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NLS2025022
April 25, 2025

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

Subject: Annual Radioactive Effluent Release Report
Cooper Nuclear Station, Docket No. 50-298, Renewed License No. DPR-46

The purpose of this letter is to transmit to the Nuclear Regulatory Commission (NRC) the Cooper Nuclear Station (CNS) Annual Radioactive Effluent Release Report for the period January 1, 2024, through December 31, 2024. This report is enclosed as Enclosure 1. This letter also transmits a copy of the current Offsite Dose Assessment Manual (ODAM) as Enclosure 2, a copy of the current Process Control Program (PCP) as Enclosure 3, and a summary of changes to the PCP as an Attachment. These documents are being submitted for NRC use per the requirements of Technical Specification 5.6.3 and CNS ODAM Section D 5.3.

This letter does not contain regulatory commitments.

Should you have any questions or require additional information, please contact me at (402) 825-5416.

Sincerely,

Brian Stander for

Linda Dewhirst
Regulatory Affairs and Compliance Manager

/mk

Attachment – Summary of Changes to the Process Control Program
Enclosure 1 – Annual Radioactive Effluent Release Report January 1, 2024, through December 31, 2024
Enclosure 2 – Cooper Nuclear Station Offsite Dose Assessment Manual
Enclosure 3 – Process Control Program for Cooper Nuclear Station

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USNRC - Region IV

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USNRC - NRR Plant Licensing Branch IV w/ attachment and enclosures

Cooper Project Manager w/ attachment and enclosures

CNS Records w/ attachment and enclosures

NPG Distribution w/ attachment and w/o enclosures

ATTACHMENT

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

Change Description:

The Process Control Program (PCP) for Cooper Nuclear Station (CNS) was revised to replace the Nuclear Packaging Inc. (NuPac) dewatering system for waste processing at CNS with the AVANTech Radwaste Resin Processing System.

Additionally, the PCP was revised to remove the term "high integrity container."

Justification for Change:

The replacement system removes excess moisture from spent resin utilizing a three-step process that has been determined to be equivalent to the NuPac dewatering system. The AVANTech system meets 10 CFR 61 burial criteria of <1% by volume for solid wastes based on AVANTech Engineering Report TR-2C-1515-01.

The use of a high integrity container is a requirement of South Carolina Department of Health and Environmental Control; CNS no longer ships radwaste to the Barnwell disposal site in South Carolina. CNS shipping containers are approved by the receiving disposal site and meet 10 CFR 61 requirements.

Determination that the Change Did Not Reduce Conformance to Existing Criteria:

The above-described changes do not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes which are shipped to burial sites for disposal. Therefore, there is no reduction in the CNS program for how regulatory requirements are met for transportation or disposal.

Documentation of Acceptability of Change by Station Operations Review Committee (SORC):

SORC approval of the PCP change was obtained on October 31, 2023, and the change was implemented on April 17, 2024, concurrent with a corresponding change to the Updated Safety Analysis Report.

ENCLOSURE 1

Annual Radioactive Effluent Release Report January 1, 2024, through December 31, 2024

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

RADIOACTIVE EFFLUENT RELEASE REPORT

January 1, 2024 through December 31, 2024

USNRC Docket 50-298

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Appendix C: Dose Calculations

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Appendix D: 2024 Groundwater Report

INTRODUCTION

This report summarizes meteorological data and doses from radioactive effluents for the Cooper Nuclear Station for the period January through December, 2024. The data presented is consistent with guidance provided in Regulatory Guide 1.21 of the U.S. Nuclear Regulatory Commission (Revision 1, 1974) for reporting meteorological data and radioactive effluent data.

The report is organized into four parts. Appendix A presents the effluent and waste disposal source term data. Appendix B presents a summary of onsite meteorological data for the report period, including atmospheric diffusion estimates and a description of the atmospheric diffusion model. Appendix C presents the doses from liquid and gaseous radioactive effluents. Descriptions of the dose calculation models are also included. Appendix D presents the latest groundwater report.

APPENDIX A

SOURCE TERMS

EFFLUENT AND WASTE DISPOSAL REPORTS

SUPPLEMENTAL INFORMATION

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

January 1, 2024 through December 31, 2024

Cooper Nuclear Station effluent and waste disposal data are presented in the format prescribed by Regulatory Guide 1.21. Meteorological data required by Table 4A&B of Regulatory Guide 1.21 is included in the Meteorological Section of the Annual Radioactive Material Release Report - Radioactive Effluents.

Facility Cooper Nuclear Station License DPR-46.

A. Regulatory Limits

1. Gaseous Waste Effluents

a. The dose rates due to radioactive materials released in gaseous effluents offsite shall be limited to the following:

1. Noble Gases: Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.

2. I-131, I-133, tritium, and all radionuclides in particulate form with half-lives greater than or equal to 8 days: Less than or equal to 1500 mrem/yr to any organ.

b. The air dose due to noble gases released in gaseous effluents offsite shall be limited to the following:

1. During any calendar quarter: Less than or equal to 5 mrad from gamma radiation and less than or equal to 10 mrad from beta radiation.

2. During any calendar year: Less than or equal to 10 mrad from gamma radiation and less than or equal to 20 mrad from beta radiation.

c. The dose to a member of the public due to I-131, I-133, and radioactive materials in particulate form with half-lives greater than 8 days in gaseous effluents offsite shall be limited to the following:

1. During any calendar quarter: Less than or equal to 7.5 mrem to any organ.

2. During any calendar year: Less than or equal to 15 mrem to any organ.

2. Liquid Waste Effluents

a. January 1, 2024 through December 31, 2024

The concentration of radioactive material in water offsite due to radioactive liquid effluents shall not exceed the concentration specified in 10 CFR 20 Part 20.1302 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall not exceed 2×10^{-4} uCi/ml total activity. (CNS Technical Specification Amendment 174 Implementation)

b. The dose to a member of the public due to radioactive material in liquid effluents offsite shall be limited to the following:

1. During any calendar quarter: Less than or equal to 1.5 mrem to the total body and less than or equal to 5 mrem to any organ.

2. During any calendar year: Less than or equal to 3 mrem to the total body and less than or equal to 10 mrem to any organ.

B. Maximum Permissible Concentrations

1. Water: Covered in Section A.2.

2. Air: Covered in Section A.1.

C. Average Energy

The average energy (E) of the radionuclide mixtures of fission and activation gases released is not applicable. This information is not utilized for dose or release calculations.

D. Measurements and Approximations of Total Radioactivity

The methods used to measure or approximate the total radioactivity in effluents and to determine radionuclide composition are as follows:

1. Gaseous Effluents

a. Fission and Activation Gases:

Radioactivity and radionuclide composition is determined by laboratory HPGe detector analysis in correlation with continuous gross radioactivity monitoring by a beta scintillation detector in the release pathway.

b. Iodines:

Charcoal cartridges provide continuous sample collection. These cartridges are analyzed for radioactivity and radionuclide composition in the laboratory by a HPGe detector gamma spectrometer.

c. Particulates:

Particulate filters provide continuous sample collection. These filters are analyzed for radioactivity and radionuclide composition in the laboratory by a HPGe detector gamma spectrometer. An aliquot of a filter composite from each release point was analyzed for Sr-89, Sr-90, and gross alpha by an offsite laboratory.

d. Tritium:

A portable sampling apparatus is utilized to collect a quarterly sample of each radioactive vent effluent. These samples are analyzed using a liquid scintillation counter.

e. Carbon-14:

Carbon-14 source term was estimated using 2024 plant operational data and applying the methodology outlined in EPRI Technical Report 1021106 (EPRI, 2010).

2. Liquid Effluents

a. Principal gamma emitters and dissolved and entrained gases:

Each batch of liquid effluent is analyzed for radioactivity and radionuclide composition in the laboratory by a HPGe detector gamma spectrometer. In addition, each batch is monitored for gross gamma radioactivity by a NaI detector in-line with the release pathway.

b. Tritium:

An aliquot of a monthly composite is analyzed using a liquid scintillation counter.

c. Sr-89 and Sr-90:

An aliquot from a quarterly composite is analyzed by an offsite laboratory.

d. Gross alpha:

An aliquot from a monthly composite is analyzed by an offsite laboratory.

e. Fe-55:

An aliquot from a quarterly composite is analyzed by an offsite laboratory.

E. Batch Releases

a. Liquid

1.	Number of batch releases	0	
2.	Total time period for batch releases	0	minutes
3.	Maximum time period for batch release	0	minutes
4.	Average time period for batch release	0	minutes
5.	Minimum time period for batch release	0	minutes
6.	Average stream flow during periods of release of effluent into a flowing stream	NA	liters/minute
7.	Total activity released	0	Ci

b. Gaseous

1.	Number of batch releases	0	
2.	Total time period for batch releases	0	minutes
3.	Maximum time period for batch release	0	minutes
4.	Average time period for batch release	0	minutes
5.	Minimum time period for batch release	0	minutes

F. Abnormal Release

a. Liquid

1.	Number of releases:	0	
2.	Total activity released	0	Ci

b. Gaseous

1.	Number of releases:	0	
2.	Total activity released	0	Ci

TABLE 1A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

		UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR	EST. TOTAL ERROR %
A.	Fission and activation gases						
	1. Total release	Ci	1.00E+00	9.35E-01	1.94E+00	2.08E+00	2.0E+01
	2. Average release rate for period	μCi/sec	1.28E-01	1.19E-01	2.45E-01	2.61E-01	
B.	Iodines						
	1. Total iodine 131	Ci	1.61E-05	6.69E-05	8.76E-05	2.12E-05	3.0E+01
	2. Average release rate for period	μCi/sec	2.05E-06	8.51E-06	1.10E-05	2.67E-06	
C.	Particulates						
	1. Particulates with half-lives >8 days	Ci	1.39E-05	1.16E-04	1.18E-03	2.06E-04	5.0E+01
	2. Average release rate for period	μCi/sec	1.77E-06	1.48E-05	1.48E-04	2.59E-05	
	3. Gross alpha radioactivity	Ci	0.00E+00	1.51E-06	8.05E-07	9.90E-07	
D.	Tritium						
	1. Total release	Ci	3.05E+00	3.39E+00	2.60E+00	1.01E+00	3.0E+01
	2. Average release rate for period	μCi/sec	3.88E-01	4.31E-01	3.27E-01	1.27E-01	
E.	Carbon-14						
	1. Total release	Ci	2.69E+00	2.69E+00	2.71E+00	2.71E+00	NA
	2 Release Rate	μCi/sec	3.42E-01	3.42E-01	3.42E-01	3.42E-01	

TABLE 1B
EFFLUENT AND GASEOUS WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENT-ELEVATED RELEASE
CONTINUOUS MODE *BATCH

	NUCLIDES RELEASED	UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR
1.	Fission gases					
	argon-41	Ci	7.01E-01	5.63E-01	6.00E-01	7.84E-01
	krypton-83m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-85m	Ci	1.71E-01	1.79E-01	2.62E-01	1.86E-01
	krypton-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-87	Ci	0.00E+00	0.00E+00	1.47E-01	2.48E-01
	krypton-88	Ci	9.61E-02	1.16E-01	3.29E-01	3.10E-01
	krypton-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-133	Ci	3.48E-02	7.23E-02	1.75E-01	9.02E-03
	xenon-135m	Ci	0.00E+00	0.00E+00	7.36E-02	7.11E-02
	xenon-135	Ci	0.00E+00	4.26E-03	1.09E-01	2.00E-01
	xenon-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-138	Ci	0.00E+00	0.00E+00	2.49E-01	2.68E-01
	Total for period	Ci	1.00E+00	9.35E-01	1.94E+00	2.08E+00
2.	Iodines					
	iodine-131	Ci	5.48E-06	5.83E-06	1.78E-05	1.16E-05
	iodine-132	Ci	0.00E+00	5.83E-06	0.00E+00	0.00E+00
	iodine-133	Ci	2.01E-05	2.57E-05	5.72E-05	7.23E-05
	iodine-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	iodine-135	Ci	0.00E+00	0.00E+00	0.00E+00	8.30E-05
	Total for period	Ci	2.56E-05	3.74E-05	7.50E-05	1.67E-04

* No batch discharges were made

TABLE 1B
EFFLUENT AND GASEOUS WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENT-ELEVATED RELEASE (CONTINUED)
CONTINUOUS MODE *BATCH

	NUCLIDES RELEASED	UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR
3.	Particulates					
	sodium-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	chromium-51	Ci	0.00E+00	0.00E+00	1.42E-04	2.37E-06
	manganese-54	Ci	0.00E+00	0.00E+00	1.19E-05	5.69E-07
	manganese-56	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	iron-59	Ci	0.00E+00	0.00E+00	6.46E-06	1.08E-07
	cobalt-58	Ci	0.00E+00	0.00E+00	9.31E-06	1.55E-07
	cobalt-60	Ci	7.90E-07	4.82E-07	4.20E-07	8.78E-07
	zinc-65	Ci	0.00E+00	0.00E+00	6.90E-06	1.15E-07
	zinc-69	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	rubidium-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	rubidium-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	strontium-89	Ci	8.19E-08	1.41E-07	1.48E-07	9.92-06
	strontium-90	Ci	0.00E+00	0.00E+00	0.00E+00	3.30E-08
	strontium-91	Ci	0.00E+00	0.00E+00	0.00E+00	6.11E-05
	yttriuim-91m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	yttriuim-93	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	niobium-95	Ci	0.00E+00	0.00E+00	4.36E-07	7.29E-09
	ruthenium-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	silver-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	antimony-124	Ci	0.00E+00	0.00E+00	8.15E-07	1.36E-08
	antimony-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	tellurium-132	Ci	0.00E+00	0.00E+00	0.00E+00	7.96E-08
	cesium-137	Ci	0.00E+00	0.00E+00	0.00E+00	3.43E-07
	cesium-138	Ci	0.00E+00	0.00E+00	0.00E+00	2.62E-01
	barium-139	Ci	4.44E-05	9.34E-05	1.41E-04	2.48E-03
	barium-140	Ci	0.00E+00	0.00E+00	4.84E-07	1.97E-06
	lanthanum-140	Ci	0.00E+00	0.00E+00	4.84E-07	1.42E-06
	cerium-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	praesodymium-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total for period	Ci	4.45E-05	9.35E-05	3.79E-04	2.65E-01
	Total for period with >8d half life	Ci	8.19E-08	1.41E-07	2.37E-04	8.26E-06

* No batch discharges were made

TABLE 1C
EFFLUENT AND GASEOUS WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENT-BUILDING VENT RELEASE
CONTINUOUS MODE *BATCH

	NUCLIDES RELEASED	UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR
1.	Fission gases					
	krypton-83m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	krypton-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	xenon-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.	Iodines					
	iodine-131	Ci	1.06E-05	6.11E-05	6.98E-05	9.60E-06
	iodine-132	Ci	0.00E+00	0.00E+00	1.66E-04	0.00E+00
	iodine-133	Ci	9.86E-05	3.31E-04	3.60E-04	0.00E+00
	iodine-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	iodine-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total for period	Ci	1.09E-04	3.92E-04	5.96E-04	9.60E-06

* No batch discharges were made.

TABLE 1C
EFFLUENT AND GASEOUS WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENT-BUILDING VENT RELEASE (CONTINUED)
CONTINUOUS MODE *BATCH

	NUCLIDES RELEASED	UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR
3.	Particulates					
	sodium-24	Ci	0.00E+00	1.14E-04	3.54E-03	0.00E+00
	chromium-51	Ci	0.00E+00	0.00E+00	4.64E-06	1.10E-04
	manganese-54	Ci	1.06E-06	9.62E-06	1.26E-04	1.19E-05
	manganese-56	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cobalt-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cobalt-58	Ci	0.00E+00	0.00E+00	2.37E-05	4.05E-06
	iron-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cobalt-60	Ci	1.22E-05	6.25E-05	3.99E-04	6.93E-05
	zinc-65	Ci	0.00E+00	4.19E-05	3.78E-04	2.18E-06
	rubidium-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	strontium-89	Ci	5.50E-07	2.06E-06	8.20E-06	0.00E+00
	strontium-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	strontium-91	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	strontium-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	yttrium-91m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	niobium-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	technetium-99m	Ci	0.00E+00	0.00E+00	1.78E-05	0.00E+00
	ruthenium-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	silver-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	antimony-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cesium-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cesium-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	barium-139	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	barium-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	lanthanum-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cerium-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	cerium-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	praseodymium-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total for period	Ci	1.38E-05	2.30E-04	4.50E-03	1.97E-04
	Total for period >8 day half life	Ci	1.38E-05	1.16E-04	9.40E-04	1.97E-04

* No batch discharges were made

TABLE 2A
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

		UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR	EST. TOTAL ERROR %
A.	Fission and activation products						
	1. Total release (not including tritium, gases or alpha)	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.0E+01
	2. Average diluted concentration during period	μCi/ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
B.	Tritium						
	1. Total release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.0E+01
	2. Average diluted concentration during period	μCi/ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
C.	Dissolved and entrained gases						
	1. Total release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.0E+01
	2. Average diluted concentration during period	μCi/ml	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D.	Gross alpha radioactivity						
	1. Total release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.0E+01
E.	Volume of waste released (prior to dilution)	liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.0E+01
F.	Volume of dilution water used during period	liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.0E+01

TABLE 2B
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS (CONTINUED)
CONTINUOUS MODE *BATCH MODE

NUCLIDES RELEASED	UNIT	1st QTR	2nd QTR	3rd QTR	4th QTR
sodium-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
chromium-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
manganese-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
iron-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cobalt-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cobalt-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
iron-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cobalt-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
zinc-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
strontium-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
strontium-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
strontium-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
technetium-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
technetium-101m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
antimony-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
iodine-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
iodine-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cesium-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cesium-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
cerium-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
xenon-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
xenon-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00

* No continuous mode discharges were made

TABLE 3

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
PERIOD: January 1, 2024 through December 31, 2024

A. Solid Waste Shipped Offsite for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste

		Unit	12 Month Period	Est. Total Error %
a.	Spent resins, filter sludges, evaporator bottoms, etc.	m^3	11.26	N/A
		Ci	1.23E+01	15%
b.	Dry compressible waste, contaminated equip, etc.	m^3	146.4	N/A
		Ci	1.97E+01	25%
c.	Irradiated components, control rods, etc.	m^3	0.00	N/A
		Ci	0.00E+00	N/A
d.	Other	m^3	0.00	N/A
		Ci	0.00E+00	N/A

2. Estimate of Major Nuclide Composition (By Type of Waste), Percent %

a. Resin

americium-241	4.52E-04	iron-55	3.12E+01
antimony-124	0.00E-00	iron-59	0.00E-00
antimony-125	2.78E-03	lanthanum-140	1.50E-02
barium-140	1.30E-02	maganese-54	2.01E+00
carbon-14	4.17E-01	nickel-63	1.83E+00
cesuim-134	1.27E+00	plutonium-238	6.08E-04
cesium-137	1.89E+00	plutonium-239	5.34E-04
chromium-51	0.00E-00	plutonium-241	4.15E-02
cobalt-57	0.00E-00	silver-110m	8.38E-02
cobalt-58	1.23E-01	strontium-89	1.36E-02
cobalt-60	5.88E+01	strontium-90	6.40E-03
curium-242	3.64E-04	technetium-99	9.42E-03
curium-244	4.32E-04	tritium	6.13E-02
iodine-129	1.58E-02	zinc-65	2.22E+00
iodine-131	1.98E-05		

TABLE 3

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (continued)
PERIOD: January 1, 2024 through December 31, 2024

b. DAW

americium-241	4.47E-04	iron-59	9.23E-02
antimony-124	1.15E-02	manganese-54	1.05E+00
barium-133	0.00E-00	nickel-63	1.81E+00
carbon-14	1.46E-03	plutonium-238	5.99E-04
cesium-134	7.06E-01	plutonium-239	5.28E-04
cesium-137	5.78E-01	plutonium-241	4.12E-02
chromium-51	2.16E-01	strontium-89	1.54E-02
cobalt-58	2.29E-01	strontium-90	6.34E-03
cobalt-60	5.87E+01	technetium-99	9.33E-03
curium-242	3.88E-04	thorium-230	0.00E-00
curium-244	4.28E-04	tritium	9.83E-03
iodine-129	4.78E-03	zinc-65	5.20E+00
iron-55	3.13E+01		

c N/A

TABLE 3

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (continued)
PERIOD: January 1, 2024 through December 31, 2024

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Exclusive Use	UT
9	Exclusive Use	TN

4. Solidification Agent

None

B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
None	NA	NA

GASEOUS RADIOACTIVE WASTES
CUMULATIVE DOSE DATA

			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
A.	Maximum gamma air dose						
	Site boundary*		N	N	SE	N	N
	1. Total	mrad	3.38E-06	3.22E-06	2.41E-06	1.82E-05	2.98E-05
	2. Percent of Technical Specification Limit		0.00%	0.00%	0.00%	0.00%	0.00%
	Most Exposed Resident*		NW	NW	NW	NW	NW
	1. Total	mrad	3.38E-06	5.98E-05	1.85E-04	8.02E-05	3.42E-04
	2. Percent of Technical Specification Limit		0.00%	0.00%	0.01%	0.00%	0.01%
B.	Maximum beta air dose						
	Site boundary*		N	N	SE	N	N
	1. Total	mrad	1.22E-06	1.17E-06	1.10E-06	8.87E-06	1.30E-05
	2. Percent of Technical Specification Limit		0.00%	0.00%	0.00%	0.00%	0.00%
	Most Exposed Resident*		NW	NW	NW	NW	NW
	1. Total	mrad	1.22E-05	2.16E-05	8.43E-05	3.91E-05	1.49E-04
	2. Percent of Technical Specification Limit		0.00%	0.00%	0.00%	0.00%	0.00%
C.	Maximum organ dose due to I-131, I-133, and particulates (>8 day half lives)						
	Site boundary*		N	N	SE	N	N
	1. Total	mrem	6.71E-03	3.75E-02	4.57E-02	9.75E-03	1.20E-01
	2. Percent of Technical Specification Limit		0.09%	0.50%	0.61%	0.13%	0.80%
	3. Organ		Thyroid	Thyroid	Thyroid	Thyroid	Thyroid
	4. Exposed Individual		Infant	Infant	Infant	Infant	Infant
	Most Exposed Resident*		NW	NW	NW	NW	NW
	1. Total	mrem	1.07E-03	1.56E-02	3.21E-02	3.35E-03	4.48E-02
	2. Percent of Technical Specification Limit		0.01%	0.21%	0.43%	0.04%	0.30%
	3. Organ		Thyroid	Thyroid	Thyroid	Thyroid	Thyroid
	4. Exposed Individual		Infant	Infant	Infant	Infant	Infant

D. Maximum organ dose rate due to I-131, I-133, tritium, and particulates (>8 day half-lives) was 0.12 mrem/year which was 0.8% of the Technical Specification Limit.

E. All radioactive noble gas effluent monitors were set to automatically alarm when the monitor alarm set point, determined as specified in the Offsite Dose Assessment Manual (ODAM), was exceeded. This is required to ensure that the 500 mrem/yr to the total body and the 3000 mrem/yr to the skin limits are not exceeded.

**Resident and Site Boundary Key: N is 0.67 miles North, NW is 0.90 miles Northwest, NNE is 0.60 miles North-Northeast, and SE is 0.65 miles Southeast.*

GASEOUS RADIOACTIVE WASTES (Continued)
CUMULATIVE DOSE DATA

F. Maximum organ dose due to Carbon-14*		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
1. Total	mrem	2.76E-01	2.52E-01	4.93E-01	3.36E-01	1.26E+00
2. Percent of Technical Specification Limit		2.76%	2.52%	4.93%	3.67%	6.28%
3. Organ	mrem	Bone	Bone	Bone	Bone	Bone
4. Exposed Individual		Child	Child	Child	Child	Child

*Maximum organ dose due to Carbon-14 is based on summation of organ dose pathways from the nearest garden, nearest meat animal, and nearest milk animal. Inhalation pathway was negligible.

LIQUID RADIOACTIVE WASTES
CUMULATIVE DOSE DATA

A. Maximum whole body dose		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
1. Total	mrem	0.00E-00	0.00E-00	0.00E-00	0.00E-00	0.00E-00
2. Percent of Technical Specification Limit		0.00%	0.00%	0.00%	0.00%	0.00%
B. Maximum Organ Dose						
1. Total	mrem	0.00E-00	0.00E-00	0.00E-00	0.00E-00	0.00E-00
2. Percent of Technical Specification Limit		0.00%	0.00%	0.00%	0.00%	0.00%

2024 ARERR SUPPLEMENTAL INFORMATION

A. Unplanned Releases, Leaks, or Spills:

Chemistry determined there were no unplanned releases. RP determines if any Leaks or Spills occurred.

B. District or CNS Initiated Changes to the Process Control Program:

One change to the PCP (LBDCR 2023-012) became effective 04/17/24. The AVANTech Radwaste Resin Processing System replaced the Nuclear Packaging, Inc. (NuPac) dewatering system for waste processing. The AVANTech Radwaste Resin Processing System consists of the Remote Disengaging Fill-Head and Ultra-Rapid Vacuum Dewatering Systems.

C. Changes to the Offsite Dose Assessment Manual (ODAM): Determined by Licensing

One change to the ODAM became effective 09/18/24

One ODAM change (LBDCR 2024-007) became effective 09/18/24 and included updating Sections 1.0, 2.0 and 3.0 to match Technical Requirements Manual (TRM) terminology and formatting. Throughout the ODAM, terminology was changed to Functional/Functionality vs. Operable/Operability. Section D3.3.2, Condition I, Required Actions and Completion Times was revised to ensure reporting requirements met. Corrected editorial inconsistency regarding location of Radiological Environmental Monitoring Program (REMP) Sample Station N18. Removed REMP Sample Station 99 because this dairy farm ceased milk production.

In accordance with Technical Specifications (TS) 5.5.1.c.3, a complete, legible copy of the entire ODAM is being submitted along with the 2024 Annual Radioactive Effluent Release Report.

D. Reports Required by the CNS Offsite Dose Assessment Manual (ODAM):

The following is being reported per the requirements of ODAM Specification D3.3.1, Condition B, Required Action B.2.2:

1. Service Water (SW) Radiation Monitor B (RMP-RM-351B) was inoperable from 12/23/2023 05:48 to 3/22/2024 22:00 (a period of 90.7 days). SW Radiation Monitor B was not restored within 31 days because supply chain issues impeded detector refurbishments by supplier. (CR-CNS-2024-00316)

E. Errata Data

None.

APPENDIX B

METEOROLOGY

CONTENTS

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METEOROLOGICAL DATA SUMMARIES	B1
MONTHLY SUMMARY TABLES OF HOURLY METEOROLOGICAL DATA	B6
JOINT FREQUENCY DISTRIBUTION TABLES	B130
ATMOSPHERIC DIFFUSION ESTIMATES	B239
ATMOSPHERIC DIFFUSION MODEL	B324

METEOROLOGICAL DATA SUMMARIES

Meteorological data collected onsite for the period January 1, 2024 through December 31, 2024, were reduced, validated, summarized for analysis, and included in appropriate dose calculations. Some adjustments were necessary during the validation of the data and they are discussed beginning on page B6. Hourly data summaries are provided for all pertinent parameters and for the joint frequency distributions (JFD's) of wind speed and wind direction by atmospheric stability class.

DATA RECOVERY

Data recovery statistics are provided in Table 1 for all pertinent meteorological parameters. Average data recovery for all parameters in 2024 exceeded 99.2%.

		Average Data Recovery
January 1 - March 31, 2024	(Q1)	97.2%
April 1 - June 30, 2024	(Q2)	99.8%
First Semiannual Period - January 1 - June 30, 2024	(SEM1)	98.5%
July 1 - September 30, 2024	(Q3)	99.9%
October 1 - December 31, 2024	(Q4)	99.8%
Second Semiannual Period - July 1 - December 31, 2024	(SEM2)	99.8%
Annual Period - January 1 - December 31, 2024	(ANN)	99.2%

WIND AT 100-METER LEVEL AND 10-METER LEVEL

	Predominant Wind Direction at 100m Level		Predominant Wind Direction at 10m Level	
Q1	North-northwest	13.7%	North	13.3%
Q2	North-northwest	13.6%	South	11.3%
SEM1	North-northwest	13.6%	North	11.4%
Q3	Southeast	15.8%	South	13.3%
Q4	South-southeast	13.0%	South	12.8%
SEM2	South-southeast	14.3%	South	13.0%
ANN	North-northwest	11.1%	South	11.8%

	Mean Wind Speed at 100m Level	Mean Wind Speed at 10m Level
Q1	14.0 MPH	8.6 MPH
Q2	14.4 MPH	9.1 MPH
SEM1	14.2 MPH	8.9 MPH
Q3	10.1 MPH	6.0 MPH
Q4	14.0 MPH	7.9 MPH
SEM2	12.1 MPH	6.9 MPH
ANN	13.1 MPH	7.9 MPH

	Maximum Hourly Average Wind Speed/(Date at 100m Level)	Maximum Hourly Average Wind Speed/(Date at 10m Level)
Q1	38.3 MPH/(24/01/11)	29.8 MPH/(24/01/21)
Q2	53.3 MPH/(24/04/26)	32.3 MPH/(24/05/21)
SEM1	53.3 MPH/(24/04/26)	32.3 MPH/(24/05/21)
Q3	33.2 MPH/(24/08/27)	20.7 MPH/(24/09/18)
Q4	42.0 MPH/(24/10/29)	36.2 MPH/(24/10/29)
SEM2	42.0 MPH/(24/10/29)	36.2 MPH/(24/10/29)
ANN	53.3 MPH/(24/04/26)	36.2 MPH/(24/10/29)

TEMPERATURE AT 10-METER LEVEL

	Mean Hourly Average Temperature	Average Daily Maximum	Average Daily Minimum
Q1	36.6 Degrees F	46.3 Degrees F	26.8 Degrees F
Q2	66.3 Degrees F	75.8 Degrees F	56.0 Degrees F
SEM1	51.5 Degrees F	61.1 Degrees F	41.4 Degrees F
Q3	73.4 Degrees F	83.1 Degrees F	64.0 Degrees F
Q4	46.4 Degrees F	56.1 Degrees F	37.1 Degrees F
SEM2	59.9 Degrees F	69.6 Degrees F	50.5 Degrees F
ANN	55.8 Degrees F	65.3 Degrees F	46.0 Degrees F

	Maximum Temperature (Date)	Minimum Temperature (Date)
Q1	79.7 Degrees F (24/02/26)	-15.2 Degrees F (24/01/14)
Q2	96.5 Degrees F (24/06/24)	34.3 Degrees F (24/04/04)
SEM1	96.5 Degrees F (24/06/24)	-15.2 Degrees F (24/01/14)
Q3	98.8 Degrees F (24/08/25)	45.7 Degrees F (24/09/07)
Q4	95.9 Degrees F (24/10/05)	11.7 Degrees F (24/12/20)
SEM2	98.8 Degrees F (24/08/25)	11.7 Degrees F (24/12/20)
ANN	98.8 Degrees F (24/08/25)	-15.2 Degrees F (24/01/14)

PRECIPITATION

	Total Precipitation	Maximum Daily Precipitation Total/(Date)	Maximum Hourly Precipitation Total/(Date)
Q1	2.92 Inches	0.72 Inches (24/03/24)	0.28 Inches (24/03/13)
Q2	24.05 Inches	2.80 Inches (24/06/26)	1.62 Inches (24/06/26)
SEM1	26.97 Inches	2.80 Inches (24/06/26)	1.62 Inches (24/06/26)
Q3	7.02 Inches	2.08 Inches (24/08/14)	1.32 Inches (24/08/14)
Q4	6.29 Inches	1.76 Inches (24/10/30)	0.69 Inches (24/10/30)
SEM2	13.31 Inches	2.08 Inches (24/08/14)	1.32 Inches (24/08/14)
ANN	40.28 Inches	2.80 Inches (24/06/26)	1.62 Inches (24/06/26)

ATMOSPHERIC STABILITY

Atmospheric stability is determined through classification of differential temperature data based on JFD of the 100-meter wind and the delta T (100m - 10m) stability data.

	Unstable Conditions Classes A-C	Neutral Conditions Class D	Stable Conditions Classes E-G
Q1	2%	51%	47%
Q2	2%	53%	45%
SEM1	2%	52%	46%
Q3	3%	44%	53%
Q4	2%	45%	53%
SEM2	2%	44%	53%
ANN	2%	48%	50%

TABLE 1. Meteorological Data Recovery

Data Recovery (% of total Observations)

	January-March 2024	April-June 2024	January-June 2024	July-Sept. 2024	October-Dec. 2024	July-Dec. 2024	January-Dec. 2024
100m wind speed	97.1	100.0	98.6	100.0	98.9	99.5	99.0
100m wind direction	99.0	100.0	98.5	99.9	98.9	99.4	99.0
100m ambient temperature	98.7	100.0	99.3	100.0	100.0	100.0	99.7
60m wind speed	98.6	100.0	99.3	100.0	99.9	99.9	99.6
60m wind direction	98.6	100.0	99.3	100.0	99.9	99.9	99.6
60m ambient temperature	90.2	98.9	94.6	99.5	99.5	99.5	97.1
10m wind speed	98.7	100.0	99.3	100.0	100.0	100.0	99.7
10m wind direction	98.6	100.0	99.3	100.0	100.0	100.0	99.7
10m ambient temperature	98.7	100.0	99.3	99.9	100.0	99.9	99.7
10m dew point	98.7	100.0	99.3	100.0	100.0	100.0	99.7
100m-10m delta T	98.6	100.0	99.3	99.9	100.0	99.9	99.6
100m-60m delta T	98.7	100.0	99.3	100.0	100.0	100.0	99.7
60m-10m delta T	90.2	98.9	94.6	99.5	99.5	99.5	99.1
Precipitation	98.7	100.0	99.3	100.0	100.0	100.0	99.7
100m JFD	98.6	100.0	99.3	100.0	100.0	100.0	99.6
10m JFD	90.1	98.9	94.5	99.5	99.5	99.5	97.0

JFD - Joint Frequency Distribution of wind speed, wind direction and atmospheric stability.

MONTHLY SUMMARY TABLES OF HOURLY METEOROLOGICAL DATA

The tables presented in this section provide a summary of hourly averages of measured meteorological parameters. The tables provide summaries by month for the annual period January through December, 2024. Summaries for the first quarter, second quarter, third quarter, fourth quarter, and semiannual periods are also provided. The parameters provided are listed below.

* 10 meter ambient temperature.

* Wind direction frequencies at 10 meters and 100 meters.

* Precipitation.

Any missing or non-measured data are indicated by a field of 9's.

