

May 11, 2026

10 CFR 50, Appx. I

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

Subject: **Docket Nos. 50-206, 50-361, 50-362 and 72-41**
2025 Annual Radiological Environmental Operating Report
San Onofre Nuclear Generating Station (SONGS), Units 1, 2 and 3 and
Independent Spent Fuel Storage Installation

Dear Sir or Madam,

In accordance with the San Onofre Nuclear Generating Station (SONGS) Licensee Controlled Specification 5.7.1.2, Southern California Edison (SCE) is submitting the 2025 Annual Radiological Environmental Operating Report (AREOR) for SONGS Units 1, 2 and 3. The AREOR covers the operation of SONGS during January 1, 2025 through December 31, 2025 and includes summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program (REMP).

In addition, the AREOR includes the results for direct radiation monitoring near the Independent Spent Fuel Storage Installation.

There are no commitments in this letter or the enclosure.

If you have any questions, please contact me at (949) 368-6274.

Sincerely,

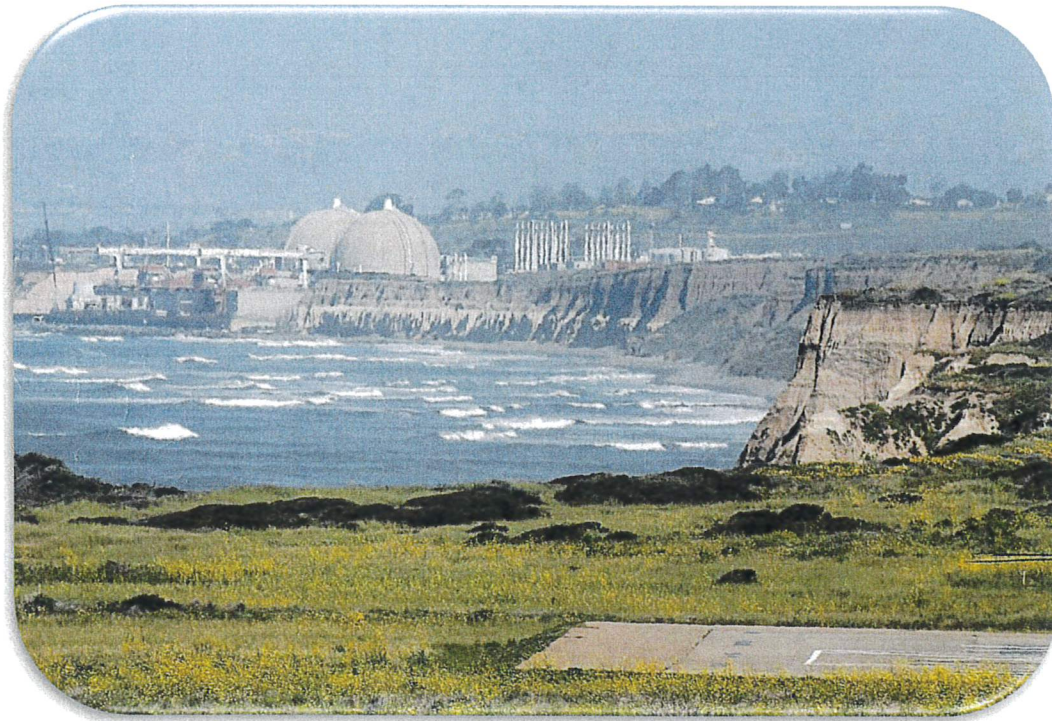


Enclosure: 2025 San Onofre Nuclear Generating Station Annual Radiological Environmental
Operating Report

cc: J. D. Monninger, Regional Administrator, NRC Region IV
O. E. Font, NRC Project Manager, SONGS Units 1, 2, 3 and ISFSI
J. Fassell, California Department of Public Health

ENCLOSURE

**2025 San Onofre Nuclear Generating Station
Annual Radiological Environmental Operating Report**



Annual Radiological Environmental Operating Report 2025

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1.0 LIST OF ACRONYMS AND DEFINITIONS

1. Airborne Activity Sampling: Continuous sampling of air through the collection of particulates and radionuclides on filter media.
2. ARERR: Annual Radioactive Effluent Release Report
3. AREOR: Annual Radiological Environmental Operating Report
4. BWR: Boiling Water Reactor
5. CDPH: California Department of Public Health
6. Composite Sample: A series of single collected portions (aliquots) analyzed as one sample. The aliquots making up the sample are collected at time intervals that are very short compared to the composite period.
7. Control: A sampling station in a location not likely to be affected by plant effluents due to its distance and/or direction from the station.
8. Curie (Ci): A measure of radioactivity; equal to 3.7×10^{10} disintegrations per second, or 2.22×10^{12} disintegrations per minute.
9. Direct Radiation Monitoring: The measurement of radiation dose at various distances from the plant is assessed using Thermoluminescent Dosimeters (TLD), Optically Stimulated Luminescence Dosimeters (OSLD) and pressurized ionization chambers.
10. DOE: Department of Energy
11. EDC: Environmental Dosimetry Company
12. EPA: Environmental Protection Agency
13. ERA: Environmental Resource Associates
14. GPI: Groundwater Protection Initiative
15. Grab Sample: A single discrete sample drawn at one point in time.
16. Indicator: A sampling location that is likely to be affected by plant effluents due to its proximity and/or direction from the plant.
17. Ingestion Pathway: The ingestion pathway includes milk, fish, drinking water and garden produce. Also sampled (under special circumstances) are other media such as vegetation or animal products when additional information about particular radionuclides is needed.
18. ISFSI: Independent Spent Fuel Storage Installation
19. LCS: Laboratory Control Spike

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20. LCSD: Laboratory Control Spike Duplicate
21. Lower Limit of Detection (LLD): An *a priori* measure of the detection capability of a radiochemistry measurement based on instrument setup, calibration, background, decay time, and sample volume. An LLD is expressed as an activity concentration. The MDA is used for reporting results. LLD are specified by a regulator, such as the NRC and are typically listed in the ODCM.
22. MAPEP: Mixed Analyte Performance Evaluation Program
23. MDA: Minimum Detectable Activity. For radiochemistry instruments, the MDA is the *a posteriori* minimum concentration that a counting system detects. The smallest concentration or activity of radioactive material in a sample that will yield a net count above instrument background and that is detected with 95% probability, with only five % probability of falsely concluding that a blank observation represents a true signal.
24. MDC: Minimum Detectable Concentration. Essentially synonymous with MDA for the purposes of radiological monitoring.
25. Mean: The sum of all of the values in a distribution divided by the number of values in the distribution, synonymous with average.
26. N/A: Not Applicable
27. NEI: Nuclear Energy Institute
28. NIST: National Institute of Standards and Technology.
29. NRC: Nuclear Regulatory Commission
30. ODCM: Offsite Dose Calculation Manual
31. OSLD: Optically Stimulated Luminescence Dosimeter
32. Picocurie (pCi): 3.7×10^{-2} disintegrations per second, or 2.22 disintegrations per minute.
33. pCi/L: picocuries / Liter
34. PWR: Pressurized Water Reactor
35. REMP: Radiological Environmental Monitoring Program
36. TLD: Thermoluminescent Dosimeter

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2.0 EXECUTIVE SUMMARY

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

The Annual Radiological Environmental Operating Report (AREOR) provides data obtained through analyses of environmental samples collected at Site for the reporting period of January 1st through December 31st, 2025. During that time period 603 analyses were performed on 532 samples. In assessing all the data gathered for this report and comparing these results with 10-year average values, it was concluded that the operation of Site did not result in detection of plant related radionuclides in the environment.

2.1 Summary of Conclusions:

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

3.0 INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) provides data on measurable levels of radiation and radioactive materials in the environment. This program also evaluates the relationship between quantities of radioactive materials released from the plant and resultant doses to individuals from principal pathways of exposure. In this capacity, REMP provides a check on the effluent release program and dispersion modeling to ensure that concentrations in the environment due to radioactive effluents conform to the "As Low as Is Reasonably Achievable" (ALARA) design objectives of 10 CFR 50, Appendix I [2], and implements the requirements of Section IV.B.2 and IV.B.3 of Appendix I. REMP is designed to conform to the Nuclear Regulatory Commission (NRC) Regulatory Guide 4.1 [3], NUREG 1301/1302 [4] [5], and the 1979 NRC Branch Technical Position [6].

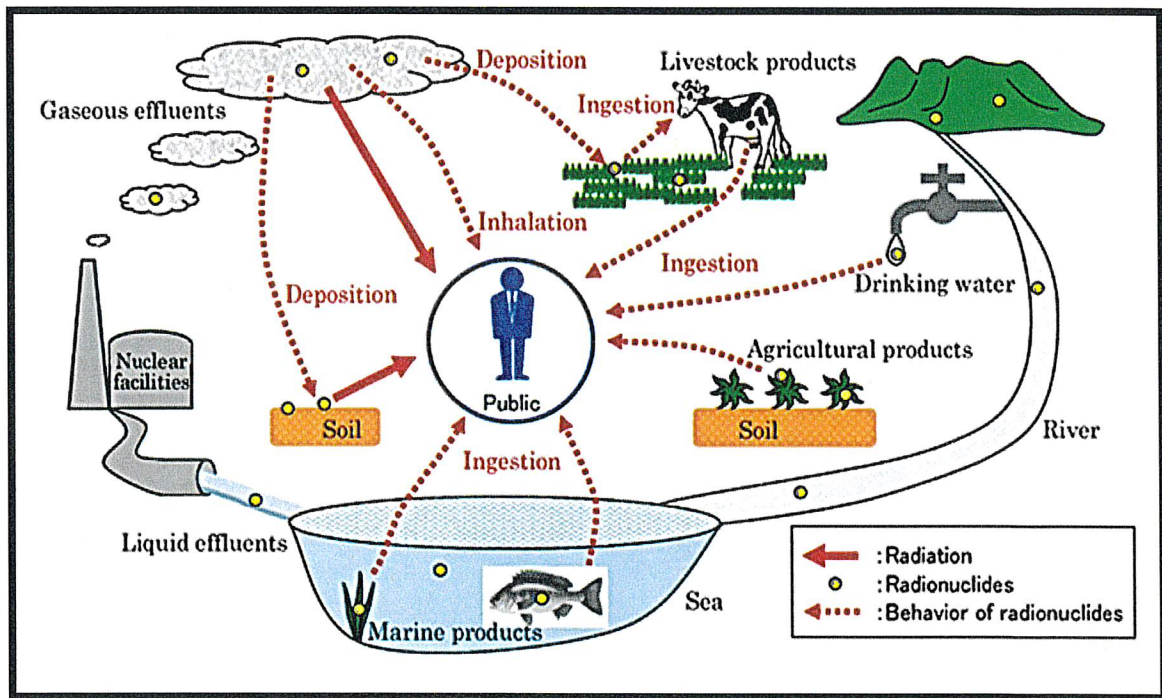


Figure 1: Potential exposure pathways to Members of the Public due to Plant Operations [7]

Quality assurance aspects of the sampling program and TLD data collection are conducted in accordance with Regulatory Guides 4.15 [8] and 4.13 [9]. REMP also adheres to the requirements of Site Licensee Controlled Specifications, and Offsite Dose Calculation Manual (ODCM). These governing documents dictate the environmental sampling, sample analysis protocols, data reporting and quality assurance requirements for the environmental monitoring program.

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

4.0 SITE DESCRIPTION AND SAMPLE LOCATIONS

San Onofre Nuclear Generating Station is a commercial nuclear power plant that achieved initial criticality in 1967 for Unit 1. San Onofre Nuclear Generating Station is located next to San Onofre State Beach, adjoining Camp Pendleton Marine Corps Base, in San Diego County, 64 miles south of Los Angeles, California. At this time there are no operating reactors, but in the past, there were three operating pressurized water reactors with a total rated capacity of 2664 net megawatts electrical.

Unit 1 operated from 1968 to 1992 and has been partially decommissioned with all above-ground structures removed. The SONGS ISFSI is located in the area formerly occupied by Unit 1. Units 2 and 3 were operated from 1983 and 1984 until the units were permanently retired in 2013. Units 2 and 3 are under active decommissioning.

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

- Table 1: Radiological Environmental Monitoring Program – Direct Radiation
- Table 2: Radiological Environmental Monitoring Program – Airborne
- Table 3: Radiological Environmental Monitoring Program – Waterborne
- Table 4: Radiological Environmental Monitoring Program – Ingestion
- Table 5: REMP Sampling Locations – Direct Radiation
- Figure 2: SONGS Nearby Terrestrial Locations (SONGS ODCM Figure 5-1)
- Figure 3: SONGS Terrestrial Samples, 1-Mile (SONGS ODCM Figure 5-2)
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- Figure 6: SONGS Marine Samples, Near (SONGS ODCM Figure 5-5)
- Figure 7: SONGS Marine Samples, Far (SONGS ODCM Figure 5-6)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM REQUIREMENTS

Table 1: Radiological Environmental Monitoring Program – Direct Radiation

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection Frequency	Type and Frequency of Analyses
<u>Direct Radiation</u> At least 30 Routine monitoring stations with two or more dosimeters placed as follows: An inner ring of stations, one in each compass sector in the general area of the site boundary. An outer ring of stations, one in each compass sector at approximately five miles from the site; and Special interest areas, such as population centers, nearby recreation areas, and control stations	See Table 5	Quarterly	Gamma dose/Quarterly

Table 2: Radiological Environmental Monitoring Program – Airborne

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection Frequency	Type and Frequency of Analyses
<u>Airborne Particulates</u> Samples from at least five locations: Three samples from offsite locations (in different sectors) of the highest calculated annual average ground level D/Q. One sample from the vicinity of a community having the highest calculated annual average D/Q. One sample from a control location, approximately 10 to 20 miles distant in the least prevalent wind direction.	AS-1 (APA 01): City of San Clemente (City Hall), 5.1 miles NW AS-9 (APA 09): State Beach Park, 0.6 miles ESE (Permanently Retired from Service) AS-10^a (APA 10): Bluff, 0.7 miles WNW AS-12 (APA 12): Former SONGS Evaporation Pond, 0.6 miles NW AS-13 (APA 13): Marine Corp Base (Camp Pendleton East), 0.7 miles E AS-16 (APA 16): San Luis Rey Substation (Control), 16.7 miles SE AS-20 (APA 20): E Site Boundary (Alt for AS-13), 0.2 miles E AS-21 (APA 21): ESE Site Boundary (Alt for AS-9), 0.4 miles ESE	Continuous sampler operation with sample collection weekly	Analyze weekly for gross beta. Perform gamma isotopic analysis on composite sample (by location)/Quarterly.

^a AS-10 is not required per REMP bases and has been permanently retired on 10/7/2025.

