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

Donald C. Cook Nuclear Plant Unit 1 and 2
2025 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

In accordance with Technical Specification 5.6.3, Indiana Michigan Power Company, the licensee for Donald C. Cook Nuclear Plant Units 1 and 2, is providing, as the enclosure to this letter, the Annual Radioactive Effluent Release Report. This report covers the period January 1, 2025, through December 31, 2025.

This letter contains no new or modified regulatory commitments. Should you have any questions, please contact me at (269) 466-3468.

Sincerely,

A handwritten signature in black ink that reads "Amanda Britton". The signature is written in a cursive, flowing style.

Amanda M. Britton
Director of Regulatory Affairs

BMC/sjh

Enclosure: Donald C. Cook Nuclear Plant Units 1 and 2 - 2025 ANNUAL RADIOACTIVE EFFLUENT
RELEASE REPORT

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ENCLOSURE to AEP-NRC-2026-20

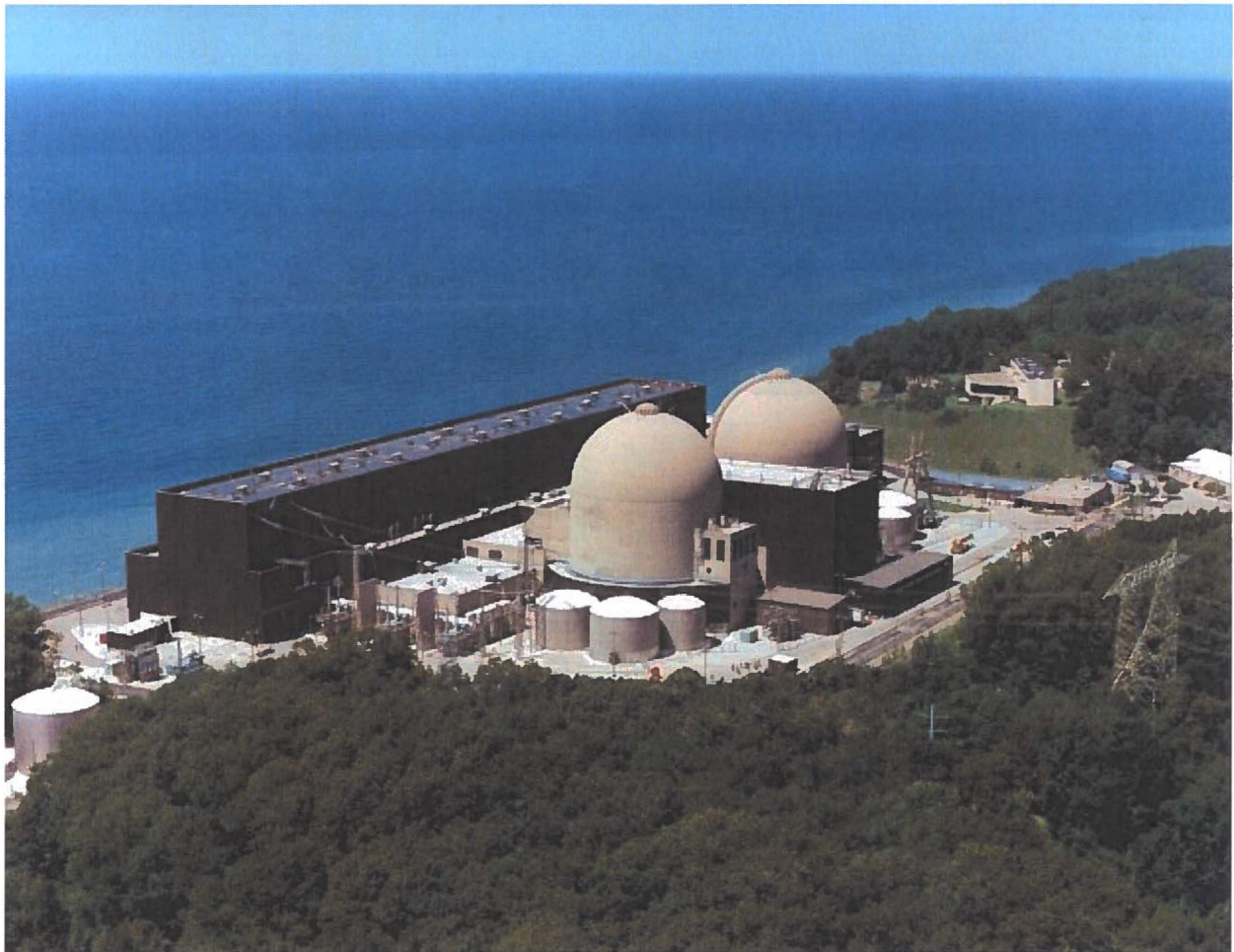
Donald C. Cook Nuclear Plant Units 1 and 2
2025 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT



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COOK PLANT

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Donald C. Cook Nuclear Plant Units 1 and 2 2025 Annual Radioactive Effluent Release Report

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I. **INTRODUCTION**

This report discusses the radioactive discharges from Unit 1 and Unit 2 of the Donald C. Cook Nuclear Plant (CNP) during 2025. This is in accordance with the requirements of CNP Technical Specification (TS) 5.6.3.

The table below summarizes the pertinent statistics concerning the Plant's operation during the period from January 1, 2025, to December 31, 2025. The data in this table and the descriptive information on plant operation are based upon the respective unit's Monthly Operating Reports, Performance Indicators, and Control Room Logs for 2025.

Parameter	Unit 1	Unit 2
Gross Electrical Energy Generation (Megawatt Hour (MWH))	8,477,386	9,659,382
Unit Service Factor (Percent (%))	89.2	90.4
Unit Capacity Factor (Maximum Dependable Capacity (MDC)) Net (%)	89.4	90.5

Unit 1 entered the reporting period in Mode 1 at Nominal Full Power (NFP). Small power adjustments were made to facilitate main turbine valve testing throughout the year. The unit performed a normal downpower and performed a manual trip from 16.5% on March 22, 2025, entering refueling outage U1C33. The unit attained criticality on April 29, 2025, and attained NFP on May 3, 2025. The unit exited the reporting period at NFP.

Unit 2 entered the reporting period in Mode 1 at NFP. Small power adjustments were made to facilitate main turbine valve testing throughout the year. The unit performed a normal downpower and performed a manual trip from 14% on September 20, 2025, entering refueling outage U2C29. The unit attained criticality on October 24, 2025, and attained NFP on October 28, 2025. The unit exited the reporting period at NFP.

II. **RADIOACTIVE RELEASES AND RADIOLOGICAL IMPACT ON MAN**

Since a number of release points are common to both units, the release data from both units are combined to form this two-unit, Annual Radioactive Effluent Release Report (ARERR). Appendix A1.1 through A2.4 of this report present the information in accordance with Section 5.6.3 of Appendix A to the Facility Operating Licenses, as specified in the Technical Specifications, Regulatory Guide 1.21, and 10 CFR Part 50, Appendix I.

The "MIDAS System" is a computer code that calculates doses due to radionuclides that were released from the CNP.

All liquid and gaseous releases were well within Offsite Dose Calculation Manual (ODCM) limits and federal limits.

There were no abnormal liquid or gaseous releases in 2025. There were no spills or leaks of radioactive liquids requiring voluntary notifications per the Industry Groundwater Protection Initiative or site procedures.

The Independent Spent Fuel Storage Installation (ISFSI) impacts are included with Unit 1 and Unit 2 statistics. The ISFSI cask system does not create any radioactive materials or have any radioactive waste treatment systems. Therefore, specific operating procedures for the control of radioactive effluents are not required. Technical Specifications for the HI-Storm 100 Cask System, Specification 3.1.1, Multi-Purpose Canister (MPC), provides assurance that there are not radioactive effluents from the ISFSI.

Liquid Releases

During 2025 there were 78 liquid batch releases performed. The number of liquid batch releases for the 1st, 2nd, 3rd, and 4th quarters in 2025 were 18, 21, 21, and 18, respectively.

Estimated doses (in mrem) to maximally exposed individuals via the liquid release pathways are given in Appendix A1.2 of this report.

Gaseous Releases

During the first quarter of 2025 there were three batch releases from Gas Decay Tanks (GDT), one containment purge, one system tank vent, and 56 Containment Pressure Reliefs (CPR). During the second quarter there were two batch releases from GDTs and 50 CPR. During the third quarter there were three batch releases from GDTs, one containment purge, one system tank vent, and 49 CPR. During the fourth quarter there were three batch releases from GDTs and 48 CPR. The CPR continue to be listed as batch releases as described in Nuclear Regulatory Commission Inspections 50-315/89016 (DRSS); 50-316/89017 (DRSS) for CNP, dated June 13, 1989. Doses continue to be calculated utilizing continuous criteria as allowed by NUREG-0133. There was a total of 11 GDT releases, two containment purges, two system tank vents, and 203 CPR gaseous batch releases made during 2025.

In calculating the dose consequences for continuous and batch gaseous releases during 2025, the meteorological data measured at the time of the release were used.

The estimated doses (in mrem) to maximally exposed individuals via the gaseous release pathways are given in Appendix A1.2 of this report. For individuals that are within the site boundary, the occupancy time is sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the site boundary.