10-Meter Ambient Temperature

and

10-Meter Dew Point Temperature

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-MAR 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

JANUARY

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	20.8	31	19.7	31	92.3	31	3.6	31	20.8
2	31	20.2	31	19.4	31	93.2	31	3.5	31	20.2
3	31	19.9	31	19.2	31	93.4	31	3.5	31	19.9
4	31	19.7	31	19.0	31	93.4	31	3.5	31	19.8
5	31	19.5	31	18.9	31	93.5	31	3.4	31	19.6
6	31	19.3	31	18.8	31	93.8	31	3.4	31	19.4
7	31	19.1	31	18.7	31	93.9	31	3.4	31	19.2
8	31	19.0	31	18.5	31	93.6	31	3.4	31	19.1
9	31	19.5	31	18.7	31	92.9	31	3.4	31	19.6
10	31	20.7	31	19.2	31	90.3	31	3.5	31	20.6
11	31	22.2	31	19.8	31	87.9	31	3.6	31	21.9
12	31	23.7	31	20.4	31	85.5	31	3.7	31	23.0
13	31	25.0	31	20.8	31	82.6	31	3.8	31	24.0
14	31	26.1	31	21.2	31	80.9	31	3.8	31	24.8
15	31	27.1	31	22.0	31	80.8	31	3.9	31	25.6
16	31	27.7	31	22.7	31	81.2	31	4.0	31	26.2
17	31	27.6	31	23.2	31	82.8	31	4.1	31	26.2
18	31	26.4	31	23.4	31	87.0	31	4.1	31	25.6
19	31	25.1	31	23.3	31	90.5	31	4.2	31	24.7
20	31	24.2	31	22.7	31	91.3	31	4.1	31	24.0
21	31	23.6	31	22.3	31	91.4	31	4.0	31	23.5
22	31	23.0	31	21.8	31	91.7	31	3.9	31	22.9
23	31	22.4	31	21.2	31	91.6	31	3.8	31	22.3
24	31	21.8	31	20.8	31	92.1	31	3.8	31	21.8
HOURLY MEAN		22.6		20.6		89.5		3.7		22.3
AVG DAILY MAX		29.1		26.0		95.7		4.5		27.7
AVG DAILY MIN		15.9		14.8		77.2		3.0		16.0
ABSOLUTE MAX		63.4		48.7		100.0		8.9		55.2
ABSOLUTE MIN		-15.2		-22.0		46.7		.4		-15.7
TOTAL OBS		744		744		744		744		744

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-MAR 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

FEBRUARY

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	29	37.2	29	31.5	29	81.3	29	5.0	29	34.9
2	29	36.2	29	31.4	29	82.8	29	5.0	29	34.3
3	29	35.4	29	31.2	29	84.8	29	5.0	29	33.8
4	29	34.4	29	30.7	29	86.1	29	4.8	29	33.0
5	29	33.7	29	30.4	29	86.9	29	4.8	29	32.4
6	29	32.5	29	30.0	29	88.4	29	4.7	29	31.6
7	29	31.7	29	29.3	29	88.8	29	4.6	29	30.8
8	29	31.4	29	29.2	29	89.8	29	4.6	29	30.6
9	29	33.6	29	29.9	29	85.6	29	4.7	29	32.2
10	29	38.2	29	30.8	29	75.9	29	4.8	29	35.2
11	29	42.3	29	31.2	29	66.6	29	4.9	29	37.7
12	29	45.8	29	31.8	29	60.1	29	5.0	29	39.9
13	29	48.7	29	31.6	29	54.1	29	4.9	29	41.3
14	29	50.8	29	31.1	29	49.8	29	4.8	29	42.3
15	29	52.4	29	31.0	29	47.1	29	4.8	29	43.1
16	29	53.3	29	31.1	29	46.1	29	4.8	29	43.6
17	29	53.3	29	31.3	29	46.5	29	4.8	29	43.6
18	29	51.8	29	31.9	29	50.3	29	5.0	29	43.1
19	29	48.7	29	32.4	29	56.8	29	5.1	29	41.6
20	29	45.9	29	31.8	29	61.3	29	5.0	29	39.9
21	29	43.5	29	31.8	29	66.4	29	5.0	29	38.6
22	29	40.9	29	31.6	29	71.8	29	5.0	29	37.1
23	29	39.2	29	31.0	29	74.3	29	4.9	29	35.9
24	29	38.1	29	30.9	29	76.9	29	4.9	29	35.2
HOURLY MEAN		41.6		31.0		69.9		4.9		37.2
AVG DAILY MAX		54.6		36.3		93.5		5.9		44.8
AVG DAILY MIN		28.9		26.0		43.6		4.1		28.4
ABSOLUTE MAX		79.7		53.7		100.0		10.7		55.5
ABSOLUTE MIN		9.3		1.4		14.6		1.3		8.6
TOTAL OBS		696		696		696		696		696

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-MAR 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

MARCH

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	30	42.2	30	33.7	30	72.8	30	5.5	30	38.8
2	30	41.2	30	33.6	30	75.1	30	5.4	30	38.1
3	30	40.5	30	33.3	30	76.0	30	5.4	30	37.6
4	30	40.0	30	33.2	30	77.2	30	5.3	30	37.2
5	30	39.4	30	33.0	30	78.2	30	5.3	30	36.8
6	30	38.6	30	33.3	30	81.1	30	5.4	30	36.5
7	30	38.0	30	33.2	30	82.6	30	5.4	30	36.1
8	29	39.1	29	33.8	29	81.5	29	5.5	29	36.9
9	29	41.4	29	34.3	29	76.5	29	5.6	29	38.5
10	29	44.3	29	34.5	29	69.6	29	5.6	29	40.2
11	29	47.0	29	35.1	29	65.1	29	5.7	29	41.9
12	29	49.3	29	35.0	29	60.5	29	5.7	29	43.0
13	30	51.7	30	34.8	30	55.5	30	5.6	30	44.1
14	30	53.2	30	34.4	30	52.5	30	5.5	30	44.7
15	30	53.9	30	34.2	30	51.6	30	5.5	30	45.0
16	30	54.4	30	34.8	30	52.6	30	5.6	30	45.5
17	30	54.7	30	34.5	30	51.6	30	5.6	30	45.5
18	30	54.2	30	34.5	30	52.1	30	5.6	30	45.3
19	30	52.2	30	34.8	30	55.5	30	5.6	30	44.4
20	30	49.5	30	34.8	30	60.3	30	5.7	30	43.1
21	30	47.5	30	35.0	30	64.2	30	5.7	30	42.2
22	30	45.8	30	35.0	30	68.2	30	5.8	30	41.3
23	30	44.7	30	34.7	30	69.8	30	5.7	30	40.6
24	30	43.4	30	34.5	30	72.0	30	5.7	30	39.8
HOURLY MEAN		46.1		34.3		66.7		5.6		41.0
AVG DAILY MAX		55.7		40.5		86.4		7.0		46.9
AVG DAILY MIN		35.6		27.2		45.6		4.1		33.1
ABSOLUTE MAX		76.8		59.4		100.0		13.0		60.9
ABSOLUTE MIN		20.2		11.4		21.2		2.0		19.0
TOTAL OBS		715		715		715		715		715

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-MAR 2024

JAN-MAR HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	90	33.2	90	28.2	90	82.3	90	4.7	90	31.3
2	90	32.4	90	28.0	90	83.8	90	4.6	90	30.7
3	90	31.7	90	27.8	90	84.8	90	4.6	90	30.3
4	90	31.2	90	27.5	90	85.7	90	4.5	90	29.8
5	90	30.7	90	27.3	90	86.3	90	4.5	90	29.5
6	90	30.0	90	27.2	90	87.8	90	4.5	90	29.0
7	90	29.5	90	26.9	90	88.5	90	4.4	90	28.6
8	89	29.6	89	27.0	89	88.4	89	4.5	89	28.7
9	89	31.3	89	27.4	89	85.2	89	4.5	89	29.9
10	89	34.1	89	27.9	89	78.9	89	4.6	89	31.7
11	89	36.8	89	28.5	89	73.5	89	4.7	89	33.6
12	89	39.2	89	28.9	89	69.0	89	4.8	89	35.0
13	90	41.5	90	28.9	90	64.4	90	4.7	90	36.3
14	90	43.1	90	28.8	90	61.4	90	4.7	90	37.1
15	90	44.2	90	28.9	90	60.2	90	4.7	90	37.7
16	90	44.9	90	29.4	90	60.4	90	4.8	90	38.2
17	90	44.9	90	29.6	90	60.7	90	4.8	90	38.3
18	90	43.9	90	29.9	90	63.5	90	4.9	90	37.8
19	90	41.7	90	30.0	90	67.9	90	4.9	90	36.7
20	90	39.6	90	29.7	90	71.3	90	4.9	90	35.5
21	90	38.0	90	29.6	90	74.3	90	4.9	90	34.6
22	90	36.4	90	29.3	90	77.5	90	4.9	90	33.6
23	90	35.2	90	28.9	90	78.8	90	4.8	90	32.8
24	90	34.2	90	28.6	90	80.5	90	4.8	90	32.1
HOURLY MEAN		36.6		28.5		75.6		4.7		33.3
AVG DAILY MAX		46.3		34.2		91.8		5.8		39.7
AVG DAILY MIN		26.8		22.6		55.7		3.7		25.8
ABSOLUTE MAX		79.7		59.4		100.0		13.0		60.9
ABSOLUTE MIN		-15.2		-22.0		14.6		.4		-15.7
TOTAL OBS		2155		2155		2155		2155		2155

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY APR-JUN 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

APRIL

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	30	52.2	30	43.8	30	74.5	30	8.0	30	48.2
2	30	51.0	30	43.6	30	76.7	30	7.9	30	47.6
3	30	49.8	30	43.6	30	79.5	30	7.9	30	47.0
4	30	48.6	30	43.7	30	83.1	30	8.0	30	46.4
5	30	48.0	30	43.6	30	84.3	30	8.0	30	46.1
6	30	47.3	30	43.4	30	85.5	30	7.9	30	45.6
7	30	47.2	30	42.9	30	84.6	30	7.8	30	45.3
8	30	49.4	30	43.6	30	80.6	30	7.9	30	46.8
9	30	52.5	30	44.4	30	74.9	30	8.1	30	48.7
10	30	55.6	30	43.8	30	66.5	30	7.8	30	49.9
11	30	58.5	30	42.9	30	59.2	30	7.6	30	50.9
12	30	60.8	30	42.5	30	54.5	30	7.6	30	51.8
13	30	62.8	30	42.4	30	51.3	30	7.6	30	52.7
14	30	64.3	30	42.5	30	48.7	30	7.7	30	53.5
15	30	65.4	30	42.4	30	46.8	30	7.7	30	54.0
16	30	65.9	30	42.6	30	46.7	30	7.7	30	54.3
17	30	65.5	30	42.9	30	48.7	30	7.9	30	54.3
18	30	65.6	30	42.8	30	47.6	30	7.7	30	54.2
19	30	64.6	30	43.2	30	49.1	30	7.8	30	53.8
20	30	61.7	30	43.4	30	53.6	30	7.7	30	52.5
21	30	59.2	30	43.4	30	58.1	30	7.7	30	51.4
22	30	57.3	30	43.5	30	62.1	30	7.8	30	50.6
23	30	55.6	30	44.0	30	66.9	30	7.9	30	49.9
24	30	53.9	30	44.1	30	71.1	30	8.0	30	49.2
HOURLY MEAN		56.8		43.3		64.8		7.8		50.2
AVG DAILY MAX		67.3		50.6		90.6		10.3		56.0
AVG DAILY MIN		45.6		36.3		39.3		5.8		43.4
ABSOLUTE MAX		88.3		71.3		100.0		19.3		71.5
ABSOLUTE MIN		34.3		19.2		20.8		2.7		31.7
TOTAL OBS		720		720		720		720		720

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY APR-JUN 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

MAY

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	61.7	31	56.8	31	83.7	31	12.1	31	59.0
2	31	60.9	31	56.5	31	85.0	31	12.0	31	58.5
3	31	59.7	31	56.2	31	87.2	31	11.9	31	57.8
4	31	58.5	31	55.9	31	89.7	31	11.8	31	57.1
5	31	57.8	31	55.6	31	90.3	31	11.7	31	56.6
6	31	57.2	31	55.0	31	90.7	31	11.5	31	56.0
7	31	58.2	31	55.0	31	87.7	31	11.4	31	56.5
8	31	60.6	31	55.8	31	83.7	31	11.7	31	58.0
9	31	63.6	31	56.5	31	78.4	31	11.9	31	59.6
10	31	66.3	31	56.0	31	71.2	31	11.6	31	60.4
11	31	68.5	31	54.9	31	64.1	31	11.2	31	60.7
12	31	70.5	31	54.3	31	59.3	31	11.0	31	61.3
13	31	71.8	31	54.0	31	56.1	31	10.8	31	61.6
14	31	72.7	31	53.4	31	53.5	31	10.5	31	61.6
15	31	73.4	31	53.3	31	52.2	31	10.5	31	61.8
16	31	73.9	31	53.4	31	51.7	31	10.5	31	62.1
17	31	73.5	31	54.0	31	53.7	31	10.8	31	62.2
18	31	73.1	31	54.7	31	55.8	31	11.1	31	62.5
19	31	72.1	31	55.8	31	59.8	31	11.5	31	62.6
20	31	69.9	31	56.5	31	65.0	31	11.8	31	62.1
21	31	67.0	31	56.8	31	71.6	31	12.0	31	61.1
22	31	65.6	31	57.0	31	75.2	31	12.1	31	60.7
23	31	64.2	31	57.4	31	79.5	31	12.3	31	60.4
24	31	62.7	31	57.4	31	82.9	31	12.4	31	59.7
HOURLY MEAN		66.0		55.5		72.0		11.5		60.0
AVG DAILY MAX		75.3		61.8		96.5		14.3		64.9
AVG DAILY MIN		55.9		50.1		48.5		9.3		54.7
ABSOLUTE MAX		84.0		73.7		100.0		20.8		75.3
ABSOLUTE MIN		42.5		40.9		27.0		6.3		43.3
TOTAL OBS		744		744		744		744		744

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY APR-JUN 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

JUNE

10.0 METERS LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	30	71.8	30	68.0	30	87.1	30	17.4	30	69.4
2	30	71.0	30	67.2	30	87.4	30	17.1	30	68.6
3	30	70.1	30	66.7	30	88.5	30	16.8	30	68.0
4	30	69.3	30	66.6	30	89.9	30	16.8	30	67.6
5	30	68.8	30	66.7	30	91.4	30	16.8	30	67.5
6	30	68.4	30	66.3	30	91.7	30	16.6	30	67.1
7	30	69.5	30	66.1	30	88.4	30	16.5	30	67.4
8	30	71.7	30	66.5	30	83.8	30	16.6	30	68.5
9	30	74.2	30	66.7	30	78.4	30	16.7	30	69.4
10	30	76.4	30	66.6	30	73.3	30	16.7	30	70.2
11	30	78.5	30	66.5	30	68.5	30	16.6	30	70.9
12	30	80.2	30	66.6	30	65.4	30	16.7	30	71.5
13	30	81.7	30	66.4	30	62.0	30	16.6	30	71.9
14	30	82.8	30	66.6	30	60.2	30	16.6	30	72.3
15	30	83.7	30	66.9	30	59.3	30	16.8	30	72.7
16	30	84.2	30	67.1	30	58.9	30	16.9	30	73.1
17	30	84.0	30	67.7	30	60.5	30	17.3	30	73.3
18	30	83.5	30	68.3	30	62.3	30	17.6	30	73.5
19	30	82.2	30	68.6	30	65.8	30	17.8	30	73.3
20	30	79.6	30	69.0	30	71.7	30	18.0	30	72.7
21	30	77.0	30	69.0	30	77.2	30	18.0	30	71.8
22	30	75.1	30	68.5	30	80.6	30	17.8	30	70.8
23	30	74.0	30	68.5	30	82.8	30	17.7	30	70.4
24	30	72.8	30	68.2	30	85.3	30	17.5	30	69.8
HOURLY MEAN		76.3		67.3		75.8		17.1		70.5
AVG DAILY MAX		84.9		72.4		96.6		20.1		74.7
AVG DAILY MIN		66.6		62.7		56.2		14.7		65.5
ABSOLUTE MAX		96.5		83.0		100.0		27.5		84.1
ABSOLUTE MIN		56.2		43.8		26.7		7.0		55.1
TOTAL OBS		720		720		720		720		720

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY APR-JUN 2024

APR-JUN HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	91	61.9	91	56.2	91	81.8	91	12.5	91	58.9
2	91	61.0	91	55.8	91	83.0	91	12.3	91	58.2
3	91	59.9	91	55.5	91	85.1	91	12.2	91	57.6
4	91	58.8	91	55.4	91	87.6	91	12.2	91	57.1
5	91	58.2	91	55.3	91	88.7	91	12.2	91	56.7
6	91	57.6	91	54.9	91	89.3	91	12.0	91	56.3
7	91	58.3	91	54.6	91	86.9	91	11.9	91	56.4
8	91	60.6	91	55.3	91	82.7	91	12.1	91	57.8
9	91	63.4	91	55.9	91	77.2	91	12.2	91	59.3
10	91	66.1	91	55.5	91	70.3	91	12.1	91	60.2
11	91	68.5	91	54.8	91	63.9	91	11.8	91	60.8
12	91	70.5	91	54.5	91	59.7	91	11.7	91	61.5
13	91	72.1	91	54.3	91	56.5	91	11.6	91	62.1
14	91	73.3	91	54.1	91	54.1	91	11.6	91	62.5
15	91	74.1	91	54.1	91	52.7	91	11.6	91	62.8
16	91	74.6	91	54.4	91	52.4	91	11.7	91	63.1
17	91	74.3	91	54.8	91	54.3	91	12.0	91	63.3
18	91	74.1	91	55.3	91	55.2	91	12.1	91	63.4
19	91	72.9	91	55.9	91	58.3	91	12.4	91	63.2
20	91	70.4	91	56.3	91	63.5	91	12.5	91	62.4
21	91	67.7	91	56.4	91	69.0	91	12.6	91	61.4
22	91	66.0	91	56.4	91	72.7	91	12.5	91	60.7
23	91	64.6	91	56.6	91	76.4	91	12.6	91	60.2
24	91	63.1	91	56.6	91	79.8	91	12.6	91	59.6
HOURLY MEAN		66.3		55.4		70.9		12.1		60.2
AVG DAILY MAX		75.8		61.6		94.6		14.9		65.2
AVG DAILY MIN		56.0		49.7		48.0		9.9		54.5
ABSOLUTE MAX		96.5		83.0		100.0		27.5		84.1
ABSOLUTE MIN		34.3		19.2		20.8		2.7		31.7
TOTAL OBS		2184		2184		2184		2184		2184

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-JUN 2024

JAN-JUN HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	181	47.6	181	42.3	181	82.0	181	8.6	181	45.2
2	181	46.8	181	42.0	181	83.4	181	8.5	181	44.6
3	181	45.9	181	41.7	181	85.0	181	8.4	181	44.0
4	181	45.1	181	41.5	181	86.6	181	8.4	181	43.5
5	181	44.5	181	41.4	181	87.5	181	8.3	181	43.2
6	181	43.9	181	41.1	181	88.6	181	8.3	181	42.7
7	181	44.0	181	40.9	181	87.7	181	8.2	181	42.6
8	180	45.3	180	41.3	180	85.5	180	8.3	180	43.4
9	180	47.5	180	41.8	180	81.2	180	8.4	180	44.7
10	180	50.3	180	41.9	180	74.6	180	8.4	180	46.1
11	180	52.8	180	41.8	180	68.7	180	8.3	180	47.3
12	180	55.0	180	41.8	180	64.3	180	8.3	180	48.4
13	181	56.9	181	41.7	181	60.4	181	8.2	181	49.2
14	181	58.3	181	41.5	181	57.7	181	8.2	181	49.8
15	181	59.3	181	41.6	181	56.5	181	8.2	181	50.3
16	181	59.8	181	42.0	181	56.4	181	8.3	181	50.7
17	181	59.7	181	42.3	181	57.5	181	8.4	181	50.8
18	181	59.0	181	42.6	181	59.4	181	8.5	181	50.7
19	181	57.4	181	43.0	181	63.1	181	8.7	181	50.1
20	181	55.1	181	43.1	181	67.3	181	8.7	181	49.0
21	181	52.9	181	43.1	181	71.6	181	8.8	181	48.1
22	181	51.3	181	42.9	181	75.0	181	8.7	181	47.2
23	181	50.0	181	42.8	181	77.6	181	8.8	181	46.6
24	181	48.8	181	42.7	181	80.1	181	8.7	181	45.9
HOURLY MEAN		51.5		42.0		73.2		8.4		46.8
AVG DAILY MAX		61.1		47.9		93.2		10.3		52.5
AVG DAILY MIN		41.4		36.1		51.9		6.8		40.1
ABSOLUTE MAX		96.5		83.0		100.0		27.5		84.1
ABSOLUTE MIN		-15.2		-22.0		14.6		.4		-15.7
TOTAL OBS		4339		4339		4339		4339		4339

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JUL-SEP 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

JULY

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	72.1	31	71.8	31	96.6	31	19.7	31	71.9
2	31	71.2	31	71.3	31	97.2	31	19.4	31	71.3
3	31	70.5	31	70.8	31	97.5	31	19.1	31	70.7
4	31	69.6	31	70.0	31	98.1	31	18.6	31	69.9
5	31	68.9	31	69.7	31	98.8	31	18.5	31	69.4
6	31	68.4	31	69.1	31	98.6	31	18.1	31	68.9
7	31	69.1	31	69.1	31	97.5	31	18.1	31	69.1
8	30	71.4	31	69.7	30	93.5	30	18.4	30	70.3
9	31	73.9	31	70.2	31	88.1	31	18.6	31	71.4
10	31	76.5	31	70.3	31	81.3	31	18.6	31	72.3
11	31	78.5	31	69.8	31	75.3	31	18.3	31	72.7
12	31	80.2	31	69.5	31	70.4	31	18.0	31	73.1
13	31	81.5	31	69.6	31	67.8	31	18.1	31	73.5
14	31	82.4	31	69.4	31	65.4	31	17.9	31	73.6
15	31	83.2	31	69.7	31	64.5	31	18.1	31	74.0
16	31	83.6	31	69.9	31	64.3	31	18.3	31	74.4
17	31	83.7	31	70.3	31	65.0	31	18.5	31	74.6
18	31	82.6	31	70.4	31	67.6	31	18.6	31	74.4
19	31	81.6	31	71.7	31	72.6	31	19.4	31	74.9
20	31	79.1	31	72.9	31	82.2	31	20.3	31	74.9
21	31	76.5	31	73.3	31	89.7	31	20.7	31	74.3
22	31	75.0	31	72.9	31	92.6	31	20.4	31	73.6
23	31	73.8	31	72.9	31	95.6	31	20.4	31	73.2
24	31	73.0	31	72.8	31	96.9	31	20.3	31	72.8
HOURLY MEAN		76.1		70.7		84.0		18.9		72.5
AVG DAILY MAX		84.3		75.4		99.5		22.1		76.4
AVG DAILY MIN		67.8		66.9		61.6		16.6		68.2
ABSOLUTE MAX		93.4		84.5		100.0		28.8		85.5
ABSOLUTE MIN		61.7		58.1		48.5		12.0		61.8
TOTAL OBS		743		744		743		743		743

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JUL-SEP 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

AUGUST

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	70.0	31	68.9	31	94.7	31	18.0	31	69.3
2	31	69.4	31	68.5	31	94.8	31	17.8	31	68.8
3	31	68.8	31	68.3	31	96.0	31	17.6	31	68.5
4	31	68.4	31	68.0	31	96.4	31	17.5	31	68.2
5	31	67.8	31	67.7	31	96.9	31	17.3	31	67.7
6	31	67.3	31	67.4	31	97.4	31	17.2	31	67.4
7	31	67.5	31	67.2	31	96.8	31	17.0	31	67.3
8	31	69.4	31	67.6	31	92.8	31	17.2	31	68.2
9	31	72.0	31	68.2	31	87.8	31	17.5	31	69.6
10	31	74.3	31	68.5	31	82.7	31	17.6	31	70.5
11	31	76.3	31	68.2	31	77.1	31	17.4	31	70.9
12	31	78.0	31	68.1	31	72.6	31	17.3	31	71.4
13	31	79.7	31	67.7	31	68.3	31	17.0	31	71.7
14	31	81.1	31	67.1	31	64.0	31	16.7	31	71.8
15	31	82.1	31	67.1	31	61.9	31	16.6	31	72.1
16	31	82.6	31	67.3	31	61.2	31	16.7	31	72.4
17	31	82.9	31	67.5	31	61.2	31	16.8	31	72.6
18	31	82.1	31	68.6	31	64.8	31	17.5	31	73.0
19	31	80.0	31	69.6	31	71.3	31	18.2	31	73.0
20	31	76.8	31	69.8	31	79.6	31	18.4	31	72.1
21	31	74.2	31	69.7	31	85.9	31	18.4	31	71.2
22	31	72.8	31	69.5	31	89.1	31	18.3	31	70.6
23	31	71.6	31	69.2	31	91.4	31	18.2	31	70.1
24	31	70.5	31	69.0	31	93.5	31	18.1	31	69.6
HOURLY MEAN		74.4		68.3		82.4		17.5		70.3
AVG DAILY MAX		83.4		72.1		98.9		19.9		74.1
AVG DAILY MIN		66.1		64.7		59.1		15.5		66.2
ABSOLUTE MAX		98.8		79.7		100.0		24.9		83.0
ABSOLUTE MIN		54.4		51.1		41.8		9.5		55.4
TOTAL OBS		744		744		744		744		744

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JUL-SEP 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

SEPTEMBER

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	30	63.9	30	61.1	30	89.8	30	13.9	30	62.2
2	30	62.6	30	60.8	30	92.3	30	13.8	30	61.5
3	30	61.6	30	60.4	30	93.6	30	13.6	30	60.9
4	30	60.6	30	59.7	30	94.3	30	13.3	30	60.0
5	30	59.8	30	59.5	30	95.9	30	13.3	30	59.6
6	30	58.8	30	59.2	30	97.7	30	13.2	30	59.0
7	30	58.6	30	59.1	30	97.9	30	13.1	30	58.8
8	30	60.9	30	59.8	30	94.7	30	13.4	30	60.3
9	30	65.4	30	60.6	30	84.7	30	13.7	30	62.6
10	30	69.7	30	61.0	30	74.4	30	13.8	30	64.4
11	30	73.6	30	60.7	30	64.9	30	13.5	30	65.7
12	30	76.4	30	60.1	30	58.3	30	13.2	30	66.4
13	30	78.6	30	59.3	30	52.7	30	12.8	30	66.7
14	30	79.8	30	58.6	30	49.4	30	12.5	30	66.8
15	30	80.7	30	58.3	30	47.7	30	12.4	30	66.9
16	30	81.0	30	58.2	30	47.1	30	12.3	30	67.0
17	30	80.9	30	58.5	30	47.7	30	12.5	30	67.1
18	30	79.4	30	59.6	30	51.9	30	13.0	30	67.2
19	30	75.7	30	60.9	30	61.1	30	13.7	30	66.6
20	30	71.8	30	61.1	30	70.0	30	13.8	30	65.3
21	30	69.6	30	61.1	30	75.5	30	13.9	30	64.5
22	30	67.6	30	60.9	30	80.4	30	13.8	30	63.6
23	30	66.2	30	60.9	30	84.0	30	13.9	30	63.1
24	30	64.9	30	60.8	30	86.9	30	13.8	30	62.5
HOURLY MEAN		69.5		60.0		74.7		13.3		63.7
AVG DAILY MAX		81.4		64.4		98.5		15.5		68.2
AVG DAILY MIN		57.8		55.8		46.2		11.4		58.0
ABSOLUTE MAX		91.3		76.2		100.0		22.4		78.1
ABSOLUTE MIN		45.7		40.4		30.9		6.3		47.0
TOTAL OBS		720		720		720		720		720

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JUL-SEP 2024

JUL-SEP HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	92	68.7	92	67.3	92	93.8	92	17.3	92	67.9
2	92	67.8	92	66.9	92	94.8	92	17.0	92	67.3
3	92	67.0	92	66.5	92	95.7	92	16.8	92	66.7
4	92	66.3	92	66.0	92	96.3	92	16.5	92	66.1
5	92	65.6	92	65.7	92	97.2	92	16.4	92	65.7
6	92	64.9	92	65.3	92	97.9	92	16.2	92	65.1
7	92	65.1	92	65.2	92	97.4	92	16.1	92	65.2
8	91	67.3	92	65.7	91	93.7	91	16.3	91	66.3
9	92	70.5	92	66.4	92	86.9	92	16.6	92	67.9
10	92	73.5	92	66.6	92	79.5	92	16.7	92	69.1
11	92	76.1	92	66.3	92	72.5	92	16.4	92	69.8
12	92	78.2	92	66.0	92	67.2	92	16.2	92	70.3
13	92	79.9	92	65.6	92	63.1	92	16.0	92	70.7
14	92	81.1	92	65.1	92	59.7	92	15.7	92	70.8
15	92	82.0	92	65.1	92	58.2	92	15.7	92	71.1
16	92	82.4	92	65.2	92	57.7	92	15.8	92	71.3
17	92	82.5	92	65.5	92	58.1	92	16.0	92	71.5
18	92	81.4	92	66.3	92	61.5	92	16.4	92	71.6
19	92	79.1	92	67.5	92	68.4	92	17.1	92	71.6
20	92	75.9	92	68.0	92	77.3	92	17.5	92	70.8
21	92	73.5	92	68.1	92	83.8	92	17.7	92	70.1
22	92	71.8	92	67.8	92	87.4	92	17.6	92	69.4
23	92	70.6	92	67.8	92	90.4	92	17.5	92	68.8
24	92	69.5	92	67.6	92	92.5	92	17.5	92	68.4
HOURLY MEAN		73.4		66.4		80.4		16.6		68.9
AVG DAILY MAX		83.1		70.7		99.0		19.2		73.0
AVG DAILY MIN		64.0		62.6		55.7		14.6		64.2
ABSOLUTE MAX		98.8		84.5		100.0		28.8		85.5
ABSOLUTE MIN		45.7		40.4		30.9		6.3		47.0
TOTAL OBS		2207		2208		2207		2207		2207

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY OCT-DEC 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

OCTOBER

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	56.2	31	45.7	31	70.5	31	8.3	31	50.9
2	31	54.8	31	45.6	31	73.4	31	8.3	31	50.2
3	31	53.5	31	45.3	31	75.4	31	8.2	31	49.4
4	31	52.7	31	45.3	31	77.2	31	8.2	31	49.0
5	31	51.9	31	45.2	31	79.3	31	8.2	31	48.5
6	31	51.3	31	45.0	31	80.0	31	8.1	31	48.1
7	31	50.6	31	44.7	31	80.9	31	8.1	31	47.7
8	31	51.3	31	44.6	31	79.1	31	8.0	31	48.0
9	31	55.0	31	45.4	31	71.6	31	8.2	31	50.2
10	31	59.8	31	45.4	31	60.3	31	8.1	31	52.4
11	31	63.8	31	45.3	31	52.8	31	8.1	31	54.2
12	31	66.8	31	45.4	31	48.0	31	8.1	31	55.5
13	31	69.1	31	45.1	31	43.9	31	8.0	31	56.3
14	31	71.0	31	44.8	31	40.7	31	7.9	31	56.9
15	31	72.1	31	44.9	31	39.3	31	7.9	31	57.5
16	31	72.7	31	45.2	31	39.0	31	8.0	31	57.8
17	31	72.3	31	45.7	31	40.2	31	8.1	31	57.9
18	31	69.4	31	46.7	31	45.6	31	8.5	31	57.1
19	31	65.6	31	47.3	31	52.8	31	8.7	31	55.8
20	31	63.0	31	47.0	31	57.1	31	8.6	31	54.5
21	31	61.4	31	46.6	31	59.8	31	8.5	31	53.7
22	31	59.5	31	46.7	31	64.3	31	8.6	31	52.8
23	31	57.8	31	46.4	31	67.7	31	8.5	31	51.9
24	31	56.5	31	46.2	31	70.8	31	8.4	31	51.2
HOURLY MEAN		60.8		45.6		61.2		8.2		52.8
AVG DAILY MAX		73.5		51.4		89.5		10.1		59.1
AVG DAILY MIN		48.0		40.4		37.0		6.7		45.6
ABSOLUTE MAX		95.9		63.8		100.0		14.9		70.8
ABSOLUTE MIN		26.0		26.6		25.2		3.7		26.6
TOTAL OBS		744		744		744		744		744

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY OCT-DEC 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

NOVEMBER

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	30	42.4	30	40.2	30	90.2	30	7.1	30	41.5
2	30	41.8	30	40.0	30	91.4	30	7.0	30	41.1
3	30	41.2	30	39.8	30	92.5	30	7.0	30	40.6
4	30	40.6	30	39.3	30	92.9	30	6.8	30	40.1
5	30	40.1	30	38.7	30	92.3	30	6.7	30	39.6
6	30	39.6	30	38.4	30	92.9	30	6.7	30	39.2
7	30	39.3	30	38.3	30	93.5	30	6.7	30	39.0
8	30	39.2	30	38.3	30	93.9	30	6.7	30	38.9
9	30	40.4	30	38.8	30	92.1	30	6.9	30	39.9
10	30	42.7	30	39.5	30	87.2	30	7.1	30	41.5
11	30	45.3	30	40.4	30	82.4	30	7.3	30	43.4
12	30	47.5	30	40.8	30	77.6	30	7.4	30	44.7
13	30	49.3	30	40.5	30	72.4	30	7.4	30	45.5
14	30	50.7	30	40.2	30	68.5	30	7.2	30	46.1
15	30	51.7	30	40.0	30	65.6	30	7.1	30	46.4
16	30	52.0	30	40.0	30	65.2	30	7.1	30	46.6
17	30	51.5	30	40.2	30	67.0	30	7.2	30	46.4
18	30	49.7	30	40.8	30	72.4	30	7.3	30	45.7
19	30	47.8	30	40.8	30	77.2	30	7.3	30	44.8
20	30	46.5	30	40.4	30	79.8	30	7.2	30	43.9
21	30	45.1	30	40.1	30	82.5	30	7.1	30	43.0
22	30	43.9	30	39.8	30	84.9	30	7.0	30	42.2
23	30	43.0	30	39.6	30	86.7	30	6.9	30	41.6
24	30	42.5	30	39.5	30	88.0	30	6.9	30	41.3
HOURLY MEAN		44.7		39.8		82.9		7.0		42.6
AVG DAILY MAX		52.7		45.0		97.3		8.5		48.2
AVG DAILY MIN		37.3		34.9		62.2		5.8		36.9
ABSOLUTE MAX		68.1		67.1		100.0		16.9		66.5
ABSOLUTE MIN		15.9		11.9		27.6		2.1		16.0
TOTAL OBS		720		720		720		720		720