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Table 3: Radiological Environmental Monitoring Program – Waterborne

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection Frequency	Type and Frequency of Analyses
Ocean Water One sample taken at a distance beyond significant influence of the discharge (control) and three samples within the vicinity of the discharge (indicator)	Ocean Water A (WSA 01): Station Discharge Outfall – Unit 1, 0.6 miles SW	Samples are collected monthly.	Gamma isotopic and H-3 /Monthly
	Ocean Water B (WSA 02): Outfall – Unit 2, 1.5 miles SW		
	Ocean Water C (WSA 03): Outfall – Unit 3, 1.2 miles SSW		
	Ocean Water D (WSA 04): Newport Beach (Control), 30.0 miles NW		
Shoreline Sediment One sample taken at a distance beyond significant influence of the discharge (control) and three samples within the vicinity of the discharge (indicator)	Shoreline Sediment Sample 1 (SSA 01): San Onofre State Beach (Southeast), 0.6 miles SE	Semiannual	Gamma isotopic /Semiannually
	Shoreline Sediment Sample 2 (SSA 02): San Onofre Surfing Beach, 0.8 WNW		
	Shoreline Sediment Sample 3 (SSA 03): San Onofre State Beach (Southeast), 3.5 miles SE		
	Shoreline Sediment Sample 4 (SSA 04): Newport Beach (North End) (Control), 29.2 miles NW		
Ocean Bottom Sediment One sample taken at a distance beyond significant influence of the discharge (control) and four samples within the vicinity of the discharge (indicator)	OBS Sample B (SEB 02): Unit 1 Outfall, 0.8 miles SSW	Semiannual	Gamma isotopic /Semiannually
	OBS Sample C (SEB 03): Unit 2 Outfall, 1.6 miles SW		
	OBS Sample D (SEB 04): Unit 3 Outfall, 1.2 miles SSW		
	OBS Sample E (SEB 05): Laguna Beach (Control), 15-20 miles NW		
	OBS Sample F (SEB 06): SONGS Upcoast, 0.9 miles WSW		

Table 4: Radiological Environmental Monitoring Program – Ingestion

Requirement	Sample Location Description, Distance, and Direction	Sampling Collection Frequency	Type and Frequency of Analyses
Non-Migratory Marine Animal: Two recreationally important adult fish, one crustacean, and one mollusk from two locations in the vicinity of site discharge. One sample of same species in areas not influenced by plant discharge.	NMMA Sample A (MOA 01): Unit 1 Outfall, 0.9 miles WSW NMMA Sample B (MOA 02): Unit 2/3 Outfall, 1.5 miles SSW NMMA Sample C (MOA 03): Laguna Beach (Control), 15-20 miles WNW to NW	Semiannually if available	Gamma isotopic /Semiannually
	Local Crops 2 (TFB 02): Control (Vista/Oceanside), 15- 25 miles SE to ESE Local Crops 6 (TFB 06): SONGS Garden, 0.7 miles NNW		
		Semiannual	Gamma isotopic /Semiannually

Table 5: REMP Sampling Locations – Direct Radiation

Site #	Location Type	Sector	Distance	Description
1 ^a	Special Interest	NW	5.7	City of San Clemente (Former SDG&E Offices)
2 ^a	Outer Ring	N	3.6	Camp San Mateo — (MCB, Camp Pendleton)
3 ^a	Special Interest	NE	2.8	Camp San Onofre — (MCB, Camp Pendleton)
4	Outer Ring	E	4.4	Camp Horno — (MCB, Camp Pendleton)
6 ^a	Outer Ring	ESE	3.0	Old El Camino Real (AKA Old Highway 101)
8	Special Interest	NW	1.4	Noncommissioned Officers' Beach Club
10 ^a	Inner Ring	WNW	0.7	Bluff (AS #10)
11	Inner Ring	NW	0.4	Former Visitors' Center
12	Special Interest	E	0.2*	South Edge of Switchyard
15	Special Interest	SSE	0.1*	Southeast Site Boundary
16 ^a	Special Interest	ESE	0.4*	East Southeast Site Boundary
19	Outer Ring	NNW	4.9	San Clemente Highlands
22 ^a	Outer Ring	WNW	2.7	Former US Coast Guard Station - San Mateo Point
34 ^a	Special Interest	NW	1.9	San Onofre School — (MCB, Camp Pendleton)
35	Outer Ring	NNE	4.8	Range 312 — (MCB, Camp Pendleton)
36	Outer Ring	NE	4.1	Range 208C — (MCB, Camp Pendleton)
40	Inner Ring	NNW	0.7	Mesa SONGS Garden
41	Special Interest	E	0.3	Old Route 101 — East
46	Inner Ring	SE	1.0	San Onofre State Beach Park

^a TLD is collocated with a CDPH TLD.

* TLD Location is within the SONGS Site Boundary.

Table 5: REMP Sampling Locations – Direct Radiation

Site #	Location Type	Sector	Distance	Description
50 ^a	Special Interest	SE	15.6	Oceanside Fire Station (Control)
55	Special Interest	WNW	0.2*	San Onofre State Beach (U1 West)
56	Special Interest	W	0.2*	San Onofre State Beach (U1 West)
57	Special Interest	SW	0.1*	San Onofre State Beach (Unit 2)
58	Special Interest	S	0.1*	San Onofre State Beach (Unit 3)
61	Inner Ring	N	0.7	Mesa - East Boundary (Former PIC 4)
62	Inner Ring	NNE	0.7	MCB - Camp Pendleton (Former PIC 5)
63	Inner Ring	NE	0.6	MCB - Camp Pendleton (Former PIC 6)
64	Inner Ring	ENE	0.6	MCB - Camp Pendleton (Former PIC 7)
65	Inner Ring	E	0.7	MCB - Camp Pendleton (AS #13)
66	Inner Ring	ESE	0.6	San Onofre State Beach Park (AS #9)
68	Outer Ring	ENE	4.4	Range 210C — (MCB, Camp Pendleton)
73	Special Interest	ESE	0.4*	South Yard Facility
75	Outer Ring	SE	4.6	Gate 25 MCB
76	Outer Ring	NW	4.6	Former El Camino Real Mobil Station

^a TLD is collocated with a CDPH TLD.

* TLD Location is within the SONGS Site Boundary.

MAPS OF COLLECTION SITES

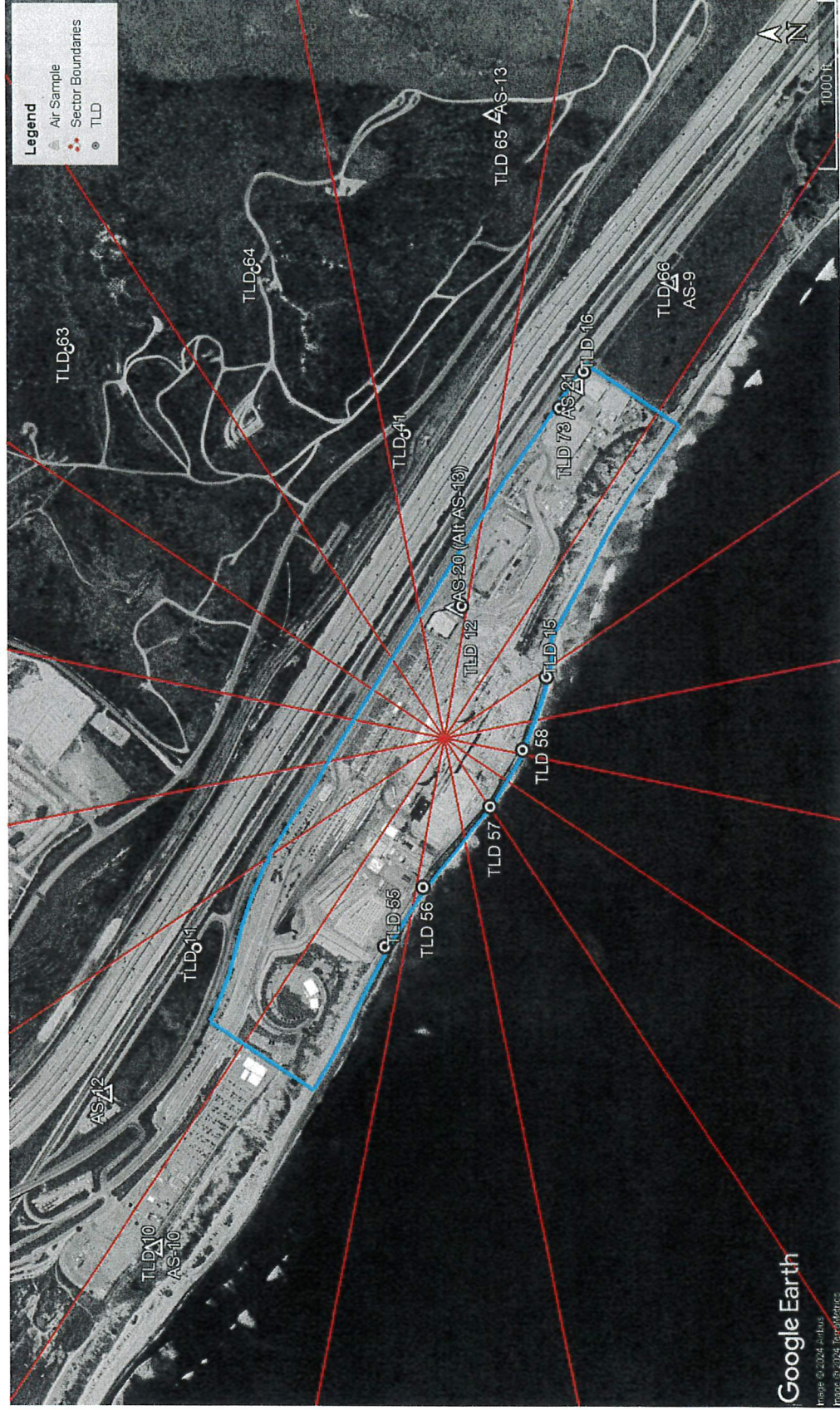


Figure 2: SONGS Nearby Terrestrial Locations (SONGS ODCM Figure 5-1)

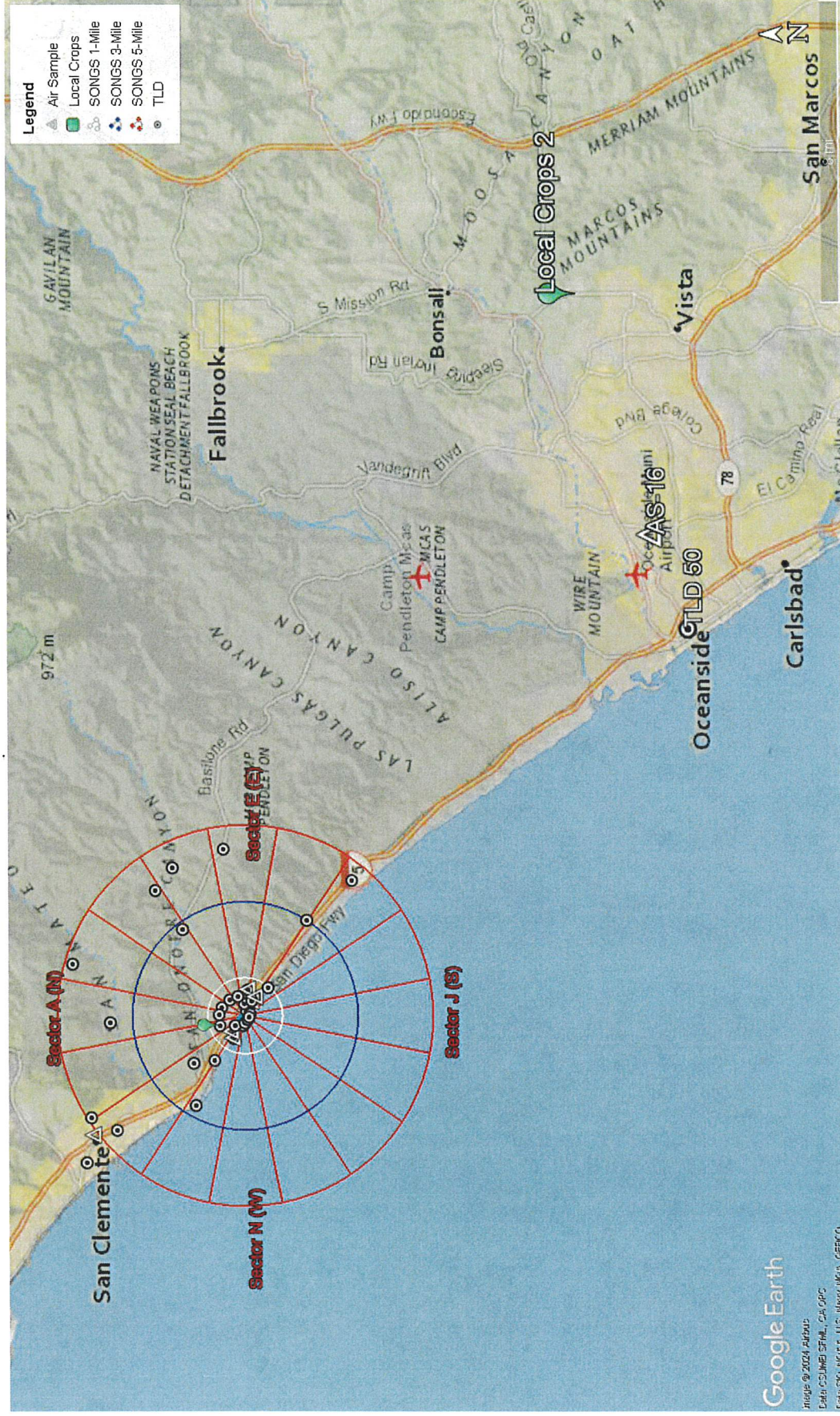


Figure 5: SONGS Terrestrial Samples, Control (SONGS ODCM Figure 5-4)

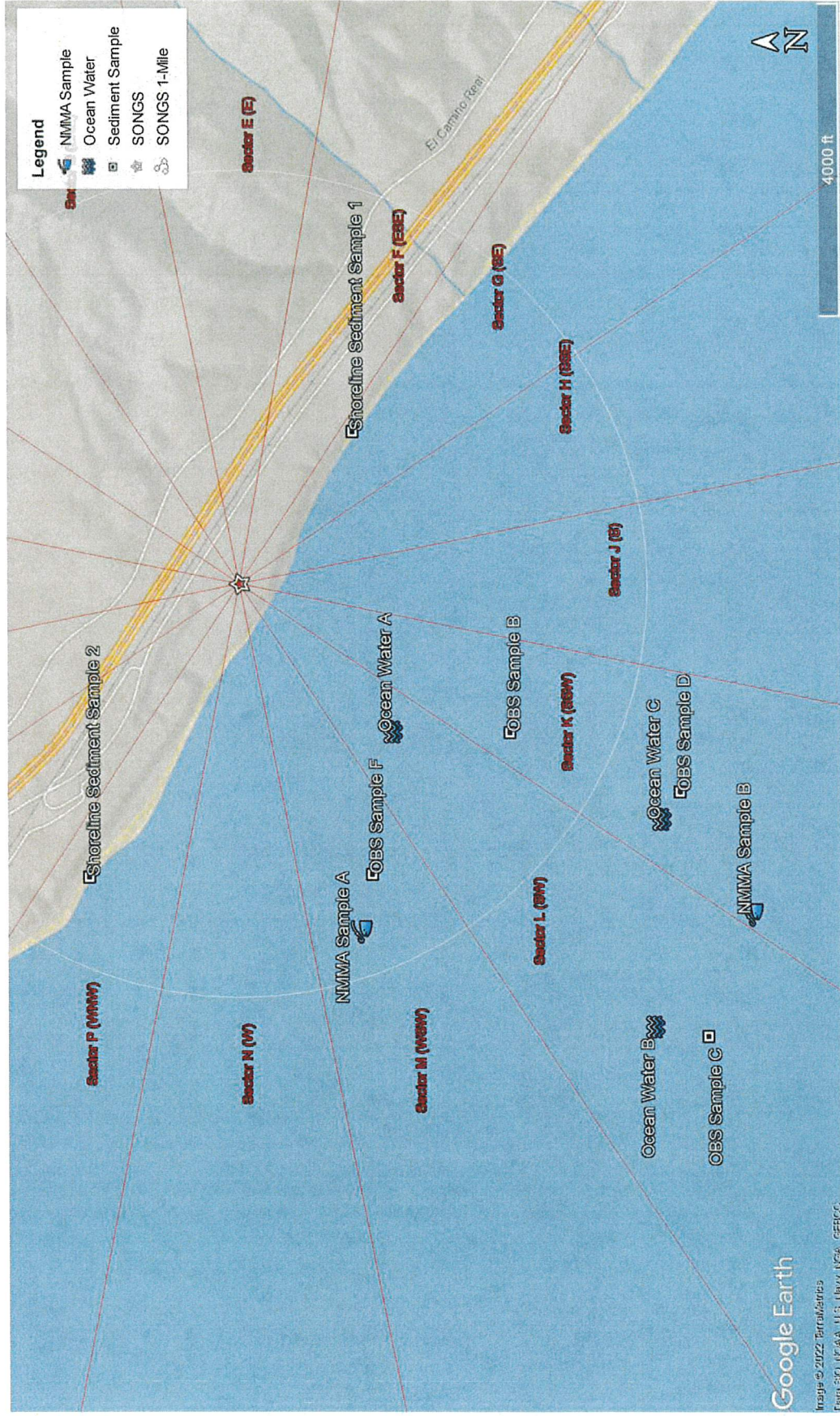


Figure 6: SONGS Marine Samples, Near (SONGS ODCM Figure 5-5)



Figure 7: SONGS Marine Samples, Far (SONGS ODCM Figure 5-6)

7.0 REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Table 6: Reporting Levels for Radioactivity Concentrations in Environmental Samples

Radionuclide	Water (pCi/L)	Air Particulates or Gases (pCi/m ³)	Marine Animals (pCi/Kg-wet)	Local Crops (pCi/Kg-wet)
H-3	30,000 ⁽¹⁾			
Mn-54	1,000		30,000	
Co-58	1,000		30,000	
Co-60	300		10,000	
Zn-65	300		20,000	
Cs-134	30	10	1,000	1,000
Cs-137	50	20	2,000	2,000

Table 7: Maximum Values for the Limit of Detection

Radionuclide	Water (pCi/L)	Air Particulates or Gases (pCi/m ³)	Marine Animals (pCi/Kg-wet)	Local Crops (pCi/Kg-wet)	Sediment (pCi/Kg-dry)
Gross Beta		0.01			
H-3	3,000 ⁽²⁾				
Mn-54	15		130		
Co-58, Co-60	15		130		
Zn-65	30		260		
Cs-134	15	0.05	130	60	150
Cs-137	18	0.06	150	80	180

¹ Reporting Level value of 30,000 pCi/l selected for H-3 based on NUREG-1301 guidance for plants where no drinking water pathway exists.