Solid Waste Disposition

There were 20 shipments of radioactive waste made during 2025. These included shipments made from the site to various radioactive waste processors for ultimate disposal.

III. **METEOROLOGICAL**

Appendices A2.1, A2.2, A2.3, and A2.4 of this report contain the cumulative joint frequency distribution tables of wind speed and wind direction, corresponding to the various atmospheric stability classes for the first, second, third, and fourth quarters of 2025. Hourly meteorological data is available for review and/or inspection upon request.

IV. **OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES**

The ODCM, PMP-6010-OSD-001, was not revised during the report period.

V. **TOTAL DOSE**

Section 3.2.5 of the ODCM requires that the dose or dose commitment to a real individual from all uranium fuel cycle sources in Berrien County be limited to no more than 25 mrem to the total body or any organ (except the thyroid, which is limited to no more than 75 mrem) over a period of 12 consecutive months to show conformance with the requirements of 40 CFR Part 190. The maximum cumulative dose to an individual from liquid and gaseous effluents during 2025 was well within the ODCM limits. Measurements using thermoluminescent dosimeters (TLD) at 12 onsite stations indicate that the dose due to direct radiation is consistent with preoperational and current control (background) levels. This is fully evaluated in CNP's 2025 Annual Radiological Environmental Operating Report. Additional TLD dosimetry installed by Radiation Protection department programs monitor dose received by individuals on site as visitors.

The annual dose to the maximum individual will be estimated by first, summing the quarterly total body air dose, the quarterly skin air dose, the quarterly critical organ dose from iodines and particulates (I&P), the quarterly total body dose from liquid effluents, the quarterly critical organ dose from liquid effluents, and the Radiological Environmental Monitoring Program onsite direct radiation TLD data. These quarterly values are summed with the annual Carbon-14 dose and compared to the annual total body limit for conservative reasons. The table that follows here represents the above written description:

Dose (mrem)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
I & P	1.49E-01	2.42E-01	9.83E-02	5.50E-02
Total Body Air	7.90E-03	1.90E-03	3.20E-03	1.00E-03
Skin	2.20E-02	1.60E-02	8.70E-03	1.70E-03
Liquid TB	3.02E-02	1.34E-02	2.70E-02	8.40E-03
Liquid Organ	3.02E-02	1.43E-02	2.70E-02	8.43E-03
Direct Radiation	0	0	0	0
Quarterly Dose Total	2.39E-01	2.88E-01	1.64E-01	7.45E-02
Sum of Quarter Doses				7.66E-01
C14 (Annual) Dose				2.25E+00
C14 (Annual) Curies				1.95E+01
Grand Total Dose (Total Body or any other Organ) mrem				3.02E+00
Annual Dose Limit (mrem)				25
Percent of limit				1.21E+01

The following data reflects a comparison with 2009 annual dose data (the last year without calculating C-14 dose), 2025 annual dose data, and 2025 annual dose data with C-14 added. This indicates that 2025 annual dose was 'typical' for a year regarding radioactive effluents. The table is presented as follows:

	Annual Dose (mrem)	% of limit
2009	2.60E-01	1.04
2025	7.66E-01	3.06
2025 with C-14	3.02E+00	12.1

VI. RADIATION MONITORS INOPERABLE GREATER THAN 30 DAYS

On June 23, 2025 a review of work order histories identified that the Channel Operational Test (COT) for the Liquid Waste Disposal system effluent monitor 12-RRS-1001B (back up channel) had not been performed Quarterly as required per PMP-6010-OSD-001, Off Site Dose Calculation Manual (ODCM). The review discovered that a software close out issue had occurred for the work order task which was completed but not closed properly in the software. This resulted in the new tasks for future Quarters not generating in the software schedule as it appeared still open to the software. The last documented completion was on April 20, 2023. A calibration of the monitor had been performed on October 9, 2023 which was successfully completed and documented.

Due to the failure to meet the Quarterly surveillance COT requirement, the monitor would have to be considered INOPERABLE back to the last successful completion of a calibration or COT. This would have made the 12-RRS-1001B INOPERABLE since October 9, 2023. This would mean that there was a monitor inoperable for greater than 30 days which required a write up in the annual reports for 2023 and 2024 (see Errata).

The monitor had a successful COT performed on July 17, 2025 which restored the monitor to OPERABLE. There were no impacts to effluent releases as all were performed with the Primary monitor 12-RRS-1001A in service which did have proper testing performed. The pathway used did have an operational monitor for all releases during this period. This issue was placed into Corrective Actions to address the cause.

VII. NOTEWORTHY CONDITIONS IDENTIFIED IN 2025

A fuel defect was identified within our Unit 1 reactor core which impacted the effluent releases in 2025, but with minor changes in public dose. Small increases in iodine isotopes and xenon were observed to continue until the Unit 1 refueling outage in Spring 2025. No public dose limits are expected to be challenged, and the bulk of the calculated public dose will remain to be carbon-14 as observed on the chart above. The fuel defect was removed and there have been no observed fuel defects identified in the remainder of 2025.

Carbon-14 Supplemental Information for the 2025 Annual Radioactive Effluent Release Report.

C-14 has a 5730 year half-life and is a naturally occurring radionuclide produced by cosmic ray interactions in the atmosphere. C-14 is a relatively low energy beta emitter. Nuclear weapons testing in the 1950s and 1960s significantly increased the amount of C-14 in the atmosphere. C-14 is also produced in commercial nuclear reactors, but the amounts produced are much less than those produced naturally, from weapons testing, or coal burning power plants. The inventory of C-14 in Earth's biosphere is about 300 million Curies, of which most is in the oceans.

Since the U.S. Nuclear Regulatory Commission published Regulatory Guide (RG) 1.21, Revision 1, in 1974, the analytical methods for determining C-14 have improved. Coincidentally, the radioactive effluents from commercial nuclear power plants over the same period have decreased to the point that C-14 is likely to be a principal radionuclide in gaseous effluents. Based on these reasons and a desire to adjust policy to align with international standards, the nuclear industry was required to report, starting in 2010, the quantity and dose impact of C-14 here in the United States. The dose will be reported both with and without C-14 so a comparison to 2009 can be made, keeping in mind the differing standards.

The quantity of C-14 released to the environment can be estimated by use of a C-14 source term scaling factor based on power generation (Ref. RG 1.21, Revision 2). A recent study recommends a source term scaling factor of approximately 9.0 to 9.8 Curies/GWe-yr for a Westinghouse Pressurized Water Reactor (Ref. EPRI 1021106, "Estimation of Carbon-14 in Nuclear Plant Gaseous Effluents", dated December 23, 2010). A scaling factor of 9.4 Curies/GWe-yr was assumed for this report. Using this source term scaling factor and actual electrical generation (in MWH) produced during 2025 results in a site total of 19.46 Curies produced.

C-14 releases from Pressurized Water Reactors (PWR) occur primarily as a mix of organic carbon (methane) and inorganic carbon (carbon dioxide). As a general rule, C-14 in the primary coolant is essentially all organic with a large fraction as gas. Any time the primary coolant is exposed to an oxidizing environment (during shutdown or refueling), a slow transformation from an organic to an inorganic species occurs. Various studies documenting measured C-14 releases from PWRs suggest an average 80% organic fraction with the remainder being carbon dioxide, of which 70% is assumed to be released from gaseous batch releases. This equates to 2.72 Curies released as carbon dioxide which is available for the food pathway through photosynthesis to vegetation.

Dose is calculated utilizing the methodology prescribed in RG 1.109, Appendix C, with the vegetation dose being the predominant pathway. A 'p' factor of 0.33 is determined utilizing the time of batch gaseous releases performed during 2025 and the time available for photosynthesis in plants. A further reduction to the vegetation and leafy vegetable dose is warranted due to the limited growing season in Michigan, which was conservatively limited to nine months.

The final results indicated a calculated organ dose from C-14 to a child at the site boundary of 1.88 mrem to the bone and a whole body dose of 0.373 mrem, for a combined total C-14 dose of 2.25 mrem. This is less than the dose limit of 15 mrem/unit to any organ prescribed in 10 CFR 50, Appendix I, and the 40 CFR Part 190 limit of 25 mrem for total body and for any organ (≤ 75 mrem for thyroid).

The C-14 dose is now the major contributor and will consistently be about 8-10 times higher than the pre-2010 calculations. This dose will only change with online power generation, so it will not alter significantly unless the plant is shutdown for an extended period.

VIII. CONCLUSION

Based on the information presented in this report, it is concluded that CNP Units 1 and 2 performed their intended design function with no demonstrable adverse effect on the health and safety of the general public.

IX. ERRATA

There were errata identified for the 2023 and 2024 reports during the 2025 reporting period. On June 23, 2025 a review of work order histories identified that the Channel Operational Test (COT) for the Liquid Waste Disposal system effluent monitor 12-RRS-1001B (back up channel) had not been performed Quarterly as required per PMP-6010-OSD-001, Off Site Dose Calculation Manual (ODCM). The review discovered that a software close out issue had occurred for the work order task which was completed but not closed properly in the software. This resulted in the new tasks for future Quarters not generating in the software schedule as it appeared still open to the software. The last documented completion was on April 20, 2023. A calibration of the monitor had been performed on October 9, 2023 which was successfully completed and documented.