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY OCT-DEC 2024

MONTHLY HOUR AVERAGES FOR THE PERIOD

DECEMBER

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	31	31.2	31	28.7	31	88.6	31	4.6	31	30.5
2	31	30.6	31	28.5	31	89.6	31	4.6	31	30.0
3	31	30.0	31	28.5	31	91.5	31	4.6	31	29.6
4	31	29.6	31	28.6	31	93.0	31	4.6	31	29.4
5	31	29.5	31	28.3	31	92.4	31	4.5	31	29.2
6	31	29.2	31	28.0	31	92.6	31	4.5	31	29.0
7	31	28.7	31	27.8	31	93.1	31	4.4	31	28.5
8	31	28.5	31	27.7	31	93.5	31	4.4	31	28.4
9	31	28.7	31	27.5	31	92.1	31	4.4	31	28.5
10	31	30.6	31	28.0	31	88.4	31	4.5	31	29.9
11	31	33.0	31	28.5	31	83.0	31	4.6	31	31.5
12	31	35.7	31	28.7	31	76.0	31	4.6	31	33.2
13	31	37.9	31	28.7	31	70.6	31	4.6	31	34.5
14	31	39.7	31	29.0	31	67.5	31	4.7	31	35.6
15	31	40.7	31	29.3	31	66.0	31	4.7	31	36.3
16	31	41.2	31	29.6	31	65.5	31	4.7	31	36.7
17	31	40.4	31	30.1	31	68.2	31	4.8	31	36.4
18	31	38.6	31	30.4	31	73.0	31	4.9	31	35.5
19	31	36.9	31	29.9	31	76.1	31	4.8	31	34.4
20	31	35.5	31	29.2	31	77.8	31	4.7	31	33.3
21	31	34.2	31	28.9	31	80.6	31	4.7	31	32.5
22	31	33.2	31	28.8	31	83.0	31	4.6	31	31.8
23	31	32.6	31	28.9	31	85.0	31	4.6	31	31.4
24	31	32.0	31	29.0	31	87.0	31	4.7	31	31.1
HOURLY MEAN		33.7		28.8		82.3		4.6		32.0
AVG DAILY MAX		42.0		34.9		96.6		5.7		38.1
AVG DAILY MIN		26.0		23.1		63.8		3.7		25.7
ABSOLUTE MAX		65.2		48.7		100.0		9.0		52.0
ABSOLUTE MIN		11.7		3.7		34.9		1.5		10.5
TOTAL OBS		744		744		744		744		744

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY OCT-DEC 2024

OCT-DEC HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	92	43.3	92	38.2	92	83.0	92	6.7	92	41.0
2	92	42.4	92	38.0	92	84.8	92	6.6	92	40.4
3	92	41.6	92	37.9	92	86.4	92	6.6	92	39.9
4	92	41.0	92	37.7	92	87.6	92	6.5	92	39.5
5	92	40.5	92	37.4	92	87.9	92	6.5	92	39.1
6	92	40.0	92	37.1	92	88.5	92	6.4	92	38.8
7	92	39.5	92	36.9	92	89.1	92	6.4	92	38.4
8	92	39.7	92	36.9	92	88.8	92	6.4	92	38.4
9	92	41.4	92	37.2	92	85.2	92	6.5	92	39.5
10	92	44.4	92	37.6	92	78.6	92	6.6	92	41.3
11	92	47.4	92	38.1	92	72.6	92	6.7	92	43.0
12	92	50.0	92	38.3	92	67.1	92	6.7	92	44.5
13	92	52.1	92	38.1	92	62.2	92	6.6	92	45.4
14	92	53.8	92	38.0	92	58.8	92	6.6	92	46.2
15	92	54.9	92	38.0	92	56.9	92	6.6	92	46.8
16	92	55.3	92	38.2	92	56.5	92	6.6	92	47.1
17	92	54.7	92	38.6	92	58.4	92	6.7	92	46.9
18	92	52.6	92	39.3	92	63.6	92	6.9	92	46.1
19	92	50.1	92	39.3	92	68.6	92	6.9	92	45.0
20	92	48.4	92	38.8	92	71.5	92	6.8	92	43.9
21	92	46.9	92	38.5	92	74.2	92	6.7	92	43.1
22	92	45.6	92	38.4	92	77.3	92	6.7	92	42.3
23	92	44.5	92	38.3	92	79.7	92	6.7	92	41.6
24	92	43.7	92	38.2	92	81.9	92	6.7	92	41.2
HOURLY MEAN		46.4		38.0		75.4		6.6		42.5
AVG DAILY MAX		56.1		43.8		94.4		8.1		48.4
AVG DAILY MIN		37.1		32.7		54.2		5.4		36.0
ABSOLUTE MAX		95.9		67.1		100.0		16.9		70.8
ABSOLUTE MIN		11.7		3.7		25.2		1.5		10.5
TOTAL OBS		2208		2208		2208		2208		2208

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JUL-DEC 2024

JUL-DEC HOUR AVERAGES FOR THE PERIOD

10.0 METERS LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	184	56.0	184	52.8	184	88.4	184	12.0	184	54.4
2	184	55.1	184	52.5	184	89.8	184	11.8	184	53.8
3	184	54.3	184	52.2	184	91.1	184	11.7	184	53.3
4	184	53.6	184	51.8	184	92.0	184	11.5	184	52.8
5	184	53.0	184	51.5	184	92.6	184	11.4	184	52.4
6	184	52.5	184	51.2	184	93.2	184	11.3	184	51.9
7	184	52.3	184	51.0	184	93.3	184	11.2	184	51.8
8	183	53.4	184	51.3	183	91.2	183	11.3	183	52.3
9	184	55.9	184	51.8	184	86.0	184	11.6	184	53.7
10	184	59.0	184	52.1	184	79.0	184	11.6	184	55.2
11	184	61.8	184	52.2	184	72.6	184	11.6	184	56.4
12	184	64.1	184	52.1	184	67.1	184	11.5	184	57.4
13	184	66.0	184	51.9	184	62.6	184	11.3	184	58.1
14	184	67.5	184	51.5	184	59.3	184	11.2	184	58.5
15	184	68.4	184	51.6	184	57.5	184	11.2	184	58.9
16	184	68.9	184	51.7	184	57.1	184	11.2	184	59.2
17	184	68.6	184	52.1	184	58.2	184	11.3	184	59.2
18	184	67.0	184	52.8	184	62.5	184	11.6	184	58.9
19	184	64.6	184	53.4	184	68.5	184	12.0	184	58.3
20	184	62.1	184	53.4	184	74.4	184	12.2	184	57.4
21	184	60.2	184	53.3	184	79.0	184	12.2	184	56.6
22	184	58.7	184	53.1	184	82.4	184	12.1	184	55.8
23	184	57.5	184	53.0	184	85.1	184	12.1	184	55.2
24	184	56.6	184	52.9	184	87.2	184	12.1	184	54.8
HOURLY MEAN		59.9		52.2		77.9		11.6		55.7
AVG DAILY MAX		69.6		57.2		96.7		13.6		60.7
AVG DAILY MIN		50.5		47.7		55.0		10.0		50.1
ABSOLUTE MAX		98.8		84.5		100.0		28.8		85.5
ABSOLUTE MIN		11.7		3.7		25.2		1.5		10.5
TOTAL OBS		4415		4416		4415		4415		4415

PROGRAM: WETTEMP
VERSION: PC-1.0

NPPD-COOPER NUCLEAR STATION 10-M TEMPERATURE SUMMARY JAN-DEC 2024

JAN-DEC HOUR AVERAGES FOR THE PERIOD

10.0 METER LEVEL

	TEMPERATURE		DEW POINT		RELATIVE HUM		ABSOLUTE HUM		WET BULB	
HOUR	NUMBER OBS	(DEG F)	NUMBER OBS	(DEG F)	NUMBER OBS	(%)	NUMBER OBS	(GM/M3)	NUMBER OBS	(DEG F)
1	365	51.9	365	47.6	365	85.2	365	10.3	365	49.8
2	365	51.0	365	47.3	365	86.6	365	10.2	365	49.2
3	365	50.1	365	47.0	365	88.0	365	10.1	365	48.7
4	365	49.4	365	46.7	365	89.3	365	10.0	365	48.2
5	365	48.8	365	46.5	365	90.1	365	9.9	365	47.8
6	365	48.2	365	46.2	365	90.9	365	9.8	365	47.4
7	365	48.2	365	46.0	365	90.5	365	9.7	365	47.2
8	363	49.4	364	46.3	363	88.4	363	9.8	363	47.9
9	364	51.8	364	46.9	364	83.6	364	10.0	364	49.3
10	364	54.7	364	47.0	364	76.8	364	10.0	364	50.7
11	364	57.4	364	47.0	364	70.6	364	9.9	364	51.9
12	364	59.6	364	47.0	364	65.7	364	9.9	364	53.0
13	365	61.5	365	46.8	365	61.5	365	9.8	365	53.7
14	365	62.9	365	46.6	365	58.5	365	9.7	365	54.2
15	365	63.9	365	46.6	365	57.0	365	9.7	365	54.7
16	365	64.4	365	46.9	365	56.7	365	9.8	365	55.0
17	365	64.2	365	47.2	365	57.9	365	9.9	365	55.1
18	365	63.1	365	47.7	365	61.0	365	10.1	365	54.8
19	365	61.1	365	48.3	365	65.8	365	10.4	365	54.2
20	365	58.6	365	48.3	365	70.9	365	10.5	365	53.2
21	365	56.6	365	48.2	365	75.4	365	10.5	365	52.4
22	365	55.0	365	48.1	365	78.7	365	10.5	365	51.6
23	365	53.8	365	48.0	365	81.4	365	10.4	365	51.0
24	365	52.7	365	47.8	365	83.7	365	10.4	365	50.4
HOURLY MEAN		55.8		47.2		75.6		10.1		51.3
AVG DAILY MAX		65.3		52.6		95.0		12.0		56.6
AVG DAILY MIN		46.0		41.9		53.4		8.4		45.2
ABSOLUTE MAX		98.8		84.5		100.0		28.8		85.5
ABSOLUTE MIN		-15.2		-22.0		14.6		.4		-15.7
TOTAL OBS		8754		8755		8754		8754		8754

Wind Direction Frequencies

10-Meter Level

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JANUARY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.5	6.5	6.5	3.2	00.0	00.0	12.9	00.0	3.2	9.7	00.0	00.0	9.7	9.7	12.9	19.4	00.0	100.
2	3.2	00.0	12.9	3.2	3.2	6.5	00.0	6.5	3.2	9.7	9.7	00.0	9.7	9.7	12.9	9.7	00.0	100.
3	6.5	00.0	9.7	00.0	00.0	6.5	00.0	3.2	9.7	3.2	6.5	00.0	3.2	19.4	19.4	6.5	6.5	100.
4	19.4	3.2	3.2	3.2	00.0	00.0	3.2	3.2	9.7	6.5	3.2	3.2	3.2	6.5	22.6	9.7	00.0	100.
5	9.7	6.5	6.5	3.2	00.0	3.2	3.2	3.2	6.5	9.7	00.0	3.2	6.5	9.7	16.1	9.7	3.2	100.
6	12.9	00.0	12.9	00.0	3.2	3.2	00.0	9.7	9.7	00.0	6.5	00.0	9.7	12.9	9.7	9.7	00.0	100.
7	9.7	6.5	3.2	00.0	6.5	3.2	3.2	6.5	3.2	6.5	00.0	3.2	9.7	9.7	19.4	6.5	3.2	100.
8	3.2	12.9	3.2	00.0	6.5	6.5	00.0	6.5	12.9	3.2	3.2	00.0	9.7	12.9	9.7	9.7	00.0	100.
9	9.7	6.5	3.2	00.0	3.2	9.7	00.0	6.5	12.9	6.5	3.2	6.5	00.0	6.5	6.5	19.4	00.0	100.
10	12.9	3.2	3.2	6.5	3.2	00.0	00.0	6.5	12.9	3.2	00.0	9.7	3.2	6.5	12.9	12.9	3.2	100.
11	00.0	3.2	3.2	00.0	9.7	6.5	00.0	3.2	12.9	3.2	6.5	3.2	6.5	00.0	16.1	19.4	6.5	100.
12	3.2	6.5	3.2	00.0	3.2	6.5	9.7	3.2	9.7	6.5	9.7	3.2	00.0	3.2	22.6	9.7	00.0	100.
13	9.7	00.0	00.0	3.2	9.7	3.2	6.5	6.5	6.5	3.2	6.5	12.9	6.5	00.0	22.6	3.2	00.0	100.
14	6.5	9.7	00.0	00.0	9.7	3.2	3.2	6.5	6.5	6.5	9.7	6.5	3.2	6.5	16.1	6.5	00.0	100.
15	13.3	3.3	3.3	00.0	3.3	10.0	6.7	3.3	6.7	6.7	00.0	16.7	00.0	6.7	13.3	6.7	00.0	100.
16	9.7	3.2	00.0	6.5	6.5	9.7	6.5	3.2	00.0	9.7	6.5	3.2	3.2	00.0	25.8	6.5	00.0	100.
17	6.5	9.7	3.2	3.2	6.5	00.0	9.7	3.2	3.2	9.7	3.2	3.2	3.2	3.2	22.6	9.7	00.0	100.
18	9.7	6.5	00.0	9.7	3.2	00.0	6.5	6.5	3.2	3.2	6.5	6.5	3.2	3.2	25.8	6.5	00.0	100.
19	6.5	12.9	3.2	3.2	00.0	6.5	3.2	3.2	3.2	3.2	3.2	3.2	6.5	12.9	19.4	3.2	6.5	100.
20	9.7	6.5	3.2	00.0	00.0	3.2	9.7	00.0	6.5	3.2	6.5	3.2	3.2	6.5	25.8	9.7	3.2	100.
21	9.7	12.9	3.2	00.0	00.0	3.2	6.5	00.0	3.2	6.5	3.2	6.5	3.2	6.5	25.8	9.7	00.0	100.
22	9.7	12.9	3.2	00.0	00.0	3.2	9.7	00.0	3.2	6.5	6.5	3.2	6.5	6.5	16.1	9.7	3.2	100.
23	9.7	12.9	3.2	3.2	00.0	3.2	6.5	3.2	3.2	9.7	00.0	3.2	3.2	9.7	16.1	9.7	3.2	100.
24	9.7	12.9	00.0	3.2	3.2	3.2	6.5	00.0	9.7	3.2	6.5	00.0	6.5	6.5	16.1	6.5	6.5	100.
ALL	8.6	6.6	3.9	2.2	3.4	4.2	4.7	3.9	6.7	5.8	4.4	4.2	5.0	7.3	17.8	9.6	1.9	100.

NUMBER OF OBS = 743

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

FEBRUARY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	13.8	6.9	00.0	3.4	3.4	6.9	3.4	10.3	17.2	00.0	00.0	6.9	3.4	00.0	3.4	13.8	6.9	100.
2	13.8	3.4	3.4	3.4	3.4	00.0	10.3	10.3	3.4	3.4	00.0	6.9	00.0	3.4	6.9	17.2	10.3	100.
3	6.9	6.9	3.4	00.0	3.4	00.0	6.9	6.9	6.9	3.4	3.4	6.9	3.4	00.0	6.9	20.7	13.8	100.
4	17.2	3.4	3.4	3.4	3.4	00.0	3.4	3.4	24.1	3.4	3.4	6.9	00.0	6.9	3.4	6.9	6.9	100.
5	6.9	3.4	3.4	00.0	3.4	3.4	3.4	10.3	17.2	3.4	00.0	6.9	6.9	10.3	13.8	6.9	00.0	100.
6	10.3	6.9	3.4	6.9	00.0	3.4	00.0	10.3	10.3	6.9	00.0	00.0	13.8	00.0	6.9	17.2	3.4	100.
7	10.3	10.3	00.0	6.9	3.4	00.0	10.3	3.4	6.9	13.8	3.4	00.0	6.9	10.3	6.9	6.9	00.0	100.
8	13.8	10.3	3.4	00.0	00.0	10.3	3.4	10.3	10.3	00.0	3.4	3.4	3.4	3.4	13.8	6.9	3.4	100.
9	17.2	3.4	3.4	3.4	6.9	6.9	3.4	10.3	13.8	3.4	00.0	00.0	3.4	6.9	3.4	13.8	00.0	100.
10	20.7	17.2	6.9	3.4	3.4	3.4	6.9	3.4	6.9	10.3	3.4	00.0	3.4	3.4	6.9	00.0	00.0	100.
11	17.2	13.8	3.4	00.0	6.9	3.4	6.9	00.0	17.2	00.0	6.9	00.0	6.9	3.4	6.9	6.9	00.0	100.
12	13.8	10.3	10.3	00.0	3.4	10.3	3.4	00.0	20.7	3.4	3.4	3.4	3.4	3.4	6.9	3.4	00.0	100.
13	13.8	10.3	00.0	00.0	6.9	6.9	6.9	00.0	20.7	3.4	6.9	00.0	3.4	10.3	6.9	3.4	00.0	100.
14	17.2	6.9	3.4	00.0	3.4	6.9	3.4	3.4	13.8	6.9	3.4	3.4	13.8	3.4	6.9	3.4	00.0	100.
15	10.3	13.8	00.0	00.0	6.9	3.4	6.9	3.4	6.9	10.3	00.0	3.4	17.2	3.4	6.9	6.9	00.0	100.
16	17.2	6.9	00.0	00.0	6.9	6.9	00.0	10.3	13.8	00.0	3.4	6.9	13.8	3.4	3.4	6.9	00.0	100.
17	13.8	3.4	3.4	6.9	00.0	10.3	00.0	10.3	6.9	6.9	3.4	6.9	6.9	6.9	3.4	10.3	00.0	100.
18	13.8	3.4	3.4	3.4	6.9	3.4	00.0	6.9	10.3	3.4	6.9	3.4	3.4	10.3	00.0	17.2	3.4	100.
19	10.3	3.4	6.9	00.0	6.9	3.4	3.4	3.4	13.8	3.4	6.9	3.4	00.0	00.0	20.7	13.8	00.0	100.
20	13.8	6.9	00.0	3.4	3.4	3.4	00.0	6.9	13.8	3.4	6.9	10.3	00.0	3.4	3.4	20.7	00.0	100.
21	20.7	3.4	3.4	3.4	6.9	00.0	00.0	3.4	13.8	13.8	10.3	6.9	3.4	00.0	00.0	10.3	00.0	100.
22	17.2	6.9	3.4	3.4	3.4	3.4	00.0	6.9	17.2	6.9	3.4	3.4	00.0	00.0	3.4	13.8	6.9	100.
23	17.2	10.3	00.0	3.4	00.0	3.4	3.4	00.0	17.2	10.3	6.9	00.0	00.0	3.4	6.9	10.3	6.9	100.
24	17.2	6.9	6.9	3.4	00.0	6.9	00.0	6.9	10.3	3.4	10.3	3.4	00.0	3.4	3.4	13.8	3.4	100.
ALL	14.4	7.5	3.2	2.4	3.9	4.5	3.6	5.9	13.1	5.2	4.0	3.9	4.9	4.2	6.3	10.5	2.7	100.

NUMBER OF OBS = 696

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

MARCH

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.7	10.0	6.7	3.3	3.3	3.3	3.3	3.3	16.7	10.0	3.3	3.3	3.3	6.7	3.3	13.3	00.0	100.
2	16.7	6.7	10.0	3.3	00.0	3.3	3.3	3.3	13.3	10.0	3.3	3.3	00.0	10.0	6.7	6.7	00.0	100.
3	20.0	3.3	10.0	3.3	00.0	3.3	3.3	6.7	10.0	10.0	00.0	3.3	00.0	10.0	3.3	10.0	3.3	100.
4	20.0	3.3	00.0	13.3	6.7	00.0	3.3	3.3	13.3	3.3	3.3	6.7	3.3	3.3	13.3	3.3	00.0	100.
5	20.0	3.3	3.3	3.3	3.3	6.7	6.7	00.0	10.0	6.7	3.3	3.3	00.0	6.7	6.7	10.0	6.7	100.
6	13.3	13.3	3.3	3.3	3.3	00.0	6.7	3.3	13.3	6.7	00.0	10.0	00.0	3.3	6.7	6.7	6.7	100.
7	23.3	6.7	3.3	00.0	6.7	00.0	3.3	3.3	10.0	6.7	3.3	6.7	00.0	6.7	6.7	10.0	3.3	100.
8	20.7	3.4	13.8	00.0	00.0	3.4	3.4	6.9	6.9	10.3	00.0	3.4	6.9	3.4	10.3	3.4	3.4	100.
9	17.2	10.3	3.4	3.4	3.4	3.4	3.4	13.8	6.9	6.9	6.9	00.0	3.4	3.4	6.9	6.9	00.0	100.
10	24.1	3.4	3.4	3.4	6.9	3.4	10.3	3.4	6.9	10.3	3.4	00.0	00.0	00.0	13.8	6.9	00.0	100.
11	20.7	3.4	6.9	00.0	3.4	6.9	3.4	10.3	6.9	10.3	3.4	00.0	00.0	00.0	6.9	17.2	00.0	100.
12	31.0	3.4	10.3	00.0	00.0	3.4	10.3	3.4	13.8	3.4	6.9	00.0	00.0	00.0	10.3	3.4	00.0	100.
13	26.7	10.0	00.0	3.3	6.7	3.3	6.7	3.3	10.0	10.0	6.7	00.0	00.0	00.0	6.7	6.7	00.0	100.
14	20.0	6.7	3.3	3.3	3.3	6.7	10.0	3.3	3.3	10.0	3.3	3.3	3.3	00.0	10.0	10.0	00.0	100.
15	10.0	10.0	3.3	00.0	3.3	6.7	10.0	6.7	00.0	13.3	00.0	3.3	3.3	3.3	10.0	16.7	00.0	100.
16	10.0	10.0	6.7	00.0	3.3	10.0	3.3	6.7	3.3	10.0	6.7	00.0	3.3	3.3	6.7	16.7	00.0	100.
17	10.0	10.0	10.0	00.0	00.0	10.0	6.7	6.7	00.0	10.0	6.7	3.3	00.0	3.3	6.7	16.7	00.0	100.
18	6.7	13.3	6.7	00.0	00.0	10.0	6.7	3.3	6.7	10.0	00.0	00.0	6.7	00.0	10.0	20.0	00.0	100.
19	13.3	13.3	6.7	00.0	3.3	3.3	10.0	3.3	6.7	6.7	3.3	00.0	00.0	3.3	16.7	10.0	00.0	100.
20	16.7	6.7	6.7	00.0	3.3	3.3	6.7	00.0	16.7	00.0	3.3	00.0	00.0	6.7	6.7	23.3	00.0	100.
21	16.7	20.0	6.7	00.0	00.0	10.0	3.3	00.0	10.0	3.3	6.7	00.0	3.3	00.0	3.3	16.7	00.0	100.
22	16.7	10.0	6.7	3.3	00.0	10.0	3.3	00.0	16.7	3.3	00.0	00.0	3.3	00.0	13.3	10.0	3.3	100.
23	16.7	6.7	10.0	3.3	3.3	00.0	10.0	00.0	16.7	00.0	00.0	3.3	3.3	00.0	6.7	16.7	3.3	100.
24	13.3	10.0	10.0	3.3	3.3	00.0	00.0	10.0	16.7	6.7	3.3	3.3	00.0	3.3	10.0	6.7	00.0	100.
ALL	17.1	8.3	6.3	2.2	2.8	4.6	5.7	4.3	9.8	7.4	3.2	2.4	1.8	3.2	8.4	11.2	1.3	100.

NUMBER OF OBS = 715

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-MAR

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	8.9	7.8	4.4	3.3	2.2	3.3	6.7	4.4	12.2	6.7	1.1	3.3	5.6	5.6	6.7	15.6	2.2	100.
2	11.1	3.3	8.9	3.3	2.2	3.3	4.4	6.7	6.7	7.8	4.4	3.3	3.3	7.8	8.9	11.1	3.3	100.
3	11.1	3.3	7.8	1.1	1.1	3.3	3.3	5.6	8.9	5.6	3.3	3.3	2.2	10.0	10.0	12.2	7.8	100.
4	18.9	3.3	2.2	6.7	3.3	00.0	3.3	3.3	15.6	4.4	3.3	5.6	2.2	5.6	13.3	6.7	2.2	100.
5	12.2	4.4	4.4	2.2	2.2	4.4	4.4	4.4	11.1	6.7	1.1	4.4	4.4	8.9	12.2	8.9	3.3	100.
6	12.2	6.7	6.7	3.3	2.2	2.2	2.2	7.8	11.1	4.4	2.2	3.3	7.8	5.6	7.8	11.1	3.3	100.
7	14.4	7.8	2.2	2.2	5.6	1.1	5.6	4.4	6.7	8.9	2.2	3.3	5.6	8.9	11.1	7.8	2.2	100.
8	12.4	9.0	6.7	00.0	2.2	6.7	2.2	7.9	10.1	4.5	2.2	2.2	6.7	6.7	11.2	6.7	2.2	100.
9	14.6	6.7	3.4	2.2	4.5	6.7	2.2	10.1	11.2	5.6	3.4	2.2	2.2	5.6	5.6	13.5	00.0	100.
10	19.1	7.9	4.5	4.5	4.5	2.2	5.6	4.5	9.0	7.9	2.2	3.4	2.2	3.4	11.2	6.7	1.1	100.
11	12.4	6.7	4.5	00.0	6.7	5.6	3.4	4.5	12.4	4.5	5.6	1.1	4.5	1.1	10.1	14.6	2.2	100.
12	15.7	6.7	7.9	00.0	2.2	6.7	7.9	2.2	14.6	4.5	6.7	2.2	1.1	2.2	13.5	5.6	00.0	100.
13	16.7	6.7	00.0	2.2	7.8	4.4	6.7	3.3	12.2	5.6	6.7	4.4	3.3	3.3	12.2	4.4	00.0	100.
14	14.4	7.8	2.2	1.1	5.6	5.6	5.6	4.4	7.8	7.8	5.6	4.4	6.7	3.3	11.1	6.7	00.0	100.
15	11.2	9.0	2.2	00.0	4.5	6.7	7.9	4.5	4.5	10.1	00.0	7.9	6.7	4.5	10.1	10.1	00.0	100.
16	12.2	6.7	2.2	2.2	5.6	8.9	3.3	6.7	5.6	6.7	5.6	3.3	6.7	2.2	12.2	10.0	00.0	100.
17	10.0	7.8	5.6	3.3	2.2	6.7	5.6	6.7	3.3	8.9	4.4	4.4	3.3	4.4	11.1	12.2	00.0	100.
18	10.0	7.8	3.3	4.4	3.3	4.4	4.4	5.6	6.7	5.6	4.4	3.3	4.4	4.4	12.2	14.4	1.1	100.
19	10.0	10.0	5.6	1.1	3.3	4.4	5.6	3.3	7.8	4.4	4.4	2.2	2.2	5.6	18.9	8.9	2.2	100.
20	13.3	6.7	3.3	1.1	2.2	3.3	5.6	2.2	12.2	2.2	5.6	4.4	1.1	5.6	12.2	17.8	1.1	100.
21	15.6	12.2	4.4	1.1	2.2	4.4	3.3	1.1	8.9	7.8	6.7	4.4	3.3	2.2	10.0	12.2	00.0	100.
22	14.4	10.0	4.4	2.2	1.1	5.6	4.4	2.2	12.2	5.6	3.3	2.2	3.3	2.2	11.1	11.1	4.4	100.
23	14.4	10.0	4.4	3.3	1.1	2.2	6.7	1.1	12.2	6.7	2.2	2.2	2.2	4.4	10.0	12.2	4.4	100.
24	13.3	10.0	5.6	3.3	2.2	3.3	2.2	5.6	12.2	4.4	6.7	2.2	2.2	4.4	10.0	8.9	3.3	100.
ALL	13.3	7.4	4.5	2.3	3.3	4.4	4.7	4.7	9.8	6.1	3.9	3.5	3.9	4.9	11.0	10.4	1.9	100.

NUMBER OF OBS = 2154

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

APRIL

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	10.0	00.0	6.7	3.3	3.3	3.3	10.0	10.0	6.7	6.7	3.3	6.7	6.7	10.0	6.7	3.3	3.3	100.
2	3.3	00.0	6.7	10.0	3.3	3.3	6.7	10.0	6.7	6.7	3.3	3.3	10.0	6.7	10.0	10.0	00.0	100.
3	6.7	6.7	00.0	3.3	3.3	6.7	13.3	00.0	6.7	6.7	3.3	3.3	6.7	13.3	3.3	13.3	3.3	100.
4	6.7	00.0	00.0	00.0	6.7	3.3	13.3	6.7	13.3	00.0	10.0	3.3	6.7	3.3	10.0	13.3	3.3	100.
5	10.0	3.3	00.0	00.0	6.7	6.7	6.7	6.7	6.7	3.3	6.7	3.3	6.7	10.0	10.0	10.0	3.3	100.
6	10.0	3.3	00.0	00.0	6.7	6.7	6.7	10.0	6.7	3.3	00.0	3.3	6.7	6.7	13.3	16.7	00.0	100.
7	13.3	3.3	3.3	3.3	6.7	13.3	3.3	10.0	6.7	3.3	00.0	00.0	6.7	3.3	10.0	13.3	00.0	100.
8	6.7	3.3	3.3	00.0	3.3	13.3	10.0	6.7	6.7	6.7	00.0	00.0	6.7	00.0	23.3	10.0	00.0	100.
9	6.7	3.3	3.3	00.0	00.0	13.3	10.0	13.3	10.0	00.0	3.3	3.3	6.7	6.7	13.3	6.7	00.0	100.
10	6.7	3.3	00.0	3.3	00.0	10.0	10.0	6.7	10.0	6.7	00.0	6.7	3.3	3.3	13.3	16.7	00.0	100.
11	6.7	3.3	6.7	00.0	00.0	10.0	6.7	6.7	6.7	10.0	3.3	6.7	3.3	3.3	6.7	20.0	00.0	100.
12	6.7	00.0	6.7	6.7	00.0	3.3	10.0	6.7	6.7	13.3	3.3	6.7	00.0	00.0	6.7	23.3	00.0	100.
13	10.0	3.3	3.3	3.3	00.0	00.0	13.3	10.0	6.7	6.7	6.7	3.3	00.0	6.7	10.0	16.7	00.0	100.
14	13.3	00.0	3.3	3.3	00.0	3.3	13.3	00.0	10.0	6.7	6.7	3.3	6.7	6.7	6.7	16.7	00.0	100.
15	10.0	00.0	3.3	00.0	00.0	6.7	6.7	3.3	6.7	10.0	6.7	6.7	13.3	00.0	3.3	23.3	00.0	100.
16	6.7	3.3	3.3	00.0	3.3	3.3	6.7	6.7	3.3	10.0	00.0	13.3	10.0	6.7	10.0	13.3	00.0	100.
17	10.0	00.0	6.7	00.0	00.0	6.7	6.7	3.3	3.3	10.0	3.3	10.0	13.3	6.7	3.3	16.7	00.0	100.
18	10.0	00.0	6.7	3.3	00.0	10.0	10.0	3.3	3.3	6.7	00.0	13.3	13.3	00.0	00.0	20.0	00.0	100.
19	6.7	00.0	3.3	3.3	00.0	6.7	10.0	00.0	00.0	13.3	00.0	16.7	3.3	6.7	00.0	30.0	00.0	100.
20	3.3	6.7	00.0	3.3	00.0	13.3	3.3	00.0	3.3	3.3	10.0	13.3	3.3	3.3	13.3	20.0	00.0	100.
21	3.3	3.3	3.3	3.3	00.0	10.0	6.7	00.0	3.3	6.7	3.3	3.3	6.7	3.3	23.3	20.0	00.0	100.
22	6.7	3.3	00.0	6.7	00.0	6.7	10.0	00.0	00.0	16.7	00.0	00.0	10.0	00.0	16.7	23.3	00.0	100.
23	13.3	3.3	00.0	00.0	6.7	3.3	13.3	00.0	00.0	10.0	6.7	00.0	6.7	3.3	10.0	23.3	00.0	100.
24	13.3	3.3	00.0	6.7	00.0	6.7	3.3	10.0	6.7	6.7	3.3	3.3	10.0	6.7	6.7	10.0	3.3	100.
ALL	8.3	2.4	2.9	2.6	2.1	7.1	8.7	5.4	5.8	7.2	3.5	5.6	6.9	4.9	9.6	16.2	.7	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