² Maximum LLD value of 3,000 pCi/l selected for H-3 based on NUREG-1301 guidance for plants where no drinking water pathway exists.

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8.0 SAMPLING PROGRAM, PROGRAM MODIFICATION AND INTEPRETATION OF RESULTS

At most nuclear stations, data was collected prior to plant operation to determine background radioactivity levels in the environment. Annual data is routinely compared to preoperational and/or 10-year average values to determine if changes in the environs are present. Strict comparison is difficult to make due to fallout from historical nuclear weapon testing. Cesium-137 can be routinely found in environmental samples as a result of above ground nuclear weapons testing. It is important to note, levels of Cs-137 in environment are observed to fluctuate, for example as silt distributions shift due to natural erosion and transport processes, Cs-137 may or may not be observed in sediment samples. Results from samples collected and analyzed during the year, 2025, are described and interpreted below. The REMP sample results are statistically summarized in Attachment 1 and complete results are presented in Attachment 2 and Attachment 4.

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

8.1 Environmental Direct Radiation Dosimetry Results

Dose is measured as net exposure (field reading less transit reading) normalized to 91-day quarters. Data is treated and analyzed consistent with ANSI/HPS N13.37-2014 [10], which compares the measured dose for each location to the baseline background dose for that location. Environmental dose rates vary by location, depending on geological and land use considerations, and remain relatively constant for any given location (unless land use changes). Some facilities observe seasonal variation in environmental doses. Baseline Background Doses have been determined for both quarterly and annual measurements at each location using historical field measurements.

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

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

During the calendar year 2025, a total of 34 locations were monitored and the data was analyzed in accordance with the requirements in Table 1: Radiological Environmental Monitoring Program – Direct Radiation. Attachment 4: Environmental Direct Radiation Dosimetry Results, provides the annual direct radiation dosimetry analysis.

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There was no detectable direct radiation dose to Members of the Public from SONGS. Facility-Related Doses measured at TLDs 12, 15, 58, and 73 during 2025 were related to the storage of radioactive material awaiting shipment. Facility-Related Dose at TLD 55 was due to the ISFSI and was consistent with previous years.

In all cases, the occupancy-adjusted dose to Members of the Public at or beyond the Site Boundary was <1 mrem per year and is reported as Not Detected in accordance with ANSI/HPS N13.37-2014.

As the project moves into a high-volume waste generation phase dose rates will be monitored to ensure that stored radioactive material does not adversely impact Facility-Related Dose measurements in the future.

8.2 Air Particulate Sample Results

Air particulate filters were collected from locations specified in Table 2: Radiological Environmental Monitoring Program – Airborne. During the calendar year 2025, a total of 299 samples were collected and analyzed for gross beta and gamma emitters. Particulate samplers are used to continuously collect airborne particulates on a filter. The samples are analyzed for gross beta activity following filter changeout which occurs weekly. Gamma isotopic analysis is also performed on the samples collected at each location and is analyzed quarterly.

All gross beta analyses of air particulate filters detected gross beta activity at levels consistent with previous years. All air particulate quarterly gamma composite samples were below detection limit except for naturally occurring radionuclides. Naturally occurring beryllium-7 was detected on all control and indicator samples at concentrations consistent with previous years.

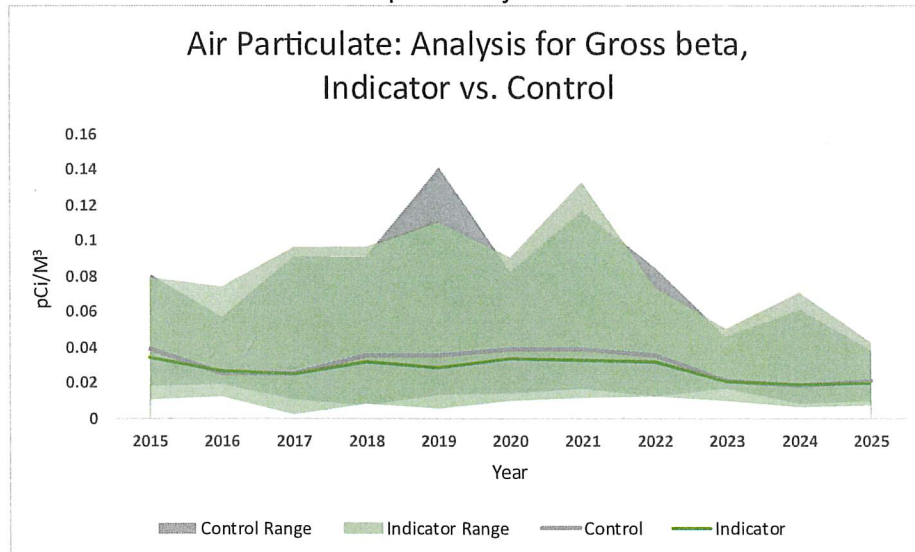


Figure 8: Air Particulate: Analysis for Gross Beta, Average for All Indicator vs. Control Location

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Air particulate results from this monitoring period, 2025, were compared to 10-year average as shown in Figure 8, and there were no significant changes in the baseline.

8.3 Waterborne Sample Results

8.3.1 Ocean Water

Ocean water samples are collected monthly from a control location at a distance beyond significant influence of the discharge and at three indicator locations within the vicinity of the discharge. Monthly samples are analyzed for gamma emitters and tritium. During the calendar year 2025, a total of 48 ocean water samples were collected and analyzed in accordance with the requirements in the ODCM and shown in Table 3: Radiological Environmental Monitoring Program – Waterborne. Naturally occurring potassium-40 was identified in all ocean water samples from indicator and control locations with concentrations consistent in previous years. There has been no detectable tritium in any ocean water samples in 2025 or the previous 10 years. Therefore, no trend has been established above the detection limit to plot on a trending graph.

8.3.2 Shoreline Sediment

Shoreline sediment collections were made in March and October 2025 and analyzed for gamma-emitting isotopes. Samples are collected at both indicator and control locations. A total of eight shoreline samples were analyzed in accordance with requirements in the ODCM and shown in Table 3: Radiological Environmental Monitoring Program – Waterborne.

Naturally occurring potassium-40 was identified in all shoreline sediment samples from indicator and control locations with concentrations consistent in previous years.

8.3.3 Ocean Bottom Sediment

Ocean Bottom sediment collections were made in April and October 2025 and analyzed for gamma-emitting isotopes. Samples are collected at both indicator and control locations. A total of 10 ocean bottom sediment samples were analyzed in accordance with requirements in the ODCM and shown in Table 3: Radiological Environmental Monitoring Program – Waterborne.

Naturally occurring potassium-40 was identified in all ocean bottom sediment samples from indicator and control locations with concentrations consistent in previous years. Other naturally occurring radionuclides such as actinium-228, radium-226, thorium-228, and thorium-232 were also identified in indicator and control samples at concentrations consistent with previous years.

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8.4 Ingestion Pathway Sample Results

8.4.1 Non-Migratory Marine Animal

A total of 24 non-migratory marine animal samples were collected in 2025. These samples were analyzed for gamma emitting radionuclides in edible portions, in accordance with requirements of the ODCM and summarized in Table 4: Radiological Environmental Monitoring Program – Ingestion. These samples are collected from the indicator and control areas as required by the ODCM.

Naturally occurring potassium-40 was identified in all non-migratory marine animal samples from indicator and control locations at concentrations consistent with previous years.

8.4.2 Local Crops

A total of eight local crop samples were analyzed in 2025 for gamma emitting radionuclides in accordance with requirements of the ODCM, as summarized in Table 4: Radiological Environmental Monitoring Program – Ingestion. The Control location for crop samples for 2025 was Bonsall Farms in Vista, CA, 21 mi ESE of SONGS.

Naturally occurring potassium-40 was identified in all local crop samples from indicator and control locations with concentrations consistent in previous years.

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9.0 LAND USE CENSUS

An annual land use census is required by the Offsite Dose Calculation Manual and is performed to ensure that changes in the use of areas at or beyond the site boundary are identified and modifications to REMP are made if required by changes in land use. The land use census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR 50 [2]. NUREG-1301/1302 Control 3.12.2 specifies that "a Land Use Census shall be conducted and shall identify within a distance of 8 km (5 mi.) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden of greater than 50 m² (500 ft²) producing broad leaf vegetation. Note, per NUREG-1301/1302, Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the SITE BOUNDARY in each of two different direction sectors with the highest predicted D/Qs in lieu of the garden census.

A Land Use Census was conducted during the calendar year, 2025, within the growing season to identify changes in land use, receptor locations, and new exposure pathways. The nearest receptor results for the 2025 Land Use Census are listed in Table 8: Land Use Census – Nearest Receptors within 5 miles. In summary, the highest D/Q locations for nearest garden, nearest residence and nearest milk animal did not change following the 2025 census.

The land use census remained consistent with 2024, with the primary change being the reintroduction of deer hunting for the 2025 season.

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Table 8: Land Use Census – Nearest Receptors within 5 miles				
Sector	Direction	Nearest Residence (Miles)	Nearest Garden (Miles)	Other Specified Uses (Miles)
A	N	3.6		0.5
B	NNE			2.1
C	NE	2.4		2.2
D	ENE	3.0		
E	E	4.1		4.0
F	ESE			0.8
G	SE	2.1		1.8
H	SSE	Sectors H through N are seaward sectors without significant land uses.		
J	S			
K	SSW			
L	SW			
M	WSW			
N	W			
P	WNW	1.0	2.8	0.5
Q	NW	1.1		0.6
R	NNW	1.3	4.9	0.7

10.0 SAMPLE DEVIATIONS, ANOMALIES AND UNAVAILABILITY

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

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

"Sample Unavailability" is defined as a sample collection event with no available sample (i.e., food crop, TLD).

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All reported instances of not complying with REMP requirements in 2025 were classified as Sample Deviations.

AS-9 could not be restored to service due to complications with resolving damage in a buried power line on State Park property. Alternative sample location AS-21 was permanently established to replace AS-9. Non-Functionality is reported for the entire year for AS-9; however, AS-21 was in service during the entire period. AS-21 was added to the ODCM on 8/19/24, restoring compliance. A new ODCM change was published 3/12/26 and will be effective for the 2026 reporting period (ODCM Revision 21); this revision removes AS-9 from the REMP and establishes AS-21 as the required sample location for the ESE Sector.

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

Table 9: Sample Deviation Summary				
Sample Type and Analysis	Location	Collection Date or Period	Reason for not conducting REMP sampling as required by ODCM	Plans for preventing reoccurrence
Airborne Particulate	AS-9	1/1/25 – 12/31/25	Buried power line failed and could not be repaired. Sampler has been OOS since 12/12/23, as discussed in 2023 and 2024 AREORs.	Established an alternative sample location AS-21 and revised ODCM to incorporate (ODCM revised 8/19/24). ODCM Revision 21 removes AS-9 entirely.
TLD	TLD-76	1Q25	Sample was missing in the field. Recent maintenance work had occurred at the utility pole.	Replaced TLD. Verified installation was mechanically secure and labeled with contact information.
Airborne Particulate	AS-13	7/15/25-7/22/25	Sample was not accessible due to Camp Pendleton access restrictions during the normal sample day.	Collected the sample on 7/24/25, as soon as practical after being granted access. Total time between samples was 8.91 days (1.27x weekly sample period definition).

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11.0 OTHER SUPPLEMENTAL INFORMATION

11.1 NEI 07-07 Onsite Radiological Groundwater Monitoring Program

San Onofre Nuclear Generating Station has developed a Groundwater Protection Initiative (GPI) program in accordance with NEI 07-07, Industry Ground Water Protection Initiative – Final Guidance Document [11]. The purpose of the GPI is to ensure timely detection and an effective response to situations involving inadvertent radiological releases to groundwater in order to prevent migration of licensed radioactive material off-site and to quantify impacts on decommissioning. It is important to note, samples and results taken in support of NEI 07-07 on-site groundwater monitoring program are separate from the Radiological Environmental Monitoring Program (REMP). Results of the NEI 07-07 Radiological Groundwater Monitoring Program for onsite groundwater wells are provided in the ARERR.

11.2 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Program

Per 10 CFR 72.126, SONGS implemented an area monitoring TLD program in the vicinity of the ISFSI.

An evaluation of historical REMP TLD data yielded an estimated background exposure rate of approximately 15.8 mrem/std. quarter (91 days).

Environmental exposure rates are variable and small changes in TLD location can measurably change the data. SONGS REMP TLD data show an environmental seasonal variability that is not related to any activities at SONGS. The ISFSI TLD data gathered to date follow a similar seasonal variability.

The measured exposure rates for the TLDs close to the ISFSI are consistent with the exposure rates expected from known radiological work activities and storage of spent fuel and radioactive material in the ISFSI.

The 2025 neutron TLDs identified low levels of neutron radiation from the ISFSI. Neutron TLDs were added to several locations around the ISFSI prior to the off load of spent fuel from Units 2 & 3 to obtain neutron dose information. Currently, neutron dosimeters are collocated with ISFSI TLDs 311, 326, 339-344, and REMP TLD 55.

A dose equivalent conversion factor for the TLD neutron signal based on a similar ISFSI facility at another site was adopted to estimate the neutron dose rate at SONGS. This conversion factor is being applied to the SONGS TLD results to provide an estimate of the neutron dose equivalent being measured. The neutron dose has been included in the quarterly results for these locations in Table 25: ISFSI TLD Data. The results from all locations at the fence around the ISFSI pad show that the dose to a member of the public, when adjusted for occupancy, would be less than one (1) mrem per year. The results for the ISFSI data are listed in Attachment 5: ISFSI TLD Data. The locations of the ISFSI TLDs are shown in Figure 9: SONGS ISFSI TLD Location Map.

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11.3 Corrections to Previous Reports

There were no corrections to previous reports identified during 2025.