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The monitor had a successful COT performed on July 17, 2025 which restored the monitor to OPERABLE. There were no impacts to effluent releases as all were performed with the Primary monitor 12-RRS-1001A in service which did have proper testing performed.

2025 Effluent and Waste Disposal Annual Report

SUPPLEMENTAL INFORMATION

Facility: Donald C. Cook Nuclear Plant
Licensee: Indiana Michigan Power Company

1 REGULATORY LIMITS

1.1 Noble Gases

The air dose in unrestricted areas due to noble gases released in gaseous effluents shall be limited to the following:

1.1.1 During any calendar quarter, to ≤ 5 mrad/unit for gamma radiation and ≤ 10 mrad/unit for beta radiation.

1.1.2 During any calendar year, to ≤ 10 mrad/unit for gamma radiation and ≤ 20 mrad/unit for beta radiation.

1.2 Iodines - Particulates

The dose to a member of the public from radioiodines, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than eight days in gaseous effluents released to unrestricted areas shall be limited to the following:

1.2.1 During any calendar quarter to ≤ 7.5 mrem/unit to any organ.

1.2.2 During any calendar year to ≤ 15 mrem/unit to any organ.

1.3 Liquid Effluents

The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas shall be limited:

1.3.1 During any calendar quarter to ≤ 1.5 mrem/unit to the total body and to ≤ 5 mrem/unit to any organ.

1.3.2 During any calendar year to ≤ 3 mrem/unit to the total body and to ≤ 10 mrem/unit to any organ.

2025 Effluent and Waste Disposal Annual Report

1.4 Total Dose

The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to ≤ 25 mrem to the total body or any organ (except the thyroid, which is limited to ≤ 75 mrem) over a period of 12 consecutive months.

2 MAXIMUM PERMISSIBLE CONCENTRATIONS

2.1 Gaseous Effluents

The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to the following:

2.1.1 For noble gases: ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin.

2.1.2 For all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than eight days: ≤ 1500 mrem/yr to any organ.

The above limits are provided to ensure that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area to annual average concentrations exceeding the limits in 10 CFR Part 20, Appendix B, Table 2, Column 1.

2.2 Liquid Effluents

The concentration of radioactive material released at any time from the site to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

2025 Effluent and Waste Disposal Annual Report

3 AVERAGE ENERGY

The average energy (\bar{E}) of the radionuclide mixture in releases of fission and activation gases as defined in Regulatory Guide 1.21, Appendix B, Section A.3 is not applicable because the limits used for gaseous releases are based on calculated dose to members of the public. Release rates are calculated using an isotopic mix from actual samples rather than average energy.

4 MEASUREMENTS and APPROXIMATIONS of TOTAL RADIOACTIVITY

4.1 Fission and Activation Gases

Sampled and analyzed on an 8192 channel analyzer and HpGe detector. Tritium analysis is performed using liquid scintillation counters.

4.2 Iodines

Sampled on iodine adsorbing media, and analyzed on an 8192 channel analyzer and HpGe detector.

4.3 Particulates

Sampled on a glass filter and analyzed on an 8192 channel analyzer and HpGe detector. Sr-89 and Sr-90 analyses are performed by offsite vendor.

4.4 Liquid Effluents

Sampled and analyzed on an 8192 channel analyzer and HpGe detector. Tritium analysis is performed using liquid scintillation counters. Fe-55, Sr-89 and Sr-90 analyses are performed by an offsite vendor. Ni-63 is also currently being analyzed by the offsite vendor in response to evaluation of the 10 CFR 61 sample results.

2025 Effluent and Waste Disposal Annual Report

5 BATCH RELEASES

5.1 Liquid

5.1.1 Number of batch releases:

18 releases in the 1st quarter, 2025
21 releases in the 2nd quarter, 2025
21 releases in the 3rd quarter, 2025
18 releases in the 4th quarter, 2025

5.1.2 Total time period for batch releases:

32,773 minutes

5.1.3 Maximum time for a batch release:

700 minutes

5.1.4 Average time period for batch release:

420 minutes

5.1.5 Minimum time period for a batch release:

130 minutes

5.1.6 Average stream flow during periods of release of effluent into a flowing stream:

6.64E+5 gpm circulating water

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5.2 Gaseous

5.2.1 Number of batch releases:

61 releases in the 1st quarter, 2025
52 releases in the 2nd quarter, 2025
54 releases in the 3rd quarter, 2025
51 releases in the 4th quarter, 2025

5.2.2 Total time period for batch releases:

14,597 minutes

5.2.3 Maximum time for a batch release:

354 minutes

5.2.4 Average time period for batch release:

67.0 minutes

5.2.5 Minimum time period for a batch release:

5 minutes

2025 Effluent and Waste Disposal Annual Report

6 ABNORMAL RELEASES

6.1 Liquid

6.1.1 Number of Releases:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
0	0	0	0

6.1.2 Total activity released (Ci):

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
0	0	0	0

6.2 Gaseous

6.2.1 Number of Releases:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
0	0	0	0

6.2.2 Total activity released (Ci):

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
0	0	0	0

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

CONTINUOUS MODE

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1. FISSION GASES					
H3	Ci	2.04E+01	1.53E+01	2.18E+01	2.14E+01
AR41	Ci	-----	-----	-----	-----
KR85	Ci	8.94E-02	-----	-----	-----
XE133	Ci	4.14E+00	-----	-----	-----
XE135	Ci	3.16E-01	-----	-----	-----
XE131m	Ci	-----	-----	-----	-----
XE133m	Ci	-----	-----	-----	-----
XE135m	Ci	-----	-----	-----	-----
Total for Period	Ci	2.49E+01	1.53E+01	2.18E+01	2.14E+01

2. IODINES					
I131	Ci	2.22E-03	4.79E-03	-----	2.97E-07
I132	Ci	-----	-----	-----	-----
I133	Ci	2.35E-04	-----	-----	-----
Total for Period	Ci	2.46E-03	4.79E-03	-----	2.97E-07

3. PARTICULATES					
MN54	Ci	-----	-----	-----	-----
CO60	Ci	-----	-----	-----	-----
CS137	Ci	-----	-----	-----	-----
Total for Period	Ci	-----	-----	-----	-----

* DENOTES SUPPLEMENTAL ISOTOPES

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

BATCH MODE

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1. FISSION GASES					
H3	Ci	5.88E-01	1.24E-01	2.17E-01	6.30E-02
AR41	Ci	1.67E-01	1.44E-01	1.96E-01	1.48E-01
KR85	Ci	2.14E+00	1.43E+00	4.67E-01	5.02E-01
KR85m	Ci	-----	-----	-----	-----
XE131M	Ci	2.60E-01	8.49E-03	-----	-----
XE133M	Ci	1.28E-01	-----	-----	-----
XE133	Ci	1.34E+01	4.05E-02	4.28E-02	3.00E-03
XE135m	Ci	-----	-----	-----	-----
XE135	Ci	9.55E-03	-----	8.67E-04	6.31E-05
Total for Period	Ci	1.67E+01	1.74E+00	9.23E-01	7.16E-01
2. IODINES					
I131	Ci	9.62E-05	7.20E-06	-----	-----
I132	Ci	-----	-----	-----	-----
I133	Ci	2.30E-06	-----	-----	-----
I134	Ci	-----	-----	-----	-----
I135	Ci	-----	-----	-----	-----
Total for Period	Ci	9.85E-05	7.20E-06	-----	-----

* DENOTES SUPPLEMENTAL ISOTOPES

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

BATCH MODE

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
3. PARTICULATES					
CR51	Ci	-----	-----	-----	-----
CO58	Ci	-----	-----	-----	-----
CO60	Ci	-----	-----	-----	-----
NB95	Ci	-----	-----	-----	-----
Total for Period	Ci	-----	-----	-----	-----

* DENOTES SUPPLEMENTAL ISOTOPES

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Est. Total Error, %

A.	FISSION AND ACTIVATION GASES						

1.	Total Release	Ci	2.06+01	1.72E+01	7.15E-01	6.53E-01	12.3

2.	Average release rate for period	uCi/sec	2.65+00	2.19E+00	8.99E-02	8.21E-02	

3.	Percent of applicable limit*	% Gamma Beta	4.73E-02 6.05E-02	1.23E-02 1.31E-01	1.83E-02 1.23E-02	5.95E-03 1.11E-03	

B. IODINES							

1.	Total I-131	Ci	2.31E-03	4.76E-03	7.15E-10	2.97E-07	11.5

2.	Average release rate for period	uCi/sec	2.98E-04	6.06E-04	9.00E-11	3.74E-08	

3.	Percent of applicable limit*	%	8.48E-04	1.73E-03	2.56E-10	1.06E-07	

C. PARTICULATES							

1.	Particulates with half lives > 8 days	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A

2.	Average release rate for period	uCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

3.	Percent of applicable limit*	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

4.	Gross alpha radioactivity	Ci	<8.38E-07	<9.13E-07	<7.29E-07	<6.16E-07	

D. TRITIUM							

1.	Total Release	Ci	2.10E+01	1.55E+01	2.20E+01	2.14E+01	18.5

2.	Average release rate for period	uCi/sec	2.70E+00	1.98E+00	2.77E+00	2.69E+00	

3.	Percent of applicable limit*	%	1.54E-02	1.12E-02	1.58E-02	1.53E-02	

* Applicable limits are expressed in terms of dose. See Appendices A1.2-1 through A1.2-4

