CR 22-0 Site 4 <0.022 <0.006 <0.017 <0.037 <0.007 <0.035 <0.021 <0.038 <0.027 <0.038 <0.031	g the Week 35 s 9144 g the Week 36 s 9372 R / (control) Site 6A* <0.034 <0.025 <0.027 <0.028 <0.007 <0.031 <0.025 <0.031 <0.025 <0.032 <0.032 <0.032	sample period; sample period; ADIOIODI ODCM req Site 7A <0.023 <0.037 <0.027 <0.033 <0.007 <0.045 <0.025 <0.025 <0.027 <0.006 <0.026 <0.027	however, pum however, pum INE IN AII uired samp units are pu req. Site 14A* <0.022 <0.035 <0.028 <0.035 <0.028 <0.036 <0.036 <0.009 <0.029 <0.028 <0.029 <0.028 <0.029 <0.028 <0.034 <0.034	p continued c p continued c R 4th QU bles denot Ci/m ³ «0.025 «0.025 «0.027 «0.019 «0.034 «0.036 «0.025 «0.021 «0.028 «0.030 «0.032	perating. Sam ARTER ed by * 070 Site 17A <0.029 <0.027 <0.023 <0.027 <0.023 <0.035 <0.006 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.028 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036 <0.036	Site 21 <0.038 <0.022 <0.023 <0.038 <0.028 <0.031 <0.019 <0.008 <0.019 <0.008 <0.019 <0.008 <0.012	Site 29* <0.025	Site 35 <0.021	rds of in/out of Site 40* <0.001 <0.023 <0.019 <0.024 <0.003 <0.024 <0.033 <0.033 <0.033 <0.013 <0.014 <0.004	f servic

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022 Page 29

Table 8-6 Vegetation

		EGETATION				
		ired samples deno	ted by *			
	· · · · · ·	s are pCi/kg, wet	acu by			
	unit	s are perkg, wet	<60	<60	<80	
		DATE	~00	~00	~00	
LOCATION	TYPE	COLLECTED	I-131	Cs-134	Cs-137	Note
LOCATION			-		03-107	Hote
		Y- NO SAMPLE AV				
		y- NO SAMPLE A				
	Lettuce	- NO SAMPLE AV 21-Apr-22	<59	ב <43	<59	
LOCAL		NO SAMPLE AV			~59	
RESIDENCE		June- NO SAMPLE				
(Site #47)*		July- NO SAMPLE				
(ugust- NO SAMPL				
		tember- NO SAMP				
		ctober- NO SAMPI				
		er- NO SAMPLE A				
	Decemb	er-NO SAMPLE A	VAILAB	LE		
	Kale	20-Jan-22	<46	<50	<61	
	Spring Mix	20-Jan-22	<57	<26	<56	
	Red Baby Romaine	20-Jan-22	<57	<38	<29	
	Kale	17-Feb-22	<47	< 9	<44	
	Green Oak Leaf Lettuce	17-Feb-22	<33	<39	<57	
	Red Leaf	17-Feb-22	<45	<28	<34	
	Kale	17-Mar-22	<32	<34	<47	
	Green Oak Leaf Lettuce	17-Mar-22	<42	<47	<66	
	Red Romaine	17-Mar-22	<41	<41	<67	
	Organic Romaine	21-Apr-22	<39	<38	<37	
	Organic Baby Tatsoi	21-Apr-22	<42	<57	<40	
FARM	Organic Wild Arugula	21-Apr-22	<41	<46	<49	
(Site #62)*		May- NO SAMPLE				
		June- NO SAMPLE				
		July- NO SAMPLE				
		ugust- NO SAMPL				
	Arugula	otember- NO SAMP 21-Oct-22	<48	<36	<40	
	Red Oak Leaf Lettuce	21-Oct-22 21-Oct-22	<40 <45	<30 <47	<40 <46	
	Green Leaf Lettuce	17-Nov-22	<43 <51	<37	<40 <51	
	Arugula	17-Nov-22	<58	< <u>4</u> 5	<34	
	Red Romaine	17-Nov-22	<48	<40	<66	
	Green Leaf Lettuce	8-Dec-22	<43	<48	<52	
	Red Oak Leaf Lettuce	8-Dec-22	<48	<44	<68	
	Red Leaf	8-Dec-22	<59	<48	<63	
		y- NO SAMPLE AV				
		y- NO SAMPLE A				
	March	- NO SAMPLE AV	AILABL	E		
		NO SAMPLE AV.				
LOCAL		NO SAMPLE AV.				
RESIDENCE		NO SAMPLE AV				
(Site #51)		NO SAMPLE AVA				
	-	- NO SAMPLE AV				
	1	er- NO SAMPLE A ent Relocated, Remo				
		ent Relocated, Remo lent Relocated, Rem				
		lent Relocated, Rem				
LOCAL RESIDENCE (Site #49) *	Resident	Entered the REMP	October 2	022		
	Oataba	r- NO SAMPLE AV		F		
		r- NO SAMPLE AV er- NO SAMPLE A				
		er-NO SAMPLE A				
	Decenii	A NO BAINI LE A	, AILAD			

		MIL									
	ODCM requ		-	ted by *							
	. u	nits are p	Ci/liter								
SAMPLE	DATE	<1	<15	<18	<60	<15					
LOCATION	COLLECTED	I-131	Cs-134	Cs-137	Ba-140	La-140	⊥Note				
		Januai	ry- NO SA	MPLE A	VAILABL	E					
Local Resident		Februa	ry- NO SA	MPLE A	VAILABL	Æ					
Goats		Marc	h- NO SAI	MPLE AV	VAILABLE	3					
(Site #51)*		Apri	l- NO SAM	IPLE AV	AILABLE						
		May	- NO SAM	IPLE AV	AILABLE						
		June	- NO SAM	IPLE AV	AILABLE						
		July	- NO SAM	IPLE AV.	AILABLE						
		Augus	st- NO SAI	MPLE A	VAILABLE	Ξ					
		Septem	ber- NO S.	AMPLE	AVAILAB	LE					
	October-R	esident Ro	elocated, R	emoved f	rom the RE	MP					
	November-1	Resident F	Relocated, 1	Removed	from the R	EMP					
	December-l	Resident I	Relocated, 1	Removed	from the R	EMP					
			,		VAILABL						
	24-Feb-22	<1	<1	<1	<3	<1					
	24-Mar-22	<1	<1	<1	<3	<1					
Local Resident	28-Apr-22	<1	<1	<1	<3	<1					
Goats	19-May-22	<1	<1	<1	<3	<1					
(Site #53)*	22-Jun-22	<1	<1	<1	<3	<1					
(510 1150)	20-Jul-22	<1	<1	<1	<3	<1					
	18-Aug-22	<1	<1	<1	<3	<1					
	28-Sep-22	<1	<1	<1	<3	<1					
	21-Oct-22	<1	<1	<1	<3	<1					
	21-Oct-22 22-Nov-22	<1	<1	<1	<3	<1					
	22-Dec-22	<1	<1	<1	<3	<1					
	14-Jan-22	<1	<1	<1	<3	<1					
Local Resident	14-Jan-22 10-Feb-22	<1	<1	<1	<3	<1					
Goats	10-Mar-22	<1	<1	<1	<3	<1					
(Site #54)*	14-Apr-22	<1	<1	<1	<5 <4	<1 <9					
(Sile #34)"	12-May-22	<1	<1	<1	<4 <3	<1					
	09-Jun-22	<1	<1	<1	<3	<1					
	13-Jul-22	<1	<1	<1	<3	<1					
	13-Jui-22 11-Aug-22	<1	<1	<1	<3	<1					
	11-Aug-22 14-Sep-22	<1	<1	<1	<3	<1					
	14-Sep-22 12-Oct-22	<1	<1	<1	<3	<1					
10-Nov-22 <1 <1 <3 <1 10-Nov-22 <1 <1 <3 <1 08-Dec-22 <1 <1 <3 <1 Resident Entered the REMP October 2022 LOCAL Resident Entered the REMP October 2022 (Site #49) *											
	Oct	ober- No	Sample Av	ailable							
November- No Sample Available											
	Dece	ember- No	o Sample A	vailable							
Note 1: Power interruption res equirement is 1 pCi/L. Report rending. Sample valid. CR 22- Note 2: Power interruption res equirement is 1 pCi/L. Report	ing to one significant d)4327 ulted in higher than us ing to one significant d	ligit meets ual I-131 M	requirement 1DA for Site	; however, 54. MDA	event is still achieved 1.0	noteworthy 2 pCi/L; OD0	for CM				
trending. Sample valid. CR 22-		5 moors		,,,							