11.4 ISFSI TLD Location Map

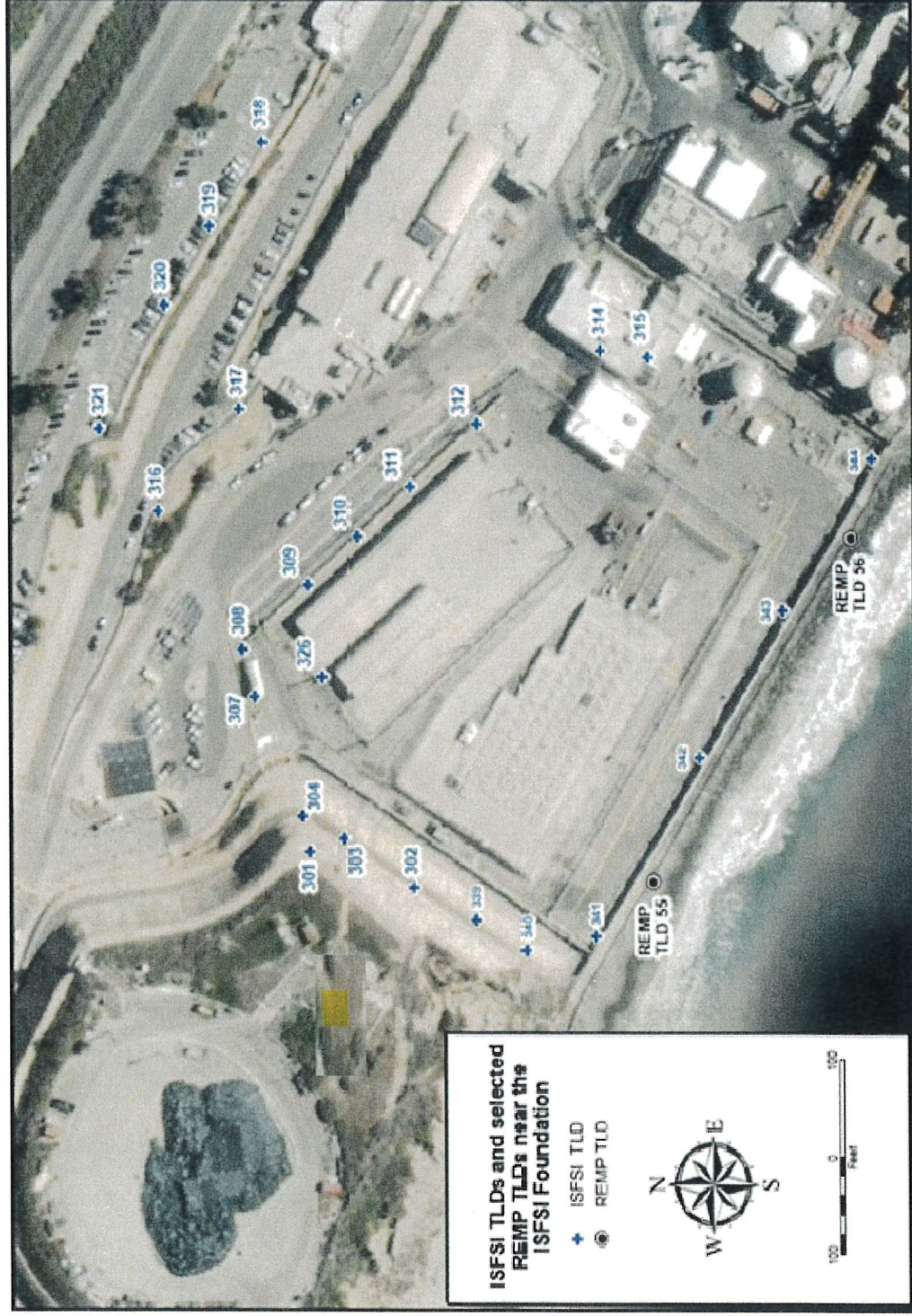


Figure 9: SONGS ISFSI TLD Location Map

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Attachment 1: Data Table Summary
Table 10: SONGS Data Summary Table

Medium or Pathway Sampled (Units)	Type, Total Number of Analyses performed (e.g., I-131, 400)	Lower Limit of Detection (LLD)	Indicator Mean ³ (f ⁴) [Range ³]	Location with Highest Annual Mean		Control Mean ³ (f ⁴) [Range ³]	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean ³ (f ⁴) [Range ³]		
Direct Radiation (mrem/qtr.)	Gamma Dose, 135	N/A	16.8 (131/131) [10.4-28.4]	TLD 73 0.4 mi. ESE	23.0 (4/4) [15.9-28.4]	16.5 (4/4) [15.9-16.9]	0
Air Particulates (pCi/m ³)	Gross Beta, 299	0.01	0.020 (247/247) [0.009-0.043]	APA 13 0.7 mi. E	0.021 (52/52) [0.011-0.042]	0.021 (52/52) [0.011-0.038]	0
	Cs-134	0.05	< LLD (0/19)	-	< LLD	< LLD (0/4)	0
	Cs-137	0.06	< LLD (0/19)	-	< LLD	< LLD (0/4)	0
Ocean Water (pCi/L)	Tritium, 48	500	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Mn-54	15	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Co-58	15	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Co-60	15	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Zn-65	30	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Cs-134	15	< LLD (0/36)	-	< LLD	< LLD (0/12)	0
	Cs-137	18	< LLD (0/36)	-	< LLD	< LLD (0/12)	0

³ Mean and range are based on detectable measurements only.

⁴ Fraction of detectable measurements at specified locations is indicated in parentheses.

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Table 10: SONGS Data Summary Table

Medium or Pathway Sampled (Units)	Type, Total Number of Analyses performed (e.g., I-131, 400)	Lower Limit of Detection (LLD)	Indicator Mean ³ (F ⁴) [Range ³]	Location with Highest Annual Mean		Control Mean ³ (F ⁴) [Range ³]	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean ³ (F ⁴) [Range ³]		
Shoreline Sediment (pCi/kg-dry)	Gamma, 8	Cs-134	< LLD (0/6)	-	< LLD	< LLD (0/2)	0
		Cs-137	< LLD (0/6)	-	< LLD	< LLD (0/2)	0
Ocean Bottom Sediment (pCi/kg-dry)	Gamma, 10	Cs-134	< LLD (0/8)	-	< LLD	< LLD (0/2)	0
		Cs-137	< LLD (0/8)	-	< LLD	< LLD (0/2)	0
Non-Migratory Marine Animal (pCi/kg-wet)	Gamma, 24	Mn-54	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Co-58	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Co-60	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Zn-65	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Cs-134	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Cs-137	< LLD (0/16)	-	< LLD	< LLD (0/8)	0
		Cs-134	< LLD (0/4)	-	< LLD	< LLD (0/4)	0
		Cs-137	< LLD (0/4)	-	< LLD	< LLD (0/4)	0

³ Mean and range are based on detectable measurements only.

⁴ Fraction of detectable measurements at specified locations is indicated in parentheses.

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

Note: Throughout Attachment 2, bold data entries are for the reported concentration, either the measured value or the MDC.

Table 11: Weekly Air Particulate Gross Beta (pCi/m³)

Date	APA 01 (Indicator)	APA 10 (Indicator)	APA 12 (Indicator)	APA 13 (Indicator)	APA 16 (Control)	APA 21* (Indicator)
1/6/2025	0.0386 ± 0.0049	0.0382 ± 0.0046	0.0376 ± 0.0044	0.0370 ± 0.0043	0.0348 ± 0.0044	0.0421 ± 0.0049
1/14/2025	0.0205 ± 0.0032	0.0202 ± 0.0030	0.0250 ± 0.0031	0.0255 ± 0.0036	0.0233 ± 0.0032	0.0237 ± 0.0033
1/21/2025	0.0322 ± 0.0042	0.0304 ± 0.0039	0.0313 ± 0.0037	0.0313 ± 0.0040	0.0303 ± 0.0038	0.0328 ± 0.0040
1/28/2025	0.0173 ± 0.0035	0.0170 ± 0.0034	0.0194 ± 0.0033	0.0168 ± 0.0034	0.0164 ± 0.0033	0.0188 ± 0.0032
2/4/2025	0.0415 ± 0.0047	0.0423 ± 0.0045	0.0429 ± 0.0043	0.0424 ± 0.0046	0.0363 ± 0.0043	0.0377 ± 0.0041
2/11/2025	0.0151 ± 0.0032	0.0150 ± 0.0031	0.0145 ± 0.0029	0.0120 ± 0.0028	0.0150 ± 0.0032	0.0137 ± 0.0029
2/18/2025	0.0171 ± 0.0030	0.0159 ± 0.0031	0.0130 ± 0.0027	0.0133 ± 0.0029	0.0123 ± 0.0028	0.0123 ± 0.0027
2/25/2025	0.0243 ± 0.0035	0.0176 ± 0.0033	0.0218 ± 0.0033	0.0274 ± 0.0039	0.0240 ± 0.0038	0.0207 ± 0.0033
3/4/2025	0.0146 ± 0.0029	0.0167 ± 0.0033	0.0163 ± 0.0030	0.0156 ± 0.0032	0.0156 ± 0.0032	0.0165 ± 0.0031
3/11/2025	0.0166 ± 0.0030	0.0197 ± 0.0034	0.0171 ± 0.0030	0.0178 ± 0.0033	0.0164 ± 0.0029	0.0169 ± 0.0031
3/18/2025	0.0094 ± 0.0025	0.0125 ± 0.0030	0.0102 ± 0.0025	0.0107 ± 0.0028	0.0108 ± 0.0026	0.0121 ± 0.0028
3/25/2025	0.0177 ± 0.0030	0.0132 ± 0.0028	0.0141 ± 0.0027	0.0185 ± 0.0031	0.0164 ± 0.0030	0.0163 ± 0.0029
4/1/2025	0.0131 ± 0.0027	0.0128 ± 0.0029	0.0109 ± 0.0026	0.0139 ± 0.0029	0.0126 ± 0.0029	0.0088 ± 0.0025
4/8/2025	0.0159 ± 0.0029	0.0210 ± 0.0036	0.0168 ± 0.0030	0.0210 ± 0.0034	0.0160 ± 0.0030	0.0190 ± 0.0032
4/15/2025	0.0194 ± 0.0032	0.0159 ± 0.0032	0.0233 ± 0.0034	0.0211 ± 0.0035	0.0183 ± 0.0033	0.0166 ± 0.0031
4/22/2025	0.0206 ± 0.0033	0.0200 ± 0.0036	0.0198 ± 0.0033	0.0177 ± 0.0034	0.0220 ± 0.0036	0.0206 ± 0.0035
4/29/2025	0.0143 ± 0.0029	0.0119 ± 0.0030	0.0146 ± 0.0029	0.0144 ± 0.0031	0.0161 ± 0.0032	0.0126 ± 0.0029
5/6/2025	0.0133 ± 0.0028	0.0112 ± 0.0029	0.0143 ± 0.0028	0.0161 ± 0.0032	0.0159 ± 0.0031	0.0121 ± 0.0027
5/13/2025	0.0161 ± 0.0030	0.0168 ± 0.0033	0.0172 ± 0.0030	0.0204 ± 0.0035	0.0204 ± 0.0034	0.0182 ± 0.0032
5/20/2025	0.0109 ± 0.0028	0.0129 ± 0.0033	0.0116 ± 0.0028	0.0116 ± 0.0031	0.0133 ± 0.0031	0.0147 ± 0.0032
5/28/2025	0.0148 ± 0.0027	0.0148 ± 0.0030	0.0174 ± 0.0029	0.0163 ± 0.0030	0.0153 ± 0.0029	0.0182 ± 0.0030

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Table 11: Weekly Air Particulate Gross Beta (pCi/m³)

Date	APA 01 (Indicator)	APA 10 (Indicator)	APA 12 (Indicator)	APA 13 (Indicator)	APA 16 (Control)	APA 21* (Indicator)
6/3/2025	0.0151 ± 0.0033	0.0121 ± 0.0035	0.0156 ± 0.0034	0.0159 ± 0.0038	0.0167 ± 0.0037	0.0110 ± 0.0031
6/10/2025	0.0144 ± 0.0029	0.0158 ± 0.0033	0.0151 ± 0.0029	0.0160 ± 0.0033	0.0135 ± 0.0029	0.0126 ± 0.0031
6/17/2025	0.0185 ± 0.0030	0.0129 ± 0.0025	0.0156 ± 0.0028	0.0188 ± 0.0030	0.0202 ± 0.0033	0.0144 ± 0.0030
6/24/2025	0.0140 ± 0.0028	(a)	0.0135 ± 0.0027	0.0151 ± 0.0028	0.0153 ± 0.0030	0.0155 ± 0.0029
7/1/2025	0.0163 ± 0.0030	0.0113 ^(a) ± 0.0029	0.0169 ± 0.0030	0.0144 ± 0.0028	0.0154 ± 0.0031	0.0184 ± 0.0032
7/8/2025	0.0132 ± 0.0028	0.0141 ± 0.0027	0.0169 ± 0.0030	0.0145 ± 0.0028	0.0185 ± 0.0033	0.0145 ± 0.0030
7/15/2025	0.0120 ± 0.0027	0.0112 ± 0.0026	0.0154 ± 0.0029	0.0143 ± 0.0028	0.0135 ± 0.0030	0.0172 ± 0.0032
7/22/2025	0.0185 ± 0.0031	0.0158 ± 0.0030	0.0183 ± 0.0031	0.014 ^a ± 0.0024	0.0167 ± 0.0031	0.0140 ± 0.0029
7/29/2025	0.0105 ± 0.0027	0.0123 ± 0.0029	0.0114 ± 0.0027	0.0138 ± 0.0037	0.0157 ± 0.0032	0.0161 ± 0.0030
8/5/2025	0.0163 ± 0.0031	0.0134 ± 0.0029	0.0165 ± 0.0031	0.0168 ± 0.0031	0.0176 ± 0.0033	0.0105 ± 0.0028
8/12/2025	0.0139 ± 0.0028	0.0119 ± 0.0025	0.0131 ± 0.0027	0.0151 ± 0.0028	0.0120 ± 0.0028	0.0136 ± 0.0030
8/19/2025	0.0150 ± 0.0029	0.0138 ± 0.0027	0.0142 ± 0.0028	0.0139 ± 0.0028	0.0134 ± 0.0029	0.0147 ± 0.0029
8/26/2025	0.0146 ± 0.0029	0.0165 ± 0.0030	0.0108 ± 0.0026	0.0162 ± 0.0030	0.0183 ± 0.0033	0.0147 ± 0.0030
9/2/2025	0.0197 ± 0.0031	0.0192 ± 0.0030	0.0204 ± 0.0031	0.0220 ± 0.0033	0.0233 ± 0.0035	0.0141 ± 0.0030
9/9/2025	0.0160 ± 0.0031	0.0150 ± 0.0029	0.0140 ± 0.0029	0.0155 ± 0.0030	0.0152 ± 0.0031	0.0200 ± 0.0033
9/16/2025	0.0166 ± 0.0030	0.0140 ± 0.0028	0.0160 ± 0.0030	0.0172 ± 0.0031	0.0158 ± 0.0032	0.0158 ± 0.0032
9/23/2025	0.0223 ± 0.0035	0.0147 ± 0.0029	0.0181 ± 0.0032	0.0215 ± 0.0034	0.0218 ± 0.0035	0.0149 ± 0.0031
9/30/2025	0.0285 ± 0.0037	0.0237 ± 0.0032	0.0276 ± 0.0035	0.0279 ± 0.0037	0.0237 ± 0.0034	0.0150 ± 0.0031
10/7/2025	0.0189 ± 0.0033	0.0151 ± 0.0029	0.0160 ± 0.0030	0.0147 ± 0.0030	0.0190 ± 0.0034	0.0256 ± 0.0036
10/14/2025	0.0264 ± 0.0038	(b)	0.0286 ± 0.0038	0.0264 ± 0.0037	0.0278 ± 0.0039	0.0181 ± 0.0034
10/21/2025	0.0282 ± 0.0038	(b)	0.0263 ± 0.0036	0.0254 ± 0.0036	0.0322 ± 0.0041	0.0260 ± 0.0038

Table 11: Weekly Air Particulate Gross Beta (pCi/m³)

Date	APA 01 (Indicator)	APA 10 (Indicator)	APA 12 (Indicator)	APA 13 (Control)	APA 16 (Indicator)	APA 21* (Indicator)
10/28/2025	0.0328 ± 0.0041	(b)	0.0354 ± 0.0041	0.0351 ± 0.0042	0.0352 ± 0.0043	0.0333 ± 0.0042
11/4/2025	0.0321 ± 0.0040	(b)	0.0385 ± 0.0042	0.0349 ± 0.0041	0.0376 ± 0.0043	0.0342 ± 0.0042
11/12/2025	0.0250 ± 0.0035	(b)	0.0240 ± 0.0033	0.0253 ± 0.0035	0.0268 ± 0.0037	0.0237 ± 0.0035
11/18/2025	0.0240 ± 0.0040	(b)	0.0206 ± 0.0037	0.0232 ± 0.0039	0.0256 ± 0.0041	0.0205 ± 0.0039
11/24/2025	0.0163 ± 0.0034	(b)	0.0147 ± 0.0033	0.0128 ± 0.0032	0.0145 ± 0.0033	0.0168 ± 0.0036
12/2/2025	0.0380 ± 0.0040	(b)	0.0369 ± 0.0039	0.0411 ± 0.0041	0.0352 ± 0.0039	0.0347 ± 0.0040
12/9/2025	0.0347 ± 0.0040	(b)	0.0381 ± 0.0041	0.0376 ± 0.0042	0.0356 ± 0.0042	0.0371 ± 0.0043
12/16/2025	0.0367 ± 0.0044	(b)	0.0312 ± 0.0041	0.0387 ± 0.0045	0.0327 ± 0.0041	0.0329 ± 0.0043
12/23/2025	0.0333 ± 0.0042	(b)	0.0347 ± 0.0046	0.0311 ± 0.0040	0.0331 ± 0.0042	0.0344 ± 0.0044
12/30/2025	0.0152 ± 0.0032	(b)	0.0152 ± 0.0033	0.0115 ± 0.0029	0.0169 ± 0.0032	0.0181 ± 0.0035

(a) AS-10 was found without power on 6/24/25 and the sample was invalid. Partial sample collected between 6/25/25 and 7/1/25.