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS
CONTINUOUS MODE

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
H3	Ci	5.58E-02	5.33E-02	2.89E-03	4.90E-02

BATCH MODE

Nuclides Released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
H3	Ci	9.00E+02	4.17E+02	9.90E+02	2.46E+02
CR51	Ci	-----	4.29E-04	-----	1.26E-05
MN54	Ci	1.08E-05	2.77E-05	-----	8.47E-06
FE59	Ci	-----	1.37E-06	-----	-----
CO58	Ci	7.96E-05	5.33E-04	5.21E-05	2.18E-04
CO60	Ci	4.87E-04	5.50E-04	4.42E-05	2.04E-04
NI63	Ci	3.57E-04	-----	-----	2.69E-04
ZN65	Ci	-----	4.66E-06	-----	3.28E-06
ZR95	Ci	-----	1.01E-05	-----	2.23E-06
NB95	Ci	-----	2.27E-05	-----	4.99E-06
TC99m	Ci	-----	8.20E-07	1.19E-06	-----
AG110m	Ci	3.23E-06	1.78E-06	1.16E-06	4.49E-06
SB124	Ci	-----	2.33E-04	-----	9.35E-05
SB125	Ci	1.45E-05	5.55E-04	8.05E-06	3.17E-04
I131	Ci	1.16E-05	1.87E-04	-----	-----
CS134	Ci	-----	1.62E-04	7.62E-06	-----
CS136	Ci	-----	2.01E-06	-----	-----
CS137	Ci	2.30E-06	1.79E-04	9.98E-06	1.12E-05
*SB126	Ci	-----	6.00E-06	-----	4.43E-06
*XE133	Ci	1.03E-02	5.00E-03	8.83E-06	-----
*XE135	Ci	2.11E-06	-----	-----	-----
*XE133M	Ci	4.35E-05	1.01E-05	-----	-----
*XE131M	Ci	3.01E-04	1.43E-04	-----	-----

* DENOTES SUPPLEMENTAL ISOTOPES

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
BATCH MODE

		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Est. Total Error, %
A.	FISSION AND ACTIVATION PRODUCTS						
1.	Total Release	Ci	9.65E-04	2.90E-03	1.24E-04	1.15E-03	14.2
2.	Average diluted concentration during period	uCi/ml	4.87E-11	1.34E-10	4.75E-12	7.72E-11	
3.	Percent of applicable limit	%	9.34E-04	3.75E-03	1.39E-04	7.97E-04	
B.	TRITIUM						
1.	Total Release	Ci	9.00E+02	4.17E+02	9.90E+02	2.46E+02	10.2
2.	Average diluted concentration during period	uCi/ml	4.55E-05	1.93E-05	3.79E-05	1.65E-05	
3.	Percent of applicable limit	%	4.55E+00	1.93E+00	3.79E+00	1.65E+00	
C.	DISSOLVED AND ENTRAINED GASES						
1.	Total Release	Ci	1.03E-02	5.00E-03	8.83E-06	-----	11.8
2.	Average diluted concentration during period	uCi/ml	5.20E-10	2.31E-10	3.38E-13	-----	
3.	Percent of applicable limit	%	2.61E-04	1.16E-04	1.69E-07	-----	
D.	GROSS ALPHA RADIOACTIVITY TOTAL RELEASE	Ci	<3.17E-03	<2.54E-03	<4.03E-04	<2.73E-03	N/A
E.	VOLUME OF WASTE RELEASED	Liters	3.22E+07	2.58E+07	4.10E+06	2.78E+07	2.00
F.	VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	1.98E+10	2.16E+10	2.61E+10	1.49E+10	3.48

2025 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
CONTINUOUS MODE

		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Est. Total Error, %
A.	FISSION AND ACTIVATION PRODUCTS						
1.	Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
2.	Average diluted concentration during period	uCi/ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3.	Percent of applicable limit	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
B.	TRITIUM						
1.	Total Release	Ci	5.58E-02	5.33E-02	2.89E-03	4.90E-02	48.5
2.	Average diluted concentration during period	uCi/ml	8.11E-11	8.38E-11	4.20E-12	6.69E-11	
3.	Percent of applicable limit	%	8.11E-06	8.38E-06	4.20E-07	6.69E-06	
C.	DISSOLVED AND ENTRAINED GASES						
1.	Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
2.	Average diluted concentration during period	uCi/ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3.	Percent of applicable limit	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D.	GROSS ALPHA RADIOACTIVITY TOTAL RELEASE	Ci	<3.32E-03	<2.41E-03	<2.81E-04	<2.60E-03	N/A
E.	VOLUME OF WASTE RELEASED	Liters	3.38E+07	2.46E+07	2.86E+06	2.65E+07	2.00
F.	VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	6.88E+11	6.36E+11	6.88E+11	7.32E+11	3.48

2025 Effluent and Waste Disposal Annual Report Solid Waste and Irradiated Fuel Shipments

Solid Waste Shipped Offsite for Burial or Disposal

1) Type of Waste	Unit	Estimated amount	Estimated Total Error, %
a) Spent resins, filters, sludge, evaporator bottoms, etc.	m ³ Curies	1.32E+01 8.18E+01	1.00E+00 3.75E+00
b) Dry compressible waste, contaminated equipment, etc.	m ³ Curies	6.64E+02 8.46E-01	1.00E+00 6.48E+00
c) Irradiated components, control rods, etc.	m ³ Curies		
d) Other (oil, soil, etc)	m ³ Curies		

2) Estimate of Principle Radionuclide Composition

a)	H-3	12 %	Co-58	1 %	Sb-125	3 %	Cs-137	2 %
	Mn-54	1%	Co-60	33%	Cs-134	3 %	C-14	1 %
	Fe-55	41%	Ni-63	2%	Ni-59	1 %		
b)	H-3	1 %	Co-58	20 %	Cs-137	2 %	C-14	1 %
	Cr-51	12 %	Co-60	18%	Fe-55	20%	Sb-125	1 %
	Mn-54	1 %	Ni-63	6%	Zr/Nb-95	18 %		

3) Solid Waste Disposition

No. of Shipments	Mode of Transportation	Destination
11	Truck	UniTech Services Group, Inc
8	Truck	Energy Solutions, LLC
1	Truck	Erwin ResinSolutions, LLC

4) Type of Containers used for Shipment: Containers used are excepted packages, Type A, Sea Land, metal boxes, drums, tankers, and high integrity containers (HICs).

5) Solidification Agent: There were no solidifications performed during this report period.

**2025 Effluent and Waste Disposal Annual Report
Yearly Release Rates**

GASES		
Fission and Activation Gases	Total Release	3.92E+01 Curies
	Average Release Rate	1.24E+00 μ Ci/sec
	% of Applicable Limits*	γ 4.19E-02 % β 1.02E-01 %
Iodines	Total I-131 Release	7.07E-03 Curies
	Average Release Rate	2.24E-04 μ Ci/sec
	% of Applicable Limit*	1.81E+00 %
Particulates	Total Release	0.00E+00 Curies
	Average Release Rate	0.00E+00 μ Ci/sec
	% of Applicable Limit*	0.00E+00 %
LIQUIDS		
Fission and Activation Products	Total Release	5.14E-03 Curies
	Average Diluted Concentration	6.24E-11 μ Ci/ml
	% of Applicable Limits*	Total Body 1.32E+00 % Organ 4.00E-01 %

* Applicable limits are expressed in terms of the annual 10 CFR 50, Appendix I, dose limits.