MAY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	19.4	3.2	00.0	00.0	00.0	9.7	6.5	12.9	9.7	00.0	6.5	00.0	6.5	6.5	12.9	6.5	00.0	100.
2	6.5	6.5	00.0	00.0	00.0	9.7	00.0	12.9	9.7	9.7	9.7	00.0	6.5	12.9	3.2	12.9	00.0	100.
3	16.1	00.0	3.2	3.2	00.0	00.0	6.5	12.9	12.9	6.5	3.2	6.5	6.5	00.0	9.7	9.7	3.2	100.
4	16.1	3.2	00.0	3.2	3.2	3.2	9.7	6.5	12.9	3.2	12.9	3.2	00.0	6.5	9.7	3.2	3.2	100.
5	12.9	3.2	00.0	00.0	3.2	6.5	3.2	9.7	16.1	9.7	00.0	00.0	00.0	6.5	22.6	3.2	3.2	100.
6	19.4	00.0	00.0	00.0	00.0	3.2	9.7	12.9	6.5	6.5	00.0	00.0	3.2	12.9	6.5	9.7	9.7	100.
7	12.9	6.5	3.2	6.5	00.0	00.0	12.9	6.5	12.9	3.2	3.2	00.0	6.5	00.0	12.9	6.5	6.5	100.
8	6.5	00.0	00.0	3.2	3.2	12.9	6.5	9.7	9.7	9.7	6.5	6.5	00.0	6.5	12.9	6.5	00.0	100.
9	9.7	3.2	00.0	6.5	3.2	00.0	16.1	6.5	12.9	3.2	6.5	3.2	9.7	9.7	6.5	3.2	00.0	100.
10	6.5	00.0	3.2	3.2	00.0	12.9	16.1	3.2	3.2	6.5	00.0	12.9	3.2	12.9	9.7	6.5	00.0	100.
11	6.5	3.2	00.0	6.5	00.0	9.7	19.4	6.5	3.2	00.0	3.2	9.7	3.2	9.7	12.9	6.5	00.0	100.
12	3.2	3.2	00.0	3.2	00.0	6.5	19.4	12.9	3.2	3.2	3.2	3.2	6.5	3.2	16.1	12.9	00.0	100.
13	3.2	6.5	00.0	00.0	00.0	6.5	25.8	6.5	6.5	6.5	00.0	3.2	6.5	6.5	12.9	9.7	00.0	100.
14	9.7	3.2	00.0	00.0	3.2	3.2	22.6	12.9	00.0	6.5	3.2	6.5	00.0	6.5	19.4	3.2	00.0	100.
15	9.7	6.5	00.0	00.0	00.0	6.5	19.4	6.5	9.7	6.5	00.0	3.2	3.2	9.7	6.5	12.9	00.0	100.
16	9.7	6.5	3.2	00.0	3.2	9.7	16.1	3.2	12.9	3.2	3.2	00.0	3.2	6.5	9.7	9.7	00.0	100.
17	12.9	3.2	3.2	00.0	6.5	00.0	19.4	6.5	9.7	9.7	3.2	00.0	3.2	3.2	12.9	6.5	00.0	100.
18	16.1	6.5	00.0	00.0	3.2	00.0	19.4	6.5	3.2	19.4	00.0	3.2	00.0	3.2	9.7	9.7	00.0	100.
19	16.1	3.2	00.0	3.2	00.0	00.0	19.4	00.0	16.1	3.2	6.5	3.2	3.2	3.2	12.9	9.7	00.0	100.
20	9.7	3.2	00.0	00.0	3.2	3.2	9.7	12.9	6.5	12.9	6.5	00.0	6.5	00.0	12.9	12.9	00.0	100.
21	9.7	00.0	00.0	3.2	3.2	00.0	12.9	6.5	12.9	19.4	00.0	00.0	00.0	3.2	16.1	12.9	00.0	100.
22	6.5	00.0	00.0	3.2	00.0	16.1	3.2	9.7	12.9	9.7	00.0	00.0	00.0	3.2	22.6	9.7	3.2	100.
23	9.7	3.2	00.0	00.0	3.2	3.2	9.7	16.1	3.2	9.7	00.0	3.2	00.0	3.2	19.4	16.1	00.0	100.
24	12.9	3.2	00.0	00.0	9.7	6.5	9.7	3.2	6.5	9.7	6.5	3.2	3.2	00.0	12.9	9.7	3.2	100.
ALL	10.9	3.2	.7	1.9	2.0	5.4	13.0	8.5	8.9	7.4	3.5	3.0	3.4	5.6	12.6	8.7	1.3	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUNE

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	16.7	00.0	3.3	00.0	3.3	3.3	00.0	10.0	16.7	3.3	10.0	3.3	3.3	3.3	13.3	6.7	3.3	100.
2	6.7	10.0	00.0	3.3	00.0	00.0	3.3	3.3	23.3	16.7	3.3	3.3	00.0	3.3	6.7	16.7	00.0	100.
3	10.0	10.0	00.0	00.0	3.3	3.3	6.7	3.3	13.3	13.3	10.0	00.0	6.7	3.3	10.0	6.7	00.0	100.
4	3.3	6.7	00.0	00.0	00.0	3.3	6.7	6.7	20.0	10.0	6.7	00.0	6.7	13.3	10.0	6.7	00.0	100.
5	6.7	13.3	3.3	00.0	00.0	00.0	00.0	10.0	23.3	6.7	6.7	6.7	00.0	10.0	6.7	6.7	00.0	100.
6	13.3	00.0	6.7	00.0	3.3	3.3	3.3	10.0	23.3	6.7	3.3	3.3	00.0	00.0	6.7	16.7	00.0	100.
7	10.0	10.0	00.0	6.7	00.0	3.3	00.0	13.3	26.7	00.0	6.7	3.3	00.0	00.0	13.3	3.3	3.3	100.
8	13.3	3.3	3.3	6.7	3.3	3.3	6.7	10.0	16.7	10.0	3.3	3.3	6.7	3.3	6.7	00.0	00.0	100.
9	13.3	3.3	6.7	3.3	3.3	6.7	3.3	3.3	20.0	13.3	3.3	3.3	6.7	00.0	10.0	00.0	00.0	100.
10	13.3	00.0	00.0	00.0	10.0	6.7	10.0	00.0	16.7	16.7	3.3	6.7	3.3	00.0	3.3	10.0	00.0	100.
11	10.0	6.7	00.0	00.0	3.3	3.3	10.0	13.3	13.3	16.7	10.0	3.3	00.0	00.0	3.3	6.7	00.0	100.
12	20.0	00.0	00.0	00.0	3.3	6.7	6.7	13.3	10.0	23.3	6.7	3.3	00.0	00.0	00.0	6.7	00.0	100.
13	10.0	00.0	3.3	00.0	6.7	3.3	6.7	6.7	20.0	20.0	3.3	6.7	00.0	00.0	00.0	13.3	00.0	100.
14	00.0	10.0	3.3	00.0	6.7	6.7	6.7	6.7	13.3	20.0	3.3	6.7	00.0	00.0	00.0	16.7	00.0	100.
15	6.7	6.7	3.3	00.0	3.3	6.7	3.3	13.3	23.3	10.0	10.0	00.0	00.0	00.0	00.0	13.3	00.0	100.
16	13.3	3.3	3.3	00.0	6.7	3.3	3.3	3.3	30.0	13.3	3.3	6.7	00.0	00.0	00.0	10.0	00.0	100.
17	13.3	3.3	6.7	3.3	6.7	00.0	10.0	3.3	30.0	10.0	3.3	3.3	00.0	00.0	3.3	3.3	00.0	100.
18	10.0	3.3	3.3	00.0	16.7	00.0	6.7	10.0	26.7	6.7	3.3	3.3	00.0	00.0	00.0	10.0	00.0	100.
19	3.3	10.0	3.3	3.3	10.0	00.0	6.7	10.0	30.0	6.7	3.3	3.3	00.0	00.0	00.0	10.0	00.0	100.
20	3.3	10.0	00.0	3.3	3.3	3.3	10.0	10.0	20.0	13.3	00.0	00.0	00.0	00.0	20.0	3.3	00.0	100.
21	00.0	10.0	3.3	3.3	6.7	6.7	6.7	16.7	6.7	6.7	3.3	3.3	00.0	00.0	16.7	10.0	00.0	100.
22	6.7	6.7	00.0	6.7	00.0	3.3	10.0	13.3	6.7	10.0	3.3	6.7	00.0	00.0	10.0	13.3	3.3	100.
23	16.7	3.3	00.0	6.7	00.0	6.7	10.0	13.3	16.7	10.0	00.0	3.3	00.0	00.0	10.0	3.3	00.0	100.
24	6.7	3.3	3.3	3.3	00.0	3.3	6.7	13.3	16.7	13.3	6.7	3.3	3.3	3.3	10.0	3.3	00.0	100.
ALL	9.4	5.6	2.4	2.1	4.2	3.6	6.0	9.0	19.3	11.5	4.9	3.6	1.5	1.7	6.7	8.2	.4	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

APR-JUN

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	15.4	1.1	3.3	1.1	2.2	5.5	5.5	11.0	11.0	3.3	6.6	3.3	5.5	6.6	11.0	5.5	2.2	100.
2	5.5	5.5	2.2	4.4	1.1	4.4	3.3	8.8	13.2	11.0	5.5	2.2	5.5	7.7	6.6	13.2	00.0	100.
3	11.0	5.5	1.1	2.2	2.2	3.3	8.8	5.5	11.0	8.8	5.5	3.3	6.6	5.5	7.7	9.9	2.2	100.
4	8.8	3.3	00.0	1.1	3.3	3.3	9.9	6.6	15.4	4.4	9.9	2.2	4.4	7.7	9.9	7.7	2.2	100.
5	9.9	6.6	1.1	00.0	3.3	4.4	3.3	8.8	15.4	6.6	4.4	3.3	2.2	8.8	13.2	6.6	2.2	100.
6	14.3	1.1	2.2	00.0	3.3	4.4	6.6	11.0	12.1	5.5	1.1	2.2	3.3	6.6	8.8	14.3	3.3	100.
7	12.1	6.6	2.2	5.5	2.2	5.5	5.5	9.9	15.4	2.2	3.3	1.1	4.4	1.1	12.1	7.7	3.3	100.
8	8.8	2.2	2.2	3.3	3.3	9.9	7.7	8.8	11.0	8.8	3.3	3.3	4.4	3.3	14.3	5.5	00.0	100.
9	9.9	3.3	3.3	3.3	2.2	6.6	9.9	7.7	14.3	5.5	4.4	3.3	7.7	5.5	9.9	3.3	00.0	100.
10	8.8	1.1	1.1	2.2	3.3	9.9	12.1	3.3	9.9	9.9	1.1	8.8	3.3	5.5	8.8	11.0	00.0	100.
11	7.7	4.4	2.2	2.2	1.1	7.7	12.1	8.8	7.7	8.8	5.5	6.6	2.2	4.4	7.7	11.0	00.0	100.
12	9.9	1.1	2.2	3.3	1.1	5.5	12.1	11.0	6.6	13.2	4.4	4.4	2.2	1.1	7.7	14.3	00.0	100.
13	7.7	3.3	2.2	1.1	2.2	3.3	15.4	7.7	11.0	11.0	3.3	4.4	2.2	4.4	7.7	13.2	00.0	100.
14	7.7	4.4	2.2	1.1	3.3	4.4	14.3	6.6	7.7	11.0	4.4	5.5	2.2	4.4	8.8	12.1	00.0	100.
15	8.8	4.4	2.2	00.0	1.1	6.6	9.9	7.7	13.2	8.8	5.5	3.3	5.5	3.3	3.3	16.5	00.0	100.
16	9.9	4.4	3.3	00.0	4.4	5.5	8.8	4.4	15.4	8.8	2.2	6.6	4.4	4.4	6.6	11.0	00.0	100.
17	12.1	2.2	5.5	1.1	4.4	2.2	12.1	4.4	14.3	9.9	3.3	4.4	5.5	3.3	6.6	8.8	00.0	100.
18	12.1	3.3	3.3	1.1	6.6	3.3	12.1	6.6	11.0	11.0	1.1	6.6	4.4	1.1	3.3	13.2	00.0	100.
19	8.8	4.4	2.2	3.3	3.3	2.2	12.1	3.3	15.4	7.7	3.3	7.7	2.2	3.3	4.4	16.5	00.0	100.
20	5.5	6.6	00.0	2.2	2.2	6.6	7.7	7.7	9.9	9.9	5.5	4.4	3.3	1.1	15.4	12.1	00.0	100.
21	4.4	4.4	2.2	3.3	3.3	5.5	8.8	7.7	7.7	11.0	2.2	2.2	2.2	2.2	18.7	14.3	00.0	100.
22	6.6	3.3	00.0	5.5	00.0	8.8	7.7	7.7	6.6	12.1	1.1	2.2	3.3	1.1	16.5	15.4	2.2	100.
23	13.2	3.3	00.0	2.2	3.3	4.4	11.0	9.9	6.6	9.9	2.2	2.2	2.2	2.2	13.2	14.3	00.0	100.
24	11.0	3.3	1.1	3.3	3.3	5.5	6.6	8.8	9.9	9.9	5.5	3.3	5.5	3.3	9.9	7.7	2.2	100.
ALL	9.6	3.7	2.0	2.2	2.7	5.4	9.3	7.6	11.3	8.7	3.9	4.0	3.9	4.1	9.7	11.0	.8	100.

NUMBER OF OBS = 2184

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-JUN

	WIND DIRECTION																	
HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	12.2	4.4	3.9	2.2	2.2	4.4	6.1	7.7	11.6	5.0	3.9	3.3	5.5	6.1	8.8	10.5	2.2	100.
2	8.3	4.4	5.5	3.9	1.7	3.9	3.9	7.7	9.9	9.4	5.0	2.8	4.4	7.7	7.7	12.2	1.7	100.
3	11.0	4.4	4.4	1.7	1.7	3.3	6.1	5.5	9.9	7.2	4.4	3.3	4.4	7.7	8.8	11.0	5.0	100.
4	13.8	3.3	1.1	3.9	3.3	1.7	6.6	5.0	15.5	4.4	6.6	3.9	3.3	6.6	11.6	7.2	2.2	100.
5	11.0	5.5	2.8	1.1	2.8	4.4	3.9	6.6	13.3	6.6	2.8	3.9	3.3	8.8	12.7	7.7	2.8	100.
6	13.3	3.9	4.4	1.7	2.8	3.3	4.4	9.4	11.6	5.0	1.7	2.8	5.5	6.1	8.3	12.7	3.3	100.
7	13.3	7.2	2.2	3.9	3.9	3.3	5.5	7.2	11.0	5.5	2.8	2.2	5.0	5.0	11.6	7.7	2.8	100.
8	10.6	5.6	4.4	1.7	2.8	8.3	5.0	8.3	10.6	6.7	2.8	2.8	5.6	5.0	12.8	6.1	1.1	100.
9	12.2	5.0	3.3	2.8	3.3	6.7	6.1	8.9	12.8	5.6	3.9	2.8	5.0	5.6	7.8	8.3	00.0	100.
10	13.9	4.4	2.8	3.3	3.9	6.1	8.9	3.9	9.4	8.9	1.7	6.1	2.8	4.4	10.0	8.9	.6	100.
11	10.0	5.6	3.3	1.1	3.9	6.7	7.8	6.7	10.0	6.7	5.6	3.9	3.3	2.8	8.9	12.8	1.1	100.
12	12.8	3.9	5.0	1.7	1.7	6.1	10.0	6.7	10.6	8.9	5.6	3.3	1.7	1.7	10.6	10.0	00.0	100.
13	12.2	5.0	1.1	1.7	5.0	3.9	11.0	5.5	11.6	8.3	5.0	4.4	2.8	3.9	9.9	8.8	00.0	100.
14	11.0	6.1	2.2	1.1	4.4	5.0	9.9	5.5	7.7	9.4	5.0	5.0	4.4	3.9	9.9	9.4	00.0	100.
15	10.0	6.7	2.2	00.0	2.8	6.7	8.9	6.1	8.9	9.4	2.8	5.6	6.1	3.9	6.7	13.3	00.0	100.
16	11.0	5.5	2.8	1.1	5.0	7.2	6.1	5.5	10.5	7.7	3.9	5.0	5.5	3.3	9.4	10.5	00.0	100.
17	11.0	5.0	5.5	2.2	3.3	4.4	8.8	5.5	8.8	9.4	3.9	4.4	4.4	3.9	8.8	10.5	00.0	100.
18	11.0	5.5	3.3	2.8	5.0	3.9	8.3	6.1	8.8	8.3	2.8	5.0	4.4	2.8	7.7	13.8	.6	100.
19	9.4	7.2	3.9	2.2	3.3	3.3	8.8	3.3	11.6	6.1	3.9	5.0	2.2	4.4	11.6	12.7	1.1	100.
20	9.4	6.6	1.7	1.7	2.2	5.0	6.6	5.0	11.0	6.1	5.5	4.4	2.2	3.3	13.8	14.9	.6	100.
21	9.9	8.3	3.3	2.2	2.8	5.0	6.1	4.4	8.3	9.4	4.4	3.3	2.8	2.2	14.4	13.3	00.0	100.
22	10.5	6.6	2.2	3.9	.6	7.2	6.1	5.0	9.4	8.8	2.2	2.2	3.3	1.7	13.8	13.3	3.3	100.
23	13.8	6.6	2.2	2.8	2.2	3.3	8.8	5.5	9.4	8.3	2.2	2.2	2.2	3.3	11.6	13.3	2.2	100.
24	12.2	6.6	3.3	3.3	2.8	4.4	4.4	7.2	11.0	7.2	6.1	2.8	3.9	3.9	9.9	8.3	2.8	100.
ALL	11.4	5.6	3.2	2.2	3.0	4.9	7.0	6.2	10.6	7.4	3.9	3.8	3.9	4.5	10.3	10.7	1.4	100.

NUMBER OF OBS = 4338

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JULY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.5	00.0	00.0	6.5	3.2	00.0	16.1	9.7	9.7	3.2	3.2	00.0	9.7	9.7	12.9	3.2	6.5	100.
2	12.9	00.0	00.0	6.5	3.2	00.0	12.9	3.2	16.1	19.4	3.2	00.0	00.0	3.2	12.9	3.2	3.2	100.
3	6.5	6.5	00.0	00.0	3.2	3.2	3.2	9.7	22.6	9.7	9.7	00.0	3.2	6.5	9.7	00.0	6.5	100.
4	3.2	3.2	00.0	00.0	3.2	3.2	3.2	6.5	22.6	16.1	3.2	00.0	00.0	6.5	12.9	16.1	00.0	100.
5	12.9	00.0	00.0	3.2	6.5	3.2	6.5	12.9	12.9	3.2	00.0	3.2	6.5	12.9	6.5	3.2	6.5	100.
6	00.0	6.5	3.2	00.0	00.0	6.5	3.2	16.1	12.9	6.5	00.0	00.0	9.7	9.7	9.7	12.9	3.2	100.
7	6.5	9.7	00.0	00.0	00.0	3.2	6.5	22.6	22.6	3.2	3.2	00.0	00.0	6.5	9.7	3.2	3.2	100.
8	6.5	3.2	9.7	00.0	6.5	3.2	16.1	12.9	12.9	9.7	3.2	6.5	3.2	00.0	3.2	00.0	3.2	100.
9	6.5	9.7	3.2	00.0	00.0	12.9	9.7	9.7	22.6	6.5	3.2	00.0	6.5	00.0	9.7	00.0	00.0	100.
10	6.5	9.7	3.2	3.2	3.2	6.5	6.5	12.9	19.4	3.2	00.0	12.9	00.0	9.7	3.2	00.0	00.0	100.
11	3.2	6.5	9.7	6.5	3.2	00.0	6.5	12.9	16.1	6.5	9.7	3.2	6.5	6.5	3.2	00.0	00.0	100.
12	6.5	00.0	3.2	6.5	6.5	6.5	6.5	6.5	19.4	12.9	3.2	6.5	3.2	9.7	3.2	00.0	00.0	100.
13	3.2	6.5	6.5	00.0	3.2	6.5	6.5	9.7	16.1	12.9	3.2	9.7	3.2	3.2	6.5	3.2	00.0	100.
14	6.5	3.2	3.2	00.0	3.2	9.7	9.7	9.7	12.9	9.7	6.5	3.2	6.5	9.7	6.5	00.0	00.0	100.
15	00.0	6.5	00.0	00.0	00.0	9.7	6.5	19.4	9.7	16.1	3.2	3.2	6.5	6.5	9.7	3.2	00.0	100.
16	3.2	6.5	00.0	3.2	00.0	3.2	12.9	19.4	9.7	6.5	9.7	6.5	00.0	9.7	9.7	00.0	00.0	100.
17	3.2	3.2	6.5	00.0	3.2	3.2	9.7	25.8	12.9	3.2	6.5	00.0	3.2	6.5	9.7	3.2	00.0	100.
18	3.2	6.5	3.2	3.2	3.2	6.5	12.9	9.7	16.1	3.2	3.2	00.0	3.2	3.2	19.4	3.2	00.0	100.
19	9.7	3.2	00.0	3.2	3.2	9.7	12.9	9.7	9.7	6.5	3.2	00.0	3.2	12.9	9.7	3.2	00.0	100.
20	3.2	3.2	3.2	00.0	6.5	3.2	16.1	9.7	6.5	00.0	3.2	3.2	6.5	6.5	16.1	12.9	00.0	100.
21	9.7	00.0	00.0	00.0	3.2	6.5	12.9	6.5	3.2	9.7	00.0	3.2	3.2	12.9	22.6	6.5	00.0	100.
22	6.5	6.5	00.0	00.0	3.2	6.5	6.5	9.7	3.2	3.2	3.2	3.2	3.2	12.9	19.4	9.7	3.2	100.
23	6.5	00.0	00.0	00.0	9.7	3.2	9.7	9.7	3.2	3.2	9.7	6.5	9.7	9.7	19.4	00.0	00.0	100.
24	6.5	00.0	3.2	00.0	3.2	6.5	6.5	16.1	9.7	3.2	3.2	3.2	12.9	16.1	3.2	3.2	3.2	100.
ALL	5.8	4.2	2.4	1.7	3.4	5.1	9.1	12.1	13.4	7.4	4.0	3.1	4.6	7.9	10.3	3.8	1.6	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

AUGUST

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.5	9.7	00.0	3.2	00.0	00.0	16.1	9.7	12.9	6.5	00.0	3.2	9.7	3.2	3.2	12.9	3.2	100.
2	6.5	3.2	3.2	3.2	00.0	00.0	19.4	12.9	16.1	3.2	3.2	3.2	3.2	3.2	12.9	6.5	00.0	100.
3	6.5	3.2	12.9	3.2	00.0	3.2	16.1	9.7	6.5	6.5	6.5	00.0	00.0	00.0	12.9	9.7	3.2	100.
4	3.2	3.2	00.0	00.0	6.5	9.7	16.1	6.5	9.7	3.2	9.7	3.2	3.2	3.2	6.5	12.9	3.2	100.
5	6.5	00.0	3.2	6.5	9.7	00.0	12.9	6.5	6.5	12.9	00.0	6.5	6.5	6.5	3.2	12.9	00.0	100.
6	9.7	3.2	00.0	3.2	3.2	9.7	3.2	6.5	16.1	12.9	00.0	3.2	6.5	6.5	6.5	9.7	00.0	100.
7	6.5	00.0	3.2	00.0	00.0	9.7	9.7	12.9	12.9	9.7	12.9	00.0	00.0	6.5	12.9	3.2	00.0	100.
8	6.5	3.2	3.2	00.0	9.7	9.7	12.9	12.9	3.2	6.5	9.7	00.0	3.2	00.0	3.2	12.9	3.2	100.
9	6.5	12.9	00.0	6.5	6.5	9.7	12.9	6.5	6.5	6.5	3.2	6.5	00.0	3.2	6.5	6.5	00.0	100.
10	16.1	6.5	3.2	00.0	9.7	3.2	16.1	9.7	9.7	6.5	6.5	3.2	00.0	6.5	3.2	00.0	00.0	100.
11	12.9	3.2	3.2	00.0	3.2	00.0	25.8	3.2	12.9	00.0	16.1	3.2	00.0	3.2	6.5	6.5	00.0	100.
12	00.0	6.5	6.5	00.0	00.0	3.2	12.9	12.9	12.9	6.5	3.2	9.7	6.5	6.5	3.2	9.7	00.0	100.
13	3.2	6.5	3.2	6.5	00.0	00.0	16.1	16.1	6.5	12.9	6.5	6.5	00.0	00.0	6.5	9.7	00.0	100.
14	6.5	3.2	3.2	00.0	3.2	3.2	12.9	12.9	9.7	6.5	9.7	9.7	00.0	00.0	9.7	9.7	00.0	100.
15	6.5	6.5	6.5	00.0	00.0	3.2	16.1	19.4	6.5	12.9	9.7	00.0	00.0	6.5	3.2	3.2	00.0	100.
16	3.2	9.7	3.2	00.0	00.0	3.2	19.4	16.1	9.7	12.9	3.2	3.2	00.0	00.0	3.2	12.9	00.0	100.
17	6.5	9.7	3.2	00.0	00.0	6.5	22.6	9.7	16.1	9.7	3.2	00.0	00.0	00.0	6.5	6.5	00.0	100.
18	6.5	6.5	3.2	6.5	00.0	00.0	29.0	3.2	19.4	3.2	3.2	3.2	00.0	3.2	3.2	9.7	00.0	100.
19	3.2	3.2	3.2	3.2	3.2	9.7	19.4	3.2	6.5	12.9	00.0	00.0	3.2	00.0	12.9	16.1	00.0	100.
20	6.5	3.2	9.7	00.0	00.0	9.7	16.1	3.2	9.7	3.2	9.7	00.0	00.0	3.2	19.4	6.5	00.0	100.
21	6.5	6.5	6.5	00.0	3.2	6.5	12.9	00.0	9.7	16.1	3.2	00.0	00.0	6.5	16.1	6.5	00.0	100.
22	3.2	6.5	3.2	00.0	00.0	6.5	16.1	6.5	00.0	9.7	6.5	9.7	00.0	3.2	9.7	19.4	00.0	100.
23	3.2	3.2	00.0	9.7	3.2	3.2	16.1	3.2	6.5	12.9	3.2	9.7	00.0	6.5	6.5	12.9	00.0	100.
24	3.2	9.7	00.0	6.5	00.0	6.5	12.9	9.7	9.7	6.5	6.5	00.0	00.0	3.2	9.7	12.9	3.2	100.
ALL	6.0	5.4	3.5	2.4	2.6	4.8	16.0	8.9	9.8	8.3	5.6	3.5	1.7	3.4	7.8	9.5	.7	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

SEPTEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	23.3	00.0	00.0	00.0	3.3	00.0	3.3	6.7	20.0	6.7	6.7	00.0	10.0	6.7	3.3	6.7	3.3	100.
2	20.0	3.3	00.0	3.3	00.0	3.3	3.3	3.3	30.0	00.0	6.7	3.3	6.7	00.0	3.3	3.3	10.0	100.
3	16.7	3.3	00.0	6.7	00.0	00.0	00.0	10.0	23.3	3.3	00.0	00.0	13.3	00.0	3.3	6.7	13.3	100.
4	16.7	3.3	00.0	00.0	3.3	00.0	00.0	13.3	16.7	6.7	10.0	3.3	3.3	3.3	3.3	3.3	13.3	100.
5	10.0	00.0	00.0	00.0	3.3	3.3	3.3	13.3	10.0	6.7	6.7	00.0	00.0	6.7	10.0	6.7	20.0	100.
6	10.0	3.3	00.0	00.0	00.0	10.0	3.3	10.0	6.7	13.3	6.7	00.0	00.0	6.7	6.7	6.7	16.7	100.
7	13.3	3.3	00.0	00.0	00.0	00.0	3.3	6.7	23.3	3.3	3.3	3.3	00.0	3.3	00.0	13.3	23.3	100.
8	20.0	00.0	00.0	00.0	6.7	3.3	6.7	20.0	23.3	3.3	00.0	00.0	00.0	00.0	00.0	00.0	16.7	100.
9	10.0	10.0	10.0	00.0	6.7	6.7	10.0	20.0	20.0	00.0	00.0	00.0	00.0	3.3	00.0	00.0	3.3	100.
10	16.7	3.3	3.3	6.7	00.0	13.3	10.0	10.0	33.3	00.0	00.0	00.0	00.0	00.0	3.3	00.0	00.0	100.
11	16.7	6.7	3.3	00.0	00.0	10.0	16.7	6.7	30.0	3.3	3.3	00.0	00.0	00.0	00.0	3.3	00.0	100.
12	20.0	3.3	3.3	00.0	3.3	6.7	10.0	23.3	20.0	00.0	6.7	00.0	00.0	00.0	00.0	3.3	00.0	100.
13	13.3	10.0	3.3	6.7	00.0	3.3	10.0	33.3	13.3	3.3	3.3	00.0	00.0	00.0	00.0	00.0	00.0	100.
14	13.3	6.7	3.3	3.3	00.0	3.3	6.7	36.7	13.3	3.3	3.3	00.0	00.0	00.0	3.3	3.3	00.0	100.
15	13.3	6.7	3.3	00.0	3.3	3.3	16.7	33.3	6.7	00.0	3.3	00.0	00.0	00.0	3.3	6.7	00.0	100.
16	13.3	6.7	3.3	10.0	00.0	3.3	20.0	30.0	6.7	00.0	00.0	3.3	00.0	00.0	00.0	3.3	00.0	100.
17	10.0	6.7	3.3	3.3	00.0	10.0	16.7	30.0	6.7	00.0	00.0	00.0	3.3	00.0	00.0	10.0	00.0	100.
18	10.0	3.3	3.3	3.3	00.0	10.0	23.3	23.3	3.3	3.3	00.0	3.3	3.3	00.0	00.0	10.0	00.0	100.
19	10.0	6.7	00.0	00.0	00.0	3.3	23.3	20.0	3.3	00.0	00.0	00.0	00.0	00.0	16.7	16.7	00.0	100.
20	10.0	00.0	00.0	00.0	00.0	10.0	13.3	6.7	13.3	00.0	00.0	3.3	00.0	3.3	20.0	20.0	00.0	100.
21	13.3	00.0	00.0	00.0	00.0	00.0	20.0	00.0	13.3	3.3	00.0	6.7	3.3	6.7	13.3	10.0	10.0	100.
22	16.7	00.0	00.0	00.0	00.0	3.3	6.7	6.7	20.0	3.3	3.3	00.0	6.7	10.0	10.0	10.0	3.3	100.
23	16.7	3.3	00.0	00.0	00.0	3.3	10.0	10.0	20.0	00.0	3.3	3.3	00.0	13.3	6.7	3.3	6.7	100.
24	13.3	00.0	00.0	3.3	3.3	3.3	3.3	3.3	23.3	3.3	00.0	00.0	00.0	10.0	13.3	16.7	3.3	100.
ALL	14.4	3.8	1.7	1.9	1.4	4.7	10.0	15.7	16.7	2.8	2.8	1.3	2.1	3.1	5.0	6.8	6.0	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUL-SEP

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	12.0	3.3	00.0	3.3	2.2	00.0	12.0	8.7	14.1	5.4	3.3	1.1	9.8	6.5	6.5	7.6	4.3	100.
2	13.0	2.2	1.1	4.3	1.1	1.1	12.0	6.5	20.7	7.6	4.3	2.2	3.3	2.2	9.8	4.3	4.3	100.
3	9.8	4.3	4.3	3.3	1.1	2.2	6.5	9.8	17.4	6.5	5.4	00.0	5.4	2.2	8.7	5.4	7.6	100.
4	7.6	3.3	00.0	00.0	4.3	4.3	6.5	8.7	16.3	8.7	7.6	2.2	2.2	4.3	7.6	10.9	5.4	100.
5	9.8	00.0	1.1	3.3	6.5	2.2	7.6	10.9	9.8	7.6	2.2	3.3	4.3	8.7	6.5	7.6	8.7	100.
6	6.5	4.3	1.1	1.1	1.1	8.7	3.3	10.9	12.0	10.9	2.2	1.1	5.4	7.6	7.6	9.8	6.5	100.
7	8.7	4.3	1.1	00.0	00.0	4.3	6.5	14.1	19.6	5.4	6.5	1.1	00.0	5.4	7.6	6.5	8.7	100.
8	10.9	2.2	4.3	00.0	7.6	5.4	12.0	15.2	13.0	6.5	4.3	2.2	2.2	00.0	2.2	4.3	7.6	100.
9	7.6	10.9	4.3	2.2	4.3	9.8	10.9	12.0	16.3	4.3	2.2	2.2	2.2	2.2	5.4	2.2	1.1	100.
10	13.0	6.5	3.3	3.3	4.3	7.6	10.9	10.9	20.7	3.3	2.2	5.4	00.0	5.4	3.3	00.0	00.0	100.
11	10.9	5.4	5.4	2.2	2.2	3.3	16.3	7.6	19.6	3.3	9.8	2.2	2.2	3.3	3.3	3.3	00.0	100.
12	8.7	3.3	4.3	2.2	3.3	5.4	9.8	14.1	17.4	6.5	4.3	5.4	3.3	5.4	2.2	4.3	00.0	100.
13	6.5	7.6	4.3	4.3	1.1	3.3	10.9	19.6	12.0	9.8	4.3	5.4	1.1	1.1	4.3	4.3	00.0	100.
14	8.7	4.3	3.3	1.1	2.2	5.4	9.8	19.6	12.0	6.5	6.5	4.3	2.2	3.3	6.5	4.3	00.0	100.
15	6.5	6.5	3.3	00.0	1.1	5.4	13.0	23.9	7.6	9.8	5.4	1.1	2.2	4.3	5.4	4.3	00.0	100.
16	6.5	7.6	2.2	4.3	00.0	3.3	17.4	21.7	8.7	6.5	4.3	4.3	00.0	3.3	4.3	5.4	00.0	100.
17	6.5	6.5	4.3	1.1	1.1	6.5	16.3	21.7	12.0	4.3	3.3	00.0	2.2	2.2	5.4	6.5	00.0	100.
18	6.5	5.4	3.3	4.3	1.1	5.4	21.7	12.0	13.0	3.3	2.2	2.2	2.2	2.2	7.6	7.6	00.0	100.
19	7.6	4.3	1.1	2.2	2.2	7.6	18.5	10.9	6.5	6.5	1.1	00.0	2.2	4.3	13.0	12.0	00.0	100.
20	6.5	2.2	4.3	00.0	2.2	7.6	15.2	6.5	9.8	1.1	4.3	2.2	2.2	4.3	18.5	13.0	00.0	100.
21	9.8	2.2	2.2	00.0	2.2	4.3	15.2	2.2	8.7	9.8	1.1	3.3	2.2	8.7	17.4	7.6	3.3	100.
22	8.7	4.3	1.1	00.0	1.1	5.4	9.8	7.6	7.6	5.4	4.3	4.3	3.3	8.7	13.0	13.0	2.2	100.
23	8.7	2.2	00.0	3.3	4.3	3.3	12.0	7.6	9.8	5.4	5.4	6.5	3.3	9.8	10.9	5.4	2.2	100.
24	7.6	3.3	1.1	3.3	2.2	5.4	7.6	9.8	14.1	4.3	3.3	1.1	4.3	9.8	8.7	10.9	3.3	100.
ALL	8.7	4.4	2.5	2.0	2.4	4.9	11.7	12.2	13.3	6.2	4.2	2.6	2.8	4.8	7.7	6.7	2.7	100.