Table 8-7 Milk

						DRINH M requi				har y *						
					ODC	-		ipies de Ci/liter		by "						
SAMPLE	MONTH	<15	<15	<30	<15	<30	<15	<30		<15	<18	<60	<15	Qtrly	<4.0	
LOCATION	ENDPOINT	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Tritium	Gross Beta	Note
	25-Jan-22	<12	<9	<15	<8	<19	<9	<17	<11	<10	<12	<34	<12		<2.88	
	22-Feb-22	<10	<8	<17	<7	<17	<11	<17	<8	<9	<10	<35	<14		<2.83	
	29-Mar-22	<10	<12	<18	<9	<22	<9	<18	<8	<9	<9	<25	<13	<327	4.25±1.77	
	26-Apr-22	<8	<7	<17	<9	<15	<9	<14	<7	<7	<9	<25	<13		<2.50	
LOCAL	31-May-22	<10	<11	<13	<11	<24	<11	<17	<10	<8	<9	<29	<13		<2.66	
RESIDENCE	28-Jun-22	-	-	-	-	-	-	-	-	-	-	-	-	<325	2.70±1.64	1
(Site #48) *	26-Jul-22	<10	<7	<16	<9	<20	<8	<14	<9	<8	<8	<26	<12		<3.18	2
	30-Aug-22	<10	<9	<16	<9	<23	<10	<19	<9	<9	<9	<32	<10		<3.24	
	27-Sep-22	<10	<9	<19	<9	<25	<12	<20	<9	<7	<9	<33	<12	<328	3.16±1.81	
	25-Oct-22	<11	<8	<23	<9	<24	<10	<19	<9	<9	<10	<29	<12		<2.86	
	29-Nov-22	<10	<10	<19	<11	<23	<11	<20	<9	<9	<10	<31	<14		7.36±1.92	
	27-Dec-22	<8	<9	<18	<10	<17	<10	<16	<10	<7	<10	<33	<8	<344	2.86±1.70	
	25-Jan-22	<12	<9	<20	<11	<19	<12	<18	<9	<7	<9	<32	<8		<2.69	
	22-Feb-22	<10	<9	<17	<10	<18	<11	<14	<9	<6	<10	<30	<12		4.88±1.76	
	29-Mar-22	<8	<11	<14	<8	<24	<8	<19	<8	<8	<9	<32	<15	<323	3.84±1.66	
	26-Apr-22	<9	<12	<16	<8	<21	<11	<19	<10	<8	<10	<32	<14		4.15±1.59	
LOCAL	31-May-22	<10	<8	<22	<10	<21	<8	<16	<8	<9	<9	<24	<11		<2.71	
RESIDENCE	28-Jun-22	-	-	-	-	-	-	-	-	-	-	-	-	<323	4.28±1.62	1
(Site #55)	26-Jul-22	<10	<10	<17	<7	<20	<10	<18	<9	<8	<9	<32	<15		<2.92	
	30-Aug-22	<11	<11	<19	<8	<19	<10	<17	<7	<9	<9	<22	<11		<2.84	
	27-Sep-22	<8	<9	<18	<11	<19	<11	<17	<9	<9	<12	<32	<14	<326	4.59±1.77	
	25-Oct-22	<11	<11	<21	<9	<22	<9	<18	<10	<10	<12	<28	<15		<2.70	
	29-Nov-22	<7	<10	<21	<2	<23	<11	<18	<10	<7	<10	<31	<12		8.44±1.87	
	27-Dec-22	<11	<9	<23	<8	<27	<11	<17	<10	<8	<8	<34	<11	<344	5.01±1.69	
	Note 1: Mont	hly drink	ing water	samples	are colle	ected as	weekl	y comp	osites	. The s	amples f	or the s	ample pe	riod of Ju	ne were collec	ted;
	however, ther	e was a f	failure to	conduct	the month	hly gamı	ma ana	ılysis.	The fa	ailure to	analyze	was not	identifie	d in time t	to conduct the	analysis
	with reasonab	le lower	limits of a	detection	capabiliti	ies. Gros	ss Beta	a and T	ritium	analysis	s were p	erforme	d. CR 22	2-09005		
	Note 2: Dupli	cate sam	ple obtai	ned. Gai	mma isoto	opic data	a repor	ted rer	resent	ts the av	verage of	f the two	o sample	s.		
	-T-		1			1	1	-1			0		1			

Table 8-8 Drinking Water

					ODC	M requi. uni	ts are p	•		, y						
SAMPLE	MONTH	<15	<15	<30	<15	<30	<15 <15	<30	<15	<15	<18	<60	<15	Otrly	<4.0	
LOCATION	ENDPOINT	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Tritium	Gross Beta	Note
	25-Jan-22	<10	<14	<16	<8	<25	<14	<22	<12	<12	<14	<45	<9		<2.66	
	22-Feb-22	<12	<8	<24	<7	<17	<10	<16	<8	<8	<10	<34	<12		<2.65	
	29-Mar-22	<10	<10	<17	<10	<24	<10	<19	<9	<6	<11	<31	<15	<326	3.37±1.62	
	26-Apr-22	<8	<7	<15	<8	<15	<8	<13	<7	<7	<9	<27	<15		4.01±1.58	
	31-May-22	<11	<7	<19	<6	<17	<8	<14	<8	<7	<9	<33	<10		<2.62	
LOCAL	28-Jun-22	-	-	-	-	-	-	-	-	-	-	-	-	<326	5.37±1.64	1
RESIDENCE	26-Jul-22	<10	<10	<16	<9	<20	<9	<17	<9	<8	<8	<32	<14		<2.85	
(Site #46) *	30-Aug-22	<11	<10	<20	<7	<22	<9	<16	<10	<7	<11	<29	<11		<2.68	
	27-Sep-22	<11	<9	<18	<9	<24	<11	<17	<9	<9	<11	<29	<14	<327	<2.71	
	25-Oct-22	<6	<7	<14	<7	<15	<7	<9	<6	<6	<6	<21	<14		<2.71	
	29-Nov-22	<9	<10	<19	<9	<20	<10	<17	<9	<7	<12	<34	<7		5.83±1.78	
	27-Dec-22	<10	<8	<17	<9	<20	<10	<16	<9	<8	<10	<29	<8	<344	2.70±1.60	
	25-Jan-22	<12	<11	<13	<10	<23	<13	<17	<12	<10	<12	<35	<14		<2.61	
	22-Feb-22	<10	<10	<17	<10	<23	<10	<18	<8	<7	<11	<36	<10		<2.59	
	29-Mar-22	<10	<8	<18	<8	<18	<10	<17	<9	<8	<7	<31	<15	<327	<2.47	
	26-Apr-22	<6	<7	<13	<7	<16	<8	<13	<7	<7	<7	<23	<13		<2.38	
	31-May-22	<7	<7	<13	<7	<14	<8	<11	<6	<6	<9	<24	<12		<2.59	
LOCAL	28-Jun-22	-	-	-	-	-	-	-	-	-	-	-	-	<325	<2.41	1
RESIDENCE	26-Jul-22	<11	<9	<18	<11	<18	<10	<15	<10	<7	<10	<30	<15		<2.73	
	30-Aug-22	<9	<8	<22	<9	<23	<11	<17	<9	<7	<8	<28	<14		<2.59	2
(Site #49) *		<10	<9	<17	<7	<20	<9	<14	<9	<7	<7	<25	<15	<329	<2.61	
(Site #49) *	27-Sep-22	~10			<9	<22	<11	<18	<9	<8	<9	<30	<11		<2.61	
(Site #49) *	27-Sep-22 25-Oct-22	<10	<11	<16	~9	~~~~	~11	-10	~							
(Site #49) *	<u>^</u>		<11 <8	<16 <21	<9 <7	<23	<11	<17	<9	<8	<10	<29	<8		<2.59	

Table 8-8 Drinking Water (Continued)

				ODC			DWA ample		oted l	hv *					
				000			re pCi/		oteu	05					
SAMPLE	DATE	<15	<15	<30	<15	<30	<15	<30	<15	<15	<18	<60	<15	<2000	
LOCATION	COLLECTED	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Tritium	⊥Notes
	25-Jan-22	<10	<8	<17	<9	<15	<11	<14	<9	<7	<8	<28	<14	<332	
WELL 27ddc	26-Apr-22	<12	<10	<18	<10	<19	<13	<18	<10	<9	<12	<35	<14	<327	
(Site #57)*															
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
	25-Jan-22	<9	<9	<17	<8	<22	<10	<17	<9	<7	<10	<24	<15	<341	
Well 34aab	26-Apr-22	<9	<8	<20	<12	<24	<13	<22	<9	<9	<10	<35	<12	<329	
(Site #65)*	26-Jul-22	<11	<9	<20	<6	<20	<8	<12	<8	<7	<8	<33	<13	<331	
	25-Oct-22	<8	<8	<16	<9	<21	<9	<19	<8	<8	<10	<34	<13	<343	
	25-Jan-22	<10	<7	<17	<9	<19	<10	<14	<13	<9	<11	<33	<9	<333	
Well 27dcb	26-Apr-22	<12	<10	<18	<9	<25	<10	<16	<9	<10	<9	<34	<15	<276	
(Site #58A)*	29-Jul-22	<9	<9	<19	<10	<20	<10	<18	<9	<8	<11	<31	<7	<327	
	25-Oct-22	<9	<9	<16	<9	<14	<10	<13	<8	<7	<9	<24	<13	<341	