2025 Effluent and Waste Disposal Annual Report

Site Boundary and Nearest Residence Listing

The following distances were used in the calculation of the maximum individual doses:

<u>Sector</u>	<u>Direction</u>	<u>Boundary (Meters)</u>	<u>Nearest Residence (Meters)</u>
A	N	651	659
B	NNE	617	660
C	NE	789	943
D	ENE	1497	1577
E	E	1274	1716
F	ESE	972	1643
G	SE	629	1640
H	SSE	594	964
J	S	594	997
K	SSW	629	942

Summary of Maximum Individual Doses

First Quarter 2025

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT (two units)	LIMIT (mrem) QTR (per unit)
Liquid	Total Body	3.02E-02	Child	Receptor 1	1.01E+00	1.5E+0
Liquid	Liver	3.02E-02	Child	Receptor 1	3.03E-01	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	4.73E-03	Any Age	651 (N)	4.73E-02	5.0E+0
Noble Gas	Air dose (Beta-mrad)	1.21E-02	Any Age	651 (N)	6.05E-02	1.0E+1
Iodines and Particulates	Thyroid	1.49E-01	Child	341 (N)	9.95E-01	7.5E+0

Summary of Maximum Individual Doses

Second Quarter 2025

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT (two units)	LIMIT (mrem) QTR (per unit)
Liquid	Total Body	1.34E-02	Child	Receptor 1	4.48E-01	1.5E+0
Liquid	Liver	1.43E-02	Child	Receptor 1	1.43E-01	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	1.22E-03	Any Age	617 (NNE)	1.23E-02	5.0E+0
Noble Gas	Air dose (Beta-mrad)	2.61E-02	Any Age	617 (NNE)	1.31E-01	1.0E+1
Iodines and Particulates	Thyroid	2.42E-01	Child	341 (N)	1.62E+00	7.5E+0

Summary of Maximum Individual Doses

Third Quarter 2025

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT (two units)	LIMIT (mrem) QTR (per unit)
Liquid	Total Body	2.70E-02	Child	Receptor 1	9.00E-01	1.5E+0
Liquid	Liver	2.70E-02	Child	Receptor 1	2.71E-01	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	1.83E-03	Any Age	651 (N)	1.83E-02	5.0E+0
Noble Gas	Air dose (Beta-mrad)	2.46E-03	Any Age	651 (N)	1.23E-02	1.0E+1
Iodines and Particulates	Total Body	9.83E-02	Teen	943 (NE)	6.55E-01	7.5E+0

Summary of Maximum Individual Doses

Fourth Quarter 2025

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (M) (Toward)	% OF APPLICABLE LIMIT (two units)	LIMIT (mrem) QTR (per unit)
Liquid	Total Body	8.40E-03	Child	Receptor 1	2.80E-01	1.5E+0
Liquid	Liver	8.43E-03	Child	Receptor 1	8.45E-02	5.0E+0
Noble Gas	Air Dose (Gamma-mrad)	5.94E-04	Any Age	651 (N)	5.95E-03	5.0E+0
Noble Gas	Air dose (Beta-mrad)	2.22E-04	Any Age	651 (N)	1.11E-03	1.0E+1
Iodines and Particulates	Total Body	5.50E-02	Teen	341 (N)	3.67E-01	7.5E+0

2025 NEI GROUNDWATER PROTECTION INITIATIVE SAMPLE DATA

Analysis of the Sample Data

The Groundwater Protection Initiative (GPI) Sample Data for 2025 indicates no groundwater contamination in excess of the reporting threshold of $2.00\text{E-}5$ uCi/mL for tritium. Gamma spectroscopy was performed on all Radiological Environmental Monitoring Program (REMP) wells quarterly. Those results are not actual GPI results so are not included in the ARERR but are part of CNP's 2025 Annual Radiological Environmental Operating Report. There were no positively identified gamma radionuclides from plant effluents detected in any of the GPI well gamma samples, and no wells with levels of tritium above detection limits.

The Lower Limit of Detection (LLD) value used for tritium counting of the samples was $9.83\text{E-}7$ or $9.98\text{E-}7$, depending on lab equipment used. This is well below the required maximum LLD value of $2.00\text{E-}6$ uCi/mL per the ODCM.

Values found above the LLD are not abnormal, unexpected, or inconsistent with past sampling history. Samples observed above LLD historically were expected results from the release of tritiated water into the Absorption Pond, a licensed pathway and part of plant design, or the result of recapture deposition of tritium from licensed radioactive gaseous release points. The 2025 results were within expected parameters considering the reduction in tritium released to the Absorption Pond and typical rainfall recapture of tritium experienced.

Wells located inside the Protected Area of the plant are subject to recapture deposition of tritium and may show occasional sample results above LLD values following rainfalls and snow melt. The results observed in 2025 continue to reflect normal expectations and behaviors as they relate to recaptured tritium for the weather conditions observed. It was a drier year resulting in less recaptured tritium, as shown by the lack of positive tritium sample results.

The sample data indicates that no radioactive spills or unidentified leaks have occurred in 2025 impacting groundwater. The sample results indicate proper well placement to ensure the protection of the groundwater and early identification of any abnormal conditions involving groundwater. This is validated by the demonstrated ability to monitor percolation from the Absorption Pond and recaptured tritium in precipitation, with flow direction and behavior acting as described in the plant licensing documents.

Note: Wells MW-22 through MW- 27 are multi-port wells installed in the Fall of 2009, with three sample points placed at different depths. S= Shallow M= Middle D= Deep.)

Note: A "*" symbol following a sample result denotes a gamma count was performed. Any gamma results above LLD will be additionally flagged and documented in the analysis section.

2025 GPI Tritium Sample Data in $\mu\text{Ci}/\text{mL}$

Sample Date	W-1	W-2	W-3	W-4	W-5	W-6	W-7	W-8	W-9	W-10
01/07/25										
01/24/25	<LLD	<LLD	<LLD				<LLD	<LLD	<LLD	<LLD
01/27/25				<LLD	<LLD	<LLD				
01/28/25										
02/27/25										
03/30/25										
03/31/25										
04/08/25										
04/10/25	<LLD	<LLD	<LLD				<LLD	<LLD	<LLD	<LLD
04/11/25				<LLD	<LLD	<LLD				
04/23/25										
05/27/25										
06/11/25										
06/24/25										
07/08/25										
07/15/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD				
07/16/25							<LLD	<LLD	<LLD	<LLD
07/22/25										
08/20/25										
09/10/25										
09/23/25										
09/24/25										
10/01/25										
10/07/25										
10/13/25	<LLD	<LLD	<LLD				<LLD	<LLD	<LLD	<LLD
10/14/25				<LLD	<LLD	<LLD				
11/13/25										
11/20/25										
12/22/25										

2025 GPI Tritium Sample Data in $\mu\text{Ci}/\text{mL}$

Sample Date	W-11	W-12	W-13	W-14	W-15	MW-20	MW-21	MW-22S	MW-22M	MW-22D
01/07/25										
01/24/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD			
01/27/25										
01/28/25										
02/27/25										
03/30/25								<LLD	<LLD	<LLD
03/31/25										
04/08/25										
04/10/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD			
04/11/25										
04/23/25										
05/27/25										
06/11/25										
06/24/25								<LLD	<LLD*	<LLD
07/08/25										
07/15/25										
07/16/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD			
07/22/25										
08/20/25										
09/10/25										
09/23/25								<LLD	<LLD	<LLD
09/24/25										
10/01/25										
10/07/25										
10/13/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD			
10/14/25										
11/13/25								<LLD	<LLD	<LLD*
11/20/25										
12/22/25										

2025 GPI Tritium Sample Data in $\mu\text{Ci/mL}$

Sample Date	MW-24S	MW-24M	MW-24D	MW-25S	MW-25M	MW-25D	MW-26S	MW-26M	MW-26D
01/07/25									
01/24/25									
01/27/25									
01/28/25									
02/27/25									
03/30/25	<LLD	<LLD	<LLD						
03/31/25				<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
04/08/25									
04/10/25									
04/11/25									
04/23/25									
05/27/25									
06/11/25									
06/24/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
07/08/25									
07/15/25									
07/16/25									
07/22/25									
08/20/25									
09/10/25									
09/23/25									
09/24/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
10/01/25									
10/07/25									
10/13/25									
10/14/25									
11/13/25	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD	<LLD
11/20/25									
12/22/25									

2025 Tritium Sample Data in $\mu\text{Ci/mL}$

Sample Date	MW-27S	MW-27-M	MW-27D	MW-28	MW-29	MW-30	OW-1	OW-2	OW-4
01/07/25									
01/24/25									
01/27/25									
01/28/25				<LLD	<LLD				
02/27/25				<LLD	<LLD				
03/30/25						<LLD*			
03/31/25	<LLD	<LLD	<LLD	<LLD	<LLD		<LLD	<LLD	<LLD
04/08/25									
04/10/25									
04/11/25									
04/23/25				<LLD	<LLD				
05/27/25				<LLD	<LLD				
06/11/25				<LLD	<LLD				
06/24/25	<LLD	<LLD	<LLD			<LLD	<LLD	<LLD	<LLD
07/08/25									
07/15/25									
07/16/25									
07/22/25				<LLD	<LLD				
08/20/25				<LLD	<LLD				
09/10/25				<LLD	<LLD				
09/23/25									
09/24/25	<LLD	<LLD	<LLD				<LLD	<LLD	
10/01/25				<LLD	<LLD				
10/07/25									
10/13/25									
10/14/25	<LLD	<LLD	<LLD				<LLD		<LLD
11/13/25								<LLD	
11/20/25				<LLD	<LLD				
12/22/25				<LLD	<LLD				

2025 Tritium Sample Data in $\mu\text{Ci/mL}$

Sample Date	SG-1	SG-2	SG-4	SG-5	ISF-8	EW-18	EW-19
01/07/25							<LLD
01/24/25	<LLD	<LLD	<LLD	<LLD			
01/27/25							
01/28/25							
02/27/25							
03/30/25					<LLD	<LLD	
03/31/25							
04/08/25							<LLD
04/10/25	<LLD	<LLD	<LLD	<LLD			
04/11/25							
04/23/25							
05/27/25							
06/11/25							
06/24/25					<LLD	<LLD	
07/08/25							<LLD
07/15/25	<LLD	<LLD	<LLD	<LLD			
07/16/25							
07/22/25							
08/20/25							
09/10/25							
09/23/25					<LLD*	<LLD	
09/24/25							
10/01/25							
10/07/25							<LLD
10/13/25							
10/14/25	<LLD	<LLD	<LLD	<LLD			
11/13/25					<LLD	<LLD	
11/20/25							
12/22/25							

Note: Wells MW-22 through MW- 27 are multi-port wells installed in the Fall of 2009, with three sample points placed at different depths. S= Shallow M= Middle D= Deep.)