NUMBER OF OBS = 2208

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

OCTOBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	12.9	6.5	3.2	00.0	00.0	3.2	00.0	9.7	22.6	9.7	3.2	00.0	00.0	3.2	6.5	9.7	9.7	100.
2	9.7	6.5	3.2	3.2	00.0	00.0	6.5	16.1	19.4	9.7	3.2	00.0	00.0	6.5	6.5	3.2	6.5	100.
3	6.5	6.5	00.0	3.2	00.0	00.0	3.2	19.4	12.9	12.9	00.0	3.2	00.0	9.7	3.2	6.5	12.9	100.
4	12.9	3.2	6.5	00.0	00.0	00.0	6.5	16.1	6.5	12.9	3.2	00.0	3.2	3.2	3.2	6.5	16.1	100.
5	9.7	3.2	3.2	3.2	00.0	3.2	6.5	6.5	9.7	19.4	6.5	3.2	3.2	3.2	3.2	9.7	6.5	100.
6	12.9	00.0	3.2	00.0	00.0	00.0	9.7	6.5	22.6	12.9	3.2	3.2	6.5	00.0	6.5	6.5	6.5	100.
7	12.9	3.2	3.2	00.0	00.0	00.0	6.5	16.1	19.4	3.2	6.5	3.2	3.2	3.2	12.9	00.0	6.5	100.
8	16.1	00.0	3.2	3.2	3.2	3.2	00.0	19.4	29.0	3.2	3.2	3.2	00.0	00.0	3.2	3.2	6.5	100.
9	12.9	3.2	3.2	00.0	00.0	3.2	16.1	9.7	25.8	6.5	3.2	3.2	00.0	6.5	3.2	3.2	00.0	100.
10	9.7	6.5	6.5	00.0	00.0	9.7	9.7	6.5	16.1	9.7	3.2	3.2	3.2	3.2	6.5	6.5	00.0	100.
11	3.2	9.7	6.5	00.0	3.2	3.2	9.7	3.2	16.1	22.6	00.0	6.5	3.2	3.2	3.2	6.5	00.0	100.
12	00.0	9.7	3.2	3.2	00.0	3.2	9.7	3.2	29.0	16.1	00.0	00.0	3.2	6.5	3.2	9.7	00.0	100.
13	6.5	6.5	6.5	00.0	3.2	3.2	6.5	9.7	19.4	19.4	00.0	3.2	00.0	3.2	00.0	12.9	00.0	100.
14	6.5	6.5	6.5	3.2	3.2	3.2	3.2	9.7	25.8	12.9	3.2	00.0	6.5	00.0	00.0	9.7	00.0	100.
15	3.2	6.5	6.5	9.7	00.0	00.0	12.9	9.7	19.4	9.7	3.2	00.0	6.5	00.0	00.0	12.9	00.0	100.
16	9.7	00.0	9.7	6.5	00.0	00.0	9.7	9.7	25.8	3.2	3.2	3.2	3.2	3.2	00.0	12.9	00.0	100.
17	3.2	6.5	6.5	6.5	00.0	6.5	6.5	12.9	25.8	3.2	3.2	00.0	3.2	3.2	00.0	12.9	00.0	100.
18	6.5	12.9	6.5	00.0	00.0	6.5	3.2	19.4	19.4	00.0	3.2	00.0	3.2	3.2	3.2	12.9	00.0	100.
19	12.9	3.2	3.2	3.2	00.0	3.2	3.2	6.5	19.4	3.2	3.2	3.2	3.2	3.2	3.2	25.8	00.0	100.
20	9.7	6.5	00.0	6.5	00.0	00.0	6.5	6.5	12.9	12.9	00.0	00.0	00.0	6.5	6.5	19.4	6.5	100.
21	12.9	3.2	00.0	00.0	00.0	00.0	3.2	12.9	12.9	12.9	9.7	00.0	00.0	3.2	9.7	16.1	3.2	100.
22	12.9	3.2	3.2	00.0	3.2	00.0	00.0	12.9	12.9	12.9	6.5	3.2	00.0	00.0	3.2	19.4	6.5	100.
23	12.9	00.0	00.0	00.0	3.2	00.0	3.2	19.4	19.4	6.5	00.0	3.2	3.2	00.0	9.7	6.5	12.9	100.
24	9.7	3.2	00.0	3.2	00.0	3.2	6.5	3.2	19.4	12.9	6.5	00.0	3.2	00.0	3.2	9.7	16.1	100.
ALL	9.4	4.8	3.9	2.3	.8	2.3	6.2	11.0	19.2	10.3	3.2	1.9	2.4	3.1	4.2	10.1	4.8	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

NOVEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.3	3.3	6.7	00.0	3.3	3.3	13.3	00.0	6.7	13.3	6.7	6.7	3.3	3.3	16.7	3.3	6.7	100.
2	6.7	6.7	00.0	00.0	6.7	3.3	13.3	00.0	10.0	6.7	3.3	3.3	3.3	10.0	20.0	6.7	00.0	100.
3	00.0	13.3	00.0	6.7	00.0	6.7	6.7	10.0	3.3	3.3	3.3	6.7	00.0	13.3	6.7	13.3	6.7	100.
4	10.0	13.3	00.0	3.3	00.0	6.7	6.7	10.0	6.7	00.0	6.7	3.3	3.3	3.3	6.7	13.3	6.7	100.
5	10.0	10.0	3.3	3.3	6.7	3.3	3.3	10.0	6.7	00.0	6.7	3.3	3.3	6.7	10.0	10.0	3.3	100.
6	10.0	6.7	00.0	00.0	00.0	10.0	3.3	10.0	10.0	00.0	00.0	3.3	6.7	6.7	13.3	10.0	10.0	100.
7	13.3	6.7	6.7	00.0	6.7	3.3	6.7	6.7	6.7	00.0	3.3	6.7	3.3	6.7	10.0	6.7	6.7	100.
8	10.0	6.7	10.0	00.0	00.0	3.3	20.0	3.3	6.7	3.3	00.0	3.3	6.7	6.7	6.7	10.0	3.3	100.
9	6.7	6.7	6.7	6.7	3.3	3.3	13.3	3.3	10.0	3.3	00.0	00.0	6.7	10.0	10.0	6.7	3.3	100.
10	13.3	3.3	3.3	00.0	3.3	10.0	16.7	6.7	10.0	00.0	3.3	00.0	3.3	13.3	6.7	6.7	00.0	100.
11	20.0	00.0	3.3	00.0	00.0	6.7	23.3	3.3	6.7	3.3	00.0	00.0	00.0	13.3	10.0	10.0	00.0	100.
12	13.3	6.7	00.0	00.0	00.0	3.3	23.3	6.7	6.7	00.0	3.3	00.0	00.0	10.0	13.3	13.3	00.0	100.
13	13.3	6.7	00.0	00.0	00.0	3.3	16.7	10.0	10.0	00.0	00.0	3.3	3.3	6.7	16.7	10.0	00.0	100.
14	10.0	10.0	3.3	00.0	00.0	00.0	20.0	10.0	10.0	00.0	00.0	3.3	00.0	10.0	13.3	10.0	00.0	100.
15	13.3	3.3	6.7	6.7	00.0	00.0	13.3	13.3	10.0	00.0	3.3	00.0	00.0	10.0	13.3	6.7	00.0	100.
16	10.0	3.3	3.3	6.7	3.3	00.0	13.3	6.7	13.3	3.3	3.3	00.0	00.0	10.0	6.7	16.7	00.0	100.
17	16.7	00.0	3.3	3.3	3.3	3.3	10.0	3.3	13.3	6.7	00.0	00.0	00.0	10.0	6.7	20.0	00.0	100.
18	6.7	10.0	6.7	3.3	00.0	00.0	16.7	6.7	6.7	00.0	3.3	00.0	6.7	13.3	6.7	13.3	00.0	100.
19	13.3	6.7	10.0	00.0	00.0	00.0	13.3	10.0	3.3	3.3	00.0	00.0	10.0	6.7	13.3	10.0	00.0	100.
20	16.7	6.7	00.0	3.3	00.0	00.0	16.7	3.3	3.3	6.7	10.0	00.0	6.7	6.7	10.0	6.7	3.3	100.
21	16.7	6.7	00.0	00.0	3.3	3.3	13.3	6.7	6.7	6.7	00.0	3.3	6.7	10.0	10.0	6.7	00.0	100.
22	13.3	10.0	00.0	3.3	3.3	00.0	10.0	6.7	13.3	10.0	3.3	00.0	3.3	6.7	10.0	6.7	00.0	100.
23	16.7	00.0	3.3	00.0	13.3	3.3	13.3	00.0	13.3	6.7	00.0	00.0	3.3	3.3	13.3	6.7	3.3	100.
24	6.7	00.0	3.3	3.3	10.0	00.0	13.3	00.0	10.0	6.7	3.3	3.3	00.0	3.3	23.3	13.3	00.0	100.
ALL	11.2	6.1	3.3	2.1	2.8	3.2	13.3	6.1	8.5	3.5	2.6	2.1	3.3	8.3	11.4	9.9	2.2	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

DECEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.5	00.0	3.2	3.2	00.0	00.0	12.9	3.2	19.4	6.5	3.2	3.2	00.0	12.9	3.2	19.4	3.2	100.
2	9.7	00.0	6.5	3.2	00.0	9.7	3.2	6.5	12.9	6.5	3.2	6.5	00.0	9.7	3.2	16.1	3.2	100.
3	3.2	3.2	3.2	3.2	6.5	6.5	6.5	9.7	6.5	9.7	00.0	12.9	3.2	3.2	6.5	16.1	00.0	100.
4	3.2	00.0	6.5	3.2	9.7	3.2	3.2	12.9	3.2	6.5	00.0	3.2	9.7	6.5	16.1	12.9	00.0	100.
5	00.0	6.5	3.2	3.2	6.5	9.7	3.2	9.7	6.5	6.5	3.2	00.0	3.2	16.1	9.7	12.9	00.0	100.
6	9.7	00.0	3.2	00.0	6.5	12.9	00.0	12.9	12.9	3.2	3.2	00.0	00.0	6.5	12.9	16.1	00.0	100.
7	3.2	3.2	6.5	3.2	9.7	00.0	00.0	12.9	12.9	6.5	3.2	00.0	00.0	9.7	16.1	12.9	00.0	100.
8	6.5	3.2	00.0	3.2	6.5	9.7	3.2	3.2	9.7	3.2	6.5	3.2	00.0	12.9	12.9	16.1	00.0	100.
9	9.7	3.2	3.2	9.7	3.2	6.5	00.0	9.7	9.7	6.5	00.0	00.0	6.5	9.7	6.5	16.1	00.0	100.
10	6.5	3.2	3.2	9.7	00.0	12.9	00.0	12.9	6.5	3.2	9.7	00.0	00.0	6.5	19.4	6.5	00.0	100.
11	9.7	00.0	3.2	3.2	9.7	3.2	12.9	3.2	3.2	6.5	3.2	6.5	3.2	9.7	16.1	6.5	00.0	100.
12	12.9	3.2	3.2	3.2	9.7	3.2	6.5	3.2	9.7	3.2	00.0	3.2	9.7	6.5	19.4	3.2	00.0	100.
13	9.7	6.5	6.5	3.2	00.0	9.7	9.7	00.0	9.7	3.2	00.0	6.5	00.0	9.7	19.4	6.5	00.0	100.
14	6.5	16.1	00.0	6.5	00.0	12.9	6.5	00.0	9.7	3.2	00.0	3.2	6.5	3.2	22.6	3.2	00.0	100.
15	6.5	3.2	6.5	3.2	00.0	6.5	12.9	00.0	6.5	6.5	3.2	00.0	6.5	00.0	19.4	19.4	00.0	100.
16	9.7	9.7	3.2	6.5	00.0	6.5	6.5	3.2	6.5	3.2	9.7	3.2	00.0	6.5	16.1	9.7	00.0	100.
17	9.7	9.7	6.5	00.0	6.5	6.5	3.2	6.5	9.7	9.7	00.0	3.2	6.5	3.2	6.5	12.9	00.0	100.
18	12.9	00.0	9.7	00.0	12.9	3.2	3.2	00.0	9.7	12.9	6.5	00.0	3.2	3.2	9.7	12.9	00.0	100.
19	6.5	9.7	6.5	3.2	3.2	9.7	6.5	00.0	16.1	3.2	6.5	00.0	3.2	00.0	9.7	16.1	00.0	100.
20	6.5	6.5	3.2	3.2	3.2	6.5	00.0	6.5	16.1	9.7	9.7	00.0	00.0	6.5	3.2	16.1	3.2	100.
21	3.2	3.2	3.2	9.7	00.0	9.7	00.0	3.2	12.9	9.7	6.5	3.2	3.2	3.2	00.0	25.8	3.2	100.
22	3.2	6.5	6.5	3.2	6.5	6.5	00.0	3.2	12.9	9.7	6.5	00.0	6.5	00.0	12.9	16.1	00.0	100.
23	6.5	6.5	3.2	00.0	6.5	6.5	00.0	6.5	16.1	6.5	6.5	3.2	3.2	9.7	00.0	16.1	3.2	100.
24	6.5	00.0	3.2	3.2	6.5	6.5	00.0	9.7	12.9	6.5	6.5	3.2	6.5	9.7	6.5	12.9	00.0	100.
ALL	7.0	4.3	4.3	3.8	4.7	7.0	4.2	5.8	10.5	6.3	4.0	2.7	3.4	6.9	11.2	13.4	.7	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

OCT-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	7.6	3.3	4.3	1.1	1.1	2.2	8.7	4.3	16.3	9.8	4.3	3.3	1.1	6.5	8.7	10.9	6.5	100.
2	8.7	4.3	3.3	2.2	2.2	4.3	7.6	7.6	14.1	7.6	3.3	3.3	1.1	8.7	9.8	8.7	3.3	100.
3	3.3	7.6	1.1	4.3	2.2	4.3	5.4	13.0	7.6	8.7	1.1	7.6	1.1	8.7	5.4	12.0	6.5	100.
4	8.7	5.4	4.3	2.2	3.3	3.3	5.4	13.0	5.4	6.5	3.3	2.2	5.4	4.3	8.7	10.9	7.6	100.
5	6.5	6.5	3.3	3.3	4.3	5.4	4.3	8.7	7.6	8.7	5.4	2.2	3.3	8.7	7.6	10.9	3.3	100.
6	10.9	2.2	2.2	00.0	2.2	7.6	4.3	9.8	15.2	5.4	2.2	2.2	4.3	4.3	10.9	10.9	5.4	100.
7	9.8	4.3	5.4	1.1	5.4	1.1	4.3	12.0	13.0	3.3	4.3	3.3	2.2	6.5	13.0	6.5	4.3	100.
8	10.9	3.3	4.3	2.2	3.3	5.4	7.6	8.7	15.2	3.3	3.3	3.3	2.2	6.5	7.6	9.8	3.3	100.
9	9.8	4.3	4.3	5.4	2.2	4.3	9.8	7.6	15.2	5.4	1.1	1.1	4.3	8.7	6.5	8.7	1.1	100.
10	9.8	4.3	4.3	3.3	1.1	10.9	8.7	8.7	10.9	4.3	5.4	1.1	2.2	7.6	10.9	6.5	00.0	100.
11	10.9	3.3	4.3	1.1	4.3	4.3	15.2	3.3	8.7	10.9	1.1	4.3	2.2	8.7	9.8	7.6	00.0	100.
12	8.7	6.5	2.2	2.2	3.3	3.3	13.0	4.3	15.2	6.5	1.1	1.1	4.3	7.6	12.0	8.7	00.0	100.
13	9.8	6.5	4.3	1.1	1.1	5.4	10.9	6.5	13.0	7.6	00.0	4.3	1.1	6.5	12.0	9.8	00.0	100.
14	7.6	10.9	3.3	3.3	1.1	5.4	9.8	6.5	15.2	5.4	1.1	2.2	4.3	4.3	12.0	7.6	00.0	100.
15	7.6	4.3	6.5	6.5	00.0	2.2	13.0	7.6	12.0	5.4	3.3	00.0	4.3	3.3	10.9	13.0	00.0	100.
16	9.8	4.3	5.4	6.5	1.1	2.2	9.8	6.5	15.2	3.3	5.4	2.2	1.1	6.5	7.6	13.0	00.0	100.
17	9.8	5.4	5.4	3.3	3.3	5.4	6.5	7.6	16.3	6.5	1.1	1.1	3.3	5.4	4.3	15.2	00.0	100.
18	8.7	7.6	7.6	1.1	4.3	3.3	7.6	8.7	12.0	4.3	4.3	00.0	4.3	6.5	6.5	13.0	00.0	100.
19	10.9	6.5	6.5	2.2	1.1	4.3	7.6	5.4	13.0	3.3	3.3	1.1	5.4	3.3	8.7	17.4	00.0	100.
20	10.9	6.5	1.1	4.3	1.1	2.2	7.6	5.4	10.9	9.8	6.5	00.0	2.2	6.5	6.5	14.1	4.3	100.
21	10.9	4.3	1.1	3.3	1.1	4.3	5.4	7.6	10.9	9.8	5.4	2.2	3.3	5.4	6.5	16.3	2.2	100.
22	9.8	6.5	3.3	2.2	4.3	2.2	3.3	7.6	13.0	10.9	5.4	1.1	3.3	2.2	8.7	14.1	2.2	100.
23	12.0	2.2	2.2	00.0	7.6	3.3	5.4	8.7	16.3	6.5	2.2	2.2	3.3	4.3	7.6	9.8	6.5	100.
24	7.6	1.1	2.2	3.3	5.4	3.3	6.5	4.3	14.1	8.7	5.4	2.2	3.3	4.3	10.9	12.0	5.4	100.
ALL	9.2	5.1	3.8	2.7	2.8	4.2	7.8	7.7	12.8	6.7	3.3	2.2	3.0	6.1	8.9	11.1	2.6	100.

NUMBER OF OBS = 2208

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUL-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	9.8	3.3	2.2	2.2	1.6	1.1	10.3	6.5	15.2	7.6	3.8	2.2	5.4	6.5	7.6	9.2	5.4	100.
2	10.9	3.3	2.2	3.3	1.6	2.7	9.8	7.1	17.4	7.6	3.8	2.7	2.2	5.4	9.8	6.5	3.8	100.
3	6.5	6.0	2.7	3.8	1.6	3.3	6.0	11.4	12.5	7.6	3.3	3.8	3.3	5.4	7.1	8.7	7.1	100.
4	8.2	4.3	2.2	1.1	3.8	3.8	6.0	10.9	10.9	7.6	5.4	2.2	3.8	4.3	8.2	10.9	6.5	100.
5	8.2	3.3	2.2	3.3	5.4	3.8	6.0	9.8	8.7	8.2	3.8	2.7	3.8	8.7	7.1	9.2	6.0	100.
6	8.7	3.3	1.6	.5	1.6	8.2	3.8	10.3	13.6	8.2	2.2	1.6	4.9	6.0	9.2	10.3	6.0	100.
7	9.2	4.3	3.3	.5	2.7	2.7	5.4	13.0	16.3	4.3	5.4	2.2	1.1	6.0	10.3	6.5	6.5	100.
8	10.9	2.7	4.3	1.1	5.4	5.4	9.8	12.0	14.1	4.9	3.8	2.7	2.2	3.3	4.9	7.1	5.4	100.
9	8.7	7.6	4.3	3.8	3.3	7.1	10.3	9.8	15.8	4.9	1.6	1.6	3.3	5.4	6.0	5.4	1.1	100.
10	11.4	5.4	3.8	3.3	2.7	9.2	9.8	9.8	15.8	3.8	3.8	3.3	1.1	6.5	7.1	3.3	00.0	100.
11	10.9	4.3	4.9	1.6	3.3	3.8	15.8	5.4	14.1	7.1	5.4	3.3	2.2	6.0	6.5	5.4	00.0	100.
12	8.7	4.9	3.3	2.2	3.3	4.3	11.4	9.2	16.3	6.5	2.7	3.3	3.8	6.5	7.1	6.5	00.0	100.
13	8.2	7.1	4.3	2.7	1.1	4.3	10.9	13.0	12.5	8.7	2.2	4.9	1.1	3.8	8.2	7.1	00.0	100.
14	8.2	7.6	3.3	2.2	1.6	5.4	9.8	13.0	13.6	6.0	3.8	3.3	3.3	3.8	9.2	6.0	00.0	100.
15	7.1	5.4	4.9	3.3	.5	3.8	13.0	15.8	9.8	7.6	4.3	.5	3.3	3.8	8.2	8.7	00.0	100.
16	8.2	6.0	3.8	5.4	.5	2.7	13.6	14.1	12.0	4.9	4.9	3.3	.5	4.9	6.0	9.2	00.0	100.
17	8.2	6.0	4.9	2.2	2.2	6.0	11.4	14.7	14.1	5.4	2.2	.5	2.7	3.8	4.9	10.9	00.0	100.
18	7.6	6.5	5.4	2.7	2.7	4.3	14.7	10.3	12.5	3.8	3.3	1.1	3.3	4.3	7.1	10.3	00.0	100.
19	9.2	5.4	3.8	2.2	1.6	6.0	13.0	8.2	9.8	4.9	2.2	.5	3.8	3.8	10.9	14.7	00.0	100.
20	8.7	4.3	2.7	2.2	1.6	4.9	11.4	6.0	10.3	5.4	5.4	1.1	2.2	5.4	12.5	13.6	2.2	100.
21	10.3	3.3	1.6	1.6	1.6	4.3	10.3	4.9	9.8	9.8	3.3	2.7	2.7	7.1	12.0	12.0	2.7	100.
22	9.2	5.4	2.2	1.1	2.7	3.8	6.5	7.6	10.3	8.2	4.9	2.7	3.3	5.4	10.9	13.6	2.2	100.
23	10.3	2.2	1.1	1.6	6.0	3.3	8.7	8.2	13.0	6.0	3.8	4.3	3.3	7.1	9.2	7.6	4.3	100.
24	7.6	2.2	1.6	3.3	3.8	4.3	7.1	7.1	14.1	6.5	4.3	1.6	3.8	7.1	9.8	11.4	4.3	100.
ALL	8.9	4.8	3.2	2.4	2.6	4.5	9.8	9.9	13.0	6.5	3.7	2.4	2.9	5.4	8.3	8.9	2.6	100.

NUMBER OF OBS = 4416

NPPD-COOPER NUCLEAR STATION 10-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	11.0	3.8	3.0	2.2	1.9	2.7	8.2	7.1	13.4	6.3	3.8	2.7	5.5	6.3	8.2	9.9	3.8	100.
2	9.6	3.8	3.8	3.6	1.6	3.3	6.8	7.4	13.7	8.5	4.4	2.7	3.3	6.6	8.8	9.3	2.7	100.
3	8.8	5.2	3.6	2.7	1.6	3.3	6.0	8.5	11.2	7.4	3.8	3.6	3.8	6.6	7.9	9.9	6.0	100.
4	11.0	3.8	1.6	2.5	3.6	2.7	6.3	7.9	13.2	6.0	6.0	3.0	3.6	5.5	9.9	9.0	4.4	100.
5	9.6	4.4	2.5	2.2	4.1	4.1	4.9	8.2	11.0	7.4	3.3	3.3	3.6	8.8	9.9	8.5	4.4	100.
6	11.0	3.6	3.0	1.1	2.2	5.8	4.1	9.9	12.6	6.6	1.9	2.2	5.2	6.0	8.8	11.5	4.7	100.
7	11.2	5.8	2.7	2.2	3.3	3.0	5.5	10.1	13.7	4.9	4.1	2.2	3.0	5.5	11.0	7.1	4.7	100.
8	10.7	4.1	4.4	1.4	4.1	6.9	7.4	10.2	12.4	5.8	3.3	2.7	3.8	4.1	8.8	6.6	3.3	100.
9	10.4	6.3	3.8	3.3	3.3	6.9	8.2	9.3	14.3	5.2	2.7	2.2	4.1	5.5	6.9	6.9	.5	100.
10	12.6	4.9	3.3	3.3	3.3	7.7	9.3	6.9	12.6	6.3	2.7	4.7	1.9	5.5	8.5	6.0	.3	100.
11	10.4	4.9	4.1	1.4	3.6	5.2	11.8	6.0	12.1	6.9	5.5	3.6	2.7	4.4	7.7	9.1	.5	100.
12	10.7	4.4	4.1	1.9	2.5	5.2	10.7	8.0	13.5	7.7	4.1	3.3	2.7	4.1	8.8	8.2	00.0	100.
13	10.1	6.0	2.7	2.2	3.0	4.1	11.0	9.3	12.1	8.5	3.6	4.7	1.9	3.8	9.0	7.9	00.0	100.
14	9.6	6.8	2.7	1.6	3.0	5.2	9.9	9.3	10.7	7.7	4.4	4.1	3.8	3.8	9.6	7.7	00.0	100.
15	8.5	6.0	3.6	1.6	1.6	5.2	11.0	11.0	9.3	8.5	3.6	3.0	4.7	3.8	7.4	11.0	00.0	100.
16	9.6	5.8	3.3	3.3	2.7	4.9	9.9	9.9	11.2	6.3	4.4	4.1	3.0	4.1	7.7	9.9	00.0	100.
17	9.6	5.5	5.2	2.2	2.7	5.2	10.1	10.1	11.5	7.4	3.0	2.5	3.6	3.8	6.8	10.7	00.0	100.
18	9.3	6.0	4.4	2.7	3.8	4.1	11.5	8.2	10.7	6.0	3.0	3.0	3.8	3.6	7.4	12.1	.3	100.
19	9.3	6.3	3.8	2.2	2.5	4.7	11.0	5.8	10.7	5.5	3.0	2.7	3.0	4.1	11.2	13.7	.5	100.
20	9.0	5.5	2.2	1.9	1.9	4.9	9.0	5.5	10.7	5.8	5.5	2.7	2.2	4.4	13.2	14.2	1.4	100.
21	10.1	5.8	2.5	1.9	2.2	4.7	8.2	4.7	9.0	9.6	3.8	3.0	2.7	4.7	13.2	12.6	1.4	100.
22	9.9	6.0	2.2	2.5	1.6	5.5	6.3	6.3	9.9	8.5	3.6	2.5	3.3	3.6	12.3	13.4	2.7	100.
23	12.1	4.4	1.6	2.2	4.1	3.3	8.8	6.8	11.2	7.1	3.0	3.3	2.7	5.2	10.4	10.4	3.3	100.
24	9.9	4.4	2.5	3.3	3.3	4.4	5.8	7.1	12.6	6.8	5.2	2.2	3.8	5.5	9.9	9.9	3.6	100.
ALL	10.2	5.2	3.2	2.3	2.8	4.7	8.4	8.1	11.8	6.9	3.8	3.1	3.4	5.0	9.3	9.8	2.0	100.

NUMBER OF OBS = 8754

Wind Direction Frequencies

100-Meter Level

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JANUARY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.7	00.0	3.3	3.3	6.7	00.0	6.7	3.3	3.3	3.3	3.3	10.0	00.0	10.0	23.3	16.7	00.0	100.
2	3.3	00.0	00.0	6.7	3.3	3.3	6.7	3.3	3.3	10.0	6.7	3.3	3.3	3.3	26.7	16.7	00.0	100.
3	6.7	00.0	3.3	3.3	3.3	3.3	6.7	3.3	6.7	10.0	3.3	3.3	00.0	10.0	20.0	16.7	00.0	100.
4	3.3	00.0	3.3	6.7	00.0	6.7	3.3	3.3	10.0	6.7	3.3	3.3	00.0	6.7	16.7	26.7	00.0	100.
5	6.7	00.0	00.0	10.0	3.3	3.3	3.3	3.3	6.7	3.3	6.7	6.7	00.0	6.7	20.0	20.0	00.0	100.
6	6.7	3.3	6.7	6.7	00.0	6.7	00.0	6.7	6.7	00.0	6.7	6.7	3.3	6.7	20.0	13.3	00.0	100.
7	00.0	3.3	10.0	00.0	6.7	6.7	00.0	3.3	6.7	3.3	6.7	6.7	3.3	3.3	23.3	16.7	00.0	100.
8	00.0	6.7	3.3	00.0	6.7	6.7	3.3	3.3	6.7	3.3	6.7	3.3	6.7	3.3	23.3	16.7	00.0	100.
9	3.3	00.0	6.7	3.3	6.7	3.3	3.3	00.0	6.7	6.7	3.3	6.7	3.3	6.7	23.3	16.7	00.0	100.
10	00.0	00.0	6.9	3.4	13.8	00.0	3.4	00.0	10.3	3.4	00.0	13.8	6.9	3.4	17.2	17.2	00.0	100.
11	3.4	00.0	6.9	6.9	00.0	6.9	00.0	00.0	13.8	3.4	6.9	6.9	10.3	00.0	20.7	13.8	00.0	100.
12	6.9	00.0	10.3	00.0	00.0	3.4	10.3	00.0	13.8	6.9	10.3	00.0	3.4	10.3	17.2	6.9	00.0	100.
13	3.4	6.9	3.4	00.0	3.4	3.4	6.9	10.3	6.9	6.9	6.9	6.9	10.3	00.0	20.7	3.4	00.0	100.
14	6.9	6.9	00.0	00.0	3.4	3.4	6.9	10.3	10.3	6.9	6.9	6.9	6.9	6.9	13.8	3.4	00.0	100.
15	10.3	3.4	00.0	00.0	3.4	6.9	6.9	6.9	10.3	10.3	00.0	6.9	6.9	6.9	13.8	6.9	00.0	100.
16	10.3	00.0	3.4	6.9	00.0	3.4	13.8	00.0	6.9	10.3	3.4	3.4	3.4	3.4	24.1	6.9	00.0	100.
17	6.9	3.4	6.9	3.4	6.9	3.4	10.3	00.0	6.9	6.9	3.4	6.9	00.0	3.4	24.1	6.9	00.0	100.
18	6.9	6.9	3.4	3.4	6.9	00.0	6.9	6.9	6.9	3.4	6.9	6.9	00.0	3.4	20.7	10.3	00.0	100.
19	3.4	10.3	3.4	3.4	3.4	00.0	6.9	6.9	13.8	00.0	3.4	3.4	00.0	6.9	24.1	10.3	00.0	100.
20	6.9	6.9	00.0	6.9	00.0	3.4	3.4	6.9	10.3	3.4	6.9	3.4	00.0	3.4	27.6	10.3	00.0	100.
21	3.4	6.9	3.4	6.9	00.0	00.0	10.3	3.4	3.4	6.9	6.9	6.9	00.0	3.4	27.6	10.3	00.0	100.
22	6.7	3.3	00.0	6.7	3.3	00.0	10.0	3.3	6.7	3.3	10.0	3.3	00.0	3.3	30.0	10.0	00.0	100.
23	3.3	3.3	3.3	00.0	6.7	3.3	10.0	3.3	6.7	6.7	3.3	00.0	00.0	10.0	20.0	20.0	00.0	100.
24	3.3	3.3	3.3	00.0	3.3	6.7	6.7	3.3	3.3	6.7	3.3	10.0	00.0	13.3	13.3	20.0	00.0	100.
ALL	4.9	3.1	3.8	3.7	3.8	3.5	6.1	3.8	7.8	5.5	5.2	5.6	2.8	5.6	21.3	13.3	00.0	100.

NUMBER OF OBS = 708

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

FEBRUARY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.9	3.4	6.9	3.4	00.0	10.3	3.4	3.4	10.3	6.9	6.9	10.3	6.9	00.0	3.4	17.2	00.0	100.
2	10.3	3.4	3.4	3.4	00.0	6.9	6.9	00.0	13.8	6.9	3.4	3.4	10.3	6.9	6.9	13.8	00.0	100.
3	10.3	3.4	3.4	3.4	00.0	6.9	6.9	00.0	13.8	6.9	00.0	6.9	10.3	6.9	6.9	13.8	00.0	100.
4	6.9	10.3	00.0	3.4	00.0	6.9	6.9	3.4	13.8	3.4	00.0	10.3	3.4	10.3	6.9	13.8	00.0	100.
5	13.8	6.9	3.4	3.4	00.0	6.9	00.0	6.9	10.3	6.9	00.0	10.3	00.0	10.3	10.3	10.3	00.0	100.
6	17.2	3.4	6.9	3.4	00.0	6.9	00.0	6.9	10.3	6.9	3.4	3.4	00.0	10.3	6.9	13.8	00.0	100.
7	10.3	6.9	3.4	00.0	3.4	10.3	3.4	3.4	13.8	6.9	00.0	3.4	00.0	13.8	10.3	10.3	00.0	100.
8	13.8	3.4	6.9	00.0	00.0	10.3	6.9	3.4	17.2	6.9	00.0	3.4	00.0	17.2	3.4	6.9	00.0	100.
9	20.7	00.0	3.4	3.4	00.0	6.9	3.4	10.3	13.8	6.9	3.4	3.4	00.0	6.9	3.4	13.8	00.0	100.
10	17.2	6.9	3.4	3.4	3.4	3.4	3.4	00.0	13.8	13.8	3.4	3.4	3.4	3.4	10.3	6.9	00.0	100.
11	20.7	6.9	6.9	00.0	3.4	6.9	3.4	3.4	13.8	6.9	6.9	00.0	3.4	3.4	6.9	6.9	00.0	100.
12	10.3	13.8	00.0	6.9	00.0	10.3	3.4	00.0	13.8	13.8	3.4	3.4	3.4	3.4	6.9	6.9	00.0	100.
13	13.8	10.3	00.0	00.0	6.9	6.9	3.4	3.4	13.8	6.9	3.4	6.9	6.9	6.9	6.9	3.4	00.0	100.
14	10.3	10.3	3.4	00.0	3.4	6.9	3.4	3.4	13.8	6.9	00.0	6.9	13.8	3.4	6.9	6.9	00.0	100.
15	10.3	13.8	00.0	00.0	3.4	6.9	3.4	3.4	6.9	13.8	00.0	3.4	13.8	6.9	6.9	6.9	00.0	100.
16	10.3	10.3	00.0	3.4	00.0	10.3	00.0	6.9	13.8	3.4	3.4	6.9	10.3	6.9	3.4	10.3	00.0	100.
17	10.3	6.9	6.9	00.0	3.4	10.3	00.0	10.3	3.4	6.9	3.4	10.3	3.4	10.3	3.4	10.3	00.0	100.
18	10.3	6.9	00.0	3.4	3.4	10.3	00.0	6.9	6.9	6.9	00.0	10.3	6.9	10.3	00.0	17.2	00.0	100.
19	10.3	6.9	00.0	3.4	6.9	6.9	00.0	6.9	13.8	3.4	6.9	3.4	6.9	3.4	3.4	17.2	00.0	100.
20	17.2	00.0	3.4	6.9	3.4	6.9	3.4	6.9	3.4	13.8	00.0	6.9	6.9	3.4	00.0	17.2	00.0	100.
21	13.8	3.4	3.4	6.9	3.4	6.9	00.0	6.9	10.3	6.9	3.4	10.3	6.9	00.0	00.0	17.2	00.0	100.
22	13.8	3.4	3.4	13.8	3.4	6.9	00.0	00.0	13.8	10.3	3.4	13.8	3.4	00.0	00.0	10.3	00.0	100.
23	10.3	3.4	6.9	00.0	6.9	10.3	00.0	3.4	10.3	10.3	6.9	13.8	00.0	3.4	3.4	10.3	00.0	100.
24	6.9	3.4	6.9	00.0	6.9	10.3	00.0	3.4	10.3	3.4	13.8	10.3	3.4	3.4	3.4	13.8	00.0	100.
ALL	12.4	6.2	3.4	3.0	2.6	8.0	2.6	4.3	11.6	7.8	3.2	6.9	5.2	6.3	5.0	11.5	00.0	100.