Table 8-9 Groundwater

SURFACE WATER

JUNIALE WATER															
				ОГ	DCM re	auired	sample	s denot	ed bv *						
				01		-	re pCi/		<i>cu </i>						
SAMPLE	DATE	<15	<15	<30	<15	<30	<15	<30	<15	<15	<18	<60	<15	<3000	
LOCATION	COLLECTED								I-131			Ba-140		Tritium	⊥Notes
45 ACRE	25-Jan-22	<8	<9	<18	<8	<27	<12	<17	<11	<7	<11	<31	<10	<334	
RESERVOIR	26-Apr-22	<10	<11	<15	<10	<26	<10	<16	<10	<7	<8	<29	<14	<338	
(Site #61) *	26-Jul-22	<11	<10	<18	<12	<23	<8	<12	<8	<7	<7	<32	<10	<331	
(500 #01)	25-Oct-22	<11	<9	<20	<9	<18	<11	<19	<10	<9	<11	<27	<11	<345	
85 ACRE	25-Jan-22	<10	<10	<16	<11	<22	<11	<14	<10	<8	<10	<32	<13	<333	
RESERVOIR	26-Apr-22	<10	<10	<18	<8	<17	<9	<17	<9	<9	<8	<25	<10	<333	
(Site #60) *	26-Jul-22	<11	<11	<18	<7	<20	<10	<13	<9	<7	<11	<34	<13	<337	
(5110 #00)	25-Oct-22	<10	<9	<16	<8	<22	<10	<18	<8	<7	<8	<30	< 3	<360	
EVAP POND 1	25-Jan-22	<10	<10	<21	<10	<22	<9	<17	<9	<9	<11	<30	<8	999±216	
(Site #59) *CELL	26-Apr-22	<9	<10	<21	<9	<22	<10	<17	<10	<8	<10	<30	<8	797±209	
1A	26-Jul-22	<11	<8	<18	<14	<17	<9	<17	<10	<7	<10	<31	<9	357±205	
	25-Oct-22									T SINCE					
	25-Jan-22NO SAMPLE REQUIRED- NO INFLUENT SINCE LAST SAMPLE26-Apr-22NO SAMPLE REQUIRED- NO INFLUENT SINCE LAST SAMPLE														
CELL 1B 26-Apr-22 NO SAMPLE REQUIRED- NO INFLUENT SINCE LAST SAMPLE 26-Jul-22 NO SAMPLE REQUIRED- NO INFLUENT SINCE LAST SAMPLE															
26-Jul-22 NO SAMPLE REQUIRED- NO INFLUENT SINCE LAST SAMPLE 25-Oct-22 <11 <10 <23 <10 <25 <11 <20 <8 <9 <11 <32 <9 421±212															
		<11	<10	<23 <21	<10	<25 <27	<11	<20	<u><8</u> <9	<9	<11	< <u>32</u> < <u>35</u>		421±212 819±215	
	25-Jan-22 26-Apr-22	<11	<12							<10 T SINCE			<15	819±215	
CELL 1C	26-Jul-22	<13	<10	<26	<11	<28	<11	<20	<9	<10	<13	<31	<9	<330	
	25-Oct-22	~15	<10						-	T SINCE			~9	<330	
	25-Jan-22									T SINCE					
EVAP POND 2	26-Apr-22						~			T SINCE					
(Site #63) *CELL	26-Jul-22			NO	SAMP	LE REQ	UIRED	- NO IN	IFLUEN	T SINCE	LAST S	AMPLE			
2A	25-Oct-22	<9	<10	<23	<10	<27	<11	<17	<11	<8	<11	<32	<12	411±210	
	25-Jan-22						~			T SINCE					
CELL 2B	26-Apr-22									T SINCE					
CELL 2D	26-Jul-22			NO					IFLUEN	T SINCE					
	25-Oct-22	<12	<8	<23	<14	<23	<12	<21	<9	<8	<10	<35	<11	<344	
	25-Jan-22	<9	<10	<21	<9	<22	<9	<17	<11	<8	<11	<36	<14	862±212	1
CELL 2C	26-Apr-22								REQUI						
CLLL IC	26-Jul-22								REQUI						
	25-Oct-22								REQUI						
EVAP POND 3	25-Jan-22				-					REPAIR					
(Site #64) *CELL	26-Apr-22				-					REPAIR					
3A	26-Jul-22									REPAIR					
•**	25-Oct-22									REPAIR					
	25-Jan-22	<10	<8	<19	<8	<19	<9	<12	<8	<6	<9	<26	<14	878±212	
CELL 3B	26-Apr-22									T SINCE			-		
	26-Jul-22	<10	<11	<25	<11	<28		<19	<8	<8	<11	<39	<8	<332	
	25-Oct-22									T SINCE					
Note 1: Cell 2C is no	t a required samp	ling locati	ion. Cel	l 2C is a	lined sh	udge col	lection p	oint and	does not	receive i	nfluent di	rectly fro	m the pla	nt.	

					5	SURFA	CE WA	TER							
				OL				s denot	ed by *						
						units a	ire pCi/	lite r							
SAMPLE	DATE	<15	<15	<30	<15	<30	<15	<30	<15	<15	<18	<60	<15	<3000	
LOCATION	COLLECTED	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Tritium	Notes
	4-Jan-22	<9	<9	<21	<10	<26	<11	<18	<10	<8	<10	<35	<11		
	11-Jan-22	<10	<8	<15	<7	<19	<10	<17	<10	<9	<10	<29	<14		
	18-Jan-22	<9	<11	<16	<10	<20	<9	<15	<9	<7	<10	<32	<7		
	25-Jan-22	<11	<10	<27	<12	<21	<15	<23	<13	<11	<12	<32	<15	<349	
	1-Feb-22	<10	<9	<20	<8	<17	<11	<16	26±10	<8	<8	<37	<9		
	8-Feb-22	<11	<8	<19	<9	<17	<10	<15	17 ± 8	<7	<8	<26	<15		
	15-Feb-22	<10	<10	<15	<8	<20	<9	<16	<10	<8	<11	<30	<13		
	22-Feb-22	<10	<9	<18	<9	<23	<10	<19	<10	<8	<11	<25	<8	<349	
	1-Mar-22	<11	<8	<19	<9	<16	<10	<19	<10	<8	<10	<30	<14		
	8-Mar-22	<9	<9	<15	<8	<18	<9	<19	<10	<7	<10	<29	<7		
	15-Mar-22	<10	<8	<20	<10	<19	<10	<18	<11	<9	<9	<29	<12		
	22-Mar-22	<9	<8	<17	<10	<19	<10	<15	8 ± 7	<8	<9	<30	<10		
	29-Mar-22	<10	<7	<17	<8	<21	<12	<17	19±10	<8	<11	<30	<8	<338	
WRF	5-Apr-22	<10	<9	<21	<10	<19	<8	<18	<11	<8	<10	<31	<11		
INFLUENT	12-Apr-22	<10	<10	<19	<9	<20	<10	<14	<12	<8	<10	<26	<11	<311	
	19-Apr-22								DUTAGE						
	26-Apr-22								DUTAGE						
	3-May-22	<9	<9	<16	<9	<15	<7	<14	27±10	<8	<9	<25	<10		
	10-May-22	<112	<10	<15	<11	<22	<11	<19	<13	<10	<13	<39	<8		
	17-May-22	<8	<11	<19	<11	<13	<10	<16	<10	<7	<11	<30	<11		
	24-May-22	<9	<9	<17	<8	<18	<10	<18	11±8	<8	<10	<32	<11		
	31-May-22	<10	<10	<20	<11	<26	<10	<18	<11	<8	<11	<24	<9	<345	
	7-Jun-22	<11	<10	<15	<8	<20	<8	<16	<10	<8	<10	<30	<11		
	14-Jun-22	<8	<10	<17	<9	<22	<8	<17	<10	<9	<10	<28	<11		
	21-Jun-22	<9	<8	<14	<8	<20	<10	<18	19±9	<7	<11	<30	<9		
	28-Jun-22	<9	<10	<15	<10	<19	<9	<13	<10	<8	<11	<31	<10	<346	

 Table 8-10 Surface Water (Continued)

						SURFA	CE WA	TER							
				OI				s denot	ed by *						
						units a	ire pCi/	lite r							
SAMPLE	DATE	<15	<15	<30	<15	<30	<15	<30	<15	<15	<18	<60	<15	<3000	
LOCATION	COLLECTED	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	' Ba-140	La-140	Tritium	Note
	5-Jul-22	<11	<9	<16	<9	<24	<8	<14	<10	<9	<9	<28	<12		
	12-Jul-22	<10	<9	<16	<10	<21	<10	<17	<10	<6	<10	<33	<12		
	19-Jul-22	<9	<10	<17	<8	<22	<10	<18	<9	<7	<9	<32	<11		
	26-Jul-22	<8	<7	<18	<10	<23	<10	<17	<9	<9	<10	<23	<11	<346	
	2-Aug-22	<10	<9	<21	<8	<26	<10	<14	<12	<9	<9	<26	<8		
	9-Aug-22	<8	<7	<18	<10	<20	<8	<17	10±9	<9	<9	<28	<11		
	17-Aug-22	<11	<8	<19	<10	<22	<12	<18	13±9	<9	<9	<29	<14		
	23-Aug-22	<10	<8	<19	<9	<17	<10	<15	<11	<8	<10	<32	<11		
	30-Aug-22	<10	<9	<21	<9	<19	<10	<19	<11	<9	<11	<35	<14	<347	
	6-Sep-22	<8	<7	<13	<6	<14	<7	<12	14 ± 7	<6	<6	<23	<14		
	13-Sep-22	<11	<7	<18	<7	<21	<9	<15	17 ± 9	<8	<7	<24	<13		
	20-Sep-22	<9	<10	<22	<10	<20	<10	<18	<12	<9	<10	<32	<9		
	27-Sep-22	<11	<10	<14	<10	<22	<10	<28	19±9	<9	<9	<31	<10	<334	
	4-Oct-22	<10	<9	<19	<10	<26	<12	<16	<11	<10	<9	<33	<15		
WRF	11-Oct-22	<9	<10	<17	<9	<19	<11	<17	<13	<8	<9	<33	<11		
INFLUENT	18-Oct-22					**NO	SAMPL	E-WR (DUTAGE	**					
	25-Oct-22	<12	<9	<17	<7	<17	<10	<18	<11	<8	<10	<26	<13	<360	
	31-Oct-22	<10	<10	<15	<10	<15	<11	<15	<14	<8	<10	<37	<12		
	7-Nov-22	<11	<9	<18	<9	<22	<10	<15	<9	<8	<10	<27	<15		
	15-Nov-22	<12	<11	<21	<8	<17	<9	<19	10±9	<7	<8	<28	<11		
	21-Nov-22	<9	<9	<16	<9	<26	<9	<17	<12	<8	<10	<32	<12		
	29-Nov-22	<10	<8	<19	<10	<20	<11	<15	<10	<8	<11	<26	<10	<379	
	6-Dec-22	<10	<10	<21	<8	<20	<10	<17	<9	<7	<11	<33	<10		
	13-Dec-22	<11	<10	<16	<11	<25	<9	<17	11 ± 7	<7	<12	<30	<8		
	20-Dec-22	<10	<9	<18	<9	<19	<10	<16	16±9	<7	<8	<31	<8		
	27-Dec-22	<10	<10	<23	<7	<19	<9	<17	<11	<8	<8	<24	<7	<362	