(Note: A "*" symbol following a sample result denotes a gamma count was performed. Any gamma results above LLD will be additionally flagged and documented in the analysis section.)

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: Speed: SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: A **Delta Temperature** **Extremely Unstable**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	2	15	7	0	0	0	24
NNE	0	2	0	0	0	0	2
NE	0	2	0	0	0	0	2
ENE	2	1	0	0	0	0	3
E	0	4	0	0	0	0	4
ESE	0	3	0	0	0	0	3
SE	1	3	0	0	0	0	4
SSE	0	4	8	1	0	0	13
S	0	6	6	2	0	0	14
SSW	0	1	0	0	0	0	1
SW	0	18	4	0	0	0	22
WSW	1	7	0	0	0	0	8
W	1	4	0	0	0	0	5
WNW	3	12	0	0	0	0	15
NW	5	19	0	0	0	0	24
NNW	6	34	6	0	0	0	46
Total	21	135	31	3	0	0	190

Calm Hours not Included above for: **Total Period** **All Hours** 22
Number of Valid Hours for this Table: **Total Period** **All Hours** 190
Total Hours for the Period: 2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: B **Delta Temperature** Moderately Unstable
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	3	7	1	0	0	0	11
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	1	4	0	0	0	0	5
ESE	0	1	0	0	0	0	1
SE	0	2	1	0	0	0	3
SSE	0	3	2	0	0	0	5
S	0	3	3	1	0	0	7
SSW	0	1	1	0	0	0	2
SW	0	7	6	0	0	0	13
WSW	0	3	1	0	0	0	4
W	0	3	1	0	0	0	4
WNW	0	6	0	0	0	0	6
NW	2	11	0	0	0	0	13
NNW	2	14	0	0	0	0	16
Total	9	65	16	1	0	0	91

Calm Hours not Included above for: **Total Period** **All Hours** 22
Number of Valid Hours for this Table: **Total Period** **All Hours** 91
Total Hours for the Period: 2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	2	2	2	0	0	0	6
NNE	1	5	0	0	0	0	6
NE	0	5	0	0	0	0	5
ENE	0	1	0	0	0	0	1
E	1	2	0	0	0	0	3
ESE	0	1	0	0	0	0	1
SE	1	2	2	0	0	0	5
SSE	0	2	2	0	0	0	4
S	0	4	7	1	0	0	12
SSW	0	5	4	2	1	0	12
SW	0	16	6	0	0	0	22
WSW	1	4	2	0	0	0	7
W	0	2	1	0	0	0	3
WNW	2	8	2	0	0	0	12
NW	1	9	0	0	0	0	10
NNW	3	12	2	0	0	0	17
Total	12	80	30	3	1	0	126

Calm Hours not Included above for:	Total Period	All Hours	22
Number of Valid Hours for this Table:	Total Period	All Hours	126
Total Hours for the Period:			2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	11	48	12	0	0	0	71
NNE	14	20	0	0	0	0	34
NE	11	13	0	0	0	0	24
ENE	7	16	0	0	0	0	23
E	7	19	0	0	0	0	26
ESE	14	18	0	0	0	0	32
SE	11	32	10	0	0	0	53
SSE	11	47	8	0	0	0	66
S	7	70	47	7	0	0	131
SSW	5	40	35	6	0	0	86
SW	6	29	24	0	0	0	59
WSW	4	34	32	0	0	0	70
W	7	50	14	0	0	0	71
WNW	6	61	6	0	0	0	73
NW	27	127	0	0	0	0	154
NNW	29	97	10	0	0	0	136
Total	177	721	198	13	0	0	1109

Calm Hours not Included above for:	Total Period	All Hours	22
Number of Valid Hours for this Table:	Total Period	All Hours	1109
Total Hours for the Period:			2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: E **Delta Temperature** Slightly Stable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	5	4	0	0	0	0	9
NNE	2	5	0	0	0	0	7
NE	7	0	0	0	0	0	7
ENE	2	1	0	0	0	0	3
E	6	7	0	0	0	0	13
ESE	12	8	0	0	0	0	20
SE	13	26	3	0	0	0	42
SSE	10	31	6	0	0	0	47
S	8	51	20	2	0	0	81
SSW	6	19	22	1	0	0	48
SW	11	48	13	0	0	0	72
WSW	4	15	1	0	0	0	20
W	4	5	1	0	0	0	10
WNW	8	7	0	0	0	0	15
NW	13	30	1	0	0	0	44
NNW	8	8	0	0	0	0	16
Total	119	265	67	3	0	0	454

Calm Hours not Included above for:	Total Period	All Hours	22
Number of Valid Hours for this Table:	Total Period	All Hours	454
Total Hours for the Period:			2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: Speed: SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: F **Delta Temperature** Moderately Stable
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	2	0	0	0	0	0	2
ENE	3	1	0	0	0	0	4
E	6	0	0	0	0	0	6
ESE	6	0	0	0	0	0	6
SE	8	0	0	0	0	0	8
SSE	19	6	0	0	0	0	25
S	14	8	0	0	0	0	22
SSW	5	1	0	0	0	0	6
SW	1	1	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	3	1	0	0	0	0	4
Total	67	18	0	0	0	0	85

Calm Hours not Included above for:	Total Period	All Hours	22
Number of Valid Hours for this Table:	Total Period	All Hours	85
Total Hours for the Period:			2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: G **Delta Temperature** **Extremely Stable**
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	5	0	0	0	0	0	5
ESE	6	0	0	0	0	0	6
SE	10	0	0	0	0	0	10
SSE	9	0	0	0	0	0	9
S	12	2	0	0	0	0	14
SSW	7	0	0	0	0	0	7
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	50	2	0	0	0	0	52

Calm Hours not Included above for: **Total Period** **All Hours** 22
Number of Valid Hours for this Table: **Total Period** **All Hours** 52
Total Hours for the Period: 2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 01/01/2025 - 03/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	23	76	22	0	0	0	121
NNE	17	32	0	0	0	0	49
NE	20	20	0	0	0	0	40
ENE	16	20	0	0	0	0	36
E	26	36	0	0	0	0	62
ESE	38	31	0	0	0	0	69
SE	44	65	16	0	0	0	125
SSE	49	93	26	1	0	0	169
S	41	144	83	13	0	0	281
SSW	23	67	62	9	1	0	162
SW	18	119	53	0	0	0	190
WSW	10	63	36	0	0	0	109
W	12	64	17	0	0	0	93
WNW	19	94	8	0	0	0	121
NW	48	196	1	0	0	0	245
NNW	51	166	18	0	0	0	235
Total	455	1286	342	23	1	0	2107

Calm Hours not Included above for:	Total Period	All Hours	22
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	31
Number of Valid Hours for this Table:	Total Period	All Hours	2107
Total Hours for the Period:			2160

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: A **Delta Temperature** **Extremely Unstable**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	29	89	18	0	0	0	136
NNE	12	4	0	0	0	0	16
NE	7	3	0	0	0	0	10
ENE	7	7	0	0	0	0	14
E	3	8	0	0	0	0	11
ESE	8	10	2	0	0	0	20
SE	6	10	1	0	0	0	17
SSE	3	7	6	0	0	0	16
S	1	2	11	0	0	0	14
SSW	3	5	2	0	0	0	10
SW	3	13	0	0	0	0	16
WSW	6	10	1	0	0	0	17
W	7	14	0	0	0	0	21
WNW	8	11	3	0	0	0	22
NW	25	16	0	0	0	0	41
NNW	30	76	3	0	0	0	109
Total	158	285	47	0	0	0	490

Calm Hours not Included above for: **Total Period** **All Hours** 142
Number of Valid Hours for this Table: **Total Period** **All Hours** 490
Total Hours for the Period: 2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period
Period of Record = 04/01/2025 - 06/30/2025
Elevation: Speed: SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: B **Delta Temperature** Moderately Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	3	11	2	0	0	0	16
NNE	3	1	0	0	0	0	4
NE	0	0	0	0	0	0	0
ENE	3	1	0	0	0	0	4
E	3	9	1	0	0	0	13
ESE	2	5	0	0	0	0	7
SE	2	3	3	0	0	0	8
SSE	0	1	6	0	0	0	7
S	1	4	5	0	0	0	10
SSW	0	7	5	0	0	0	12
SW	0	18	2	0	0	0	20
WSW	4	6	4	0	0	0	14
W	1	4	0	0	0	0	5
WNW	1	1	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	8	5	0	0	0	0	13
Total	31	76	28	0	0	0	135