NUMBER OF OBS = 696

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

MARCH

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.7	10.0	6.7	3.3	00.0	13.3	3.3	3.3	6.7	20.0	3.3	00.0	3.3	3.3	3.3	13.3	00.0	100.
2	6.7	3.3	10.0	3.3	3.3	10.0	3.3	3.3	10.0	10.0	6.7	3.3	3.3	00.0	10.0	13.3	00.0	100.
3	6.7	3.3	6.7	6.7	10.0	6.7	00.0	6.7	13.3	6.7	6.7	3.3	00.0	00.0	3.3	20.0	00.0	100.
4	13.3	00.0	6.7	6.7	13.3	00.0	10.0	00.0	10.0	13.3	3.3	00.0	3.3	00.0	3.3	16.7	00.0	100.
5	10.0	3.3	13.3	00.0	6.7	6.7	6.7	3.3	13.3	10.0	00.0	3.3	3.3	00.0	10.0	10.0	00.0	100.
6	6.7	10.0	10.0	3.3	3.3	6.7	3.3	10.0	6.7	10.0	00.0	3.3	3.3	00.0	6.7	16.7	00.0	100.
7	10.0	13.3	3.3	3.3	3.3	3.3	6.7	10.0	10.0	3.3	3.3	3.3	3.3	00.0	13.3	10.0	00.0	100.
8	10.3	6.9	3.4	6.9	3.4	3.4	6.9	6.9	10.3	6.9	3.4	00.0	6.9	00.0	10.3	13.8	00.0	100.
9	17.2	6.9	3.4	6.9	3.4	3.4	3.4	17.2	3.4	6.9	3.4	00.0	3.4	3.4	6.9	10.3	00.0	100.
10	20.7	6.9	00.0	3.4	6.9	3.4	3.4	10.3	6.9	10.3	3.4	00.0	00.0	00.0	13.8	10.3	00.0	100.
11	17.2	3.4	3.4	3.4	00.0	10.3	3.4	6.9	10.3	10.3	3.4	00.0	00.0	00.0	6.9	20.7	00.0	100.
12	31.0	3.4	3.4	6.9	00.0	6.9	3.4	6.9	6.9	10.3	6.9	00.0	00.0	00.0	6.9	6.9	00.0	100.
13	20.0	6.7	3.3	3.3	6.7	3.3	6.7	6.7	3.3	13.3	6.7	00.0	00.0	00.0	6.7	13.3	00.0	100.
14	20.0	3.3	6.7	3.3	3.3	6.7	10.0	3.3	00.0	13.3	3.3	3.3	3.3	00.0	6.7	13.3	00.0	100.
15	16.7	6.7	00.0	3.3	3.3	6.7	10.0	3.3	3.3	13.3	00.0	3.3	3.3	00.0	13.3	13.3	00.0	100.
16	13.3	3.3	10.0	00.0	3.3	6.7	6.7	3.3	6.7	10.0	3.3	3.3	3.3	3.3	3.3	20.0	00.0	100.
17	13.3	3.3	10.0	3.3	00.0	10.0	6.7	00.0	6.7	10.0	6.7	00.0	3.3	3.3	6.7	16.7	00.0	100.
18	13.3	10.0	3.3	3.3	00.0	6.7	6.7	3.3	3.3	6.7	10.0	00.0	6.7	00.0	6.7	20.0	00.0	100.
19	6.7	13.3	6.7	3.3	00.0	6.7	10.0	3.3	6.7	6.7	00.0	3.3	00.0	6.7	6.7	20.0	00.0	100.
20	13.3	10.0	3.3	3.3	3.3	6.7	6.7	3.3	6.7	6.7	00.0	3.3	00.0	3.3	3.3	26.7	00.0	100.
21	6.7	16.7	10.0	3.3	00.0	10.0	3.3	3.3	10.0	3.3	3.3	00.0	00.0	3.3	00.0	26.7	00.0	100.
22	10.0	16.7	6.7	3.3	3.3	6.7	3.3	6.7	6.7	6.7	3.3	00.0	3.3	00.0	3.3	20.0	00.0	100.
23	10.0	3.3	16.7	6.7	00.0	6.7	6.7	6.7	6.7	10.0	00.0	00.0	3.3	00.0	3.3	20.0	00.0	100.
24	6.7	6.7	6.7	10.0	6.7	6.7	3.3	00.0	13.3	13.3	00.0	00.0	6.7	00.0	3.3	16.7	00.0	100.
ALL	12.7	7.1	6.4	4.2	3.5	6.6	5.6	5.3	7.6	9.7	3.4	1.4	2.7	1.1	6.6	16.2	00.0	100.

NUMBER OF OBS = 715

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-MAR

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	6.7	4.5	5.6	3.4	2.2	7.9	4.5	3.4	6.7	10.1	4.5	6.7	3.4	4.5	10.1	15.7	00.0	100.
2	6.7	2.2	4.5	4.5	2.2	6.7	5.6	2.2	9.0	9.0	5.6	3.4	5.6	3.4	14.6	14.6	00.0	100.
3	7.9	2.2	4.5	4.5	4.5	5.6	4.5	3.4	11.2	7.9	3.4	4.5	3.4	5.6	10.1	16.9	00.0	100.
4	7.9	3.4	3.4	5.6	4.5	4.5	6.7	2.2	11.2	7.9	2.2	4.5	2.2	5.6	9.0	19.1	00.0	100.
5	10.1	3.4	5.6	4.5	3.4	5.6	3.4	4.5	10.1	6.7	2.2	6.7	1.1	5.6	13.5	13.5	00.0	100.
6	10.1	5.6	7.9	4.5	1.1	6.7	1.1	7.9	7.9	5.6	3.4	4.5	2.2	5.6	11.2	14.6	00.0	100.
7	6.7	7.9	5.6	1.1	4.5	6.7	3.4	5.6	10.1	4.5	3.4	4.5	2.2	5.6	15.7	12.4	00.0	100.
8	8.0	5.7	4.5	2.3	3.4	6.8	5.7	4.5	11.4	5.7	3.4	2.3	4.5	6.8	12.5	12.5	00.0	100.
9	13.6	2.3	4.5	4.5	3.4	4.5	3.4	9.1	8.0	6.8	3.4	3.4	2.3	5.7	11.4	13.6	00.0	100.
10	12.6	4.6	3.4	3.4	8.0	2.3	3.4	3.4	10.3	9.2	2.3	5.7	3.4	2.3	13.8	11.5	00.0	100.
11	13.8	3.4	5.7	3.4	1.1	8.0	2.3	3.4	12.6	6.9	5.7	2.3	4.6	1.1	11.5	13.8	00.0	100.
12	16.1	5.7	4.6	4.6	00.0	6.9	5.7	2.3	11.5	10.3	6.9	1.1	2.3	4.6	10.3	6.9	00.0	100.
13	12.5	8.0	2.3	1.1	5.7	4.5	5.7	6.8	8.0	9.1	5.7	4.5	5.7	2.3	11.4	6.8	00.0	100.
14	12.5	6.8	3.4	1.1	3.4	5.7	6.8	5.7	8.0	9.1	3.4	5.7	8.0	3.4	9.1	8.0	00.0	100.
15	12.5	8.0	00.0	1.1	3.4	6.8	6.8	4.5	6.8	12.5	00.0	4.5	8.0	4.5	11.4	9.1	00.0	100.
16	11.4	4.5	4.5	3.4	1.1	6.8	6.8	3.4	9.1	8.0	3.4	4.5	5.7	4.5	10.2	12.5	00.0	100.
17	10.2	4.5	8.0	2.3	3.4	8.0	5.7	3.4	5.7	8.0	4.5	5.7	2.3	5.7	11.4	11.4	00.0	100.
18	10.2	8.0	2.3	3.4	3.4	5.7	4.5	5.7	5.7	5.7	5.7	5.7	4.5	4.5	9.1	15.9	00.0	100.
19	6.8	10.2	3.4	3.4	3.4	4.5	5.7	5.7	11.4	3.4	3.4	3.4	2.3	5.7	11.4	15.9	00.0	100.
20	12.5	5.7	2.3	5.7	2.3	5.7	4.5	5.7	6.8	8.0	2.3	4.5	2.3	3.4	10.2	18.2	00.0	100.
21	8.0	9.1	5.7	5.7	1.1	5.7	4.5	4.5	8.0	5.7	4.5	5.7	2.3	2.3	9.1	18.2	00.0	100.
22	10.1	7.9	3.4	7.9	3.4	4.5	4.5	3.4	9.0	6.7	5.6	5.6	2.2	1.1	11.2	13.5	00.0	100.
23	7.9	3.4	9.0	2.2	4.5	6.7	5.6	4.5	7.9	9.0	3.4	4.5	1.1	4.5	9.0	16.9	00.0	100.
24	5.6	4.5	5.6	3.4	5.6	7.9	3.4	2.2	9.0	7.9	5.6	6.7	3.4	5.6	6.7	16.9	00.0	100.
ALL	10.0	5.5	4.6	3.6	3.3	6.0	4.8	4.5	9.0	7.6	3.9	4.6	3.5	4.3	11.0	13.7	00.0	100.

NUMBER OF OBS = 2119

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

APRIL

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.3	3.3	00.0	3.3	3.3	6.7	13.3	13.3	3.3	6.7	3.3	3.3	10.0	00.0	6.7	20.0	00.0	100.
2	3.3	3.3	00.0	10.0	3.3	3.3	10.0	10.0	6.7	6.7	3.3	3.3	10.0	00.0	3.3	23.3	00.0	100.
3	6.7	3.3	00.0	00.0	6.7	10.0	6.7	6.7	10.0	6.7	6.7	00.0	3.3	6.7	3.3	23.3	00.0	100.
4	10.0	00.0	00.0	00.0	6.7	6.7	10.0	6.7	3.3	16.7	00.0	3.3	3.3	10.0	10.0	10.0	3.3	100.
5	3.3	3.3	00.0	00.0	3.3	10.0	10.0	10.0	00.0	16.7	3.3	3.3	00.0	10.0	13.3	13.3	00.0	100.
6	3.3	3.3	00.0	00.0	3.3	16.7	10.0	3.3	6.7	6.7	3.3	6.7	3.3	6.7	13.3	13.3	00.0	100.
7	3.3	3.3	00.0	3.3	00.0	13.3	13.3	6.7	3.3	3.3	00.0	6.7	3.3	6.7	16.7	16.7	00.0	100.
8	3.3	6.7	00.0	00.0	00.0	13.3	13.3	6.7	3.3	00.0	3.3	00.0	6.7	6.7	23.3	13.3	00.0	100.
9	6.7	3.3	3.3	00.0	00.0	13.3	10.0	6.7	10.0	00.0	00.0	6.7	6.7	6.7	10.0	16.7	00.0	100.
10	6.7	3.3	00.0	3.3	00.0	6.7	16.7	3.3	6.7	10.0	00.0	00.0	10.0	00.0	10.0	23.3	00.0	100.
11	6.7	3.3	6.7	00.0	00.0	3.3	16.7	6.7	3.3	10.0	3.3	6.7	3.3	3.3	6.7	20.0	00.0	100.
12	6.7	00.0	6.7	6.7	00.0	3.3	13.3	3.3	6.7	10.0	6.7	3.3	3.3	00.0	10.0	20.0	00.0	100.
13	6.7	3.3	3.3	3.3	00.0	3.3	10.0	6.7	3.3	13.3	3.3	6.7	00.0	3.3	10.0	23.3	00.0	100.
14	6.7	3.3	00.0	6.7	00.0	3.3	10.0	3.3	6.7	10.0	3.3	6.7	6.7	3.3	10.0	20.0	00.0	100.
15	3.3	3.3	3.3	00.0	00.0	6.7	6.7	3.3	6.7	10.0	3.3	10.0	6.7	6.7	3.3	26.7	00.0	100.
16	00.0	3.3	3.3	00.0	00.0	6.7	6.7	6.7	3.3	3.3	6.7	10.0	13.3	6.7	10.0	20.0	00.0	100.
17	6.7	00.0	3.3	3.3	00.0	6.7	3.3	6.7	3.3	10.0	3.3	6.7	16.7	6.7	3.3	20.0	00.0	100.
18	10.0	00.0	3.3	3.3	00.0	6.7	6.7	3.3	00.0	3.3	10.0	13.3	10.0	3.3	00.0	26.7	00.0	100.
19	6.7	3.3	3.3	00.0	3.3	6.7	10.0	00.0	00.0	6.7	3.3	13.3	6.7	10.0	00.0	26.7	00.0	100.
20	3.3	3.3	6.7	00.0	3.3	10.0	6.7	00.0	3.3	6.7	6.7	6.7	6.7	6.7	6.7	23.3	00.0	100.
21	6.7	3.3	3.3	3.3	3.3	10.0	13.3	3.3	3.3	6.7	00.0	3.3	10.0	3.3	10.0	16.7	00.0	100.
22	3.3	3.3	3.3	00.0	6.7	3.3	20.0	3.3	00.0	10.0	3.3	3.3	6.7	00.0	10.0	23.3	00.0	100.
23	3.3	00.0	6.7	00.0	3.3	10.0	16.7	3.3	00.0	6.7	6.7	3.3	6.7	00.0	6.7	26.7	00.0	100.
24	10.0	00.0	3.3	00.0	00.0	16.7	10.0	10.0	00.0	6.7	00.0	6.7	6.7	3.3	6.7	20.0	00.0	100.
ALL	5.4	2.6	2.5	1.9	1.9	8.2	11.0	5.6	3.9	7.8	3.5	5.6	6.7	4.6	8.5	20.3	.1	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

MAY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.2	12.9	00.0	3.2	3.2	12.9	19.4	6.5	3.2	6.5	3.2	6.5	00.0	00.0	6.5	12.9	00.0	100.
2	3.2	3.2	9.7	00.0	6.5	9.7	6.5	9.7	16.1	6.5	3.2	00.0	6.5	00.0	6.5	12.9	00.0	100.
3	9.7	3.2	6.5	00.0	3.2	6.5	9.7	12.9	3.2	9.7	16.1	00.0	3.2	3.2	00.0	12.9	00.0	100.
4	3.2	6.5	00.0	6.5	6.5	3.2	12.9	9.7	00.0	16.1	6.5	3.2	3.2	6.5	3.2	12.9	00.0	100.
5	3.2	6.5	3.2	00.0	9.7	3.2	9.7	12.9	3.2	9.7	9.7	3.2	00.0	6.5	6.5	12.9	00.0	100.
6	6.5	00.0	9.7	00.0	00.0	6.5	9.7	12.9	6.5	12.9	00.0	6.5	00.0	3.2	12.9	12.9	00.0	100.
7	3.2	3.2	6.5	6.5	6.5	00.0	12.9	12.9	3.2	9.7	6.5	3.2	3.2	3.2	9.7	9.7	00.0	100.
8	6.5	3.2	00.0	6.5	00.0	9.7	6.5	16.1	3.2	6.5	9.7	6.5	3.2	3.2	16.1	3.2	00.0	100.
9	6.5	00.0	3.2	6.5	3.2	3.2	9.7	9.7	9.7	6.5	6.5	3.2	6.5	12.9	6.5	6.5	00.0	100.
10	00.0	3.2	3.2	3.2	00.0	12.9	9.7	9.7	3.2	3.2	3.2	12.9	3.2	9.7	12.9	9.7	00.0	100.
11	6.5	3.2	00.0	3.2	3.2	9.7	19.4	3.2	3.2	3.2	3.2	9.7	3.2	9.7	12.9	6.5	00.0	100.
12	6.5	3.2	00.0	3.2	00.0	6.5	19.4	9.7	6.5	3.2	3.2	3.2	6.5	3.2	16.1	9.7	00.0	100.
13	00.0	6.5	00.0	00.0	00.0	3.2	25.8	9.7	6.5	3.2	3.2	3.2	6.5	6.5	12.9	12.9	00.0	100.
14	3.2	3.2	00.0	00.0	6.5	00.0	19.4	9.7	9.7	3.2	3.2	3.2	3.2	6.5	16.1	12.9	00.0	100.
15	6.5	9.7	00.0	00.0	00.0	6.5	19.4	6.5	6.5	9.7	00.0	3.2	3.2	9.7	6.5	12.9	00.0	100.
16	6.5	9.7	00.0	00.0	3.2	6.5	19.4	3.2	6.5	9.7	3.2	00.0	00.0	9.7	9.7	12.9	00.0	100.
17	6.5	9.7	3.2	00.0	6.5	00.0	19.4	6.5	6.5	6.5	9.7	00.0	3.2	3.2	12.9	6.5	00.0	100.
18	6.5	9.7	00.0	3.2	3.2	00.0	16.1	9.7	00.0	19.4	3.2	3.2	00.0	00.0	12.9	12.9	00.0	100.
19	6.5	3.2	6.5	00.0	3.2	00.0	19.4	00.0	19.4	3.2	6.5	3.2	3.2	00.0	9.7	16.1	00.0	100.
20	9.7	3.2	3.2	6.5	3.2	3.2	9.7	12.9	6.5	16.1	3.2	3.2	00.0	3.2	3.2	12.9	00.0	100.
21	9.7	3.2	3.2	00.0	12.9	3.2	9.7	9.7	9.7	9.7	9.7	00.0	00.0	3.2	3.2	12.9	00.0	100.
22	9.7	3.2	6.5	3.2	3.2	9.7	12.9	6.5	12.9	9.7	3.2	00.0	00.0	3.2	6.5	9.7	00.0	100.
23	6.5	3.2	12.9	00.0	00.0	9.7	9.7	16.1	3.2	9.7	3.2	00.0	3.2	00.0	6.5	16.1	00.0	100.
24	9.7	00.0	3.2	6.5	6.5	6.5	12.9	12.9	3.2	9.7	3.2	00.0	00.0	6.5	3.2	16.1	00.0	100.
ALL	5.8	4.7	3.4	2.4	3.8	5.5	14.1	9.5	6.3	8.5	5.1	3.2	2.6	4.7	8.9	11.6	00.0	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUNE

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.3	6.7	6.7	6.7	00.0	3.3	6.7	10.0	20.0	3.3	10.0	00.0	3.3	00.0	6.7	13.3	00.0	100.
2	10.0	13.3	6.7	00.0	3.3	00.0	3.3	10.0	20.0	6.7	10.0	3.3	00.0	3.3	00.0	6.7	3.3	100.
3	6.7	10.0	3.3	00.0	3.3	00.0	10.0	10.0	20.0	6.7	10.0	3.3	00.0	00.0	00.0	13.3	3.3	100.
4	00.0	13.3	00.0	00.0	3.3	6.7	6.7	6.7	20.0	10.0	10.0	00.0	6.7	00.0	3.3	13.3	00.0	100.
5	10.0	6.7	10.0	00.0	3.3	00.0	10.0	3.3	20.0	6.7	10.0	3.3	3.3	00.0	3.3	10.0	00.0	100.
6	13.3	3.3	10.0	6.7	3.3	3.3	3.3	10.0	20.0	3.3	6.7	00.0	3.3	6.7	00.0	6.7	00.0	100.
7	3.3	13.3	00.0	6.7	00.0	3.3	6.7	10.0	16.7	10.0	6.7	00.0	3.3	00.0	13.3	6.7	00.0	100.
8	10.0	6.7	3.3	00.0	10.0	3.3	6.7	10.0	10.0	10.0	10.0	00.0	6.7	6.7	3.3	3.3	00.0	100.
9	6.7	3.3	6.7	3.3	6.7	6.7	3.3	6.7	20.0	6.7	6.7	3.3	6.7	3.3	6.7	3.3	00.0	100.
10	10.0	00.0	3.3	00.0	6.7	6.7	13.3	3.3	16.7	13.3	6.7	3.3	3.3	00.0	3.3	10.0	00.0	100.
11	10.0	00.0	00.0	3.3	3.3	3.3	10.0	16.7	10.0	20.0	6.7	3.3	00.0	00.0	3.3	10.0	00.0	100.
12	16.7	3.3	00.0	00.0	3.3	3.3	10.0	16.7	3.3	26.7	6.7	3.3	00.0	00.0	00.0	6.7	00.0	100.
13	13.3	3.3	00.0	00.0	6.7	00.0	10.0	10.0	16.7	20.0	3.3	6.7	00.0	00.0	00.0	10.0	00.0	100.
14	10.0	3.3	6.7	00.0	3.3	10.0	6.7	10.0	20.0	10.0	3.3	6.7	00.0	00.0	00.0	10.0	00.0	100.
15	6.7	3.3	6.7	3.3	00.0	3.3	6.7	10.0	26.7	10.0	6.7	3.3	00.0	00.0	00.0	13.3	00.0	100.
16	3.3	6.7	3.3	3.3	3.3	3.3	3.3	10.0	26.7	10.0	6.7	3.3	00.0	00.0	00.0	16.7	00.0	100.
17	6.7	6.7	6.7	6.7	00.0	3.3	6.7	6.7	33.3	6.7	3.3	3.3	00.0	00.0	3.3	6.7	00.0	100.
18	10.0	3.3	6.7	6.7	6.7	3.3	6.7	16.7	23.3	3.3	3.3	3.3	00.0	00.0	3.3	3.3	00.0	100.
19	6.7	10.0	3.3	3.3	10.0	00.0	10.0	10.0	30.0	3.3	3.3	3.3	00.0	00.0	00.0	6.7	00.0	100.
20	6.7	13.3	3.3	00.0	00.0	13.3	10.0	10.0	23.3	3.3	3.3	00.0	3.3	00.0	00.0	10.0	00.0	100.
21	10.0	3.3	10.0	00.0	6.7	13.3	13.3	10.0	20.0	3.3	00.0	00.0	00.0	00.0	00.0	10.0	00.0	100.
22	3.3	10.0	3.3	3.3	6.7	6.7	16.7	10.0	20.0	3.3	3.3	00.0	00.0	3.3	3.3	6.7	00.0	100.
23	3.3	10.0	6.7	3.3	6.7	6.7	13.3	13.3	16.7	6.7	3.3	00.0	00.0	00.0	3.3	6.7	00.0	100.
24	3.3	3.3	10.0	6.7	00.0	3.3	16.7	13.3	16.7	6.7	3.3	00.0	6.7	00.0	00.0	10.0	00.0	100.
ALL	7.6	6.5	4.9	2.6	4.0	4.4	8.7	10.1	19.6	8.7	6.0	2.2	1.9	1.0	2.4	8.9	.3	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

APR-JUN

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.3	7.7	2.2	4.4	2.2	7.7	13.2	9.9	8.8	5.5	5.5	3.3	4.4	00.0	6.6	15.4	00.0	100.
2	5.5	6.6	5.5	3.3	4.4	4.4	6.6	9.9	14.3	6.6	5.5	2.2	5.5	1.1	3.3	14.3	1.1	100.
3	7.7	5.5	3.3	00.0	4.4	5.5	8.8	9.9	11.0	7.7	11.0	1.1	2.2	3.3	1.1	16.5	1.1	100.
4	4.4	6.6	00.0	2.2	5.5	5.5	9.9	7.7	7.7	14.3	5.5	2.2	4.4	5.5	5.5	12.1	1.1	100.
5	5.5	5.5	4.4	00.0	5.5	4.4	9.9	8.8	7.7	11.0	7.7	3.3	1.1	5.5	7.7	12.1	00.0	100.
6	7.7	2.2	6.6	2.2	2.2	8.8	7.7	8.8	11.0	7.7	3.3	4.4	2.2	5.5	8.8	11.0	00.0	100.
7	3.3	6.6	2.2	5.5	2.2	5.5	11.0	9.9	7.7	7.7	4.4	3.3	3.3	3.3	13.2	11.0	00.0	100.
8	6.6	5.5	1.1	2.2	3.3	8.8	8.8	11.0	5.5	5.5	7.7	2.2	5.5	5.5	14.3	6.6	00.0	100.
9	6.6	2.2	4.4	3.3	3.3	7.7	7.7	7.7	13.2	4.4	4.4	4.4	6.6	7.7	7.7	8.8	00.0	100.
10	5.5	2.2	2.2	2.2	2.2	8.8	13.2	5.5	8.8	8.8	3.3	5.5	5.5	3.3	8.8	14.3	00.0	100.
11	7.7	2.2	2.2	2.2	2.2	5.5	15.4	8.8	5.5	11.0	4.4	6.6	2.2	4.4	7.7	12.1	00.0	100.
12	9.9	2.2	2.2	3.3	1.1	4.4	14.3	9.9	5.5	13.2	5.5	3.3	3.3	1.1	8.8	12.1	00.0	100.
13	6.6	4.4	1.1	1.1	2.2	2.2	15.4	8.8	8.8	12.1	3.3	5.5	2.2	3.3	7.7	15.4	00.0	100.
14	6.6	3.3	2.2	2.2	3.3	4.4	12.1	7.7	12.1	7.7	3.3	5.5	3.3	3.3	8.8	14.3	00.0	100.
15	5.5	5.5	3.3	1.1	00.0	5.5	11.0	6.6	13.2	9.9	3.3	5.5	3.3	5.5	3.3	17.6	00.0	100.
16	3.3	6.6	2.2	1.1	2.2	5.5	9.9	6.6	12.1	7.7	5.5	4.4	4.4	5.5	6.6	16.5	00.0	100.
17	6.6	5.5	4.4	3.3	2.2	3.3	9.9	6.6	14.3	7.7	5.5	3.3	6.6	3.3	6.6	11.0	00.0	100.
18	8.8	4.4	3.3	4.4	3.3	3.3	9.9	9.9	7.7	8.8	5.5	6.6	3.3	1.1	5.5	14.3	00.0	100.
19	6.6	5.5	4.4	1.1	5.5	2.2	13.2	3.3	16.5	4.4	4.4	6.6	3.3	3.3	3.3	16.5	00.0	100.
20	6.6	6.6	4.4	2.2	2.2	8.8	8.8	7.7	11.0	8.8	4.4	3.3	3.3	3.3	3.3	15.4	00.0	100.
21	8.8	3.3	5.5	1.1	7.7	8.8	12.1	7.7	11.0	6.6	3.3	1.1	3.3	2.2	4.4	13.2	00.0	100.
22	5.5	5.5	4.4	2.2	5.5	6.6	16.5	6.6	11.0	7.7	3.3	1.1	2.2	2.2	6.6	13.2	00.0	100.
23	4.4	4.4	8.8	1.1	3.3	8.8	13.2	11.0	6.6	7.7	4.4	1.1	3.3	00.0	5.5	16.5	00.0	100.
24	7.7	1.1	5.5	4.4	2.2	8.8	13.2	12.1	6.6	7.7	2.2	2.2	4.4	3.3	3.3	15.4	00.0	100.
ALL	6.3	4.6	3.6	2.3	3.3	6.0	11.3	8.4	9.9	8.3	4.9	3.7	3.7	3.4	6.6	13.6	.1	100.

NUMBER OF OBS = 2184

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-JUN

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	5.0	6.1	3.9	3.9	2.2	7.8	8.9	6.7	7.8	7.8	5.0	5.0	3.9	2.2	8.3	15.6	00.0	100.
2	6.1	4.4	5.0	3.9	3.3	5.6	6.1	6.1	11.7	7.8	5.6	2.8	5.6	2.2	8.9	14.4	.6	100.
3	7.8	3.9	3.9	2.2	4.4	5.6	6.7	6.7	11.1	7.8	7.2	2.8	2.8	4.4	5.6	16.7	.6	100.
4	6.1	5.0	1.7	3.9	5.0	5.0	8.3	5.0	9.4	11.1	3.9	3.3	3.3	5.6	7.2	15.6	.6	100.
5	7.8	4.4	5.0	2.2	4.4	5.0	6.7	6.7	8.9	8.9	5.0	5.0	1.1	5.6	10.6	12.8	00.0	100.
6	8.9	3.9	7.2	3.3	1.7	7.8	4.4	8.3	9.4	6.7	3.3	4.4	2.2	5.6	10.0	12.8	00.0	100.
7	5.0	7.2	3.9	3.3	3.3	6.1	7.2	7.8	8.9	6.1	3.9	3.9	2.8	4.4	14.4	11.7	00.0	100.
8	7.3	5.6	2.8	2.2	3.4	7.8	7.3	7.8	8.4	5.6	5.6	2.2	5.0	6.1	13.4	9.5	00.0	100.
9	10.1	2.2	4.5	3.9	3.4	6.1	5.6	8.4	10.6	5.6	3.9	3.9	4.5	6.7	9.5	11.2	00.0	100.
10	9.0	3.4	2.8	2.8	5.1	5.6	8.4	4.5	9.6	9.0	2.8	5.6	4.5	2.8	11.2	12.9	00.0	100.
11	10.7	2.8	3.9	2.8	1.7	6.7	9.0	6.2	9.0	9.0	5.1	4.5	3.4	2.8	9.6	12.9	00.0	100.
12	12.9	3.9	3.4	3.9	.6	5.6	10.1	6.2	8.4	11.8	6.2	2.2	2.8	2.8	9.6	9.6	00.0	100.
13	9.5	6.1	1.7	1.1	3.9	3.4	10.6	7.8	8.4	10.6	4.5	5.0	3.9	2.8	9.5	11.2	00.0	100.
14	9.5	5.0	2.8	1.7	3.4	5.0	9.5	6.7	10.1	8.4	3.4	5.6	5.6	3.4	8.9	11.2	00.0	100.
15	8.9	6.7	1.7	1.1	1.7	6.1	8.9	5.6	10.1	11.2	1.7	5.0	5.6	5.0	7.3	13.4	00.0	100.
16	7.3	5.6	3.4	2.2	1.7	6.1	8.4	5.0	10.6	7.8	4.5	4.5	5.0	5.0	8.4	14.5	00.0	100.
17	8.4	5.0	6.1	2.8	2.8	5.6	7.8	5.0	10.1	7.8	5.0	4.5	4.5	4.5	8.9	11.2	00.0	100.
18	9.5	6.1	2.8	3.9	3.4	4.5	7.3	7.8	6.7	7.3	5.6	6.1	3.9	2.8	7.3	15.1	00.0	100.
19	6.7	7.8	3.9	2.2	4.5	3.4	9.5	4.5	14.0	3.9	3.9	5.0	2.8	4.5	7.3	16.2	00.0	100.
20	9.5	6.1	3.4	3.9	2.2	7.3	6.7	6.7	8.9	8.4	3.4	3.9	2.8	3.4	6.7	16.8	00.0	100.
21	8.4	6.1	5.6	3.4	4.5	7.3	8.4	6.1	9.5	6.1	3.9	3.4	2.8	2.2	6.7	15.6	00.0	100.
22	7.8	6.7	3.9	5.0	4.4	5.6	10.6	5.0	10.0	7.2	4.4	3.3	2.2	1.7	8.9	13.3	00.0	100.
23	6.1	3.9	8.9	1.7	3.9	7.8	9.4	7.8	7.2	8.3	3.9	2.8	2.2	2.2	7.2	16.7	00.0	100.
24	6.7	2.8	5.6	3.9	3.9	8.3	8.3	7.2	7.8	7.8	3.9	4.4	3.9	4.4	5.0	16.1	00.0	100.
ALL	8.1	5.0	4.1	3.0	3.3	6.0	8.1	6.5	9.4	8.0	4.4	4.1	3.6	3.9	8.8	13.6	.1	100.

NUMBER OF OBS = 4303

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JULY

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.2	6.5	00.0	00.0	12.9	12.9	16.1	12.9	16.1	6.5	3.2	00.0	6.5	3.2	00.0	00.0	00.0	100.
2	3.2	3.2	3.2	00.0	9.7	6.5	19.4	9.7	12.9	6.5	3.2	12.9	00.0	3.2	00.0	6.5	00.0	100.
3	3.2	6.5	3.2	6.5	3.2	9.7	9.7	12.9	9.7	6.5	9.7	6.5	3.2	00.0	9.7	00.0	00.0	100.
4	6.5	3.2	3.2	9.7	00.0	6.5	3.2	22.6	6.5	6.5	3.2	3.2	6.5	9.7	3.2	6.5	00.0	100.
5	9.7	6.5	00.0	6.5	3.2	12.9	00.0	19.4	9.7	6.5	00.0	6.5	3.2	6.5	3.2	6.5	00.0	100.
6	19.4	00.0	6.5	3.2	9.7	9.7	00.0	16.1	9.7	6.5	00.0	9.7	00.0	3.2	6.5	00.0	00.0	100.
7	12.9	6.5	3.2	00.0	3.2	12.9	3.2	12.9	16.1	3.2	00.0	9.7	00.0	6.5	6.5	3.2	00.0	100.
8	9.7	3.2	6.5	3.2	00.0	9.7	12.9	12.9	16.1	3.2	00.0	3.2	6.5	6.5	3.2	3.2	00.0	100.
9	6.5	3.2	00.0	3.2	3.2	12.9	9.7	12.9	12.9	3.2	3.2	00.0	9.7	6.5	9.7	3.2	00.0	100.
10	12.9	6.5	3.2	3.2	00.0	9.7	6.5	19.4	9.7	3.2	6.5	6.5	00.0	9.7	3.2	00.0	00.0	100.
11	3.2	6.5	6.5	9.7	00.0	00.0	9.7	16.1	12.9	9.7	9.7	00.0	3.2	9.7	3.2	00.0	00.0	100.
12	6.5	3.2	00.0	6.5	6.5	3.2	6.5	16.1	12.9	12.9	6.5	6.5	3.2	9.7	00.0	00.0	00.0	100.
13	6.5	6.5	00.0	00.0	9.7	3.2	12.9	9.7	19.4	6.5	3.2	6.5	3.2	9.7	00.0	3.2	00.0	100.
14	9.7	00.0	3.2	00.0	6.5	6.5	12.9	9.7	12.9	9.7	3.2	9.7	6.5	6.5	3.2	00.0	00.0	100.
15	3.2	3.2	00.0	00.0	3.2	9.7	12.9	16.1	12.9	6.5	6.5	3.2	6.5	9.7	3.2	3.2	00.0	100.
16	9.7	00.0	3.2	00.0	00.0	6.5	19.4	19.4	3.2	12.9	3.2	3.2	6.5	9.7	3.2	00.0	00.0	100.
17	6.5	3.2	3.2	3.2	3.2	00.0	19.4	22.6	9.7	6.5	00.0	00.0	9.7	6.5	6.5	00.0	00.0	100.
18	6.7	3.3	3.3	6.7	6.7	3.3	16.7	16.7	10.0	00.0	3.3	00.0	3.3	6.7	10.0	3.3	00.0	100.
19	6.7	3.3	3.3	3.3	6.7	10.0	26.7	10.0	3.3	00.0	3.3	00.0	6.7	3.3	10.0	3.3	00.0	100.
20	6.5	3.2	6.5	3.2	00.0	16.1	29.0	6.5	00.0	00.0	3.2	6.5	00.0	6.5	6.5	6.5	00.0	100.
21	3.2	6.5	3.2	3.2	12.9	6.5	35.5	6.5	00.0	3.2	00.0	3.2	00.0	9.7	3.2	3.2	00.0	100.
22	6.5	9.7	6.5	00.0	6.5	6.5	29.0	16.1	3.2	3.2	00.0	00.0	3.2	3.2	00.0	3.2	3.2	100.
23	6.5	9.7	00.0	3.2	3.2	16.1	32.3	22.6	00.0	00.0	00.0	00.0	3.2	3.2	00.0	00.0	00.0	100.
24	3.2	3.2	00.0	9.7	00.0	19.4	16.1	22.6	9.7	6.5	00.0	00.0	3.2	3.2	00.0	3.2	00.0	100.
ALL	7.1	4.4	2.8	3.5	4.6	8.8	15.0	15.1	9.6	5.4	3.0	4.0	3.9	6.3	3.9	2.4	.1	100.