Table 8-10 Surface Water (Continued)

	SURFACE WATER ODCM required samples denoted by *														
				U	JCM re		sample re pCi/		ed by "						
SAMPLE	DATE	<15	<15	<30	<15	<30	<15	<30	<15	<15	<18	<60	<15	<3000	
LOCATION	COLLECTED	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Nb-95	Zr-95	I-131	Cs-134	Cs-137	Ba-140	La-140	Tritium	Note
LOCATION	COLLECTED 4-Jan-22 11-Jan-22 18-Jan-22 25-Jan-22 1-Feb-22 8-Feb-22 15-Feb-22 22-Feb-22 1-Mar-22 8-Mar-22 15-Mar-22 22-Mar-22	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	**EN **EN **EN **EN **EN **EN **EN **EN	ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1 ИРТҮ- 1	NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN	APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE	Cs-134 EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL EQUIREL)**)**)**)**)**)**)**)**)**)**	7 <u>Ba-140</u>	<u>La-140</u>	Tritium	Note
SEDIMENTATIO N BASIN #2	29-Mar-22 5-Apr-22 12-Apr-22 26-Apr-22 3-May-22 10-May-22 17-May-22 24-May-22 31-May-22 31-May-22 7-Jun-22 14-Jun-22 21-Jun-22 28-Jun-22					**EN **EN **EN **EN **EN **EN **EN **EN	АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1 АРТҮ-1	NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN NO SAN	APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE APLE RE	QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI QUIREI)**)**)**)**)**)**)**)**)**)**				

Table 8-10 Surface Water (Continued)

				OD	CM re			s denote	ed by *						
						units a	ire pCi	lite r							
SAMPLE	DATE														
LOCATION	COLLECTED	Mn-54	Co-58	Fe-59	Co-60							Ba-140	La-140	Tritium	Note
	5-Jul-22							NO SAM							
	12-Jul-22							NO SAM		~					
	19-Jul-22							NO SAM		-					
	26-Jul-22	<9	<9	<16	<9	<17	<10	<14	<10	<7	<10	<25	<13	<347	
	2-Aug-22							NO SAM							
	9-Aug-22							NO SAM		~					
	17-Aug-22	<10	<10	<22	<9	<20	<11	<17	<9	<9	<11	<32	<10	<360	
	23-Aug-22	<7	<11	<16	<8	<16	<9	<15	<8	<7	<9	<31	<13	418±207	1
	30-Aug-22							NO SAM							
	6-Sep-22							NO SAM		-					
	13-Sep-22	<11	<9	<19	<7	<20	<10	<17	<8	<8	<10	<27	<10	487±210	
	20-Sep-22	_	_					NO SAM							
SEDIMENTATIO	27-Sep-22	<8	<8	<17	<10	<17	<10	<17	<9	<9	<11	<27	<10	<356	
N BASIN #2	4-Oct-22	<10	<10	<18	<9	<20	<11	<17	<8	<8	<10	<27	<13	<345	
	11-Oct-22	<8	<11	<15	<9	<20	<9	<17	<9	<7	<10	<31	<7	<340	
	18-Oct-22	<11	<8	<13	<9	<21	<10	<18	<10	<9	<10	<33	<12	<346	
	25-Oct-22	<8	<9	<19	<10	<26	<9	<14	<9	<10	<8	<24	<9	<361	
	1-Nov-22	<10	<10	<15	<9	<22	<10	<19	<9	<8	<8	<29	<15	<343	
	7-Nov-22	<9	<9	<17	<11	<19	<10	<16	<8	<9	<12	<28	<13	<338	
	15-Nov-22	<9	<9	<16	<11	<20	<11	<16	<8	<7	<10	<23	<10	<348	
	21-Nov-22	<9	<9	<17	<9	<22	<10	<15	<9	<9	<9	<27	<12	<361	
	29-Nov-22							NO SAM							
	6-Dec-22							NO SAM		·					
	13-Dec-22							NO SAM							
	20-Dec-22							NO SAM		~					
	27-Dec-22							NO SAM		<u>`</u>					
	Note 1: Duplicat	e sample	obtained	l. Gamı	na isoto	pic and	tritium o	lata repor	ted repre	esents the	average	e of the tw	vo sample	s.	

Table 8-10 Surface Water (Continued)

		SLUDGE/SEDIME	NT			
		A required samples der				
		units are pCi/kg, we	-			
SAMPLE	DATE		<150	<180		
LOCATION	COLLECTED	I-131	Cs-134	Cs-137	In-111	Notes
Locifficit	4-Jan-22	207±114	<68	<122		110105
	11-Jan-22	276±122	<124	<79		
	18-Jan-22	2702122	<113	<173		
	25-Jan-22	281±126	<112	<172		
	1-Feb-22	186±122	<122	<107		
	8-Feb-22	545±163	<105	<100		
	15-Feb-22	291±144	<103	<87		
	22-Feb-22	458±174	<114	<112		
	1-Mar-22	310±117	<82	<162		
	8-Mar-22	010=117	<37	<31		
	15-Mar-22		<44	<102		
	22-Mar-22	752±183	<31	<103		
WRF	29-Mar-22		<87	<32		
CENTRIFUGE	5-Apr-22	659±168	<26	<32		
WASTE SLUDGE	12-Apr-22	930±254	<133	<163		
	19-Apr-22			R OUTAGE	**	
	26-Apr-22			R OUTAGE		
	3-May-22	685±150	<75	<27		
	10-May-22	487±157	<122	<104		
	17-May-22	653±193	<27	<130		
	24-May-22	536±143	<94	<155		
	31-May-22	311±139	<126	<103		
	7-Jun-22	323±160	<127	<109		
	14-Jun-22	352±137	<32	<134		
	21-Jun-22		<85	<92		
	28-Jun-22	283±112	<64	<79		
	5-Jul-22	310±99	<71	<128		
	12-Jul-22	460±171	<128	<41		
	19-Jul-22	238±96	<26	<156		
	26-Jul-22	233±113	<104	<128		
	2-Aug-22		<69	<107		
	9-Aug-22	249±105	<117	<81		
	17-Aug-22	506±160	<117	<118		
	23-Aug-22	346±126	<101	<125		
	30-Aug-22	348±140	<80	<148		
	6-Sep-22	311±129	<59	<129		
	13-Sep-22	608±147	<80	<115		
	20-Sep-22	725±172	<126	<32		
WRF	27-Sep-22	540±170	<126	<178		
CENTRIFUGE	4-Oct-22	516±162	<113	<159		
WASTE SLUDGE	11-Oct-22	424±125	<100	<95		
	18-Oct-22			R OUTAGE	**	
	25-Oct-22	110 5	<33	<138		
	1-Nov-22	**NO S		R OUTAGE	**	
	7-Nov-22	363±141	<92	<133		
	15-Nov-22	387±116	<64	<29		
	21-Nov-22	768±182	<93	<150		
	29-Nov-22	1020±260	<140	<119		
	6-Dec-22	217±108	<35	<102		
	13-Dec-22	193±108	<85	<83		
	20-Dec-22	231±132	<71	<32		
	20-Dec-22 27-Dec-22	497±152	<125	<117		
	27 000-22	177 = 137	-140	11/		

Table 8-11 Sludge/Sediment

Unit Cycle	Approximate Volume (yd ³)	Isotope	Activity Range (pCi/g)	Sample Type
U2R23	610	All principal gamma- emitters	<mda< td=""><td>Towers/Canal Sludge</td></mda<>	Towers/Canal Sludge
U1R23	261	All principal gamma- emitters	<mda< td=""><td>Towers/Canal Sludge</td></mda<>	Towers/Canal Sludge

Table 8-11 Sludge/Sediment (Continued) Cooling Tower Sludge

Table 8-12 Hard -To-Detect Radionuclide Results

Hard-To-Detect Radionuclide (pCi/Liter)										
Sample Location	Well number	Sample Date	C-14	Fe-55	Ni-63	Sr-90				
Unit 1 (outside RCA)	APP-12	12/7/2022	<172	<141	<4.55	<1.51				
Unit 2 (inside RCA)	H0A	10/21/2022	<180	<121	<4.25	<1.09				
Unit 3 (inside RCA)	H11	10/21/2022	<178	<129	<4.35	<1.46				