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	135
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: C **Delta Temperature** Slightly Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	5	4	2	0	0	0	11
NNE	7	0	0	0	0	0	7
NE	2	1	0	0	0	0	3
ENE	4	3	0	0	0	0	7
E	4	8	1	0	0	0	13
ESE	5	2	1	0	0	0	8
SE	4	5	0	0	0	0	9
SSE	1	3	4	0	0	0	8
S	2	3	5	0	0	0	10
SSW	1	10	8	0	0	0	19
SW	2	9	3	0	0	0	14
WSW	1	5	1	0	0	0	7
W	0	0	0	0	0	0	0
WNW	1	1	0	0	0	0	2
NW	3	3	0	0	0	0	6
NNW	6	2	0	0	0	0	8
Total	48	59	25	0	0	0	132

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	132
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	34	30	7	0	0	0	71
NNE	10	2	0	0	0	0	12
NE	19	4	0	0	0	0	23
ENE	10	14	0	0	0	0	24
E	14	6	0	0	0	0	20
ESE	15	39	15	0	0	0	69
SE	29	14	12	0	0	0	55
SSE	4	13	12	0	0	0	29
S	12	31	11	2	0	0	56
SSW	11	26	22	4	0	0	63
SW	11	22	12	0	0	0	45
WSW	3	10	1	0	0	0	14
W	5	6	2	0	0	0	13
WNW	8	2	0	0	0	0	10
NW	8	2	1	0	0	0	11
NNW	27	9	0	0	0	0	36
Total	220	230	95	6	0	0	551

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	551
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period
Period of Record = 04/01/2025 - 06/30/2025
Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: E Delta Temperature Slightly Stable
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	32	3	0	0	0	0	35
NNE	17	2	0	0	0	0	19
NE	14	0	0	0	0	0	14
ENE	9	2	0	0	0	0	11
E	13	4	0	0	0	0	17
ESE	24	4	1	0	0	0	29
SE	31	18	2	0	0	0	51
SSE	13	9	3	0	0	0	25
S	19	40	13	1	0	0	73
SSW	15	32	13	0	0	0	60
SW	14	13	3	0	0	0	30
WSW	5	9	1	0	0	0	15
W	9	4	1	0	0	0	14
WNW	7	5	0	0	0	0	12
NW	9	1	0	0	0	0	10
NNW	20	2	0	0	0	0	22
Total	251	148	37	1	0	0	437

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	437
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	3	0	0	0	0	0	3
NNE	3	0	0	0	0	0	3
NE	8	0	0	0	0	0	8
ENE	16	1	0	0	0	0	17
E	13	0	0	0	0	0	13
ESE	11	0	0	0	0	0	11
SE	19	2	0	0	0	0	21
SSE	17	0	0	0	0	0	17
S	21	4	0	0	0	0	25
SSW	6	1	0	0	0	0	7
SW	1	1	0	0	0	0	2
WSW	1	1	0	0	0	0	2
W	5	0	0	0	0	0	5
WNW	1	0	0	0	0	0	1
NW	3	0	0	0	0	0	3
NNW	4	1	0	0	0	0	5
Total	132	11	0	0	0	0	143

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	143
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: G **Delta Temperature** **Extremely Stable**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	5	0	0	0	0	0	5
ENE	4	0	0	0	0	0	4
E	8	0	0	0	0	0	8
ESE	17	0	0	0	0	0	17
SE	15	0	0	0	0	0	15
SSE	17	0	0	0	0	0	17
S	24	0	0	0	0	0	24
SSW	17	0	0	0	0	0	17
SW	4	0	0	0	0	0	4
WSW	1	0	0	0	0	0	1
W	3	0	0	0	0	0	3
WNW	2	0	0	0	0	0	2
NW	3	0	0	0	0	0	3
NNW	4	0	0	0	0	0	4
Total	126	0	0	0	0	0	126

Calm Hours not Included above for:	Total Period	All Hours	142
Number of Valid Hours for this Table:	Total Period	All Hours	126
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
04/01/2025 - 06/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: ALL **Delta Temperature**

Wind Direction	Wind Speed (mph)						Total
	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	
N	108	137	29	0	0	0	274
NNE	52	9	0	0	0	0	61
NE	55	8	0	0	0	0	63
ENE	53	28	0	0	0	0	81
E	58	35	2	0	0	0	95
ESE	82	60	19	0	0	0	161
SE	106	52	18	0	0	0	176
SSE	55	33	31	0	0	0	119
S	80	84	45	3	0	0	212
SSW	53	81	50	4	0	0	188
SW	35	76	20	0	0	0	131
WSW	21	41	8	0	0	0	70
W	30	28	3	0	0	0	61
WNW	28	20	3	0	0	0	51
NW	51	22	1	0	0	0	74
NNW	99	95	3	0	0	0	197
Total	966	809	232	7	0	0	2014

Calm Hours not Included above for:	Total Period	All Hours	142
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	28
Number of Valid Hours for this Table:	Total Period	All Hours	2014
Total Hours for the Period:			2184

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record =

07/01/2025 - 09/30/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	44	21	0	0	0	0	65
NNE	9	2	0	0	0	0	11
NE	4	1	0	0	0	0	5
ENE	2	1	0	0	0	0	3
E	3	2	0	0	0	0	5
ESE	3	4	0	0	0	0	7
SE	5	5	0	0	0	0	10
SSE	0	7	0	0	0	0	7
S	3	17	2	0	0	0	22
SSW	1	23	5	0	0	0	29
SW	5	30	0	0	0	0	35
WSW	3	11	0	0	0	0	14
W	6	7	0	0	0	0	13
WNW	12	11	0	0	0	0	23
NW	20	14	0	0	0	0	34
NNW	57	17	0	0	0	0	74
Total	177	173	7	0	0	0	357

Calm Hours not Included above for:	Total Period	All Hours	2
Number of Valid Hours for this Table:	Total Period	All Hours	357
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record =

07/01/2025 - 09/30/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	8	1	0	0	0	0	9
NNE	2	0	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	3	0	0	0	0	0	3
E	2	1	0	0	0	0	3
ESE	6	1	0	0	0	0	7
SE	2	1	0	0	0	0	3
SSE	3	4	0	0	0	0	7
S	2	10	1	0	0	0	13
SSW	0	11	1	0	0	0	12
SW	4	12	0	0	0	0	16
WSW	5	7	0	0	0	0	12
W	2	5	0	0	0	0	7
WNW	5	1	0	0	0	0	6
NW	12	2	0	0	0	0	14
NNW	4	1	0	0	0	0	5
Total	60	58	2	0	0	0	120

Calm Hours not Included above for:	Total Period	All Hours	2
Number of Valid Hours for this Table:	Total Period	All Hours	120
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record =

07/01/2025 - 09/30/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	11	2	0	0	0	0	13
NNE	7	0	0	0	0	0	7
NE	0	1	0	0	0	0	1
ENE	2	0	0	0	0	0	2
E	1	1	0	0	0	0	2
ESE	6	0	0	0	0	0	6
SE	5	4	0	0	0	0	9
SSE	5	2	0	0	0	0	7
S	6	9	1	0	0	0	16
SSW	2	13	0	0	0	0	15
SW	2	9	0	0	0	0	11
WSW	2	1	0	0	0	0	3
W	1	0	0	0	0	0	1
WNW	0	2	0	0	0	0	2
NW	3	1	0	0	0	0	4
NNW	9	1	0	0	0	0	10
Total	62	46	1	0	0	0	109

Calm Hours not Included above for:	Total Period	All Hours	2
Number of Valid Hours for this Table:	Total Period	All Hours	109
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record =

07/01/2025 - 09/30/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	39	5	0	0	0	0	44
NNE	15	0	0	0	0	0	15
NE	6	2	0	0	0	0	8
ENE	3	0	0	0	0	0	3
E	9	0	0	0	0	0	9
ESE	7	0	0	0	0	0	7
SE	20	8	0	0	0	0	28
SSE	20	6	0	0	0	0	26
S	25	33	1	0	0	0	59
SSW	17	33	1	0	0	0	51
SW	14	20	2	0	0	0	36
WSW	5	13	2	0	0	0	20
W	11	7	0	0	0	0	18
WNW	10	5	0	0	0	0	15
NW	19	4	0	0	0	0	23
NNW	29	2	0	0	0	0	31
Total	249	138	6	0	0	0	393

Calm Hours not Included above for:	Total Period	All Hours	2
Number of Valid Hours for this Table:	Total Period	All Hours	393
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
07/01/2025 - 09/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: E **Delta Temperature** Slightly Stable
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	43	2	0	0	0	0	45
NNE	24	2	0	0	0	0	26
NE	7	2	0	0	0	0	9
ENE	6	0	0	0	0	0	6
E	4	0	0	0	0	0	4
ESE	10	0	0	0	0	0	10
SE	36	4	0	0	0	0	40
SSE	41	0	0	0	0	0	41
S	67	37	0	0	0	0	104
SSW	30	5	5	0	0	0	40
SW	13	4	0	0	0	0	17
WSW	10	3	0	0	0	0	13
W	6	5	0	0	0	0	11
WNW	7	4	0	0	0	0	11
NW	12	3	0	0	0	0	15
NNW	23	2	0	0	0	0	25
Total	339	73	5	0	0	0	417