(b) Station APA 10 is not required per REMF basis but was maintained due to being collocated with a CDPH Air Sampler. Following the collection period of 10/7/25, samples from this location are no longer being collected.

*Station APA 21 (located near TLD 16) was put into service as a replacement air station when APA 09 was removed from service in 2023.

Table 12: Quarterly Air Particulate Gamma Isotopic (pCi/m³)

Station	Nuclide	Q1			Q2			Q3			Q4		
		Activity	Error	MDC	Activity	Error	MDC	Activity	Error	MDC	Activity	Error	MDC
APA 01	Cs-134	3.00E-05	± 1.17E-03	1.93E-03	3.33E-04	± 9.55E-04	1.69E-03	1.95E-04	± 1.37E-03	2.64E-03	-1.05E-03	± 1.22E-03	1.73E-03
	Cs-137	1.15E-03	± 1.19E-03	2.19E-03	-1.61E-04	± 8.64E-04	1.36E-03	-9.65E-06	± 1.22E-03	2.26E-03	-6.36E-04	± 1.05E-03	1.56E-03
APA 10	Cs-134	8.09E-04	± 8.88E-04	1.71E-03	1.03E-03	± 1.27E-03	2.29E-03	1.39E-04	± 7.10E-04	1.18E-03		(a)	
	Cs-137	3.97E-04	± 8.76E-04	1.54E-03	5.09E-04	± 1.11E-03	1.91E-03	-5.16E-04	± 6.68E-04	1.03E-03		(a)	
APA 12	Cs-134	-7.24E-05	± 8.96E-04	1.45E-03	-5.06E-04	± 1.07E-03	1.86E-03	2.72E-05	± 1.17E-03	1.95E-03	-1.36E-03	± 9.94E-04	1.20E-03
	Cs-137	-2.92E-04	± 9.42E-04	1.46E-03	-2.80E-04	± 8.12E-04	1.43E-03	-3.63E-04	± 9.58E-04	1.46E-03	4.40E-04	± 6.86E-04	1.28E-03
APA 13	Cs-134	-2.01E-05	± 8.73E-04	1.43E-03	3.13E-04	± 9.97E-04	1.69E-03	1.50E-03	± 1.60E-03	3.30E-03	-1.32E-03	± 1.48E-03	2.35E-03
	Cs-137	6.29E-05	± 8.17E-04	1.36E-03	2.74E-04	± 8.46E-04	1.44E-03	-5.51E-04	± 1.16E-03	2.00E-03	-6.22E-04	± 1.24E-03	2.15E-03
APA 16	Cs-134	7.42E-04	± 9.77E-04	1.86E-03	6.44E-04	± 1.09E-03	1.98E-03	-1.92E-04	± 1.23E-03	1.97E-03	-1.24E-04	± 1.47E-03	2.41E-03
	Cs-137	6.98E-04	± 8.23E-04	1.57E-03	7.85E-04	± 7.40E-04	1.48E-03	8.94E-04	± 8.12E-04	1.63E-03	-4.80E-04	± 1.40E-03	2.15E-03
APA 21	Cs-134	-1.82E-04	± 1.01E-03	1.61E-03	-1.21E-04	± 1.58E-03	2.92E-03	-1.09E-03	± 1.58E-03	2.67E-03	-2.00E-04	± 1.03E-03	1.66E-03
	Cs-137	1.43E-04	± 9.38E-04	1.58E-03	-5.91E-04	± 1.24E-03	2.14E-03	-1.59E-04	± 1.42E-03	2.56E-03	-6.36E-04	± 8.87E-04	1.26E-03

(a) Station APA 10 is not required per REMIP basis but was maintained due to being collocated with a CDPH Air Sampler. Following the collection period of 10/7/25, samples from this location are no longer being collected.

Table 13: Monthly Ocean Water Gamma Isotopic (pCi/L)

Station	Collection Date	H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
WSA 01	January	-12.8 ± 279 < 462	-4.40 ± 5.24 < 7.64	1.03 ± 4.88 < 8.48	4.11 ± 4.88 < 9.56	-9.50 ± 14.3 < 21.1	3.57 ± 5.44 < 9.76	-5.07 ± 5.26 < 7.19
	February	68.5 ± 263 < 421	2.35 ± 4.76 < 8.74	5.92 ± 5.66 < 11.1	3.10 ± 7.38 < 13.2	-11.3 ± 17.7 < 25.7	-0.22 ± 6.62 < 10.6	0.57 ± 6.23 < 10.4
	March	4.43 ± 290 < 478	1.37 ± 4.81 < 8.22	-2.02 ± 4.84 < 7.52	1.57 ± 5.20 < 9.51	5.24 ± 12.4 < 19.4	2.95 ± 5.16 < 9.17	-5.38 ± 5.20 < 7.61
	April	-15.5 ± 261 < 433	1.89 ± 4.14 < 7.19	0.41 ± 4.14 < 6.96	4.49 ± 4.35 < 8.16	-6.51 ± 8.90 < 13.3	-1.15 ± 4.85 < 7.90	-2.46 ± 4.09 < 6.45
	May	-15.5 ± 258 < 428	3.29 ± 5.69 < 10.2	2.88 ± 4.83 < 8.82	-1.09 ± 5.31 < 8.27	-1.56 ± 12.2 < 19.6	0.18 ± 6.49 < 10.9	-7.52 ± 5.68 < 7.60
	June	157 ± 283 < 438	6.58 ± 5.95 < 11.7	-5.24 ± 6.36 < 8.99	0.73 ± 7.47 < 12.6	0.58 ± 11.7 < 19.2	-0.42 ± 7.20 < 12.0	-4.73 ± 5.69 < 7.69
	July	56.4 ± 284 < 458	-1.77 ± 4.86 < 8.67	-4.60 ± 4.46 < 6.98	-0.19 ± 5.09 < 10.1	-5.44 ± 11.2 < 19.1	0.09 ± 5.31 < 10.1	-0.21 ± 5.10 < 9.60
	August	15.8 ± 276 < 453	4.01 ± 5.54 < 10.3	-3.45 ± 6.75 < 9.87	3.66 ± 6.11 < 11.4	-29.9 ± 15.3 < 15.5	-0.28 ± 5.97 < 9.53	-4.99 ± 5.59 < 7.72
	September	6.17 ± 248 < 407	2.76 ± 5.69 < 10.0	7.01 ± 5.71 < 10.9	-6.47 ± 5.31 < 6.18	2.08 ± 12.0 < 20.3	-2.00 ± 5.80 < 9.22	-1.42 ± 5.70 < 9.27
	October	59.8 ± 295 < 476	-0.47 ± 6.60 < 10.9	-0.28 ± 7.51 < 12.4	1.99 ± 6.51 < 11.4	-0.98 ± 12.1 < 19.7	6.53 ± 6.63 < 12.5	-3.73 ± 5.86 < 8.92
	November	74.4 ± 257 < 410	5.97 ± 7.39 < 13.6	-3.49 ± 7.06 < 10.3	0.12 ± 6.88 < 11.4	-9.69 ± 17.4 < 25.2	0.26 ± 8.22 < 13.5	-1.42 ± 6.70 < 10.8
	December	213 ± 284 < 429	0.54 ± 5.21 < 8.81	1.98 ± 5.89 < 10.3	-0.73 ± 7.13 < 11.5	-0.13 ± 11.4 < 18.8	0.82 ± 6.25 < 10.6	-0.35 ± 6.12 < 10.2

Result entries are organized in the format below.

Activity ± Error < MDA

Table 13: Monthly Ocean Water Gamma Isotopic (pCi/L)

Station	Collection Date	H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
WSA 02	January	-107 ± 270 < 463	-5.06 ± 5.72 < 7.97	-0.03 ± 6.50 < 10.9	1.84 ± 6.89 < 12.0	1.99 ± 13.4 < 22.4	-1.20 ± 5.55 < 8.90	6.42 ± 6.75 < 12.5
	February	-4.43 ± 255 < 421	3.09 ± 4.61 < 8.08	-2.65 ± 4.52 < 6.72	2.18 ± 5.19 < 9.10	1.31 ± 10.3 < 17.0	0.22 ± 5.24 < 8.55	4.23 ± 4.60 < 8.38
	March	-43.6 ± 281 < 471	-1.70 ± 4.09 < 7.23	0.17 ± 4.48 < 8.29	4.49 ± 5.19 < 10.6	5.77 ± 11.5 < 19.6	1.03 ± 4.50 < 8.61	-5.06 ± 5.02 < 7.91
	April	-73.8 ± 257 < 437	4.70 ± 4.29 < 8.20	-0.88 ± 4.87 < 7.88	5.17 ± 4.29 < 8.77	7.74 ± 10.6 < 19.1	-1.88 ± 3.90 < 5.87	3.84 ± 4.22 < 7.97
	May	204 ± 286 < 435	-0.51 ± 5.90 < 9.71	-5.67 ± 5.69 < 7.47	2.97 ± 7.18 < 13.0	-7.26 ± 14.5 < 20.8	-5.55 ± 8.23 < 11.5	-1.77 ± 5.84 < 8.96
	June	-48.9 ± 262 < 440	1.77 ± 5.69 < 9.90	-1.01 ± 5.12 < 8.07	-1.61 ± 6.20 < 9.52	-9.68 ± 13.7 < 19.7	3.55 ± 5.88 < 10.8	0.16 ± 5.61 < 9.46
	July	-74.6 ± 270 < 459	3.15 ± 5.12 < 9.34	5.24 ± 5.58 < 10.5	0.97 ± 6.52 < 11.0	-5.57 ± 13.7 < 21.0	-1.51 ± 5.63 < 8.95	1.09 ± 6.52 < 11.1
	August	98.3 ± 289 < 459	3.18 ± 4.90 < 10.1	-1.57 ± 5.02 < 9.13	4.77 ± 6.60 < 14.0	-4.87 ± 14.5 < 25.2	0.83 ± 6.10 < 11.6	-0.74 ± 4.55 < 8.51
	September	279 ± 284 < 420	-1.08 ± 5.37 < 8.66	-2.35 ± 7.20 < 11.5	1.16 ± 5.14 < 8.90	-2.23 ± 13.9 < 22.4	1.21 ± 6.95 < 11.8	-3.02 ± 6.75 < 10.7
	October	-46.1 ± 284 < 477	-4.54 ± 4.96 < 6.92	-3.63 ± 5.44 < 7.92	3.62 ± 5.48 < 10.1	-6.56 ± 11.0 < 16.6	3.01 ± 5.79 < 10.2	-1.13 ± 4.44 < 7.18
	November	-58.0 ± 239 < 405	0.76 ± 4.88 < 9.45	-1.61 ± 5.39 < 9.74	2.65 ± 4.13 < 9.66	1.91 ± 11.7 < 22.5	4.52 ± 5.21 < 11.2	5.89 ± 5.90 < 12.2
	December	-15.8 ± 260 < 432	0.00 ± 5.44 < 8.95	-1.76 ± 5.73 < 8.83	-1.68 ± 7.03 < 10.9	-10.3 ± 12.9 < 17.6	-0.58 ± 7.57 < 12.4	1.08 ± 6.16 < 10.6

Result entries are organized in the format below.

Activity ± Error < MDA

Table 13: Monthly Ocean Water Gamma Isotopic (pCi/L)

Station	Collection Date	H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
WSA 03	January	85.6 ± 296 < 474	0.33 ± 4.34 < 8.31	0.33 ± 4.91 < 9.30	0.63 ± 4.48 < 8.87	1.34 ± 12.9 < 23.9	3.55 ± 4.51 < 9.56	0.23 ± 4.86 < 8.88
	February	-42.1 ± 251 < 422	-2.31 ± 5.73 < 9.01	1.61 ± 4.54 < 8.10	-7.73 ± 7.08 < 9.13	-16.5 ± 16.1 < 21.9	0.45 ± 5.42 < 8.86	-1.76 ± 5.02 < 7.69
	March	23.7 ± 285 < 466	-0.62 ± 5.89 < 9.68	1.15 ± 5.45 < 9.49	1.49 ± 6.05 < 10.6	0.45 ± 14.6 < 23.9	-6.31 ± 6.30 < 7.76	1.01 ± 7.43 < 12.4
	April	54.8 ± 266 < 429	-1.64 ± 5.16 < 8.21	-7.72 ± 5.31 < 6.82	4.63 ± 4.98 < 9.77	11.3 ± 12.8 < 23.6	2.00 ± 5.93 < 10.4	-2.30 ± 5.53 < 8.51
	May	148 ± 276 < 428	0.73 ± 5.19 < 8.80	-3.50 ± 4.88 < 7.26	3.20 ± 6.32 < 11.3	-8.81 ± 12.4 < 18.2	-0.03 ± 6.07 < 10.1	-2.01 ± 5.67 < 9.1
	June	-17.8 ± 265 < 440	0.23 ± 5.42 < 9.07	2.65 ± 5.79 < 10.3	5.94 ± 6.47 < 12.3	-6.45 ± 12.9 < 19.4	-3.56 ± 6.17 < 9.41	-2.08 ± 6.17 < 9.91
	July	182 ± 297 < 458	-2.87 ± 4.56 < 6.18	-2.89 ± 4.51 < 6.08	2.62 ± 8.15 < 14.3	-10.9 ± 11.6 < 14.7	-0.67 ± 6.24 < 10.1	3.59 ± 6.38 < 11.7
	August	67.8 ± 282 < 453	1.83 ± 7.00 < 12.0	-1.88 ± 6.71 < 10.7	-0.90 ± 7.26 < 11.6	-27.2 ± 17.7 < 22.5	-5.18 ± 7.32 < 11.0	-2.45 ± 6.47 < 10.3
	September	2.09 ± 251 < 413	-4.60 ± 6.75 < 9.47	-5.24 ± 6.37 < 8.34	-6.69 ± 8.03 < 10.3	-8.29 ± 12.9 < 16.4	-3.57 ± 7.40 < 11.0	-0.30 ± 7.05 < 11.8
	October	-50.7 ± 284 < 477	-5.21 ± 4.95 < 7.21	3.09 ± 5.55 < 9.83	-2.52 ± 5.04 < 7.54	-11.3 ± 12.0 < 17.3	-2.31 ± 5.12 < 8.08	0.29 ± 5.33 < 8.96
	November	114 ± 255 < 399	1.37 ± 6.86 < 11.7	-0.60 ± 5.12 < 8.19	1.89 ± 5.45 < 9.89	-7.08 ± 13.7 < 20.3	0.71 ± 6.33 < 10.7	-4.27 ± 5.45 < 7.64
	December	99.5 ± 273 < 432	4.45 ± 5.00 < 10.6	-0.55 ± 5.13 < 9.55	3.46 ± 5.49 < 11.9	-16.7 ± 11.4 < 15.0	0.79 ± 5.11 < 10.0	-2.09 ± 4.80 < 8.18

Result entries are organized in the format below.