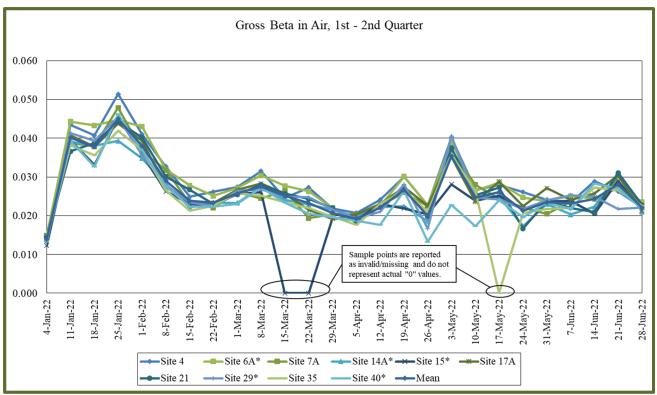


Figure 8-1 Gross Beta in Air, 1st-2nd Quarter

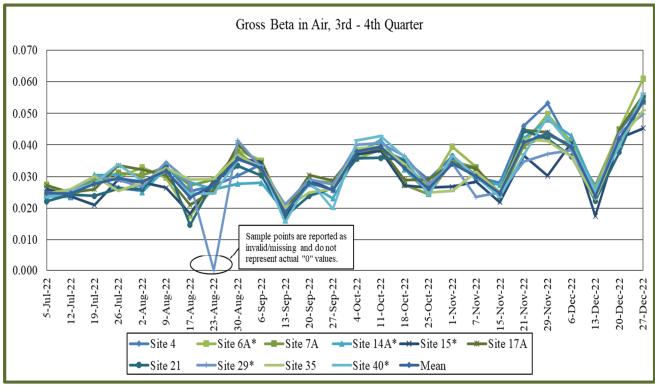


Figure 8-2 Gross Beta in Air, 3rd-4th Quarter

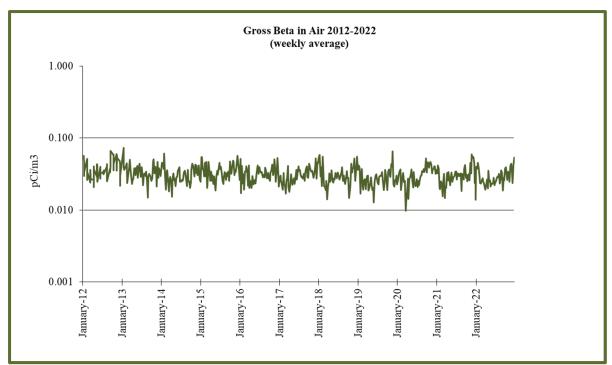


Figure 8-3 Historical Gross Beta in Air (Weekly System Average)

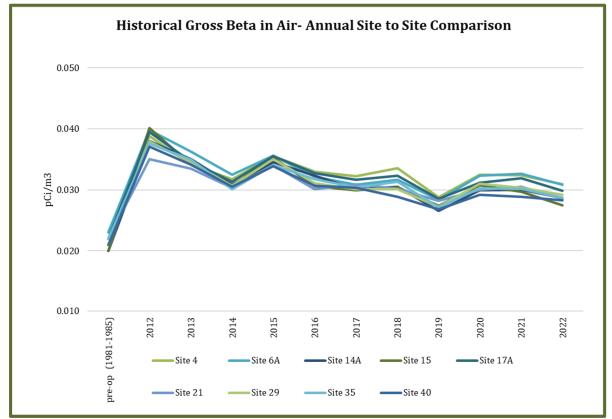


Figure 8-4 Historical Gross Beta in Air (Annual Site to Site Comparisons) Compared to Pre-Op

Note: 7A is not included due to the location change since pre-operational period.

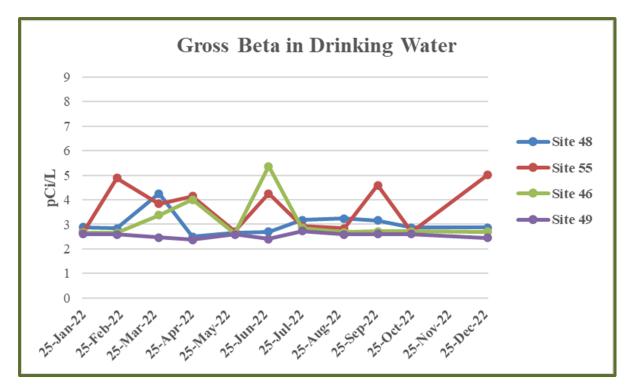


Figure 8-5 Gross Beta in Drinking Water

Notes: MDA values are plotted as activity (i.e., <2.3 is plotted as 2.3) The action level is 30 pCi/liter

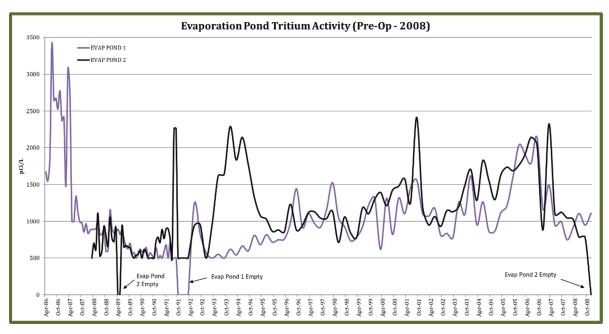


Figure 8-6 Evaporation Pond Tritium Activity (Pre-Op- 2008)

Note: Zero values represent no sample taken for sampling period, per procedural guidance or lack of sample material.

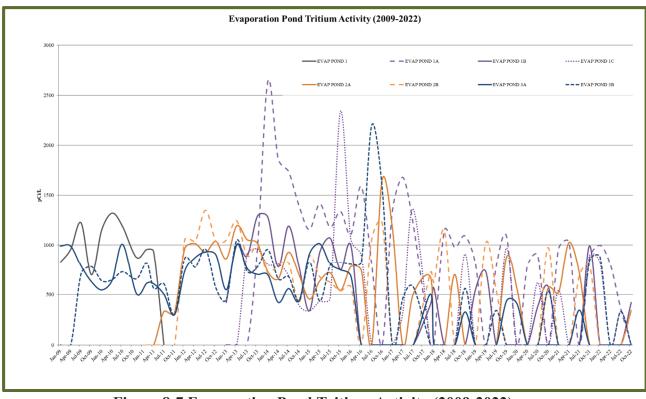


Figure 8-7 Evaporation Pond Tritium Activity (2009-2022)

Note: Zero values represent no sample taken for sampling period, per procedural guidance or lack of sample material.

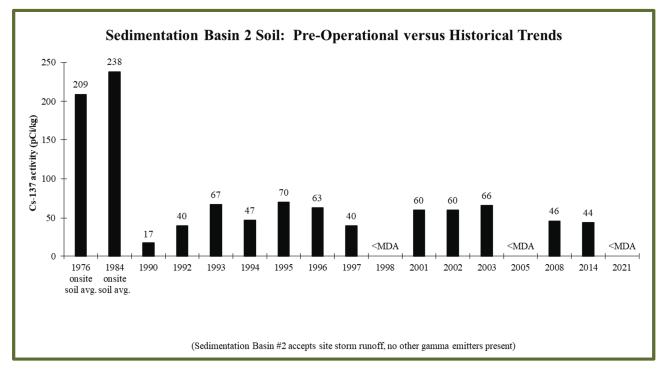


Figure 8-8 Sedimentation Basin 2 Cs-137

9. Thermoluminescent Dosimeter (TLD) Results and Data

The environmental TLD used at PVNGS is the Panasonic Model 812 Dosimeter. The Model 812 is a multi-element dosimeter combining two elements of lithium borate and two elements of calcium sulfate under various filters.

TLDs were placed in fifty locations from one to thirty-five miles from the PVNGS. TLD locations are shown in Figure 2-1 and Figure 2-2 and are described in Table 9-1. TLD results for 2022 are presented in Table 9-2. Definitions for Table 9-2 are as follows:

- MDD_Q: Minimum differential dose, quarterly, 3 times 90th percentile sQ determined from analysis (mRem).
- MDD_A: Minimum differential dose, annual, 3 times 90th percentile sA determined from analysis (mRem).
- B_Q: Quarterly baseline (mRem) (average of previous 5 years)
- M_Q: Locations 91-day standard quarter normalized dose (mRem per standard quarter)
- L_Q: Quarterly investigation level dose (mRem)
- BA: Baseline background dose (mRem) (annual)
- M_A: Annual monitoring data MA determined by normalizing available quarterly data to 4 full quarters
- L_A: Annual investigation level dose (mRem)
- ND: Non-Detectable

The baseline is calculated as the average of the previous 5-year measurements. The minimum differential dose (MDD) is calculated as 3 times the 90th percentile standard deviation of the data from the previous 5 years; quarterly MDD is calculated using the quarterly data and annual MDD is calculated using the annual summation of the quarterly data. Investigation level is calculated by the difference of the data measurement and the baseline; results less than, or equal to the MDD are Non-Detectable (ND) and any result exceeding the MDD meets the threshold for the investigation level. Locations exceeding the investigation level will be evaluated for cause and impact to the public and environment.

Historical environmental gamma radiation results for 1985 through 2022 are presented in graphical form on Figure 9-1 (excluding transit control TLD #45). Figure 9-2 depicts the environmental TLD results from 2022 as compared to the pre-operational TLD results (excluding sites #41 and #43, as they were deleted and later assigned to a new location, and #46-50, as they had no pre-op TLD at the location for comparison). The site-to-site comparisons indicate a direct correlation with respect to pre-operational results. It is indicated that the offsite dose, as measured by TLDs, has not changed since Palo Verde became operational.

Table 9-1 TLD Site Locations

TLD #	Location	Distance from Unit 2	TLD #	Location	Distance from Unit 2	TLD #	Location	Distance from Unit 2
1	E30	29.13	18	ESE2	1.48	35	NNW8	7.86
2	ENE24	24.18	19	SE2	1.35	36	N5	4.32
3	E21	21.87	20	SSE2	2.04	37	NNE5	4.69
4	E16	16.05	21	S 3	2.68	38	NE5	4.21
5	ESE11	11.14	22	SSW3	2.74	39	ENE5	4.71
6	SSE31	31.47	23	W 5	4.17	40	N2	2.37
7	SE7	6.87	24	SW4	3.75	41	ESE3	3.39
8	SSE4	4.33	25	WSW5	4.88	42	N8	7.24
9	S 5	4.63	26	SSW4	4.13	43	NE5	4.60
10	SE5	3.91	27	SW1	0.93	44	ENE35	35.00
11	ESE5	5.14	28	WSW1	0.66	45	Onsite	0.18
12	E5	4.85	29	W1	0.64	46	ENE30	7.23
13	N1	0.85	30	WNW1	0.74	47	E35	32.35
14	NNE2	155	31	NW1	1.03	48	E24	22.76
15	NE2	1.63	32	NNW1	0.90	49	ENE11	11.32
16	ENE2	1.59	33	NW4	4.05	50	WNW5	4.24
17	E2	1.39	34	NNW5	4.84			

(Distance and direction are relative to Unit 2 in miles)

*Site #6 and site #44 are the control locations.