NUMBER OF OBS = 742

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

AUGUST

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	00.0	6.5	6.5	9.7	3.2	9.7	16.1	3.2	6.5	6.5	3.2	3.2	9.7	00.0	00.0	16.1	00.0	100.
2	3.2	6.5	9.7	3.2	3.2	6.5	16.1	9.7	6.5	3.2	6.5	3.2	6.5	3.2	6.5	3.2	3.2	100.
3	6.5	3.2	3.2	9.7	6.5	9.7	12.9	6.5	6.5	9.7	3.2	3.2	3.2	00.0	9.7	6.5	00.0	100.
4	9.7	3.2	3.2	00.0	12.9	9.7	16.1	3.2	00.0	12.9	6.5	6.5	00.0	3.2	3.2	9.7	00.0	100.
5	6.5	6.5	3.2	00.0	3.2	19.4	12.9	3.2	00.0	12.9	3.2	12.9	00.0	00.0	6.5	9.7	00.0	100.
6	3.2	6.5	6.5	00.0	12.9	9.7	9.7	6.5	00.0	12.9	3.2	6.5	6.5	3.2	00.0	12.9	00.0	100.
7	3.2	3.2	6.5	3.2	00.0	16.1	9.7	12.9	00.0	6.5	9.7	3.2	9.7	3.2	00.0	12.9	00.0	100.
8	9.7	00.0	6.5	6.5	00.0	22.6	6.5	9.7	00.0	3.2	9.7	3.2	6.5	3.2	3.2	9.7	00.0	100.
9	9.7	3.2	3.2	6.5	3.2	12.9	12.9	9.7	00.0	12.9	00.0	3.2	6.5	3.2	3.2	9.7	00.0	100.
10	12.9	3.2	3.2	00.0	6.5	6.5	19.4	12.9	00.0	12.9	3.2	3.2	6.5	00.0	3.2	6.5	00.0	100.
11	16.1	00.0	3.2	00.0	3.2	9.7	19.4	9.7	3.2	6.5	9.7	3.2	3.2	6.5	00.0	6.5	00.0	100.
12	3.2	3.2	6.5	00.0	3.2	00.0	19.4	9.7	9.7	9.7	6.5	3.2	6.5	6.5	6.5	6.5	00.0	100.
13	3.2	9.7	3.2	3.2	00.0	6.5	19.4	9.7	6.5	12.9	6.5	3.2	00.0	3.2	6.5	6.5	00.0	100.
14	6.5	00.0	3.2	00.0	3.2	6.5	19.4	6.5	6.5	9.7	9.7	6.5	00.0	3.2	6.5	12.9	00.0	100.
15	6.5	00.0	3.2	00.0	00.0	3.2	29.0	6.5	9.7	19.4	00.0	00.0	00.0	6.5	3.2	12.9	00.0	100.
16	9.7	3.2	3.2	00.0	00.0	12.9	16.1	9.7	9.7	9.7	6.5	3.2	00.0	3.2	6.5	6.5	00.0	100.
17	9.7	6.5	3.2	00.0	00.0	16.1	19.4	6.5	9.7	12.9	3.2	00.0	00.0	00.0	6.5	6.5	00.0	100.
18	3.2	6.5	3.2	6.5	3.2	12.9	16.1	12.9	12.9	00.0	00.0	3.2	3.2	00.0	9.7	6.5	00.0	100.
19	3.2	3.2	6.5	6.5	3.2	19.4	9.7	12.9	3.2	9.7	00.0	00.0	00.0	00.0	9.7	12.9	00.0	100.
20	3.2	3.2	9.7	6.5	3.2	12.9	16.1	6.5	9.7	9.7	00.0	00.0	00.0	00.0	6.5	12.9	00.0	100.
21	3.2	3.2	9.7	3.2	00.0	19.4	16.1	00.0	12.9	6.5	3.2	3.2	00.0	00.0	6.5	12.9	00.0	100.
22	9.7	6.5	3.2	6.5	00.0	16.1	19.4	3.2	9.7	6.5	3.2	00.0	00.0	00.0	6.5	9.7	00.0	100.
23	6.5	9.7	3.2	00.0	6.5	12.9	12.9	9.7	9.7	9.7	00.0	00.0	00.0	3.2	3.2	12.9	00.0	100.
24	6.5	12.9	6.5	3.2	3.2	12.9	12.9	6.5	6.5	6.5	9.7	3.2	3.2	00.0	00.0	6.5	00.0	100.
ALL	6.5	4.6	5.0	3.1	3.4	11.8	15.7	7.8	5.8	9.3	4.4	3.2	3.0	2.2	4.7	9.5	.1	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

SEPTEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	13.3	10.0	3.3	00.0	00.0	13.3	26.7	13.3	10.0	00.0	3.3	3.3	00.0	00.0	3.3	00.0	00.0	100.
2	10.0	10.0	6.7	00.0	3.3	6.7	16.7	23.3	13.3	00.0	3.3	00.0	3.3	00.0	3.3	00.0	00.0	100.
3	10.0	6.7	10.0	00.0	3.3	10.0	3.3	33.3	13.3	00.0	3.3	00.0	00.0	3.3	00.0	3.3	00.0	100.
4	10.0	6.7	10.0	3.3	3.3	6.7	6.7	33.3	3.3	6.7	3.3	00.0	00.0	00.0	3.3	3.3	00.0	100.
5	13.3	6.7	6.7	3.3	3.3	3.3	10.0	26.7	10.0	00.0	10.0	00.0	00.0	00.0	3.3	3.3	00.0	100.
6	13.3	00.0	10.0	10.0	00.0	6.7	10.0	30.0	3.3	3.3	3.3	3.3	00.0	00.0	00.0	6.7	00.0	100.
7	10.0	10.0	00.0	3.3	10.0	3.3	10.0	23.3	16.7	00.0	00.0	00.0	6.7	00.0	00.0	6.7	00.0	100.
8	16.7	6.7	00.0	3.3	10.0	6.7	6.7	23.3	16.7	00.0	00.0	3.3	3.3	00.0	00.0	3.3	00.0	100.
9	20.0	3.3	00.0	3.3	6.7	10.0	3.3	26.7	16.7	00.0	00.0	3.3	00.0	3.3	3.3	00.0	00.0	100.
10	20.0	3.3	3.3	3.3	00.0	16.7	3.3	30.0	13.3	3.3	00.0	00.0	00.0	00.0	3.3	00.0	00.0	100.
11	16.7	3.3	3.3	00.0	00.0	10.0	16.7	20.0	16.7	3.3	3.3	00.0	00.0	00.0	00.0	6.7	00.0	100.
12	20.0	3.3	3.3	3.3	00.0	6.7	16.7	30.0	6.7	3.3	3.3	00.0	00.0	00.0	00.0	3.3	00.0	100.
13	16.7	10.0	3.3	3.3	00.0	3.3	20.0	30.0	6.7	6.7	00.0	00.0	00.0	00.0	00.0	00.0	00.0	100.
14	13.3	3.3	3.3	3.3	00.0	3.3	16.7	36.7	3.3	3.3	3.3	00.0	00.0	00.0	00.0	10.0	00.0	100.
15	16.7	3.3	3.3	3.3	00.0	3.3	30.0	26.7	00.0	00.0	3.3	00.0	00.0	00.0	3.3	6.7	00.0	100.
16	16.7	6.7	00.0	6.7	00.0	6.7	26.7	26.7	00.0	00.0	3.3	00.0	00.0	00.0	00.0	6.7	00.0	100.
17	13.3	6.7	00.0	3.3	3.3	6.7	26.7	23.3	3.3	00.0	00.0	00.0	3.3	00.0	3.3	6.7	00.0	100.
18	13.3	6.7	3.3	3.3	00.0	16.7	23.3	20.0	3.3	00.0	3.3	3.3	00.0	00.0	00.0	3.3	00.0	100.
19	6.7	6.7	3.3	3.3	6.7	16.7	26.7	13.3	3.3	00.0	3.3	00.0	00.0	00.0	00.0	10.0	00.0	100.
20	6.7	10.0	6.7	00.0	3.3	33.3	16.7	6.7	00.0	00.0	3.3	00.0	3.3	00.0	3.3	6.7	00.0	100.
21	6.7	6.7	6.7	00.0	3.3	26.7	23.3	13.3	00.0	3.3	00.0	00.0	00.0	00.0	00.0	10.0	00.0	100.
22	10.0	10.0	3.3	00.0	00.0	23.3	20.0	20.0	00.0	6.7	00.0	00.0	00.0	00.0	00.0	6.7	00.0	100.
23	13.3	6.7	3.3	00.0	00.0	16.7	23.3	23.3	3.3	00.0	00.0	00.0	3.3	00.0	00.0	6.7	00.0	100.
24	16.7	3.3	3.3	00.0	00.0	16.7	20.0	23.3	3.3	3.3	00.0	00.0	00.0	00.0	3.3	6.7	00.0	100.
ALL	13.5	6.3	4.0	2.5	2.4	11.4	16.8	24.0	6.9	1.8	2.2	.7	1.0	.3	1.4	4.9	00.0	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUL-SEP

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	5.4	7.6	3.3	3.3	5.4	12.0	19.6	9.8	10.9	4.3	3.3	2.2	5.4	1.1	1.1	5.4	00.0	100.
2	5.4	6.5	6.5	1.1	5.4	6.5	17.4	14.1	10.9	3.3	4.3	5.4	3.3	2.2	3.3	3.3	1.1	100.
3	6.5	5.4	5.4	5.4	4.3	9.8	8.7	17.4	9.8	5.4	5.4	3.3	2.2	1.1	6.5	3.3	00.0	100.
4	8.7	4.3	5.4	4.3	5.4	7.6	8.7	19.6	3.3	8.7	4.3	3.3	2.2	4.3	3.3	6.5	00.0	100.
5	9.8	6.5	3.3	3.3	3.3	12.0	7.6	16.3	6.5	6.5	4.3	6.5	1.1	2.2	4.3	6.5	00.0	100.
6	12.0	2.2	7.6	4.3	7.6	8.7	6.5	17.4	4.3	7.6	2.2	6.5	2.2	2.2	2.2	6.5	00.0	100.
7	8.7	6.5	3.3	2.2	4.3	10.9	7.6	16.3	10.9	3.3	3.3	4.3	5.4	3.3	2.2	7.6	00.0	100.
8	12.0	3.3	4.3	4.3	3.3	13.0	8.7	15.2	10.9	2.2	3.3	3.3	5.4	3.3	2.2	5.4	00.0	100.
9	12.0	3.3	1.1	4.3	4.3	12.0	8.7	16.3	9.8	5.4	1.1	2.2	5.4	4.3	5.4	4.3	00.0	100.
10	15.2	4.3	3.3	2.2	2.2	10.9	9.8	20.7	7.6	6.5	3.3	3.3	2.2	3.3	3.3	2.2	00.0	100.
11	12.0	3.3	4.3	3.3	1.1	6.5	15.2	15.2	10.9	6.5	7.6	1.1	2.2	5.4	1.1	4.3	00.0	100.
12	9.8	3.3	3.3	3.3	3.3	3.3	14.1	18.5	9.8	8.7	5.4	3.3	3.3	5.4	2.2	3.3	00.0	100.
13	8.7	8.7	2.2	2.2	3.3	4.3	17.4	16.3	10.9	8.7	3.3	3.3	1.1	4.3	2.2	3.3	00.0	100.
14	9.8	1.1	3.3	1.1	3.3	5.4	16.3	17.4	7.6	7.6	5.4	5.4	2.2	3.3	3.3	7.6	00.0	100.
15	8.7	2.2	2.2	1.1	1.1	5.4	23.9	16.3	7.6	8.7	3.3	1.1	2.2	5.4	3.3	7.6	00.0	100.
16	12.0	3.3	2.2	2.2	00.0	8.7	20.7	18.5	4.3	7.6	4.3	2.2	2.2	4.3	3.3	4.3	00.0	100.
17	9.8	5.4	2.2	2.2	2.2	7.6	21.7	17.4	7.6	6.5	1.1	00.0	4.3	2.2	5.4	4.3	00.0	100.
18	7.7	5.5	3.3	5.5	3.3	11.0	18.7	16.5	8.8	00.0	2.2	2.2	2.2	2.2	6.6	4.4	00.0	100.
19	5.5	4.4	4.4	4.4	5.5	15.4	20.9	12.1	3.3	3.3	2.2	00.0	2.2	1.1	6.6	8.8	00.0	100.
20	5.4	5.4	7.6	3.3	2.2	20.7	20.7	6.5	3.3	3.3	2.2	2.2	1.1	2.2	5.4	8.7	00.0	100.
21	4.3	5.4	6.5	2.2	5.4	17.4	25.0	6.5	4.3	4.3	1.1	2.2	00.0	3.3	3.3	8.7	00.0	100.
22	8.7	8.7	4.3	2.2	2.2	15.2	22.8	13.0	4.3	5.4	1.1	00.0	1.1	1.1	2.2	6.5	1.1	100.
23	8.7	8.7	2.2	1.1	3.3	15.2	22.8	18.5	4.3	3.3	00.0	00.0	2.2	2.2	1.1	6.5	00.0	100.
24	8.7	6.5	3.3	4.3	1.1	16.3	16.3	17.4	6.5	5.4	3.3	1.1	2.2	1.1	1.1	5.4	00.0	100.
ALL	9.0	5.1	3.9	3.0	3.4	10.7	15.8	15.5	7.4	5.5	3.2	2.7	2.6	2.9	3.4	5.6	.1	100.

NUMBER OF OBS = 2206

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

OCTOBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	9.7	6.5	3.2	00.0	6.5	9.7	6.5	12.9	25.8	3.2	00.0	00.0	3.2	00.0	00.0	12.9	00.0	100.
2	3.2	3.2	00.0	9.7	00.0	6.5	9.7	19.4	22.6	3.2	00.0	00.0	00.0	3.2	3.2	16.1	00.0	100.
3	3.2	3.2	6.5	00.0	3.2	00.0	9.7	25.8	19.4	3.2	00.0	00.0	00.0	3.2	6.5	16.1	00.0	100.
4	9.7	00.0	9.7	3.2	00.0	00.0	9.7	12.9	29.0	6.5	00.0	00.0	3.2	3.2	3.2	9.7	00.0	100.
5	6.5	6.5	3.2	3.2	3.2	3.2	6.5	19.4	19.4	6.5	3.2	00.0	3.2	3.2	3.2	9.7	00.0	100.
6	12.9	00.0	6.5	00.0	00.0	6.5	6.5	22.6	22.6	00.0	9.7	00.0	00.0	6.5	3.2	3.2	00.0	100.
7	16.1	3.2	3.2	3.2	00.0	3.2	3.2	25.8	22.6	6.5	3.2	00.0	00.0	3.2	6.5	00.0	00.0	100.
8	6.5	3.2	3.2	00.0	3.2	3.2	6.5	19.4	19.4	12.9	3.2	00.0	00.0	00.0	12.9	6.5	00.0	100.
9	9.7	6.5	3.2	00.0	00.0	9.7	6.5	12.9	19.4	12.9	00.0	3.2	00.0	6.5	3.2	6.5	00.0	100.
10	9.7	00.0	6.5	00.0	3.2	6.5	6.5	9.7	22.6	12.9	00.0	3.2	00.0	6.5	00.0	12.9	00.0	100.
11	6.5	6.5	6.5	00.0	3.2	3.2	9.7	9.7	19.4	12.9	3.2	3.2	3.2	6.5	00.0	6.5	00.0	100.
12	3.2	6.5	6.5	00.0	3.2	6.5	3.2	12.9	25.8	9.7	00.0	3.2	00.0	9.7	00.0	9.7	00.0	100.
13	6.5	3.2	6.5	00.0	3.2	3.2	9.7	12.9	25.8	6.5	00.0	3.2	00.0	3.2	3.2	12.9	00.0	100.
14	3.2	9.7	00.0	6.5	00.0	3.2	9.7	19.4	16.1	9.7	3.2	3.2	3.2	00.0	00.0	12.9	00.0	100.
15	3.2	6.5	12.9	3.2	00.0	00.0	12.9	16.1	19.4	3.2	3.2	3.2	3.2	00.0	00.0	12.9	00.0	100.
16	9.7	00.0	9.7	3.2	00.0	3.2	12.9	12.9	22.6	3.2	3.2	00.0	6.5	00.0	00.0	12.9	00.0	100.
17	00.0	6.5	6.5	6.5	00.0	6.5	9.7	19.4	16.1	3.2	3.2	00.0	3.2	3.2	00.0	16.1	00.0	100.
18	3.2	9.7	3.2	3.2	9.7	3.2	6.5	25.8	12.9	00.0	00.0	3.2	00.0	6.5	00.0	12.9	00.0	100.
19	6.5	12.9	00.0	3.2	6.5	9.7	9.7	25.8	3.2	00.0	00.0	00.0	00.0	3.2	3.2	16.1	00.0	100.
20	6.5	9.7	6.5	00.0	9.7	9.7	6.5	32.3	00.0	00.0	00.0	00.0	00.0	00.0	3.2	16.1	00.0	100.
21	9.7	6.5	3.2	3.2	6.5	9.7	6.5	25.8	12.9	00.0	00.0	00.0	00.0	00.0	3.2	12.9	00.0	100.
22	6.5	9.7	00.0	3.2	9.7	3.2	12.9	22.6	16.1	00.0	00.0	00.0	00.0	00.0	3.2	12.9	00.0	100.
23	9.7	3.2	00.0	3.2	00.0	9.7	19.4	19.4	12.9	3.2	00.0	00.0	00.0	00.0	3.2	16.1	00.0	100.
24	9.7	3.2	00.0	00.0	6.5	6.5	16.1	19.4	16.1	3.2	00.0	00.0	3.2	00.0	00.0	16.1	00.0	100.
ALL	7.1	5.2	4.4	2.3	3.2	5.2	9.0	19.0	18.4	5.1	1.5	1.1	1.3	2.8	2.6	11.7	00.0	100.

NUMBER OF OBS = 744

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

NOVEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	3.3	00.0	6.7	3.3	6.7	13.3	6.7	13.3	6.7	3.3	3.3	6.7	00.0	6.7	10.0	10.0	00.0	100.
2	00.0	6.7	6.7	00.0	3.3	13.3	6.7	23.3	3.3	3.3	00.0	10.0	00.0	3.3	10.0	10.0	00.0	100.
3	3.3	3.3	3.3	3.3	6.7	6.7	13.3	16.7	6.7	00.0	3.3	6.7	3.3	3.3	10.0	10.0	00.0	100.
4	3.3	00.0	10.0	3.3	00.0	13.3	10.0	16.7	6.7	00.0	3.3	3.3	6.7	00.0	10.0	13.3	00.0	100.
5	3.3	00.0	10.0	6.7	00.0	10.0	6.7	23.3	3.3	3.3	00.0	6.7	3.3	3.3	13.3	6.7	00.0	100.
6	6.7	6.7	3.3	3.3	3.3	13.3	10.0	16.7	3.3	3.3	00.0	3.3	6.7	3.3	13.3	3.3	00.0	100.
7	3.3	6.7	00.0	6.7	00.0	16.7	6.7	13.3	3.3	3.3	00.0	3.3	6.7	3.3	20.0	6.7	00.0	100.
8	3.3	6.7	3.3	00.0	3.3	16.7	3.3	16.7	00.0	6.7	00.0	00.0	10.0	3.3	6.7	20.0	00.0	100.
9	3.3	3.3	6.7	00.0	6.7	10.0	6.7	16.7	3.3	3.3	00.0	00.0	10.0	3.3	10.0	16.7	00.0	100.
10	10.0	3.3	3.3	00.0	3.3	6.7	13.3	10.0	10.0	6.7	00.0	00.0	3.3	13.3	6.7	10.0	00.0	100.
11	13.3	6.7	00.0	00.0	00.0	10.0	16.7	10.0	3.3	3.3	00.0	00.0	00.0	20.0	6.7	10.0	00.0	100.
12	10.0	3.3	00.0	3.3	00.0	10.0	13.3	13.3	3.3	00.0	3.3	00.0	3.3	6.7	16.7	13.3	00.0	100.
13	13.3	6.7	00.0	00.0	00.0	6.7	10.0	16.7	6.7	00.0	00.0	6.7	00.0	6.7	16.7	10.0	00.0	100.
14	10.0	3.3	6.7	00.0	3.3	6.7	13.3	13.3	3.3	00.0	3.3	00.0	6.7	6.7	13.3	10.0	00.0	100.
15	16.7	3.3	3.3	6.7	00.0	6.7	10.0	10.0	6.7	3.3	3.3	00.0	3.3	10.0	10.0	6.7	00.0	100.
16	13.3	00.0	3.3	10.0	00.0	10.0	6.7	13.3	3.3	3.3	3.3	00.0	00.0	13.3	6.7	13.3	00.0	100.
17	16.7	00.0	3.3	3.3	3.3	6.7	10.0	10.0	10.0	00.0	3.3	00.0	3.3	6.7	10.0	13.3	00.0	100.
18	6.7	6.7	3.3	10.0	00.0	6.7	13.3	10.0	6.7	00.0	3.3	00.0	6.7	3.3	13.3	10.0	00.0	100.
19	10.0	3.3	00.0	13.3	3.3	6.7	13.3	10.0	3.3	3.3	00.0	00.0	6.7	3.3	13.3	10.0	00.0	100.
20	6.7	3.3	6.7	6.7	00.0	10.0	16.7	10.0	6.7	00.0	00.0	00.0	6.7	6.7	6.7	13.3	00.0	100.
21	6.7	3.3	10.0	00.0	3.3	10.0	16.7	6.7	6.7	3.3	00.0	00.0	6.7	6.7	6.7	13.3	00.0	100.
22	6.7	00.0	6.7	10.0	6.7	3.3	10.0	16.7	6.7	3.3	00.0	00.0	6.7	3.3	6.7	13.3	00.0	100.
23	6.7	00.0	6.7	3.3	10.0	6.7	13.3	10.0	10.0	3.3	00.0	00.0	3.3	6.7	6.7	13.3	00.0	100.
24	6.7	00.0	6.7	3.3	10.0	3.3	16.7	10.0	6.7	3.3	00.0	3.3	3.3	3.3	6.7	16.7	00.0	100.
ALL	7.6	3.2	4.6	4.0	3.1	9.3	11.0	13.6	5.4	2.5	1.3	2.1	4.4	6.1	10.4	11.4	00.0	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

DECEMBER

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	00.0	3.3	6.7	3.3	00.0	13.3	6.7	6.7	3.3	6.7	3.3	13.3	3.3	10.0	3.3	16.7	00.0	100.
2	3.3	3.3	3.3	6.7	3.3	10.0	6.7	6.7	3.3	10.0	10.0	3.3	6.7	6.7	3.3	13.3	00.0	100.
3	3.3	3.3	3.3	3.3	6.7	6.7	6.7	6.7	00.0	16.7	3.3	10.0	3.3	6.7	6.7	13.3	00.0	100.
4	3.2	3.2	00.0	6.5	3.2	12.9	3.2	9.7	6.5	6.5	3.2	3.2	9.7	6.5	9.7	12.9	00.0	100.
5	6.5	3.2	00.0	6.5	6.5	6.5	6.5	9.7	3.2	9.7	00.0	3.2	3.2	9.7	9.7	16.1	00.0	100.
6	00.0	3.3	00.0	6.7	3.3	10.0	3.3	10.0	6.7	10.0	3.3	00.0	00.0	3.3	20.0	20.0	00.0	100.
7	3.3	3.3	00.0	3.3	6.7	6.7	3.3	13.3	6.7	10.0	3.3	00.0	00.0	6.7	13.3	20.0	00.0	100.
8	3.2	3.2	3.2	6.5	6.5	6.5	9.7	6.5	3.2	9.7	00.0	6.5	00.0	9.7	12.9	12.9	00.0	100.
9	3.2	3.2	3.2	6.5	9.7	6.5	6.5	3.2	6.5	6.5	6.5	00.0	3.2	12.9	6.5	16.1	00.0	100.
10	3.2	3.2	00.0	12.9	3.2	9.7	6.5	6.5	6.5	3.2	6.5	00.0	00.0	16.1	12.9	9.7	00.0	100.
11	6.5	00.0	3.2	6.5	9.7	3.2	9.7	3.2	6.5	6.5	3.2	3.2	3.2	12.9	12.9	9.7	00.0	100.
12	12.9	00.0	6.5	6.5	9.7	00.0	6.5	6.5	9.7	3.2	3.2	00.0	3.2	9.7	19.4	3.2	00.0	100.
13	10.0	3.3	6.7	3.3	6.7	3.3	10.0	3.3	10.0	3.3	00.0	3.3	00.0	16.7	16.7	3.3	00.0	100.
14	16.1	6.5	6.5	00.0	3.2	9.7	6.5	3.2	6.5	3.2	6.5	00.0	6.5	6.5	16.1	3.2	00.0	100.
15	6.7	3.3	6.7	00.0	10.0	00.0	6.7	6.7	6.7	3.3	6.7	00.0	6.7	6.7	10.0	20.0	00.0	100.
16	9.7	9.7	6.5	00.0	6.5	6.5	6.5	3.2	9.7	3.2	3.2	3.2	3.2	9.7	12.9	6.5	00.0	100.
17	7.1	10.7	00.0	7.1	7.1	7.1	3.6	7.1	7.1	7.1	00.0	3.6	10.7	00.0	14.3	7.1	00.0	100.
18	10.3	00.0	10.3	3.4	6.9	10.3	6.9	00.0	6.9	10.3	3.4	00.0	3.4	3.4	13.8	10.3	00.0	100.
19	3.4	13.8	3.4	10.3	3.4	10.3	6.9	6.9	3.4	10.3	3.4	00.0	3.4	00.0	10.3	10.3	00.0	100.
20	7.1	7.1	00.0	7.1	7.1	7.1	14.3	3.6	7.1	7.1	7.1	00.0	00.0	3.6	7.1	14.3	00.0	100.
21	7.1	3.6	3.6	7.1	00.0	7.1	14.3	7.1	10.7	3.6	7.1	3.6	00.0	3.6	3.6	17.9	00.0	100.
22	3.4	6.9	3.4	6.9	6.9	6.9	6.9	6.9	3.4	10.3	6.9	6.9	00.0	3.4	10.3	10.3	00.0	100.
23	3.3	10.0	3.3	6.7	00.0	13.3	3.3	6.7	6.7	6.7	10.0	3.3	6.7	6.7	6.7	6.7	00.0	100.
24	3.3	6.7	3.3	3.3	3.3	13.3	00.0	10.0	3.3	6.7	10.0	3.3	10.0	10.0	3.3	10.0	00.0	100.
ALL	5.7	4.7	3.5	5.4	5.4	7.8	6.7	6.4	6.0	7.2	4.6	2.9	3.6	7.6	10.7	11.8	00.0	100.

NUMBER OF OBS = 720

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

OCT-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	4.4	3.3	5.5	2.2	4.4	12.1	6.6	11.0	12.1	4.4	2.2	6.6	2.2	5.5	4.4	13.2	00.0	100.
2	2.2	4.4	3.3	5.5	2.2	9.9	7.7	16.5	9.9	5.5	3.3	4.4	2.2	4.4	5.5	13.2	00.0	100.
3	3.3	3.3	4.4	2.2	5.5	4.4	9.9	16.5	8.8	6.6	2.2	5.5	2.2	4.4	7.7	13.2	00.0	100.
4	5.4	1.1	6.5	4.3	1.1	8.7	7.6	13.0	14.1	4.3	2.2	2.2	6.5	3.3	7.6	12.0	00.0	100.
5	5.4	3.3	4.3	5.4	3.3	6.5	6.5	17.4	8.7	6.5	1.1	3.3	3.3	5.4	8.7	10.9	00.0	100.
6	6.6	3.3	3.3	3.3	2.2	9.9	6.6	16.5	11.0	4.4	4.4	1.1	2.2	4.4	12.1	8.8	00.0	100.
7	7.7	4.4	1.1	4.4	2.2	8.8	4.4	17.6	11.0	6.6	2.2	1.1	2.2	4.4	13.2	8.8	00.0	100.
8	4.3	4.3	3.3	2.2	4.3	8.7	6.5	14.1	7.6	9.8	1.1	2.2	3.3	4.3	10.9	13.0	00.0	100.
9	5.4	4.3	4.3	2.2	5.4	8.7	6.5	10.9	9.8	7.6	2.2	1.1	4.3	7.6	6.5	13.0	00.0	100.
10	7.6	2.2	3.3	4.3	3.3	7.6	8.7	8.7	13.0	7.6	2.2	1.1	1.1	12.0	6.5	10.9	00.0	100.
11	8.7	4.3	3.3	2.2	4.3	5.4	12.0	7.6	9.8	7.6	2.2	2.2	2.2	13.0	6.5	8.7	00.0	100.
12	8.7	3.3	4.3	3.3	4.3	5.4	7.6	10.9	13.0	4.3	2.2	1.1	2.2	8.7	12.0	8.7	00.0	100.
13	9.9	4.4	4.4	1.1	3.3	4.4	9.9	11.0	14.3	3.3	00.0	4.4	00.0	8.8	12.1	8.8	00.0	100.
14	9.8	6.5	4.3	2.2	2.2	6.5	9.8	12.0	8.7	4.3	4.3	1.1	5.4	4.3	9.8	8.7	00.0	100.
15	8.8	4.4	7.7	3.3	3.3	2.2	9.9	11.0	11.0	3.3	4.4	1.1	4.4	5.5	6.6	13.2	00.0	100.
16	10.9	3.3	6.5	4.3	2.2	6.5	8.7	9.8	12.0	3.3	3.3	1.1	3.3	7.6	6.5	10.9	00.0	100.
17	7.9	5.6	3.4	5.6	3.4	6.7	7.9	12.4	11.2	3.4	2.2	1.1	5.6	3.4	7.9	12.4	00.0	100.
18	6.7	5.6	5.6	5.6	5.6	6.7	8.9	12.2	8.9	3.3	2.2	1.1	3.3	4.4	8.9	11.1	00.0	100.
19	6.7	10.0	1.1	8.9	4.4	8.9	10.0	14.4	3.3	4.4	1.1	00.0	3.3	2.2	8.9	12.2	00.0	100.
20	6.7	6.7	4.5	4.5	5.6	9.0	12.4	15.7	4.5	2.2	2.2	00.0	2.2	3.4	5.6	14.6	00.0	100.
21	7.9	4.5	5.6	3.4	3.4	9.0	12.4	13.5	10.1	2.2	2.2	1.1	2.2	3.4	4.5	14.6	00.0	100.
22	5.6	5.6	3.3	6.7	7.8	4.4	10.0	15.6	8.9	4.4	2.2	2.2	2.2	2.2	6.7	12.2	00.0	100.
23	6.6	4.4	3.3	4.4	3.3	9.9	12.1	12.1	9.9	4.4	3.3	1.1	3.3	4.4	5.5	12.1	00.0	100.
24	6.6	3.3	3.3	2.2	6.6	7.7	11.0	13.2	8.8	4.4	3.3	2.2	5.5	4.4	3.3	14.3	00.0	100.
ALL	6.8	4.4	4.2	3.9	3.9	7.4	8.9	13.0	10.0	4.9	2.4	2.0	3.1	5.5	7.8	11.6	00.0	100.

NUMBER OF OBS = 2184

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JUL-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	4.9	5.5	4.4	2.7	4.9	12.0	13.1	10.4	11.5	4.4	2.7	4.4	3.8	3.3	2.7	9.3	00.0	100.
2	3.8	5.5	4.9	3.3	3.8	8.2	12.6	15.3	10.4	4.4	3.8	4.9	2.7	3.3	4.4	8.2	.5	100.
3	4.9	4.4	4.9	3.8	4.9	7.1	9.3	16.9	9.3	6.0	3.8	4.4	2.2	2.7	7.1	8.2	00.0	100.
4	7.1	2.7	6.0	4.3	3.3	8.2	8.2	16.3	8.7	6.5	3.3	2.7	4.3	3.8	5.4	9.2	00.0	100.
5	7.6	4.9	3.8	4.3	3.3	9.2	7.1	16.8	7.6	6.5	2.7	4.9	2.2	3.8	6.5	8.7	00.0	100.
6	9.3	2.7	5.5	3.8	4.9	9.3	6.6	16.9	7.7	6.0	3.3	3.8	2.2	3.3	7.1	7.7	00.0	100.
7	8.2	5.5	2.2	3.3	3.3	9.8	6.0	16.9	10.9	4.9	2.7	2.7	3.8	3.8	7.7	8.2	00.0	100.
8	8.2	3.8	3.8	3.3	3.8	10.9	7.6	14.7	9.2	6.0	2.2	2.7	4.3	3.8	6.5	9.2	00.0	100.
9	8.7	3.8	2.7	3.3	4.9	10.3	7.6	13.6	9.8	6.5	1.6	1.6	4.9	6.0	6.0	8.7	00.0	100.
10	11.4	3.3	3.3	3.3	2.7	9.2	9.2	14.7	10.3	7.1	2.7	2.2	1.6	7.6	4.9	6.5	00.0	100.
11	10.3	3.8	3.8	2.7	2.7	6.0	13.6	11.4	10.3	7.1	4.9	1.6	2.2	9.2	3.8	6.5	00.0	100.
12	9.2	3.3	3.8	3.3	3.8	4.3	10.9	14.7	11.4	6.5	3.8	2.2	2.7	7.1	7.1	6.0	00.0	100.
13	9.3	6.6	3.3	1.6	3.3	4.4	13.7	13.7	12.6	6.0	1.6	3.8	.5	6.6	7.1	6.0	00.0	100.
14	9.8	3.8	3.8	1.6	2.7	6.0	13.0	14.7	8.2	6.0	4.9	3.3	3.8	3.8	6.5	8.2	00.0	100.
15	8.7	3.3	4.9	2.2	2.2	3.8	16.9	13.7	9.3	6.0	3.8	1.1	3.3	5.5	4.9	10.4	00.0	100.
16	11.4	3.3	4.3	3.3	1.1	7.6	14.7	14.1	8.2	5.4	3.8	1.6	2.7	6.0	4.9	7.6	00.0	100.
17	8.8	5.5	2.8	3.9	2.8	7.2	14.9	14.9	9.4	5.0	1.7	.6	5.0	2.8	6.6	8.3	00.0	100.
18	7.2	5.5	4.4	5.5	4.4	8.8	13.8	14.4	8.8	1.7	2.2	1.7	2.8	3.3	7.7	7.7	00.0	100.
19	6.1	7.2	2.8	6.6	5.0	12.2	15.5	13.3	3.3	3.9	1.7	00.0	2.8	1.7	7.7	10.5	00.0	100.
20	6.1	6.1	6.1	3.9	3.9	14.9	16.6	11.0	3.9	2.8	2.2	1.1	1.7	2.8	5.5	11.6	00.0	100.
21	6.1	5.0	6.1	2.8	4.4	13.3	18.8	9.9	7.2	3.3	1.7	1.7	1.1	3.3	3.9	11.6	00.0	100.
22	7.1	7.1	3.8	4.4	4.9	9.9	16.5	14.3	6.6	4.9	1.6	1.1	1.6	1.6	4.4	9.3	.5	100.
23	7.7	6.6	2.7	2.7	3.3	12.6	17.5	15.3	7.1	3.8	1.6	.5	2.7	3.3	3.3	9.3	00.0	100.
24	7.7	4.9	3.3	3.3	3.8	12.0	13.7	15.3	7.7	4.9	3.3	1.6	3.8	2.7	2.2	9.8	00.0	100.
ALL	7.9	4.7	4.1	3.5	3.7	9.0	12.4	14.3	8.7	5.2	2.8	2.3	2.9	4.2	5.6	8.6	.0	100.