Activity ± Error < MDA

Table 13: Monthly Ocean Water Gamma Isotopic (pCi/L)

Station	Collection Date	H-3	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
WSA 04	January	267 ± 311 < 469	0.91 ± 5.16 < 8.92	-0.77 ± 5.26 < 8.59	-0.05 ± 6.80 < 11.3	2.62 ± 13.6 < 23.0	-0.55 ± 5.89 < 9.27	5.22 ± 5.49 < 10.5
	February	91.6 ± 268 < 425	-0.26 ± 3.40 < 6.44	0.35 ± 3.78 < 7.25	4.31 ± 4.21 < 9.39	8.60 ± 9.55 < 19.8	2.57 ± 4.45 < 8.97	1.00 ± 4.34 < 8.07
	March	208 ± 305 < 469	-4.92 ± 4.42 < 7.08	-0.92 ± 4.29 < 7.87	-3.26 ± 5.68 < 9.41	0.12 ± 11.5 < 18.5	-2.20 ± 5.27 < 9.39	-4.40 ± 4.91 < 7.76
	April	69.6 ± 266 < 425	0.47 ± 3.63 < 6.92	0.62 ± 3.63 < 6.98	-0.54 ± 3.91 < 7.19	6.40 ± 9.96 < 19.5	-1.68 ± 4.40 < 7.84	0.23 ± 3.85 < 7.01
	May	175 ± 280 < 430	5.47 ± 4.96 < 9.72	4.45 ± 4.76 < 9.19	-0.73 ± 5.60 < 8.93	-6.59 ± 11.3 < 16.7	-1.41 ± 5.66 < 8.92	-1.17 ± 5.27 < 8.53
	June	97.1 ± 270 < 427	-1.62 ± 5.52 < 9.87	1.81 ± 5.16 < 10.3	0.99 ± 4.86 < 10.1	-14.1 ± 13.1 < 19.9	0.92 ± 5.65 < 10.9	-0.38 ± 4.73 < 8.93
	July	9.15 ± 283 < 464	1.10 ± 2.97 < 5.12	3.86 ± 3.26 < 5.98	-2.68 ± 3.68 < 5.54	-0.12 ± 6.79 < 11.0	1.59 ± 3.42 < 5.96	0.27 ± 3.21 < 5.29
	August	75.7 ± 287 < 460	-1.90 ± 5.27 < 7.92	-0.62 ± 5.88 < 9.47	3.25 ± 7.59 < 13.6	-2.99 ± 12.2 < 19.2	4.78 ± 6.10 < 11.7	-0.43 ± 6.02 < 9.97
	September	75.5 ± 267 < 427	-3.01 ± 6.47 < 10.1	2.59 ± 5.68 < 10.1	-0.37 ± 5.97 < 9.65	-5.25 ± 14.8 < 23.1	-4.07 ± 5.88 < 8.63	2.43 ± 6.19 < 10.9
	October	15.9 ± 287 < 469	0.81 ± 5.35 < 10.2	2.09 ± 6.24 < 12.2	0.93 ± 5.52 < 11.0	0.44 ± 11.0 < 20.9	-0.71 ± 4.46 < 8.39	0.50 ± 4.12 < 8.06
	November	163 ± 265 < 406	0.08 ± 4.65 < 7.56	-1.42 ± 4.6 < 7.09	-0.02 ± 4.35 < 7.17	-14.6 ± 12.8 < 17.3	-0.99 ± 5.56 < 8.84	-0.04 ± 4.88 < 8.12
	December	23.1 ± 246 < 401	-1.44 ± 6.22 < 10.1	2.86 ± 5.36 < 9.55	1.08 ± 5.43 < 9.28	-13.1 ± 12.8 < 17.6	1.41 ± 6.60 < 11.3	-0.93 ± 5.29 < 8.65

Result entries are organized in the format below.

Activity ± Error < MDA

Table 14: Semi-Annual Shoreline Sediment Gamma Isotopic (pCi/kg Dry)

Station	Nuclide	March			October		
		Activity	Error	MDC	Activity	Error	MDC
SSA 01	Cs-134	3.68E+01	± 4.71E+01	8.29E+01	1.23E+01	± 5.39E+01	9.20E+01
	Cs-137	-1.07E+01	± 4.28E+01	6.87E+01	-2.86E+01	± 4.58E+01	7.14E+01
SSA 02	Cs-134	1.25E+01	± 5.36E+01	9.86E+01	-7.59E+00	± 4.34E+01	7.86E+01
	Cs-137	-2.22E+01	± 5.11E+01	8.63E+01	-2.72E+01	± 3.92E+01	6.68E+01
SSA 03	Cs-134	2.99E+01	± 3.73E+01	6.64E+01	-3.22E+01	± 4.92E+01	7.53E+01
	Cs-137	-2.97E+01	± 3.60E+01	5.31E+01	2.06E+01	± 4.50E+01	7.78E+01
SSA 04	Cs-134	4.20E+01	± 5.97E+01	1.15E+02	4.80E+01	± 6.25E+01	1.23E+02
	Cs-137	-4.29E+01	± 5.21E+01	8.41E+01	1.76E+01	± 5.82E+01	1.10E+02

Table 15: Semi-Annual Ocean Bottom Sediment Gamma Isotopic (pCi/kg Dry)

Station	Nuclide	April			October		
		Activity	Error	MDC	Activity	Error	MDC
SEB 02	Cs-134	4.03E+01 ±	5.29E+01	9.24E+01	-1.14E+00 ±	3.46E+01	6.19E+01
	Cs-137	4.01E+01 ±	4.67E+01	8.31E+01	-1.26E+01 ±	3.20E+01	5.58E+01
SEB 03	Cs-134	5.99E+01 ±	5.73E+01	1.06E+02	6.20E+01 ±	5.39E+01	1.01E+02
	Cs-137	-4.11E+01 ±	4.66E+01	6.99E+01	-2.83E+01 ±	4.52E+01	7.03E+01
SEB 04	Cs-134	6.54E+00 ±	5.26E+01	9.53E+01	4.54E+01 ±	5.48E+01	9.78E+01
	Cs-137	1.92E+01 ±	4.81E+01	9.03E+01	9.30E+00 ±	4.31E+01	7.35E+01
SEB 05	Cs-134	1.13E+01 ±	5.69E+01	1.08E+02	1.81E+01 ±	4.79E+01	8.35E+01
	Cs-137	-3.65E+01 ±	5.35E+01	9.21E+01	3.15E+01 ±	5.03E+01	8.91E+01
SEB 06	Cs-134	4.11E+01 ±	5.43E+01	1.07E+02	5.62E+01 ±	5.81E+01	1.05E+02
	Cs-137	-4.13E+01 ±	5.35E+01	8.67E+01	2.77E+00 ±	5.39E+01	9.06E+01

Table 16: Semi-Annual Marine Animal Gamma Isotopic (pCi/kg Wet)

Station	Date	Species	Mn-54	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MOA 01	April	California Mussel	31.1 ± 45.6 < 97.6	-4.92 ± 35.9 < 70.1	30.2 ± 58.9 < 128	-58.4 ± 88.0 < 145	-4.71 ± 46.6 < 89.6	6.50 ± 46.5 < 92.1
		Spiny Lobster	0.84 ± 26.2 < 44.1	-33.9 ± 29.5 < 40.7	12.2 ± 31.6 < 56.8	-41.1 ± 75.6 < 113	-21.1 ± 29.5 < 40.6	6.68 ± 24.9 < 42.5
		Black Perch	-15.7 ± 30.2 < 45.1	-25.2 ± 26.7 < 34.6	23.4 ± 30.2 < 59.7	-45.3 ± 80.9 < 116	-14.2 ± 26.5 < 38.3	-2.20 ± 31.3 < 52.2
		Sheephead	-2.31 ± 34.2 < 55.9	15.8 ± 34.6 < 62.1	0.60 ± 26.6 < 44.4	71.1 ± 73.3 < 143	-30.7 ± 37.4 < 51.8	-8.38 ± 26.8 < 42.2
		California Mussel	-11.6 ± 49.0 < 78.6	-35.0 ± 50.1 < 72.4	9.27 ± 47.5 < 81.6	-85.0 ± 101 < 133	-2.37 ± 43.6 < 72.1	22.3 ± 42.9 < 75.8
	October	Black Perch	-15.5 ± 29.9 < 41.9	14.1 ± 46.6 < 81.5	51.1 ± 37.6 < 83.4	-24.7 ± 85.9 < 134	-8.83 ± 35.9 < 55.8	9.33 ± 35.1 < 61.8
		Kelp Bass	-21.1 ± 42.1 < 61.9	-24.3 ± 46.3 < 67.4	-5.83 ± 40.2 < 63.3	39.1 ± 96.4 < 175	5.48 ± 41.8 < 71.0	31.4 ± 39.3 < 74.8
		Spiny Lobster	11.2 ± 48.8 < 93.7	5.47 ± 46.4 < 90.5	-13.8 ± 43.9 < 82.1	45.7 ± 101 < 205	22.7 ± 44.0 < 90.9	3.70 ± 42.5 < 81.8

Result entries are organized in the format below.

Activity ± Error < MDA

Table 16: Semi-Annual Marine Animal Gamma Isotopic (pCi/kg Wet)

Station	Date	Species	Mn-65	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MOA 02	April	California Mussel	23.3 ± 36.6 < 67.8	-7.57 ± 41.0 < 66.4	-7.03 ± 42.0 < 66.5	-59.9 ± 108 < 158	-14.7 ± 35.0 < 53.1	-14.8 ± 38.4 < 58.4
		Sheephead	-6.60 ± 40.8 < 66.5	20.1 ± 33.8 < 61.8	-3.35 ± 40.7 < 66.1	-30.2 ± 81.1 < 122	-14.9 ± 37.2 < 58.2	18.7 ± 38.1 < 66.8
		Kelp Bass	-23.0 ± 35.2 < 61.2	19.6 ± 41.4 < 81.4	6.75 ± 44.8 < 91.9	-50.5 ± 85.7 < 148	-2.00 ± 48.6 < 87.5	22.3 ± 46.8 < 89.9
		Spiny Lobster	-3.70 ± 35.8 < 57.1	21.5 ± 39.2 < 67.7	35.9 ± 38.0 < 72.0	-99.6 ± 88.3 < 120	8.81 ± 39.2 < 65.5	-1.96 ± 33.8 < 55.2
		Sheephead	-10.5 ± 46.5 < 74.8	32.9 ± 57.2 < 104	-5.86 ± 46.9 < 75.3	-105.4 ± 153 < 223	1.07 ± 47.8 < 80.4	-11.5 ± 48.5 < 76.6
	October	Barred Sand Bass	10.1 ± 51.9 < 101	-12.3 ± 68.3 < 126	22.5 ± 50.2 < 110	23.6 ± 122 < 237	-11.7 ± 46.0 < 85.9	34.7 ± 50.3 < 105
		Spiny Lobster	5.32 ± 49.5 < 83.7	7.76 ± 52.4 < 89.3	-0.29 ± 47.0 < 77.1	-106.7 ± 130 < 185.7	42.5 ± 57.6 < 105	-27.3 ± 54.1 < 84.9
		California Lobster	25.0 ± 42.5 < 78.2	-49.7 ± 60.3 < 82.9	30.5 ± 42.5 < 84.0	-93.2 ± 108 < 146	-27.3 ± 53.8 < 80.4	17.6 ± 40.3 < 73.0

Result entries are organized in the format below.

Activity ± Error < MDA

Table 16: Semi-Annual Marine Animal Gamma Isotopic (pCi/kg Wet)

Station	Date	Species	Mn-65	Co-58	Co-60	Zn-65	Cs-134	Cs-137
MOA 03	April	Kelp Bass	-9.42 ± 39.2 < 71.0	9.47 ± 37.5 < 72.6	34.2 ± 49.2 < 99.6	-70.5 ± 82.1 < 132	2.82 ± 40.5 < 77.2	-5.25 ± 45.0 < 79.4
		Sheephead	-31.8 ± 33.6 < 47.9	8.63 ± 29.0 < 51.0	4.75 ± 43.8 < 74.0	-106.6 ± 88.7 < 112	7.51 ± 37.1 < 61.6	-0.56 ± 34.2 < 55.9
		Spiny Lobster	-31.6 ± 32.3 < 43.8	12.9 ± 34.3 < 60.8	27.6 ± 32.9 < 65.2	3.09 ± 66.6 < 110	26.9 ± 33.8 < 64.3	36.4 ± 37.3 < 69.8
		California Mussel	-10.5 ± 30.7 < 47.4	2.79 ± 28.3 < 47.5	-7.97 ± 31.3 < 48.1	-51.2 ± 66.5 < 94.0	-5.43 ± 33.9 < 54.5	2.48 ± 31.0 < 52.7
	October	Sheephead	-6.63 ± 44.5 < 81.5	17.2 ± 52.8 < 103	43.2 ± 44.6 < 101	-83.4 ± 121 < 199	-11.0 ± 46.5 < 84.9	-18.5 ± 45.5 < 81.3
		Barred Sand Bass	1.83 ± 46.5 < 77.7	13.0 ± 48.9 < 83.9	1.13 ± 44.6 < 73.5	-17.3 ± 116 < 188	11.3 ± 45.9 < 78.6	14.3 ± 43.4 < 75.0
		Spiny Lobster	-14.4 ± 41.7 < 66.2	-7.59 ± 51.9 < 84.8	-26.0 ± 42.1 < 59.7	-17.3 ± 109 < 176	-49.6 ± 48.4 < 69.6	6.12 ± 41.1 < 70.0
		California Mussel	37.7 ± 48.8 < 89.4	-36.3 ± 47.7 < 68.6	-33.8 ± 47.9 < 65.7	-3.21 ± 118 < 194	-0.09 ± 49.8 < 82.9	25.1 ± 51.7 < 91.3

Result entries are organized in the format below.

Activity ± Error < MDA

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Table 17: Semi-Annual Local Crops Gamma Isotopic (pCi/kg Wet)

Station	Date	Description	Cs-134			Cs-137		
			Activity	Error	MDC	Activity	Error	MDC
TFB 02	June	Lettuce	-4.67E+00	± 1.23E+01	2.19E+01	-9.09E+00	± 1.24E+01	2.11E+01
		Tomato	3.94E+00	± 1.49E+01	2.60E+01	8.25E+00	± 1.57E+01	2.74E+01
	September	Tomato	-2.62E+00	± 1.03E+01	1.67E+01	6.48E+00	± 9.24E+00	1.64E+01
		Cabbage	1.75E+00	± 6.42E+00	1.25E+01	2.07E+00	± 5.25E+00	1.01E+01
TFB 06	June	Sorrel	-1.16E+00	± 1.06E+01	1.67E+01	3.17E+00	± 1.00E+01	1.71E+01
		Tomato	-7.65E-01	± 1.02E+01	1.69E+01	9.55E+00	± 9.29E+00	1.70E+01
	September	Tomato	-3.02E+00	± 9.79E+00	1.74E+01	-3.28E+00	± 1.07E+01	1.89E+01
		Swiss Chard (Rainbow)	3.99E+00	± 8.86E+00	1.57E+01	-6.56E+00	± 1.03E+01	1.60E+01

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Attachment 3: Cross Check Intercomparison Program

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

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

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

- I. NCR 25-04: MAPEP 25, RdV52 vegetation study for Sr-90 evaluated as "Not Acceptable." Possible sample interference issue. Study results stated 8 out of 18 participants passed the study. All internal data reviewed and deemed accurate with internal quality control measures for sample also passing. The laboratory performed testing with Sr-85 spike with successful outcomes. The following provider study, RdV53, returned with passing results.
- II. NCR 25-05: Interlaboratory crosscheck failure: MAPEP 25-MaS52 Ni-63 in soil. A manual data-entry error in the carrier volume for one nuclide/matrix led to an incorrect LIMS value. Manual verification showed that the crosscheck would have passed with the correct volume. The procedure has been revised with more prominent notation to assist technicians. No recurrence identified and the following crosscheck study did not result in repeated error supporting effectiveness of corrective action.
- III. NCR 25-06: Interlaboratory crosscheck failure: ERA RAD141 Gr-A in water. The provider's acceptance range was 10.0–21.2, and their reported value of 15.6 fell within this interval. TBE-ES obtained 22.2 ± 3.76 , which satisfied internal QC criteria and would have aligned with the acceptance range if error margins had been considered. The QC duplicate result of 17.8 met internal requirements, and the 22% RPD demonstrated internal consistency. The provider's Gr-A samples have historically been the lowest spiked. No internal failures identified so no corrective action deemed necessary. The following ERA RAD143 study's performance evaluation results returned acceptable/passing.
- IV. NCR 25-10: *IN-PROGRESS* Interlaboratory crosscheck failure: ERA MRAD 43, PU-239/240 (AS) in Air Particulate (filter).