**Site #45 is the transit control TLD (stored in lead pig).

2022 Annual Environmental TLD Monitoring Report Palo Verde 2022 MDD ₀ : 5 mrem Palo Verde 2022 MDD _A : 10 mrem														
uo	Palo Verde 2022 MDD _Q : 5	mrem	n Pa		de 202 Quarter			0 mre	em		Ann	ual (mre	em)	
Location	Location Description		M _o Q1	M _o Q2	M _o Q3	M _o Q4	L _o Q1	L _Q Q2	L _o Q3	L _Q Q4	BA	MA	L _A	NOTE
1	APS Western Division Office, Goodyear	25.0	21.1	20.1	25.0	26.8	ND	ND	ND	ND	99.8	93.0	ND	
2	Scott-Libby School, Perryville and Perryville Roads	21.9	18.8	18.7	19.8	23.2	ND	ND	ND	ND	87.7	80.5	ND	
3	Liberty School, 19800 West Highway 85	23.6	20.5	19.0	21.1	24.8	ND	ND	ND	ND	94.5	85.4	ND	
4	APS Buckeye Office, 615 North 4th Street, Buckeye	24.5	21.6	20.1	21.5	25.5	ND	ND	ND	ND	98.1	88.6	ND	
5	Palo Verde School, 291st Ave and Old US 80	20.0	17.1	16.0	17.1	21.5	ND	ND	ND	ND	79.8	71.8	ND	
6	APS Gila Bend Substation, Service Road west of town off I-8	26.2	23.3	22.1	24.5	29.1	ND	ND	ND	ND	104.8	98.9	ND	
7	Northeast corner of Old US 80 and Arlington School Road	25.7	23.0	20.3	24.9	25.6	ND	ND	ND	ND	102.9	93.7	ND	
8	Southern Pacific Pipeline Road, 1.4 miles SW of 355th Ave	24.2	20.1	19.4	22.7	25.7	ND	ND	ND	ND	96.7	87.9	ND	1
9	Southern Pacific Pipeline Road, 2.5 miles SW of 355th Ave	28.1	25.8	22.1	28.1	30.4	ND	ND	ND	ND	112.6	106.4	ND	
10	Southeast corner of 355th Ave and Elliot Road	24.2	20.8	17.4	21.6	25.9	ND	ND	ND	ND	96.6	85.6	ND	
11	Northwest corner of 339th Ave and Dobbins Road	25.0	21.7	20.1	21.3	27.4	ND	ND	ND	ND	100.0	90.4	ND	
12	Northeast corner of 339th Ave and Buckeye-Salome Road	23.9	21.2	19.8	22.4	25.1	ND	ND	ND	ND	95.6	88.4	ND	
13	North site boundary	25.4	23.0	20.5	22.8	26.7	ND	ND	ND	ND	101.8	93.0	ND	
14	North Northeast site boundary	25.3	21.5	19.7	22.8	25.1	ND	ND	ND	ND	101.2	89.1	ND	
15	Northeast site boundary, on WRF access road	24.1	20.9	18.9	21.5	25.8	ND	ND	ND	ND	96.2	87.1	ND	
16	East Northeast site boundary	23.6	20.6	19.0	21.6	24.2	ND	ND	ND	ND	94.6	85.4	ND	
17	East site boundary	24.9	22.2	19.8	21.1	26.2	ND	ND	ND	ND	99.4	89.3	ND	
18	East Southeast site boundary	23.2	21.1	19.7	20.5	24.2	ND	ND	ND	ND	92.7	85.4	ND	L
19	Southeast site boundary	25.1	23.3	20.0	23.7	26.7	ND	ND	ND	ND	100.2	93.8	ND	L
20	South Southeast site boundary	24.5	22.5	19.6	22.2	27.1	ND	ND	ND	ND	98.0	91.4	ND	L
21	South site boundary	26.0	23.7	21.1	22.8	26.6	ND	ND	ND	ND	104.0	94.2	ND	L
22	South Southwest site boundary	26.1	23.9	19.8	23.0	27.1	ND	ND	ND	ND	104.2	93.8	ND	L
23	2 miles north of Elliot Road, 3 miles west of Wintersburg Road	23.1	21.1	17.9	22.5	23.5	ND	ND	ND	ND	92.5	85.0	ND	L
24	Elliot Road, 2 miles west of Wintersburg at Desert Farms	22.3	20.9	18.0	21.0	24.2	ND	ND	ND	ND	89.2	84.0	ND	L
25	Elliot Road, 3.5 miles west of Wintersburg at cattle guard	23.5	21.5	19.4	19.1	26.0	ND	ND	ND	ND	94.1	86.1	ND	
26	Duke Power Plant on entry gate	27.9	26.9	21.9	24.2	29.4	ND	ND	ND	ND	111.7	102.4	ND	L
27	Southwest site boundary	27.1	25.0	22.3	26.4	28.0	ND	ND	ND	ND	108.5	101.7	ND	L
28	West Southwest site boundary	25.9	24.5	20.3	26.5	24.8	ND	ND	ND	ND	103.6	96.1	ND	L
29	West site boundary	24.3	23.6	19.3	22.0	24.5	ND	ND	ND	ND	97.2	89.4	ND	L
30	West Northwest site boundary	25.8	23.5	21.3	22.9	25.7	ND	ND	ND	ND	103.0	93.3	ND	L
31	Northwest site boundary	23.1	21.5	18.6	22.3	24.6	ND	ND	ND	ND	92.3	86.9	ND	L
32	North Northwest site boundary	25.3	23.8	20.0	23.5	26.3	ND	ND	ND	ND	101.2	93.6	ND	L
33	Buckeye Road, 0.5 miles west of 359th Ave	25.9	23.5	19.5	23.7	25.4	ND	ND	ND	ND	103.6	92.1	ND	L
34	Southeast corner of 395th Ave and Van Buren Road	28.0	25.7	23.6	26.4	29.7	ND	ND	ND	ND	112.1	105.4	ND	L
35	Palo Verde Inn Fire Station, 40901 W. Osborn Road, Tonopah	31.1	29.5	26.3	28.1	31.6	ND	ND	ND	ND	124.4	115.5	ND	L
36	Southwest corner of Wintersburg and Van Buren Road	26.0	24.3	22.0	24.5	26.5	ND	ND	ND	ND	104.1	97.3	ND	L
37	Southeast corner of 363rd Ave and Van Buren Road	24.1	22.7	19.4	21.4	25.0	ND	ND	ND	ND	96.3	88.5	ND	L
	355th Ave, 0.2 miles south of Buckeye Road on east side of rd.		25.7	23.7	26.4	27.3	ND	ND	ND	ND	109.3	103.1	ND	L
	343rd Ave, 0.5 miles south of Lower Buckeye Road	24.4	23.2	20.6	23.2	24.3	ND	ND	ND	ND	97.7	91.3	ND	L
	Wintersburg, Transmission Road at telephone pole	25.0	24.1	21.6	22.1	24.5	ND	ND	ND	ND	99.9	92.2	ND	L
41	New Arlington School	26.6	25.5	22.6	24.3	27.8	ND	ND	ND	ND	106.3	100.1	ND	L
	Ruth Fisher School, Indian School Road and Wintersburg Road	26.5	24.8	23.2	28.7	27.5	ND	ND	ND	ND	105.8	104.2	ND	L
	Winters Well Elementary School	27.3	24.8	23.7	23.8	28.3	ND	ND	ND	ND	109.0	100.6	ND	L
	El Mirage, 12315 NW Grand Ave. inside rental center	24.2	24.9	*	19.4	22.6	ND	*	ND	ND	72.7	66.9	ND	2
	Palo Verde Central Chemistry Lab, Bldg. E, lead pig	5.3	4.1	4.8	5.6	6.1	ND	ND	ND	ND	21.4	20.6	ND	
	Litchfield Park School, Litchfield & Sagebrush Roads	23.9	20.9	18.5	21.4	25.9	ND	ND	ND	ND	95.4	86.7	ND	
	Littleton School, 115th Ave and Highway 85, Cashion	23.5	21.8	20.4	22.9	24.1	ND	ND	ND	ND	93.9	89.1	ND	1
	Jackrabbit Trail S. of I-10, W side of road, S of rental center	23.7	22.8	18.8	22.9	25.7	ND	ND	ND	ND	94.8	90.2	ND	1
	Palo Verde Road, 0.25 miles south of I-10	22.5	21.6	17.9	18.9	23.6	ND	ND	ND	ND	90.1	82.0	ND	1
	Olinski Road, 2 miles south of Buckeye-Salome Road	19.5	18.3	16.8	17.5	21.2	ND	ND	ND	ND	77.8	73.6	ND	
	TE 1: The 2 TLDs used for monitoring location 8 during 2nd Quarter,	2022, w	ere delaye	ed in bein	ıg deliver	ed to Do	simetry	. The	transit	dose w	aws adju	st accord	lingly.	
)0(cumented with CR 22-07921.													