Calm Hours not Included above for: **Total Period** **All Hours** 2
Number of Valid Hours for this Table: **Total Period** **All Hours** 417
Total Hours for the Period: 2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record =

07/01/2025 - 09/30/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	9	0	0	0	0	0	9
NNE	3	0	0	0	0	0	3
NE	2	0	0	0	0	0	2
ENE	4	0	0	0	0	0	4
E	8	0	0	0	0	0	8
ESE	24	0	0	0	0	0	24
SE	22	0	0	0	0	0	22
SSE	40	0	0	0	0	0	40
S	47	1	0	0	0	0	48
SSW	5	0	0	0	0	0	5
SW	5	1	0	0	0	0	6
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
NNW	1	0	0	0	0	0	1
Total	173	2	0	0	0	0	175

Calm Hours not Included above for:	Total Period	All Hours	2
Number of Valid Hours for this Table:	Total Period	All Hours	175
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
07/01/2025 - 09/30/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	154	31	0	0	0	0	185
NNE	60	4	0	0	0	0	64
NE	20	7	0	0	0	0	27
ENE	28	1	0	0	0	0	29
E	39	4	0	0	0	0	43
ESE	109	5	0	0	0	0	114
SE	124	22	0	0	0	0	146
SSE	142	19	0	0	0	0	161
S	185	107	5	0	0	0	297
SSW	66	85	12	0	0	0	163
SW	44	76	2	0	0	0	122
WSW	25	35	2	0	0	0	62
W	27	24	0	0	0	0	51
WNW	36	23	0	0	0	0	59
NW	68	24	0	0	0	0	92
NNW	124	23	0	0	0	0	147
Total	1251	490	21	0	0	0	1762

Calm Hours not Included above for:	Total Period	All Hours	2
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	444
Number of Valid Hours for this Table:	Total Period	All Hours	1762
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record = 10/01/2025 - 12/31/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	14	31	6	0	0	0	51
NNE	33	4	0	0	0	0	37
NE	14	8	0	0	0	0	22
ENE	16	10	0	0	0	0	26
E	17	22	0	0	0	0	39
ESE	15	16	0	0	0	0	31
SE	36	36	4	0	0	0	76
SSE	40	50	5	0	0	0	95
S	22	97	25	2	0	0	146
SSW	3	49	25	1	0	0	78
SW	9	34	20	3	0	0	66
WSW	3	28	15	4	0	0	50
W	6	22	11	0	0	0	39
WNW	7	25	13	0	0	0	45
NW	13	91	15	0	0	0	119
NNW	24	60	1	0	0	0	85
Total	272	583	140	10	0	0	1005

Calm Hours not Included above for:	Total Period	All Hours	93
Number of Valid Hours for this Table:	Total Period	All Hours	1005
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	2	0	0	0	0	0	2
NNE	1	0	0	0	0	0	1
NE	0	2	0	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	2	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	1	2	0	0	0	0	3
SSE	1	6	0	0	0	0	7
S	0	9	4	0	0	0	13
SSW	0	5	5	0	0	0	10
SW	1	7	3	0	0	0	11
WSW	0	3	2	0	0	0	5
W	0	1	0	0	0	0	1
WNW	0	4	1	0	0	0	5
NW	0	6	1	0	0	0	7
NNW	6	8	1	0	0	0	15
Total	14	55	17	0	0	0	86

Calm Hours not Included above for:	Total Period	All Hours	93
Number of Valid Hours for this Table:	Total Period	All Hours	86
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: C **Delta Temperature** Slightly Unstable

Wind Direction	Wind Speed (mph)						Total
	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	
N	1	0	0	0	0	0	1
NNE	4	1	0	0	0	0	5
NE	2	0	0	0	0	0	2
ENE	1	0	0	0	0	0	1
E	3	2	0	0	0	0	5
ESE	0	0	0	0	0	0	0
SE	0	3	5	0	0	0	8
SSE	4	13	1	0	0	0	18
S	1	1	7	0	0	0	9
SSW	0	5	3	0	0	0	8
SW	1	7	3	0	0	0	11
WSW	2	4	2	0	0	0	8
W	1	3	1	0	0	0	5
WNW	1	7	0	0	0	0	8
NW	0	9	1	0	0	0	10
NNW	2	1	0	0	0	0	3
Total	23	56	23	0	0	0	102

Calm Hours not Included above for:	Total Period	All Hours	93
Number of Valid Hours for this Table:	Total Period	All Hours	102
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: D **Delta Temperature** **Neutral**

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	19	8	3	0	0	0	30
NNE	15	0	0	0	0	0	15
NE	17	2	0	0	0	0	19
ENE	2	0	0	0	0	0	2
E	6	5	0	0	0	0	11
ESE	5	4	0	0	0	0	9
SE	9	22	8	0	0	0	39
SSE	18	25	2	0	0	0	45
S	4	24	9	1	0	0	38
SSW	4	16	7	0	0	0	27
SW	1	8	1	2	0	0	12
WSW	3	7	10	3	0	0	23
W	2	2	4	0	0	0	8
WNW	1	9	1	0	0	0	11
NW	2	13	7	0	0	0	22
NNW	7	14	3	0	0	0	24
Total	115	159	55	6	0	0	335

Calm Hours not Included above for:	Total Period	All Hours	93
Number of Valid Hours for this Table:	Total Period	All Hours	335
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: E **Delta Temperature** Slightly Stable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	28	8	0	0	0	0	36
NNE	17	0	0	0	0	0	17
NE	7	0	0	0	0	0	7
ENE	7	1	0	0	0	0	8
E	9	0	0	0	0	0	9
ESE	17	1	0	0	0	0	18
SE	26	3	0	0	0	0	29
SSE	22	6	0	0	0	0	28
S	18	13	0	0	0	0	31
SSW	5	1	0	0	0	0	6
SW	2	0	1	0	0	0	3
WSW	3	0	0	0	0	0	3
W	1	0	0	0	0	0	1
WNW	4	2	0	0	0	0	6
NW	0	2	0	0	0	0	2
NNW	8	6	1	0	0	0	15
Total	174	43	2	0	0	0	219

Calm Hours not Included above for:	Total Period	All Hours	93
Number of Valid Hours for this Table:	Total Period	All Hours	219
Total Hours for the Period:			2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
 10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: F **Delta Temperature** Moderately Stable

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	4	0	0	0	0	0	4
NNE	4	0	0	0	0	0	4
NE	1	0	0	0	0	0	1
ENE	4	0	0	0	0	0	4
E	5	0	0	0	0	0	5
ESE	13	0	0	0	0	0	13
SE	16	0	0	0	0	0	16
SSE	35	0	0	0	0	0	35
S	14	0	0	0	0	0	14
SSW	2	0	0	0	0	0	2
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	1	0	0	0	0	0	1
NW	2	0	0	0	0	0	2
NNW	1	0	0	0	0	0	1
Total	102	0	0	0	0	0	102

Calm Hours not Included above for: **Total Period** **All Hours** 93
Number of Valid Hours for this Table: **Total Period** **All Hours** 102
Total Hours for the Period: 2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period**
10/01/2025 - 12/31/2025
Elevation: **Speed:** SP10M **Direction:** DIR10M **Lapse:** DT60M

Stability Class: G **Delta Temperature** **Extremely Stable**
Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	1	0	0	0	0	0	1
NNE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	3	0	0	0	0	0	3
E	7	0	0	0	0	0	7
ESE	17	0	0	0	0	0	17
SE	12	0	0	0	0	0	12
SSE	16	0	0	0	0	0	16
S	16	0	0	0	0	0	16
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	77	0	0	0	0	0	77

Calm Hours not Included above for: **Total Period** **All Hours** 93
Number of Valid Hours for this Table: **Total Period** **All Hours** 77
Total Hours for the Period: 2208

Site: AEP Cook

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period

Period of Record = 10/01/2025 - 12/31/2025

Elevation: Speed: SP10M Direction: DIR10M Lapse: DT60M

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.7-3.5	3.6-7.5	7.6-12.5	12.6-18.5	18.6-24.5	> 24.6	Total
N	69	47	9	0	0	0	125
NNE	75	5	0	0	0	0	80
NE	41	12	0	0	0	0	53
ENE	33	11	0	0	0	0	44
E	47	31	0	0	0	0	78
ESE	69	21	0	0	0	0	90
SE	100	66	17	0	0	0	183
SSE	136	100	8	0	0	0	244
S	75	144	45	3	0	0	267
SSW	17	76	40	1	0	0	134
SW	15	56	28	5	0	0	104
WSW	11	42	29	7	0	0	89
W	10	28	16	0	0	0	54
WNW	14	47	15	0	0	0	76
NW	17	121	24	0	0	0	162
NNW	48	89	6	0	0	0	143
Total	777	896	237	16	0	0	1926

Calm Hours not Included above for:	Total Period	All Hours	93
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	189
Number of Valid Hours for this Table:	Total Period	All Hours	1926
Total Hours for the Period:			2208

OFF-SITE DOSE CALCULATION MANUAL CHANGES

The Off-Site Dose Calculation Manual, PMP-6010-OSD-001, was not revised during this 2025 reporting period.