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- V. NCR 25-11: Interlaboratory crosscheck failure: ERA RAD-143 crosscheck failure of Uranium in water. Provider acceptance range: 48.0 – 60.0. TBE-ES result of 47.1 with internal acceptance ratio of 87.2 and no prior failures. No corrective action deemed necessary.
- VI. NCR 25-12: *IN-PROGRESS* Interlaboratory crosscheck failure: MAPEP Series 53, Ni-63 in Soil.
- VII. NCR 25-13: *IN-PROGRESS* Interlaboratory crosscheck failure: MAPEP Series 53, Th-232 in Soil.

The Interlaboratory Comparison Program provides evidence of “in control” counting systems and methods, and that the laboratories are producing accurate and reliable data.

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Table 18: DOE Mixed Analyte Performance Evaluation Program (MAPEP)
Teledyne Brown Engineering - Environmental Services

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

KEY

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

(b) DOE/MAPEP evaluation:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

Results Flags:

A = Result acceptable.

W = Result acceptable with warning.

N = Result not acceptable.

RW = Report Warning NR = Not Reported

Uncertainty Flags:

NOT ACCEPTABLE.

ACCEPTABLE.

ACCEPTABLE WITH WARNING.

NOT ACCEPTABLE.

Relative Precision (RP) = (Reported Uncertainty / Reported Result) x 100

N⁽¹⁾ = NCR 25-05 N⁽²⁾ = NCR 25-04

(R) = Additional Study for N⁽²⁾ failure N⁽³⁾ = NCR 25-12

N⁽⁴⁾ = NCR 25-13

Table 19: ERA Environmental Radioactivity Crosscheck Program
Teledyne Brown Engineering - Environmental Services

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

KEY

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

(b) ERA evaluation:

A = Acceptable - Reported value falls within the Acceptance Limits

N = Not Acceptable - Reported value falls outside of the Acceptance Limits

N(1) = NCR 25-06 N(2) = NCR 25-11 N(3) = NCR 25-10

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Table 20: Eckert & Ziegler Analytics Environmental Radioactivity
Crosscheck Program

Teledyne Brown Engineering - Environmental Services

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

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Table 20: Eckert & Ziegler Analytics Environmental Radioactivity Crosscheck Program

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

Key

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

(b) Analytics evaluation based on TBE internal QC limits:

A = Acceptable - reported result falls within ratio limits of 0.80-1.20

W = Acceptable with warning - reported result falls within 0.70-0.80 or 1.20-1.30

N = Not Acceptable - reported result falls outside the ratio limits of < 0.70 and > 1.30

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2.0 Environmental Dosimetry Company (EDC) performs the environmental TLD analyses noted in this report. EDC performs the requested analyses under its Quality Assurance Program which meets the requirement of 10 CFR 50, Appendix B, ASME NQA-1, Regulatory Guide 4.15 Revision 1 and Regulatory Guide 4.13 Revision 2 (Environmental Dosimetry – Performance Standards, Testing and Data Analysis)

Results of performance tests conducted are summarized and discussed in the following sections. Summaries of the performance tests for the reporting period are given below.

Table 21: Percentage of Individual Dosimeters that passed EDC Internal Criteria provides a summary of individual dosimeter results evaluated against the EDC internal acceptance criteria for high-energy photons only. During this period 100% (72/72) of the individual dosimeters, evaluated against these criteria, met the tolerance limits for accuracy and 100% (72/72) met the criterion for precision.

Table 21: Percentage of Individual Dosimeters that passed EDC Internal Criteria
January – December 2025^{(1), (2)}

Dosimeter Type	Number Tested	% Passed Bias Criteria	% Passed Precision Criteria
Panasonic Environmental	72	100	100

⁽¹⁾This table summarizes results of tests conducted by EDC.

⁽²⁾Environmental dosimeter results are free in air.

Table 22: Mean Dosimeter Analyses Summary January – December 2025^{(1), (2)} provides the bias and standard deviation results for each group (N=6) of dosimeters evaluated against the internal tolerance criteria. Overall, 100% (12/12) of the dosimeter sets, evaluated against the internal tolerance performance criteria, met these criteria.

Table 22: Mean Dosimeter Analyses Summary January – December 2025^{(1), (2), (3)}

Process Date	Exposure Level	Mean Bias %	Standard Deviation %	Tolerance Limit +/-15%
4/23/2025	35	-2.6	1.5	Pass
4/29/2025	53	1.5	1.2	Pass
5/13/2025	77	2.6	1.9	Pass
7/21/2025	26	0.2	0.8	Pass
7/26/2025	107	-2.1	1.3	Pass
7/28/2025	43	-0.2	1.2	Pass
10/22/2025	38	1.7	1.0	Pass
10/27/2025	88	0.9	2.1	Pass
11/26/2025	119	2.9	1.0	Pass
01/24/2026	65	-0.3	1.3	Pass
01/27/2026	96	-0.3	1.2	Pass
02/22/2026	47	-3.3	2.3	Pass

⁽¹⁾This table summarizes results of tests conducted by EDC for TLDs issued in 2025.

⁽²⁾Environmental dosimeter results are free in air.

⁽³⁾ N=6

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Table 23: Summary of Independent Dosimeter Testing January – December 2025^{(1),(2)} presents the independent blind spike results for dosimeters processed during this annual period. All results passed the performance acceptance criterion.

Table 23: Summary of Independent Dosimeter Testing January – December 2025^{(1),(2)}

Issuance Period	Client	Mean Bias %	Standard Deviation %	Pass / Fail
1 st Qtr. 2025	Millstone	1.5	1.4	Pass
2 nd Qtr. 2025	Seabrook	7.3	1.0	Pass
2 nd Qtr. 2025	Millstone	2.8	1.1	Pass
3 rd Qtr. 2025	SONGS	-4.4	2.4	Pass
3 rd Qtr. 2025	Millstone	8.6	3.5	Pass
4 th Qtr. 2025	Millstone	3.3	3.5	Pass

⁽¹⁾Performance criteria are +/- 15%.

⁽²⁾Blind spike irradiations using Cs-137

Attachment 4: Environmental Direct Radiation Dosimetry Results

Table 24: Environmental Direct Radiation Dosimetry Results for 2025

Monitoring Location	Quarterly Baseline, B_Q (mrem)	$B_Q + MDD_Q$ (mrem)	Normalized Quarterly Monitoring Data, M_Q (mrem)				Quarterly Facility Dose, $F_Q = M_Q - B_Q$ (mrem, or "ND" if $F_Q \leq MDD_Q$)				Annual Baseline, B_A (mrem)	$B_A + MDD_A$ (mrem)	Annual Monitoring Data, M_A (mrem)	Annual Facility Dose, $F_A = M_A - B_A$ (mrem, or "ND" if $F_A \leq MDD_A$)	Annual ^{1**} Dose to Member of Public (mrem)
			1	2	3	4	1	2	3	4					
1	18.4	23.4	17.8	18.2	17.8	21.0	ND	ND	ND	ND	73.6	83.6	74.9	ND	ND
2	19.6	24.6	16.4	18.4	18.8	17.7	ND	ND	ND	ND	78.2	88.2	71.3	ND	ND
3	17.2	22.2	16.3	16.8	17.8	17.2	ND	ND	ND	ND	69.0	79.0	68.1	ND	ND
4	19.0	24.0	17.2	18.2	18.0	18.4	ND	ND	ND	ND	76.1	86.1	71.8	ND	ND
6	12.0	17.0	10.4	11.0	10.9	10.6	ND	ND	ND	ND	47.9	57.9	42.9	ND	ND
8	16.2	21.2	15.1	15.1	17.1	15.0	ND	ND	ND	ND	64.8	74.8	62.3	ND	ND
10	17.2	22.2	16.4	17.3	16.3	17.3	ND	ND	ND	ND	69.0	79.0	67.3	ND	ND
11*	15.8	20.8	15.6	16.5	16.0	16.6	ND	ND	ND	ND	63.1	73.1	64.6	ND	ND
12*,a,b	15.8	20.8	22.8	22.9	17.9	17.8	7.1	7.1	ND	ND	63.1	73.1	81.4	18.4	ND
15*,a	15.8	20.8	19.4	20.3	20.7	24.1	ND	ND	ND	8.3	63.1	73.1	84.5	21.5	ND
16*,a,b	15.8	20.8	17.9	17.4	18.0	16.8	ND	ND	ND	ND	63.1	73.1	70.2	ND	ND
19	18.7	23.7	17.7	18.9	17.4	17.7	ND	ND	ND	ND	74.8	84.8	71.7	ND	ND
22	18.8	23.7	17.0	19.2	18.6	18.4	ND	ND	ND	ND	75.3	85.3	73.2	ND	ND
34	17.0	22.0	16.1	18.6	16.6	17.1	ND	ND	ND	ND	68.1	78.1	68.4	ND	ND
35	17.8	22.8	14.3	16.7	15.8	15.7	ND	ND	ND	ND	71.1	81.1	62.5	ND	ND
36	20.5	25.5	18.5	20.4	20.0	19.0	ND	ND	ND	ND	82.0	92.0	77.9	ND	ND
40	18.0	23.0	17.0	18.2	17.8	17.6	ND	ND	ND	ND	71.9	81.9	70.7	ND	ND
41	15.8	20.8	16.2	16.9	15.3	15.6	ND	ND	ND	ND	63.1	73.1	63.9	ND	ND
46	12.8	17.8	12.2	12.2	11.8	11.0	ND	ND	ND	ND	51.3	61.3	47.3	ND	ND
50	17.4	22.4	15.9	16.7	16.3	16.9	ND	ND	ND	ND	69.8	79.8	65.8	ND	ND
55*,a,c	15.8	20.8	18.1	18.6	19.8	19.5	ND	ND	ND	ND	63.1	73.1	78.1	15.1	ND
56*,a	15.8	20.8	18.4	17.4	19.6	17.6	ND	ND	ND	ND	63.1	73.1	73.1	ND	ND

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Table 24: Environmental Direct Radiation Dosimetry Results for 2025

Monitoring Location	Quarterly Baseline, B_Q (mrem)	$B_Q + MDD_Q$ (mrem)	Normalized Quarterly Monitoring Data, M_Q (mrem)				Quarterly Facility Dose, $F_Q = M_Q - B_Q$ (mrem, or "ND" if $F_Q \leq MDD_Q$)				Annual Baseline, B_A (mrem)	$B_A + MDD_A$ (mrem)	Annual Monitoring Data, M_A (mrem)	Annual Facility Dose, $F_A = M_A - B_A$ (mrem, or "ND" if $F_A \leq MDD_A$)	Annual** Dose to Member of Public (mrem)
			1	2	3	4	1	2	3	4					
57 ^{*a}	15.8	20.8	17.6	17.3	17.3	17.7	ND	ND	ND	ND	63.1	73.1	70.0	ND	ND
58 ^{*a}	15.8	20.8	18.9	18.9	19.0	20.0	ND	ND	ND	ND	63.1	73.1	76.8	13.7	ND
61	16.2	21.2	14.7	14.8	15.5	21.5	ND	ND	ND	5.3	64.8	74.8	66.4	ND	ND
62	13.9	18.9	12.5	13.4	12.5	14.8	ND	ND	ND	ND	55.5	65.5	53.2	ND	ND
63	14.6	19.6	13.6	14.0	13.7	12.8	ND	ND	ND	ND	58.4	68.4	54.1	ND	ND
64	15.8	20.8	15.2	15.3	15.0	14.0	ND	ND	ND	ND	63.1	73.1	59.5	ND	ND
65	14.1	19.1	12.8	13.3	12.7	15.7	ND	ND	ND	ND	56.3	66.3	54.5	ND	ND
66	14.7	19.7	13.5	13.7	15.2	13.1	ND	ND	ND	ND	58.9	68.9	55.5	ND	ND
68	15.8	20.8	15.3	16.7	17.3	13.5	ND	ND	ND	ND	63.1	73.1	62.8	ND	ND
73 ^{*b,d}	15.8	20.8	22.3	28.4	25.4	15.9	6.5	12.6	9.6	ND	63.1	73.1	92.0	28.9	ND
75	16.7	21.7	13.7	16.0	15.0	18.7	ND	ND	ND	ND	66.9	76.9	63.4	ND	ND
76	18.2	23.2	Missing ^e	18.0	17.6	17.8	N/A	ND	ND	ND	72.7	82.7	71.3	ND	ND

Highlighted results include any indicated neutron dose, estimated using a neutron signal (Rn) conversion factor of 10.5 Rn/rem.

* Indicates that the station is within the site boundary. The baseline has been estimated to be 15.8 mrem per standard 91-day quarter within the site boundary.

** Dose to members of the public is based on estimated annual occupancy times.

For missing TLD results, the average of the available quarterly data points is substituted for the missing data when calculating Annual Monitoring Data (M_A).

a The dose to members of the public is based on a beach annual occupancy time of 300 hours per year near the SONGS sea wall.

b This location is not accessible to members of the general public.

c A neutron dosimeter was collocated with REMP TLD 55 and selected ISFSI TLDs. The estimated neutron dose was added to the gamma dose. M_A may differ from the sum of quarterly doses (M_Q) due to difference in detection of quarterly and annual neutron dose.

d The dose to members of the public is based on an annual occupancy time of 20 hours per year for transit along road near TLD 73.

e Refer to Sample Deviation Summary Table 9

MDD_Q = Quarterly Minimum Differential Dose = 5 mrem

MDD_A = Annual Minimum Differential Dose = 10 mrem

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

Attachment 5: ISFSI TLD Data

The TLD data presented below is for ISFSI TLD locations as show in Figure 9: SONGS ISFSI TLD Location Map. These locations are not accessible to the public and do not represent a dose pathway for Members of the Public that are outside of the Site Boundary. The data is presented for trending purposes, as discussed in 11.2 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Program

Table 25: ISFSI TLD Data

Monitoring Location ^a	Quarterly Baseline, B _q (mrem)	B _q + MDD _q (mrem)	Normalized Quarterly Monitoring Data, M _q (mrem)				Quarterly Facility Dose, F _q =M _q +B _q (mrem, or "ND" if F _q ≤ MDD _q)				Annual Baseline, B _A (mrem)	B _A + MDD _A (mrem)	Annual Monitoring Data, M _A (mrem)	Annual Facility Dose, F _A =M _A +B _A (mrem, or "ND" if F _A ≤ MDD _A)	Annual Dose to Member of Public ^b (mrem)
			1	2	3	4	1	2	3	4					
301	15.8	20.8	17.4	18.1	18.5	18.3	ND	ND	ND	ND	63.1	73.1	72.3	ND	-
302	15.8	20.8	21.9	22.2	21.5	22.2	6.1	6.4	5.7	6.4	63.1	73.1	87.7	24.7	-
303	15.8	20.8	21.8	21.1	21.2	22.2	6.0	5.4	5.4	6.5	63.1	73.1	86.3	23.3	-
304	15.8	20.8	21.0	20.1	20.5	20.2	5.2	ND	ND	ND	63.1	73.1	81.8	18.8	-
307	15.8	20.8	19.1	19.0	18.4	18.2	ND	ND	ND	ND	63.1	73.1	74.7	11.7	-
308	15.8	20.8	18.3	17.3	18.0	18.6	ND	ND	ND	ND	63.1	73.1	72.2	ND	-
309	15.8	20.8	18.9	19.2	19.5	19.9	ND	ND	ND	ND	63.1	73.1	77.4	14.4	-
310	15.8	20.8	20.4	20.2	21.7	20.1	ND	ND	5.9	ND	63.1	73.1	82.5	19.4	-
311 ^c	15.8	20.8	19.3	19.8	20.7	19.4	ND	ND	ND	ND	63.1	73.1	79.2	16.1	-
312	15.8	20.8	16.0	16.8	17.0	16.5	ND	ND	ND	ND	63.1	73.1	66.3	ND	-
314	15.8	20.8	20.0	20.5	21.0	19.2	ND	ND	5.3	ND	63.1	73.1	80.7	17.7	-
315	15.8	20.8	18.5	19.2	18.7	19.0	ND	ND	ND	ND	63.1	73.1	75.4	12.3	-
316	15.8	20.8	16.6	16.6	17.3	16.7	ND	ND	ND	ND	63.1	73.1	67.2	ND	-
317	15.8	20.8	18.0	17.4	19.9	16.9	ND	ND	ND	ND	63.1	73.1	72.2	ND	-
318	15.8	20.8	20.4	21.1	22.1	19.8	ND	5.4	6.3	ND	63.1	73.1	83.4	20.4	-
319	15.8	20.8	20.4	20.4	21.0	19.9	ND	ND	5.2	ND	63.1	73.1	81.7	18.6	-
320	15.8	20.8	20.0	20.4	20.5	19.5	ND	ND	ND	ND	63.1	73.1	80.3	17.2	-
321	15.8	20.8	19.1	20.1	19.1	20.1	ND	ND	ND	ND	63.1	73.1	78.4	15.4	-
326 ^c	15.8	20.8	21.2	21.4	25.1	25.1	5.4	5.7	9.3	9.3	63.1	73.1	95.5	32.4	-