Table 9-2 Environmental TLD Results

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022

calculated using B_Q *3. Documented with CR 22-07142.

Note 3- Site 44 Transit time adjusted to reflect placement delay for 3rd Qtr monitoring. Transit does for this location was 2.4 mrem, vs 1.4 for all other locations. CR 22-07142.

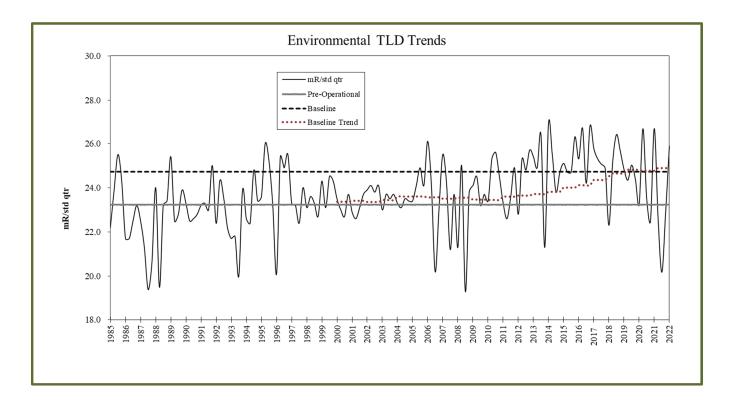


Figure 9-1 Network Environmental TLD Exposure Rates

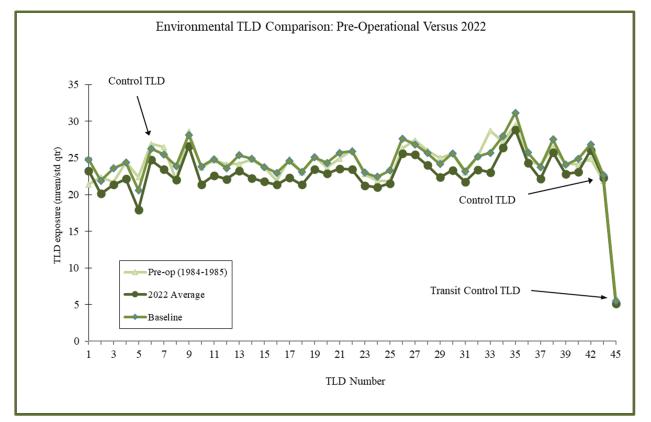


Figure 9-2 Environmental TLD Comparison: Pre-Operational versus 2022

The following TLDs are not included on this graph:

TLD #41 monitoring location was deleted in June, 2000 due to school closing (this TLD was replaced at a new school in 2004) TLD #43 monitoring location was deleted in 1994 due to school closing (this TLD was placed at a new school in 2007) TLDs #46-50 are not included since they were not included in the pre-op monitoring program.

PVNGS ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT- 2022

Page 50

10.1 Introduction

In accordance with the PVNGS ODCM, Section 6.2, the field portion of the annual Land Use Census was performed by June 2022.

Observations were made in each of the 16 meteorological sectors to determine the nearest milking animals, residences, and food gardens of greater than 500 square feet that contain broadleaf vegetation. This census was completed by driving the roads and speaking with residents.

The results of the Land Use Census are presented in Table 10-1 and discussed below. The directions and distances listed are in sectors and miles from the Unit 2 containment.

10.2 Census Results

The 2022 Land Use Census results identified new potential Radiological Effluent Release Report dose receptor locations. Each location was evaluated. The changes identified, and the evaluation results, are described below.

Nearest Resident

There were no changes in nearest resident status from the previous year. Dose calculations indicated the highest dose to be 0.143 mrem.

<u>Milk Animal</u>

There were eight (8) changes in milk animal status from the previous year. There were four (4) of the locations that were identified in the census which had the potential for having a dose greater than 20% than that of our current sampling location with the lowest dose potential. The locations were visited by the REMP manager to evaluate program participation potential. As of October 2022, one of the locations had no milk animals. One of the locations potentially had milk animals; however, the animals were obscured by shelter and the property had a closed gate that prevented verifying animals or in-person discussion with owner. Introductory letter was sent via USPS. One property had goats and cows present and the owner was briefed, in-person, about the program. One resident was contacted, in-person, and has agreed to enter the program; resident added to the REMP as Site 49 as a Milk Donor. Dose calculations indicated the highest dose to be 0.669 mrem.

Vegetable Gardens

There were three (3) changes in the nearest gardens identified from the previous year. Two (2) of the locations that was identified in the census which had the potential for having a dose greater than 20% than that of our current sampling location with the lowest dose potential. One of the locations was visited by the REMP manager to evaluate program participation potential. As of October 2022, the garden was not operational and no signs of preparation for the growing season. The other resident was contacted and agree to participate in the REMP; resident has been added to the REMP as Site 49 as a Vegetation Donor. Dose calculations indicated the highest dose to be 0.669 mrem.

See Table 10-1 for a summary of the specific results and Table 2-1 for current sample locations. Figure 10-1 through Figure 10-3 provide graphs depicting historical calculated doses for nearest residents, nearest milk receptor, and nearest garden receptor locations in each sector.

Differences in calculated doses are the result of many variables, including:

- Changes in receptor locations from year to year (proximity to the power plant)
- Changes in local meteorology (wind direction, wind speed, precipitation, and temperature)
- Concurrent meteorology at the time of effluent releases
- Exposure pathways

Table 10-1 Land Use Census

(Distance and direction are relative to Unit 2 in miles)

Sector	Nearest Resident	Nearest Garden	Nearest Milk Animal (Cow/Goat)) Calculated Dose (mrem)		Change from 2022
				Resident	5.21E-2	Garden
Ν	1.55	1.63	1.63	Garden	6.69E-1	Milk
				Milk	6.69E-1	
NNE	1.52	NONE	2.89	Resident	1.29E-1	Milk
	1.32	NONE	2.09	Milk	3.67E-1	
NE	2.37	NONE	4.89	Resident	1.43E-1	Milk
	2.37	NONE	4.09	Milk	3.01E-1	
				Resident	1.26E-1	Garden
ENE	1.91	3.90	NONE	Garden	2.47E-1	Milk
E	2.81	NONE	NONE	Resident	9.08E-2	Milk
FOF	2.02	NONE	2.27	Resident	9.28E-2	
ESE	3.03	NONE	3.37	Milk	4.63E-1	
SE	3.39	NONE	NONE	Resident	1.20E-1	Milk
SSE	NONE	NONE	NONE	NA		
S	NONE	NONE	NONE	NA		
SSW	NONE	NONE	NONE	NA		
SW	1.48	NONE	NONE	Resident	1.25E-1	
WSW	1.08	NONE	NONE	Resident	9.11E-2	Milk
W	0.79	NONE	NONE	Resident	5.42E-2	
WNW	NONE	NONE	NONE	NA		
NINT	0.02	NONE	2.40	Resident	4.49E-2	
NW	0.92	NONE	3.42	Milk	5.92E-2	
				Resident	4.43E-2	Garden
NNW	1.31	NONE	3.45	Milk	5.20E-2	Milk
				1		l

Comments: Dose calculations were performed using GASPAR code and 2021 meteorological data and source term. Dose reported for each location is the total for all three PVNGS Units and is the highest individual critical organ dose identified.

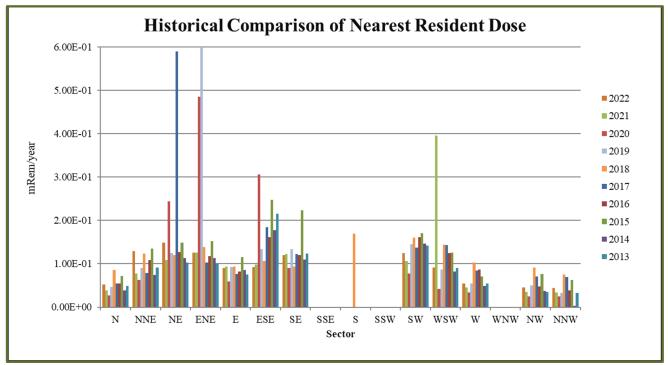


Figure 10-1 Historical Comparison of Nearest Resident Dose

Historical annual average most prevalent wind direction is from the SW; the next highest is from the N. This contributes to the higher doses assigned to residents in the S sector. The 2017 Land Use Census identified potential garden pathway for the nearest resident in the NE Sector, the 2019 and 2020 Land Use Census identified a potential milk pathway for the nearest resident in the ENE sector, and the 2021 Land Use Census identified a potential milk pathway for the nearest resident in the WSW sector; dose is reflective of the assumption of direct radiation and ingestion pathway.

Historical annual average least prevalent wind direction is from the SE; the second least prevalent is from the ESE. This contributes to the lower doses assigned to the residents in the WNW, NW, and NNW sectors.