Table 26: ISFSI TLD Data

Monitoring Location ^a	Quarterly Baseline, B _Q (mrem)	B _Q + MDD ^a	Normalized Quarterly Monitoring Data, M _Q (mrem)				Quarterly Facility Dose, F _Q =M _Q +B _Q (mrem, or "ND" if F _Q ≤ MDD _Q)				Annual Baseline, B _A (mrem)	B _A + MDD _A (mrem)	Annual Monitoring Data, M _A (mrem)	Annual Facility Dose, F _A =M _A +B _A (mrem, or "ND" if F _A ≤ MDD _A)	Annual Dose to Member of Public ^b (mrem)
			1	2	3	4	1	2	3	4					
339 ^c	15.8	20.8	23.2	22.2	22.1	21.8	7.4	6.4	6.4	6.0	63.1	73.1	92.3	29.3	-
340 ^c	15.8	20.8	21.3	19.8	19.5	20.9	5.5	ND	ND	5.2	63.1	73.1	82.9	19.8	-
341 ^c	15.8	20.8	23.1	20.8	22.8	22.4	7.3	5.0	7.0	6.7	63.1	73.1	90.8	27.8	-
342 ^c	15.8	20.8	25.3	24.9	22.5	23.3	9.5	9.1	6.7	7.5	63.1	73.1	98.2	35.1	-
343 ^c	15.8	20.8	20.6	21.8	22.3	22.0	ND	6.0	6.5	6.2	63.1	73.1	86.7	23.6	-
344 ^c	15.8	20.8	19.3	20.0	19.9	20.5	ND	ND	ND	ND	63.1	73.1	79.8	16.7	-

Highlighted results include any indicated neutron dose, estimated using a neutron signal (Rn) conversion factor of 10.5 Rn/rem.

^a ISFSI TLDs (SCE-301 through SCE-344) are placed around the ISFSI pad, and not in locations accessible to the general public.

^b Public dose is not applicable for those TLDs that are not accessible to the general public.

^c Station has a collocated neutron dosimeter package. The neutron dose is estimated using a neutron signal conversion factor measured at a similar ISFSI installation. M_A may differ from the sum of quarterly doses (M_Q) due to difference in detection of quarterly and annual neutron dose.

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Attachment 6: CDPH Collocated samples

The CDPH participates in a comprehensive radiological environmental split sampling program in conjunction with SONGS. In 2025, the CDPH acquired split samples, collected by an independent third party, from the following SONGS media: non-migratory marine animals, kelp, ocean water gamma emitters, and ocean water tritium. The CDPH also conducts parallel air sampling and terrestrial direct radiation (TLD) measurement efforts at SONGS (refer to Table 29 and related discussion for CDPH TLD data).

CDPH Air Sampling Gross Beta and quarterly gamma analysis results were similar to the SONGS results for the same media. As expected, both the CDPH Drinking Water and Radiation Laboratory (DWRL) and the SONGS-contracted laboratory (Teledyne Brown Engineering Inc.) found a gross beta signal above the detection limit. Both labs detected naturally occurring Be-7 in the quarterly composite gamma particulate media samples.

Since ocean water tritium and non-migratory marine animals have the potential for human consumption, their raw data are tabulated below. Fifteen split sample analyses for marine species were conducted. Analysis methodologies are different in that the SONGS-contracted laboratory reported results based on sample wet weight, where the CDPH lab reported results based on sample dry weight. The labs did not detect anthropogenic radionuclides in the split samples with the exception of low-level Cs-137 in some non-migratory marine animals. The variability in the detection of positive results is due to the low activity of the samples, the differences in sample processing, the uncertainty of isotope detection and detection limits at low concentrations. Considering the variables involved, the CDPH results are not unexpected and remain consistent with the SONGS results.

Radiological split sampling is performed by SONGS to demonstrate repeatability of the sample collection, preparation, and analysis process. Split sample analysis is performed for the evaluation of the precision and bias trends of the method of analysis without the added variables introduced by sampling. The 2025 CDPH data resulted in similar conclusions to the 2025 SONGS REMP data.

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Table 26: CDPH and SONGS Split Sample Tritium in Ocean Water

SPLIT SAMPLE LOCATION	Sample Date	SONGS tritium data		CDPH tritium data	
		H-3 result ± 2 sigma (pCi/L)	MDC	H-3 result ± uncertainty (pCi/L)	MDC
A Station Discharge Outfall - Unit 1	1/15/2025	-13 ± 279	462	-9 ± 123	212
	2/18/2025	69 ± 263	421	30 ± 128	219
	3/17/2025	4 ± 290	478	60 ± 129	219
	4/16/2025	-16 ± 261	433	73 ± 122	206
	5/19/2025	-16 ± 258	428	18 ± 120	206
	6/16/2025	157 ± 283	438	23 ± 142	242
	7/15/2025	56 ± 284	458	-150 ± 138	242
	8/18/2025	16 ± 276	453	5 ± 139	238
	9/15/2025	6 ± 248	407	24 ± 124	213
	10/16/2025	60 ± 295	476	39 ± 129	220
	11/19/2025	74 ± 257	410	25 ± 129	220
	12/15/2025	213 ± 284	429	196 ± 143	237
B Outfall - Unit 2	1/15/2025	-107 ± 270	463	145 ± 127	212
	2/18/2025	-4 ± 255	421	56 ± 129	219
	3/17/2025	-44 ± 281	471	21 ± 128	219
	4/16/2025	-74 ± 257	437	48 ± 121	206
	5/19/2025	204 ± 286	435	68 ± 122	206
	6/16/2025	-49 ± 262	440	-57 ± 140	242
	7/15/2025	-75 ± 270	459	-80 ± 139	242
	8/18/2025	98 ± 289	459	59 ± 140	238
	9/15/2025	279 ± 284	420	-6 ± 124	213
	10/16/2025	-46 ± 284	477	57 ± 130	220
	11/19/2025	-58 ± 239	405	18 ± 128	220
	12/15/2025	-16 ± 260	432	127 ± 141	237

Note that the EPA maximum permissible tritium activity in drinking water is 20,000 pCi / liter. Both labs only detected naturally occurring radionuclides in ocean water. No plant-related radionuclides were reported above the MDC.

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Table 27: CDPH and SONGS Split Sample Tritium in Ocean Water

SPLIT SAMPLE LOCATION	Sample Date	SONGS tritium data		CDPH tritium data	
		H-3 result ± 2 sigma (pCi/L)	MDC	H-3 result ± uncertainty (pCi/L)	MDC
C Outfall - Unit 3	1/15/2025	86 ± 296	474	43 ± 124	212
	2/18/2025	-42 ± 251	422	-47 ± 126	219
	3/17/2025	24 ± 285	466	105 ± 130	219
	4/16/2025	55 ± 266	429	0 ± 120	206
	5/19/2025	148 ± 276	428	26 ± 120	206
	6/16/2025	-18 ± 265	440	-96 ± 139	242
	7/15/2025	182 ± 297	458	-57 ± 140	242
	8/18/2025	68 ± 282	453	-133 ± 136	238
	9/15/2025	2 ± 251	413	-37 ± 123	213
	10/16/2025	-51 ± 284	477	-10 ± 128	220
	11/19/2025	114 ± 255	399	27 ± 129	220
	12/15/2025	100 ± 273	432	39 ± 139	237
D Newport Beach (Control)	1/15/2025	267 ± 311	469	76 ± 125	212
	2/18/2025	92 ± 268	425	11 ± 128	219
	3/17/2025	208 ± 305	469	86 ± 130	219
	4/16/2025	70 ± 266	425	73 ± 122	206
	5/19/2025	175 ± 280	430	-9 ± 119	206
	6/16/2025	97 ± 270	427	18 ± 142	242
	7/15/2025	9 ± 283	464	-16 ± 141	242
	8/18/2025	76 ± 287	460	-57 ± 138	238
	9/15/2025	76 ± 267	427	-84 ± 121	213
	10/16/2025	16 ± 287	469	53 ± 130	220
	11/19/2025	163 ± 265	406	-4 ± 128	220
	12/15/2025	23 ± 246	401	116 ± 141	237

Note that the EPA maximum permissible tritium activity in drinking water is 20,000 pCi / liter. Both labs only detected naturally occurring radionuclides in ocean water. No plant-related radionuclides were reported above the MDC.

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Table 27: Non-migratory Marine Animals analysis results – Potassium-40

SPLIT SAMPLE LOCATION	Sample Date	Sample Type	Dry/Wet Weight Ratio (g _{dry} /g _{wet})	Nuclide	SONGS data (wet weight)		CDPH data (dry weight)	
					Gamma result +/- 2 sigma (pCi/g)	MDC (pCi/g)	Gamma result +/- uncertainty (pCi/g)	MDC (pCi/g)
A	4/18/2025	Fish	0.246	Potassium-40	3.25 ± 1.00	0.52	16.9 ± 0.9	0.4
	10/27/2025	Fish	•	Potassium-40	3.39 ± 1.03	0.49	•	•
B	4/9/2025	Mollusk	0.174	Potassium-40	1.45 ± 0.90	0.66	12.3 ± 0.7	0.5
	4/16/2025	Crustacean	0.263	Potassium-40	2.29 ± 0.86	0.59	14.0 ± 0.7	0.3
	4/16/2025	Fish	0.243	Potassium-40	3.67 ± 0.94	0.54	17.1 ± 0.8	0.3
	4/16/2025	Fish	0.267	Potassium-40	4.62 ± 1.23	0.47	13.6 ± 0.7	0.4
	10/8/2025	Crustacean	0.242	Potassium-40	4.34 ± 1.18	0.63	7.2 ± 0.4	0.3
	10/8/2025	Fish	0.234	Potassium-40	3.41 ± 1.18	0.77	18.1 ± 0.9	0.4
	10/8/2025	Mollusk	0.197	Potassium-40	1.84 ± 0.95	0.57	25.8 ± 1.4	0.7
C	4/21/2025	Mollusk	0.204	Potassium-40	2.36 ± 0.88	0.60	13.0 ± 0.7	0.4
	4/21/2025	Crustacean	0.273	Potassium-40	2.97 ± 0.88	0.56	14.1 ± 0.7	0.3
	4/21/2025	Fish	0.232	Potassium-40	3.76 ± 0.88	0.63	19.1 ± 0.9	0.3
	10/22/2025	Mollusk	•	Potassium-40	2.35 ± 0.94	0.84	•	•
	10/22/2025	Fish	•	Potassium-40	4.64 ± 1.23	0.62	•	•
	10/22/2025	Crustacean	•	Potassium-40	3.03 ± 1.06	0.46	•	•
	10/22/2025							

Note: "•" indicates data was not available from CDPH at the time of publication

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Table 28: Non-migratory Marine Animals analysis results – Cesium-137

SPLIT SAMPLE LOCATION	Sample Date	Sample Type	Dry/Wet Weight Ratio (g _{dry} /g _{wet})	Nuclide	SONGS data (wet weight)		CDPH data (dry weight)	
					Gamma result +/- 2 sigma (pCi/g)	MDC (pCi/g)	Gamma result +/- uncertainty (pCi/g)	MDC (pCi/g)
A	4/18/2025	Fish	0.246	Cesium-137	-0.0022 ± 0.0313	0.0522	0.0070 ± 0.0072	0.0123
	10/27/2025	Fish	•	Cesium-137	0.0093 ± 0.0351	0.0618	•	•
B	4/9/2025	Mollusk	0.174	Cesium-137	-0.0148 ± 0.0384	0.0584	0.0013 ± 0.0088	0.0142
	4/16/2025	Crustacean	0.263	Cesium-137	-0.0020 ± 0.0338	0.0552	0.0054 ± 0.0060	0.0102
	4/16/2025	Fish	0.243	Cesium-137	0.0187 ± 0.0381	0.0668	0.0180 ± 0.0082	0.0127
	4/16/2025	Fish	0.267	Cesium-137	0.0223 ± 0.0468	0.0899	0.0161 ± 0.0078	0.0137
	10/8/2025	Crustacean	0.242	Cesium-137	-0.0273 ± 0.0541	0.0849	0.0023 ± 0.0056	0.0093
	10/8/2025	Fish	0.234	Cesium-137	-0.0115 ± 0.0485	0.0766	0.0171 ± 0.0072	0.0129
C	10/8/2025	Mollusk	0.197	Cesium-137	0.0176 ± 0.0403	0.0730	0.0122 ± 0.0127	0.0216
	4/21/2025	Mollusk	0.204	Cesium-137	0.0025 ± 0.0310	0.0527	0.0078 ± 0.0074	0.0128
	4/21/2025	Crustacean	0.273	Cesium-137	0.0364 ± 0.0373	0.0698	0.0149 ± 0.0056	0.0100
	4/21/2025	Fish	0.232	Cesium-137	-0.0006 ± 0.0342	0.0559	0.0190 ± 0.0100	0.0159
	10/22/2025	Mollusk	•	Cesium-137	0.0251 ± 0.0517	0.0913	•	•
	10/22/2025	Fish	•	Cesium-137	-0.0185 ± 0.0455	0.0813	•	•
	10/22/2025	Crustacean	•	Cesium-137	0.0061 ± 0.0411	0.0700	•	•

Note: "•" indicates data was not available from CDPH at the time of publication

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CDPH maintains a TLD program in the environs of SONGS. Per CDPH request, the 2025 exposure results from the CDPH dosimeters are reported in Table 29, below. The Location Numbers refer to the current SONGS Decommissioning Solutions (SDS) alphanumeric location identifier and the current CDPH location number.

The CDPH TLD program does not conform to the same environmental dosimeter standard Reg. Guide 4.13 (ANSI N13.37-2014) used to generate direct radiation data for the SONGS REMP TLD program. The CDPH reports results in different units of measurement and is not technically equivalent to the SONGS TLD data set. The different methodologies and the different units of measurement make it unsuitable to directly compare individual REMP data to the corresponding individual CDPH TLD data. However, the CDPH results are consistent with the conclusion that beyond the Site Boundary there is no detectable direct radiation that is attributable to SONGS.

Table 29: 2025 State of California Data from the CDPH TLD program
(mR/Qtr.)

Location Numbers	Location Name	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
SDS-1, CDPH #2	City of San Clemente	24	24	28	30
SDS-22, CDPH #4	Former US Coast Guard Station – San Mateo Point	25	25	29	29
SDS-34, CDPH #5	San Onofre Elementary School	24	24	27	30
SDS-10, CDPH #6	Bluff (Adjacent to PIC #1) (San Onofre Surfing Beach)	25	21	28	28
SDS-16, CDPH #7	East Southeast Site Boundary	22	21	23	26
SDS-2, CDPH #8	Camp San Mateo	24	25	27	30
SDS-3, CDPH #9	Camp San Onofre	24	24	26	28
SDS-6, CDPH #10	Old El Camino Real (Old Highway 101) (ESE)	17	16	20	21
SDS-50, CDPH #13	Oceanside Fire Station	24	23	27	28