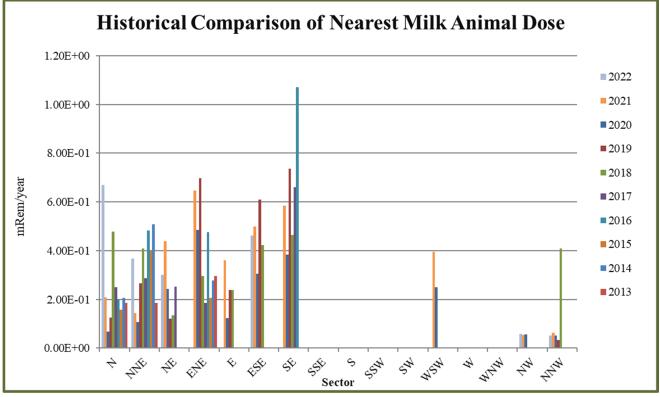
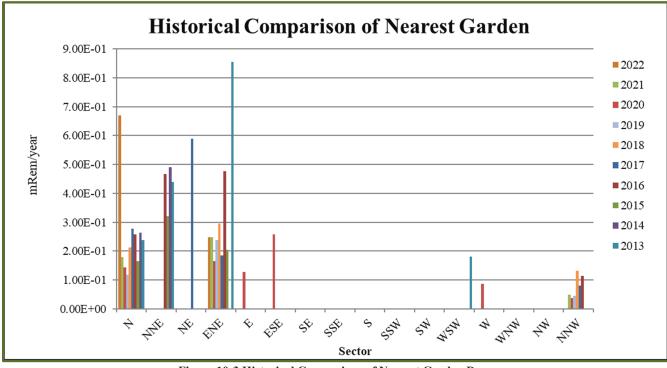


Figure 10-2 Historical Comparison of Nearest Milk Animal Dose

Milk animals include goats and/or cows. No milk samples have indicated any plant-related radionuclides. Additionally, milk animals in the desert environment are normally fed stored feed and are not on pasture. The calculated doses are conservative due to the inclusion of pastured feed as part of the calculation.





Gardens have been sporadically identified from year to year. Gardening is not prevalent in the desert environment.

11. Summary and Conclusions

Summary

The conclusions are based on a review of the radioassay results and environmental gamma radiation measurements for the 2022 calendar year. Where possible, the data were compared to pre-operational sample data.

All sample results for 2022 are presented in Table 8-1 through Table 8-12 and <u>do not include</u> <u>observations of naturally occurring radionuclides</u>, with the exception of gross beta in air and gross beta in <u>drinking water</u>. Table 11-1 summarizes the ODCM required samples and is in the format required by the NRC BTP on Environmental Monitoring.

I-131 is occasionally identified in the evaporation ponds, Water Resources influent, Water Resources centrifuge sludge, and reservoirs is the result of offsite sources and appears in the effluent sewage from Phoenix. The levels of I-131 detected in these locations are consistent with levels identified in previous years.

Tritium concentrations identified in surface water onsite have been attributed to PVNGS permitted gaseous effluent releases and secondary plant releases. These concentrations are consistent with historical values.

Environmental radiation levels are consistent with measurements reported in previous Pre-operational and Operational Radiological Environmental annual reports, References 1 and 2.

Conclusion

There was no measurable radiological impact on the environment in 2022 resulting from the operation of PVNGS.

Table 11-1 Environmental Radiological Monitoring Program Annual Summary TABLE 11.1 ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Palo Verde Nuc Maricopa Coun	elear Generating Stat ty, Arizona		ocket Nos. ST alendar Year 2		29/530		
Medium or Pathway Sampled (Unit of	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations	Location v Annual M	with Highest ean	Control Locations	Number of Nonroutine Reported Measurements
Measurement)		(from Table 6.1)	Mean (f) ^a Range	<u>Name</u> (<u>f</u>) ^a Distance a Range Direction	Mean and	Mean (f) ^a Range	
Direct Radiation	TLD - 198	NA	22.9 (188/188)	Site #35	28.9 (8/8)	22.3 (6/8)	0
(mrem/std. qtr.)			16.0 - 31.6	8 miles 330°	26.3 - 31.6	19.4 - 24.9	
Air Particulates (pCi/m ³)	Gross Beta - 520	0.01	0.029 (468/468) 0.012 - 0.056	Site # 4 16 miles 92°	0.032 (52/52) 0.014 - 0.064	0.031 (52/52) 0.015 - 0.054	0
	Gamma Spec Composite - 40 Cs-134 (quarterly)	0.05	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
	Cs-137 (quarterly)	0.06	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
Air Radioiodine (pCi/m ³)	Gamma Spec 520 I-131	0.07	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
Broadleaf Vegetation	Gamma Spec 21 I-131	60	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
(pCi/Kg-wet)	Cs-134 Cs-137	60 80	<lld <lld <lld< td=""><td>NA NA NA</td><td><lld <lld <lld< td=""><td><lld <lld <lld< td=""><td>0 0</td></lld<></lld </lld </td></lld<></lld </lld </td></lld<></lld </lld 	NA NA NA	<lld <lld <lld< td=""><td><lld <lld <lld< td=""><td>0 0</td></lld<></lld </lld </td></lld<></lld </lld 	<lld <lld <lld< td=""><td>0 0</td></lld<></lld </lld 	0 0

Groundwater (pCi/liter)	H-3 – 12	2000	<lld< th=""><th>NA</th><th><lld< th=""><th>NA</th><th>0</th></lld<></th></lld<>	NA	<lld< th=""><th>NA</th><th>0</th></lld<>	NA	0
	Gamma Spec 12						
	Mn-54	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Fe-59	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Co-58	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Co-60	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Zn-65	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Zr-95	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Nb-95	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	I-131	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Cs-134	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Cs-137	18	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Ba-140	60	_ <lld< td=""><td>_ NA</td><td>_<lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	_ NA	_ <lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Gross Beta – 48	4	4.52 (48/48)	Site #55	5.03 (12/12)	NA	C
			2.70 - 8.44	3 miles 214°	3.84 -8.44		
	H-3 – 16	2000	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Gamma Spec. – 44						
Drinking Water	Mn-54	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
(pCi/liter)	Fe-59	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
(per mer)	Co-58	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Co-60	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Zn-65	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Zr-95	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Nb-95	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	I-131	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Cs-134	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Cs-137	18	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	Ba-140	60	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(
	La-140	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>(</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>(</td></lld<>	NA	(

Milk	Gamma Spec. – 23						
(pCi/liter)	I-131	1	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
			<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
	Cs-134	15	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
			<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
	Cs-137	18	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
			<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
	Ba-140	60	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
	La-140	15	<lld< td=""><td>NA</td><td><lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<></td></lld<>	NA	<lld< td=""><td><lld< td=""><td>0</td></lld<></td></lld<>	<lld< td=""><td>0</td></lld<>	0
Surface Water	Gamma Spec 19						
(pCi/liter)	Mn-54	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Fe-59	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Co-58	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Co-60	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Zn-65	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Zr-95	30	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Nb-95	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	I-131	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Cs-134	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Cs-137	18	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	Ba-140	60	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	La-140	15	<lld< td=""><td>NA</td><td><lld< td=""><td>NA</td><td>0</td></lld<></td></lld<>	NA	<lld< td=""><td>NA</td><td>0</td></lld<>	NA	0
	H-3 - 19	3000	693 (8/19)	Site #59	679 (5/6)	NA	0
			357-999	Onsite 190°	357-999		

(a) Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses. (f)

NOTE: Miscellaneous samples that are not listed on Tables 2.1 and 9.1 (not ODCM required) are not included on this table.

- 1. Pre-Operational Radiological Monitoring Program, Summary Report 1979-1985
- 2. 1985-2020 Annual Radiological Environmental Operating Reports, Palo Verde Nuclear Generating Station
- 3. Palo Verde Nuclear Generating Station Technical Specifications and Technical Reference Manual
- 4. Offsite Dose Calculation Manual, Revision 29, PVNGS Units 1, 2, and 3
- 5. Offsite Dose Calculation Manual, Revision 30, PVNGS Units 1, 2, and 3
- 6. Regulatory Guide 4.1, Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants
- 7. Regulatory Guide 4.8, Environmental Technical Specifications for Nuclear Power Plants
- 8. NRC Radiological Assessment Branch Technical Position on Environmental Monitoring, Revision 1, November 1979 (Incorporated into NUREG-1301)
- 9. "Sources of Radiation." *NRC: Sources of Radiation*. Nuclear Regulatory Commission, 20 March. 2020. Web. 17 Feb. 2023.
- 10. "NCRP Report No. 160: Ionizing Radiation Exposure of the Population of the United States." *Journal of Radiological Protection J. Radiol. Prot.* 29.3 (2009): 465. Web.
- 11. NEI 07-07, Nuclear Energy Institute, Industry Groundwater Protection Initiative Final Guidance Document, Rev. 1, March 2019

One abnormal event from 2021 was not identified until after the submittal of the 2021 Annual Radiological Environmental Operating Report (AREOR), and therefore not included in Table 2-3: Summaries of the REMP Deviation/Abnormal Events. EG1531 Sierra Mass Flow Meter was found to be out of tolerance during normal calibration and was documented through Condition Report (CR) 22-04247. Level 3 Evaluation 22-04247-001 documents the evaluation of this event. The EG1531 Mass Flow Meter was used during Radiological Environmental Monitoring Program (REMP) Air Sample changeouts 26 October 2021-22 November 2021. This had the potential to impact sample data for Sample Weeks 43-47, which includes sample collection dates 19 October 2021- 30 November 2021 (Sample Weeks 42-48).

The reference flow rate was higher than the instrument reported, therefore the recorded volume for the impacted samples is underestimated, resulting in conservative activity and MDA results. Per 74RM-0EN02, Radiological Environmental Air Sampling, flow rate must be 25 LPM \geq 50 LPM. Assuming the most conservative failure, the samples in question would still meet the procedurally required flow rate. The required LLD for I-131 in air sample is 0.07 pCi/m3; the underestimation of total volume resulted in MDAs that were marginally higher than the actual MDAs, and thus still meeting required LLDs.

The impacted sample data for sample collection Weeks 42-48 (2021) was reviewed and found to have sufficient margin to accommodate for the recorded variance of the mass flow meter. Adjusted data met the required LLDs. All data is VALID. Event identified April 2022 and documented through CR 22-04247; evaluation documented through Level 3 Evaluation 22-04247-001.