NUMBER OF OBS = 4390

NPPD-COOPER NUCLEAR STATION 100-M WIND DIRECTION 2024

PROGRAM: WINPER
VERSION: PC-1.0

HOURLY WIND ROSES (PERCENT)

JAN-DEC

WIND DIRECTION

HR. OF DAY	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM	TOTAL
1	5.0	5.8	4.1	3.3	3.6	9.9	11.0	8.5	9.6	6.1	3.9	4.7	3.9	2.8	5.5	12.4	00.0	100.
2	5.0	5.0	5.0	3.6	3.6	6.9	9.4	10.7	11.0	6.1	4.7	3.9	4.1	2.8	6.6	11.3	.6	100.
3	6.3	4.1	4.4	3.0	4.7	6.3	8.0	11.8	10.2	6.9	5.5	3.6	2.5	3.6	6.3	12.4	.3	100.
4	6.6	3.8	3.8	4.1	4.1	6.6	8.2	10.7	9.1	8.8	3.6	3.0	3.8	4.7	6.3	12.4	.3	100.
5	7.7	4.7	4.4	3.3	3.8	7.1	6.9	11.8	8.2	7.7	3.8	4.9	1.6	4.7	8.5	10.7	00.0	100.
6	9.1	3.3	6.3	3.6	3.3	8.5	5.5	12.7	8.5	6.3	3.3	4.1	2.2	4.4	8.5	10.2	00.0	100.
7	6.6	6.3	3.0	3.3	3.3	8.0	6.6	12.4	9.9	5.5	3.3	3.3	3.3	4.1	11.0	9.9	00.0	100.
8	7.7	4.7	3.3	2.8	3.6	9.4	7.4	11.3	8.8	5.8	3.9	2.5	4.7	5.0	9.9	9.4	00.0	100.
9	9.4	3.0	3.6	3.6	4.1	8.3	6.6	11.0	10.2	6.1	2.8	2.8	4.7	6.3	7.7	9.9	00.0	100.
10	10.2	3.3	3.0	3.0	3.9	7.5	8.8	9.7	9.9	8.0	2.8	3.9	3.0	5.2	8.0	9.7	00.0	100.
11	10.5	3.3	3.9	2.8	2.2	6.4	11.3	8.8	9.7	8.0	5.0	3.0	2.8	6.1	6.6	9.7	00.0	100.
12	11.0	3.6	3.6	3.6	2.2	5.0	10.5	10.5	9.9	9.1	5.0	2.2	2.8	5.0	8.3	7.7	00.0	100.
13	9.4	6.4	2.5	1.4	3.6	3.9	12.2	10.8	10.5	8.3	3.0	4.4	2.2	4.7	8.3	8.6	00.0	100.
14	9.6	4.4	3.3	1.7	3.0	5.5	11.3	10.7	9.1	7.2	4.1	4.4	4.7	3.6	7.7	9.6	00.0	100.
15	8.8	5.0	3.3	1.7	1.9	5.0	13.0	9.7	9.7	8.6	2.8	3.0	4.4	5.2	6.1	11.9	00.0	100.
16	9.4	4.4	3.9	2.8	1.4	6.9	11.6	9.6	9.4	6.6	4.1	3.0	3.9	5.5	6.6	11.0	00.0	100.
17	8.6	5.3	4.4	3.3	2.8	6.4	11.4	10.0	9.7	6.4	3.3	2.5	4.7	3.6	7.8	9.7	00.0	100.
18	8.3	5.8	3.6	4.7	3.9	6.7	10.6	11.1	7.8	4.4	3.9	3.9	3.3	3.1	7.5	11.4	00.0	100.
19	6.4	7.5	3.3	4.4	4.7	7.8	12.5	8.9	8.6	3.9	2.8	2.5	2.8	3.1	7.5	13.3	00.0	100.
20	7.8	6.1	4.7	3.9	3.1	11.1	11.7	8.9	6.4	5.6	2.8	2.5	2.2	3.1	6.1	14.2	00.0	100.
21	7.2	5.6	5.8	3.1	4.4	10.3	13.6	8.1	8.3	4.7	2.8	2.5	1.9	2.8	5.3	13.6	00.0	100.
22	7.5	6.9	3.9	4.7	4.7	7.7	13.5	9.7	8.3	6.1	3.0	2.2	1.9	1.7	6.6	11.3	.3	100.
23	6.9	5.2	5.8	2.2	3.6	10.2	13.5	11.6	7.2	6.1	2.8	1.7	2.5	2.8	5.2	12.9	00.0	100.
24	7.2	3.9	4.4	3.6	3.9	10.2	11.0	11.3	7.7	6.3	3.6	3.0	3.9	3.6	3.6	12.9	00.0	100.
ALL	8.0	4.9	4.1	3.2	3.5	7.6	10.2	10.4	9.1	6.6	3.6	3.2	3.2	4.0	7.2	11.1	.1	100.

NUMBER OF OBS = 8693

Precipitation

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	1	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01
24	1	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01
24	1	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	8	.00	.00	.00	.00	.00	.00	.00	.00	.03	.06	.02	.05	
			.04	.05	.03	.06	.04	.01	.02	.02	.01	.01	.02	.01	.48
24	1	9	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
24	1	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	1	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	1	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.02	.01	.06
24	1	23	.01	.01	.01	.01	.01	.01	.01	.01	.03	.02	.04	.07	
			.03	.01	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.30
24	1	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	1	25	.00	.00	.00	.00	.01	.02	.03	.01	.02	.06	.01	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16
24	1	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	1	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JANUARY

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 49
TOTAL DAYS WITH PRECIPITATION - 9
TOTAL AMOUNT OF PRECIPITATION - 1.06 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .07 INCHES
MAXIMUM DAILY PRECIPITATION - .48 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 23 HOUR 12 - .07 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 8 HOUR 12 - .27 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 8 HOUR 9 - .43 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 8 HOUR 9 - .49 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 8 HOUR 9 - .50 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 496
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 3
TOTAL DAYS WITH PRECIPITATION - 3
TOTAL AMOUNT OF PRECIPITATION - .03 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .01 INCHES
MAXIMUM DAILY PRECIPITATION - .01 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JANUARY

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	49	86	128	170	198
.02	23	56	74	92	115
.03	14	53	71	89	108
.04	9	48	66	84	104
.05	6	48	66	84	102
.07	1	37	60	78	98
.10	0	23	50	68	87
.15	0	17	39	57	75
.20	0	9	24	37	49
.25	0	4	17	31	43
.30	0	0	9	23	35
.35	0	0	7	13	25
.40	0	0	3	10	16
.45	0	0	0	6	12
.50	0	0	0	0	5
.60	0	0	0	0	0
.70	0	0	0	0	0
.80	0	0	0	0	0
.90	0	0	0	0	0
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	2	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.03	.01	.00	.00	.04
24	2	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	2	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	2	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	2	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF FEBRUARY

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 696
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 3
TOTAL DAYS WITH PRECIPITATION - 2
TOTAL AMOUNT OF PRECIPITATION - .05 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .03 INCHES
MAXIMUM DAILY PRECIPITATION - .04 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 21 - .03 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 21 - .04 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 21 - .04 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 21 - .04 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 21 - .04 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 167
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 1
TOTAL DAYS WITH PRECIPITATION - 1
TOTAL AMOUNT OF PRECIPITATION - .01 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .01 INCHES
MAXIMUM DAILY PRECIPITATION - .01 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF FEBRUARY

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	3	13	25	37	49
.02	1	6	12	18	24
.03	1	6	12	18	24
.04	0	5	11	17	23
.05	0	0	0	0	0
.07	0	0	0	0	0
.10	0	0	0	0	0
.15	0	0	0	0	0
.20	0	0	0	0	0
.25	0	0	0	0	0
.30	0	0	0	0	0
.35	0	0	0	0	0
.40	0	0	0	0	0
.45	0	0	0	0	0
.50	0	0	0	0	0
.60	0	0	0	0	0
.70	0	0	0	0	0
.80	0	0	0	0	0
.90	0	0	0	0	0
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	3	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.06	.01	.00	.01	.00	.01	.00	.00	.09
24	3	8	.01	.00	.01	.01	.00	.00	.00	.01	.00	.01	.02	.00	
			.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09
24	3	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.25	.28	.04	.57
24	3	14	.00	.21	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22
24	3	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	3	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	24	.00	.00	.00	.00	.05	.07	.04	.01	.00	.00	.01	.04	
			.00	.00	.01	.13	.06	.26	.02	.01	.00	.01	.00	.00	.72
24	3	25	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
24	3	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	27	.00	.00	.00	.00	.00	.00	.00	9.99	9.99	9.99	9.99	9.99	
			9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	.00
24	3	28	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	9.99	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	3	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.02	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF MARCH

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 29
TOTAL HOURS OF PRECIPITATION - 34
TOTAL DAYS WITH PRECIPITATION - 7
TOTAL AMOUNT OF PRECIPITATION - 1.81 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .28 INCHES
MAXIMUM DAILY PRECIPITATION - .72 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 13 HOUR 23 - .28 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 13 HOUR 22 - .78 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 13 HOUR 22 - .79 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 13 HOUR 22 - .79 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 13 HOUR 22 - .79 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 86
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 2
TOTAL DAYS WITH PRECIPITATION - 1
TOTAL AMOUNT OF PRECIPITATION - .03 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .02 INCHES
MAXIMUM DAILY PRECIPITATION - .03 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF MARCH

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	34	79	109	129	147
.02	18	76	106	126	144
.03	14	61	91	111	129
.04	13	50	87	111	129
.05	10	44	84	109	128
.07	6	35	68	94	113
.10	5	25	44	66	85
.15	4	22	39	51	69
.20	4	17	34	46	58
.25	3	14	28	40	52
.30	0	12	26	38	50
.35	0	11	25	37	50
.40	0	10	22	35	48
.45	0	10	22	34	46
.50	0	6	22	34	46
.60	0	2	8	21	33
.70	0	2	8	18	31
.80	0	0	0	0	0
.90	0	0	0	0	0
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-MAR INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 2184
NUMBER OF MISSING HOURS - 29
TOTAL HOURS OF PRECIPITATION - 86
TOTAL DAYS WITH PRECIPITATION - 18
TOTAL AMOUNT OF PRECIPITATION - 2.92 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .28 INCHES
MAXIMUM DAILY PRECIPITATION - .72 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 3 DAY 13 HOUR 23 - .28 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 3 DAY 13 HOUR 22 - .78 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 3 DAY 13 HOUR 22 - .79 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 3 DAY 13 HOUR 22 - .79 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 3 DAY 13 HOUR 22 - .79 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 749
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 6
TOTAL DAYS WITH PRECIPITATION - 5
TOTAL AMOUNT OF PRECIPITATION - .07 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .02 INCHES
MAXIMUM DAILY PRECIPITATION - .03 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-MAR INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	86	178	262	336	394
.02	42	138	192	236	283
.03	29	120	174	218	261
.04	22	103	164	212	256
.05	16	92	150	193	230
.07	7	72	128	172	211
.10	5	48	94	134	172
.15	4	39	78	108	144
.20	4	26	58	83	107
.25	3	18	45	71	95
.30	0	12	35	61	85
.35	0	11	32	50	75
.40	0	10	25	45	64
.45	0	10	22	40	58
.50	0	6	22	34	51
.60	0	2	8	21	33
.70	0	2	8	18	31
.80	0	0	0	0	0
.90	0	0	0	0	0
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12N	TOTAL
			1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	12MDNT	
24	4	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	2	.00	.00	.00	.00	.05	.14	.06	.12	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.37
24	4	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.01	.23	.01	.00	.00	.25
24	4	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01
24	4	16	.00	.00	.00	.00	.06	.05	.48	.33	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.92
24	4	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.08	.13	.23

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	4	18	.22	.14	.15	.06	.10	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67
24	4	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	23	.00	.00	.07	.01	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
24	4	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	25	.00	.00	.00	.00	.00	.00	.00	.00	.03	.01	.03	.14	
			.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.30
24	4	26	.16	.03	.00	.01	.02	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.18	.00	.00	.00	.00	.00	.00	.00	.40
24	4	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.04	.05	.01	.00	.00	.00	.00	.00	.00	.00	.00	.10
24	4	28	.01	.10	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	
			.12	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28
24	4	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	4	30	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	
			.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00	.20

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF APRIL

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 720
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 43
TOTAL DAYS WITH PRECIPITATION - 12
TOTAL AMOUNT OF PRECIPITATION - 3.81 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .48 INCHES
MAXIMUM DAILY PRECIPITATION - .92 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 16 HOUR 7 - .48 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 16 HOUR 5 - .92 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 15 HOUR 22 - .93 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 15 HOUR 22 - .93 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 15 HOUR 22 - .93 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF APRIL

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	43	119	181	223	262
.02	32	97	162	204	243
.03	30	95	160	203	242
.04	27	92	157	202	241
.05	25	88	153	198	238
.07	19	84	151	197	237
.10	16	74	135	176	211
.15	8	58	110	158	198
.20	4	36	77	131	175
.25	2	27	57	97	137
.30	2	19	43	75	101
.35	1	16	34	59	89
.40	1	13	25	44	68
.45	1	13	25	42	66
.50	0	11	23	35	52
.60	0	9	22	34	46
.70	0	8	20	32	44
.80	0	6	19	31	43
.90	0	3	14	26	38
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	5	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
24	5	2	.00	.00	.03	.49	.36	.15	.10	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.13
24	5	3	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	5	4	.00	.07	.51	.32	.15	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.05
24	5	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	1.06	.64	.31	.19	2.20
24	5	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18	.26	.44
24	5	13	.01	.00	.04	.07	.09	.14	.05	.08	.01	.06	.42	.24	
			.24	.30	.08	.00	.01	.00	.00	.00	.00	.00	.00	.00	1.84
24	5	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.02	.02	.04	.01	.01	.00	.00	.00	.10
24	5	16	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	5	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	5	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.69	.04	.07	.03	.00	.00	.83
24	5	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	21	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06
24	5	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	24	.00	.00	.20	.07	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.27
24	5	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.41	.17	1.58
24	5	26	.10	.21	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.46
24	5	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	5	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.29	.34	.23	.26	.10	.24	.02	.01	1.49
24	5	31	.00	.00	.00	.02	.00	.08	.05	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF MAY

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 62
TOTAL DAYS WITH PRECIPITATION - 16
TOTAL AMOUNT OF PRECIPITATION - 11.64 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.41 INCHES
MAXIMUM DAILY PRECIPITATION - 2.20 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 25 HOUR 23 - 1.41 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 21 - 2.20 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 21 - 2.20 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 12 HOUR 23 - 2.27 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 12 HOUR 23 - 2.28 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF MAY

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	62	133	206	268	317
.02	52	116	183	241	289
.03	48	109	170	230	284
.04	46	106	167	228	282
.05	43	105	166	227	281
.07	39	96	153	207	256
.10	31	90	146	200	249
.15	27	82	133	181	226
.20	21	75	123	171	219
.25	15	74	122	170	218
.30	12	66	109	151	193
.35	8	66	109	151	193
.40	7	61	107	149	191
.45	6	58	105	147	189
.50	5	51	100	142	184
.60	4	47	95	137	179
.70	2	41	89	131	173
.80	2	39	86	128	170
.90	2	30	72	109	145
1.00	2	28	66	103	139
1.10	1	22	55	85	115
1.20	1	16	44	68	92
1.30	1	13	39	66	90
1.40	1	12	37	63	87
1.50	0	10	27	53	77
1.60	0	9	25	49	73
1.70	0	8	23	42	60
1.80	0	7	19	39	57
1.90	0	6	18	34	52
2.00	0	6	18	34	52

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	6	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.24	.45	.00	.00	.00	.00	.00	.00	.00	.69
24	6	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.43	.03	.00	.00	.14	.01	.01	.62
24	6	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	15	.00	.00	.00	.40	.12	.08	.10	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.23	.14	.12	.00	.00	.00	1.19
24	6	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12N	
			1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	12MDNT	TOTAL
24	6	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.02	.85	.04	.29	.01	.01	1.22
24	6	19	.09	.02	.00	.01	.00	.00	.01	.04	.00	.01	.00	.00	
			.00	.00	.01	.04	.01	.01	.00	.00	.00	.00	.00	.00	.25
24	6	20	.04	.01	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06
24	6	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	1.35	1.45
24	6	26	1.62	.87	.22	.09	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.80
24	6	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	6	28	.01	.01	.06	.12	.11	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.31
24	6	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	6	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JUNE

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 720
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 45
TOTAL DAYS WITH PRECIPITATION - 10
TOTAL AMOUNT OF PRECIPITATION - 8.60 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.62 INCHES
MAXIMUM DAILY PRECIPITATION - 2.80 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 26 HOUR 1 - 1.62 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 25 HOUR 23 - 4.25 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 25 HOUR 23 - 4.25 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 25 HOUR 23 - 4.25 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 25 HOUR 23 - 4.25 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JUNE

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT	DURATION (HOURS)				
INCHES	1	6	12	18	24
.01	45	104	151	187	223
.02	30	89	135	171	207
.03	28	83	131	167	203
.04	27	83	130	166	202
.05	23	81	130	166	202
.07	22	67	122	159	195
.10	19	62	111	155	191
.15	11	55	100	139	180
.20	11	50	93	133	170
.25	8	46	88	130	166
.30	7	44	86	125	161
.35	7	39	75	109	139
.40	7	38	74	109	139
.45	5	35	72	107	137
.50	4	26	57	91	121
.60	4	25	55	87	118
.70	4	17	35	54	72
.80	4	14	26	41	59
.90	2	13	25	40	58
1.00	2	12	24	38	56
1.10	2	12	24	37	55
1.20	2	11	23	35	47
1.30	2	7	20	32	44
1.40	1	7	13	22	35
1.50	1	6	12	18	24
1.60	1	6	12	18	24
1.70	0	6	12	18	24
1.80	0	6	12	18	24
1.90	0	6	12	18	24
2.00	0	6	12	18	24

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

APR-JUN INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 2184
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 150
TOTAL DAYS WITH PRECIPITATION - 38
TOTAL AMOUNT OF PRECIPITATION - 24.05 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.62 INCHES
MAXIMUM DAILY PRECIPITATION - 2.80 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 26 HOUR 1 - 1.62 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

APR-JUN INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT	DURATION (HOURS)				
INCHES	1	6	12	18	24
.01	150	356	542	692	831
.02	114	302	484	629	768
.03	106	287	465	610	751
.04	100	281	458	606	747
.05	91	274	453	601	743
.07	80	247	430	573	709
.10	66	226	396	541	672
.15	46	195	347	488	623
.20	36	161	293	436	574
.25	25	147	267	397	521
.30	21	129	238	351	455
.35	16	121	218	319	421
.40	15	112	206	302	398
.45	12	106	202	296	392
.50	9	88	180	268	357
.60	8	81	172	258	343
.70	6	66	144	217	289
.80	6	59	131	200	272
.90	4	46	111	175	241
1.00	4	40	90	141	195
1.10	3	34	79	122	170
1.20	3	27	67	103	139
1.30	3	20	59	98	134
1.40	2	19	50	85	122
1.50	1	16	39	71	101
1.60	1	15	37	67	97
1.70	0	14	35	60	84
1.80	0	13	31	57	81
1.90	0	12	30	52	76
2.00	0	12	30	52	76

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-JUN INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 4368
NUMBER OF MISSING HOURS - 29
TOTAL HOURS OF PRECIPITATION - 236
TOTAL DAYS WITH PRECIPITATION - 56
TOTAL AMOUNT OF PRECIPITATION - 26.97 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.62 INCHES
MAXIMUM DAILY PRECIPITATION - 2.80 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 26 HOUR 1 - 1.62 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 749
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 6
TOTAL DAYS WITH PRECIPITATION - 5
TOTAL AMOUNT OF PRECIPITATION - .07 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .02 INCHES
MAXIMUM DAILY PRECIPITATION - .03 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-JUN INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	236	534	804	1033	1236
.02	156	440	676	870	1062
.03	135	407	639	832	1022
.04	122	384	622	822	1013
.05	107	366	603	798	983
.07	87	319	558	749	930
.10	71	274	490	675	844
.15	50	234	425	596	767
.20	40	187	351	519	681
.25	28	165	312	468	616
.30	21	141	273	412	540
.35	16	132	250	369	496
.40	15	122	231	347	462
.45	12	116	224	336	450
.50	9	94	202	302	408
.60	8	83	180	279	376
.70	6	68	152	235	320
.80	6	59	131	200	272
.90	4	46	111	175	241
1.00	4	40	90	141	195
1.10	3	34	79	122	170
1.20	3	27	67	103	139
1.30	3	20	59	98	134
1.40	2	19	50	85	122
1.50	1	16	39	71	101
1.60	1	15	37	67	97
1.70	0	14	35	60	84
1.80	0	13	31	57	81
1.90	0	12	30	52	76
2.00	0	12	30	52	76

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12N	TOTAL
			1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	12MDNT	
24	7	1	.00	.00	.00	.00	.00	.00	.06	.11	.19	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.36
24	7	2	.00	.01	.01	.00	.03	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
24	7	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	4	.06	.21	.11	.00	.01	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.39
24	7	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.50	.09	.02	.26	.19	1.06
24	7	7	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	7	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.02	.00	.03	.00	.00	.00	.00	.05
24	7	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	7	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01
24	7	20	.11	.21	.16	.01	.04	.07	.22	.01	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.83
24	7	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.37	.00	.00	.00	.00	.00	.00	.37
24	7	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	7	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JULY

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 28
TOTAL DAYS WITH PRECIPITATION - 9
TOTAL AMOUNT OF PRECIPITATION - 3.13 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .50 INCHES
MAXIMUM DAILY PRECIPITATION - 1.06 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 20 - .50 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 20 - 1.07 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 20 - 1.07 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 20 - 1.07 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 6 HOUR 20 - 1.07 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF JULY

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	28	66	103	138	168
.02	21	60	97	133	163
.03	19	56	93	129	161
.04	17	52	89	125	157
.05	16	51	88	124	156
.07	14	42	68	92	116
.10	12	42	68	92	116
.15	9	40	66	90	114
.20	6	38	65	90	114
.25	3	36	63	87	111
.30	2	35	62	86	110
.35	2	30	57	81	106
.40	1	15	27	39	53
.45	1	15	27	39	51
.50	1	12	24	36	48
.60	0	6	18	30	42
.70	0	4	16	28	40
.80	0	3	15	27	39
.90	0	2	8	14	20
1.00	0	2	8	14	20
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	8	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	12	.00	.02	.00	.01	.00	.03	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06
24	8	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	14	.00	.00	.00	.00	.45	.05	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	1.32	.11	.09	.06	.00	2.08
24	8	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	8	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
			.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.02
24	8	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	20	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
24	8	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.20
24	8	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	8	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.29	.08	.10	.47
24	8	30	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
24	8	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF AUGUST

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 17
TOTAL DAYS WITH PRECIPITATION - 7
TOTAL AMOUNT OF PRECIPITATION - 2.90 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.32 INCHES
MAXIMUM DAILY PRECIPITATION - 2.08 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 20 - 1.32 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 20 - 1.58 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 20 - 1.58 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 5 - 2.02 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 14 HOUR 5 - 2.08 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF AUGUST

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	17	59	102	140	176
.02	14	47	88	126	162
.03	13	45	81	113	143
.04	11	40	76	108	138
.05	10	32	62	88	112
.07	8	28	52	73	91
.10	6	28	52	73	91
.15	4	27	51	72	90
.20	4	26	50	71	89
.25	3	19	37	52	64
.30	2	17	35	50	62
.35	2	17	35	50	62
.40	2	16	34	49	61
.45	2	16	34	49	61
.50	1	14	32	47	59
.60	1	6	12	18	24
.70	1	6	12	18	24
.80	1	6	12	18	24
.90	1	6	12	18	24
1.00	1	6	12	18	24
1.10	1	6	12	18	24
1.20	1	6	12	18	24
1.30	1	6	12	18	24
1.40	0	5	11	18	24
1.50	0	4	10	18	24
1.60	0	0	0	4	10
1.70	0	0	0	3	9
1.80	0	0	0	3	9
1.90	0	0	0	2	8
2.00	0	0	0	1	7

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	9	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	9	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	21	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.41	.22	.14	.00	.01	.79
24	9	22	.04	.00	.00	.00	.00	.01	.10	.03	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.18
24	9	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
24	9	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	9	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF SEPTEMBER

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 720
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 11
TOTAL DAYS WITH PRECIPITATION - 3
TOTAL AMOUNT OF PRECIPITATION - .99 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .41 INCHES
MAXIMUM DAILY PRECIPITATION - .79 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 21 HOUR 20 - .41 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 21 HOUR 20 - .82 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 21 HOUR 20 - .93 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 21 HOUR 20 - .96 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 21 HOUR 20 - .96 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF SEPTEMBER

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT	DURATION (HOURS)				
INCHES	1	6	12	18	24
.01	11	31	49	63	75
.02	6	23	35	47	59
.03	6	18	24	30	36
.04	5	17	23	29	35
.05	4	17	23	29	35
.07	4	14	23	29	35
.10	4	14	23	29	35
.15	2	8	17	23	29
.20	2	7	14	20	26
.25	1	7	14	20	26
.30	1	7	14	20	26
.35	1	7	13	19	25
.40	1	7	13	19	25
.45	0	5	12	18	24
.50	0	5	12	18	24
.60	0	5	11	17	23
.70	0	4	10	16	22
.80	0	1	7	13	19
.90	0	0	1	7	13
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JUL-SEP INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 2208
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 56
TOTAL DAYS WITH PRECIPITATION - 19
TOTAL AMOUNT OF PRECIPITATION - 7.02 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.32 INCHES
MAXIMUM DAILY PRECIPITATION - 2.08 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 20 - 1.32 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 20 - 1.58 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 20 - 1.58 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 5 - 2.02 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 5 - 2.08 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 0
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JUL-SEP INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	56	156	254	341	419
.02	41	130	220	306	384
.03	38	119	198	272	340
.04	33	109	188	262	330
.05	30	100	173	241	303
.07	26	84	143	194	242
.10	22	84	143	194	242
.15	15	75	134	185	233
.20	12	71	129	181	229
.25	7	62	114	159	201
.30	5	59	111	156	198
.35	5	54	105	150	193
.40	4	38	74	107	139
.45	3	36	73	106	136
.50	2	31	68	101	131
.60	1	17	41	65	89
.70	1	14	38	62	86
.80	1	10	34	58	82
.90	1	8	21	39	57
1.00	1	8	20	32	44
1.10	1	6	12	18	24
1.20	1	6	12	18	24
1.30	1	6	12	18	24
1.40	0	5	11	18	24
1.50	0	4	10	18	24
1.60	0	0	0	4	10
1.70	0	0	0	3	9
1.80	0	0	0	3	9
1.90	0	0	0	2	8
2.00	0	0	0	1	7

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	10	1	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	2	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	3	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	4	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	5	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	6	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	7	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	8	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	9	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	10	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	11	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	12	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	13	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	14	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	15	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	16	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	10	17	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	10	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.08	.08	.10	.10	.36
24	10	22	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	10	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	10	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
			.69	.09	.12	.46	.25	.12	.00	.00	.00	.00	.00	.01	1.76
24	10	31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF OCTOBER

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 13
TOTAL DAYS WITH PRECIPITATION - 3
TOTAL AMOUNT OF PRECIPITATION - 2.13 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .69 INCHES
MAXIMUM DAILY PRECIPITATION - 1.76 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 13 - .69 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 13 - 1.73 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 12 - 1.75 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 12 - 1.76 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 12 - 1.76 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 9
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF OCTOBER

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	13	28	40	52	64
.02	11	21	33	45	57
.03	10	20	32	44	56
.04	10	20	32	44	56
.05	10	20	32	44	56
.07	10	20	32	44	56
.10	7	19	31	43	55
.15	3	17	29	41	53
.20	3	16	28	40	52
.25	3	15	27	39	51
.30	2	13	25	37	49
.35	2	13	25	37	49
.40	2	9	15	21	27
.45	2	9	15	21	27
.50	1	9	15	21	27
.60	1	9	15	21	27
.70	0	9	15	21	27
.80	0	8	14	20	26
.90	0	6	12	18	24
1.00	0	4	10	16	22
1.10	0	3	9	15	21
1.20	0	3	9	15	21
1.30	0	3	9	15	21
1.40	0	2	8	14	20
1.50	0	2	8	14	20
1.60	0	2	8	14	20
1.70	0	1	7	13	19
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	11	1	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	2	.00 .02	.00 .05	.00 .09	.00 .12	.00 .07	.00 .05	.00 .05	.00 .07	.00 .13	.00 .28	.00 .04	.13 .01	1.11
24	11	3	.00 .00	.02 .00	.00 .00	.00 .00	.00 .00	.01 .00	.01 .00	.00 .00	.00 .00	.00 .00	.00 .00	.01 .00	.05
24	11	4	.00 .00	.00 .07	.00 .04	.00 .04	.00 .03	.00 .00	.00 .00	.00 .03	.00 .01	.00 .00	.00 .00	.00 .00	.22
24	11	5	.04 .00	.00 .00	.01 .00	.01 .00	.00 .00	.00 .00	.00 .00	.01 .00	.00 .00	.00 .00	.00 .00	.01 .00	.08
24	11	6	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.01 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.01
24	11	7	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	8	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	9	.00 .00	.00 .00	.05 .00	.11 .00	.19 .00	.01 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.36
24	11	10	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	11	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	12	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	13	.00 .01	.00 .03	.00 .00	.00 .01	.00 .09	.03 .04	.16 .00	.03 .00	.03 .00	.07 .00	.01 .00	.00 .00	.51
24	11	14	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	15	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	16	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00
24	11	17	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00 .00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	11	18	.00	.00	.00	.01	.01	.08	.00	.08	.01	.04	.35	.20	
			.01	.03	.00	.01	.06	.00	.06	.03	.01	.00	.00	.00	.99
24	11	19	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	11	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	11	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF NOVEMBER

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 720
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 60
TOTAL DAYS WITH PRECIPITATION - 9
TOTAL AMOUNT OF PRECIPITATION - 3.34 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .35 INCHES
MAXIMUM DAILY PRECIPITATION - 1.11 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 18 HOUR 11 - .35 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 18 HOUR 8 - .69 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 2 HOUR 12 - 1.10 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 2 HOUR 12 - 1.13 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 2 HOUR 12 - 1.15 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 114
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF NOVEMBER

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	60	119	155	191	221
.02	39	95	127	157	191
.03	37	84	120	150	182
.04	29	80	114	144	174
.05	23	75	111	141	171
.07	17	68	106	136	166
.10	9	64	99	130	160
.15	5	50	86	116	147
.20	3	33	68	99	129
.25	2	29	57	87	117
.30	1	27	52	76	102
.35	1	22	46	70	94
.40	0	17	32	50	68
.45	0	14	30	48	66
.50	0	10	27	45	63
.60	0	7	22	34	46
.70	0	0	19	31	43
.80	0	0	13	26	38
.90	0	0	5	16	30
1.00	0	0	2	10	18
1.10	0	0	1	7	13
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	12	1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	14	.00	.00	.00	.04	.07	.00	.00	.00	.07	.00	.03	.03	
			.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.32
24	12	15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

YR	MON	DAY	1AM 1PM	2AM 2PM	3AM 3PM	4AM 4PM	5AM 5PM	6AM 6PM	7AM 7PM	8AM 8PM	9AM 9PM	10AM 10PM	11AM 11PM	12N 12MDNT	TOTAL
24	12	18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	12	26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.01	.00	.00	.01	.01	.00	.01	.02	.01	.07
24	12	27	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.01	.02	
			.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07
24	12	28	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	12	29	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
24	12	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.01	.01	.05	.08	.10	.01	.02	.01	.01	.01	.31
24	12	31	.02	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
			.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF DECEMBER

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 744
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 30
TOTAL DAYS WITH PRECIPITATION - 7
TOTAL AMOUNT OF PRECIPITATION - .82 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .10 INCHES
MAXIMUM DAILY PRECIPITATION - .32 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 19 - .10 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 17 - .27 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 15 - .34 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 15 - .34 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS DAY 30 HOUR 15 - .34 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 319
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

MONTH OF DECEMBER

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	30	68	101	131	153
.02	14	49	71	89	109
.03	10	47	69	87	105
.04	7	39	65	83	102
.05	6	32	59	78	98
.07	5	26	49	75	93
.10	1	20	32	51	70
.15	0	10	25	37	49
.20	0	7	21	33	45
.25	0	4	15	27	39
.30	0	0	9	21	33
.35	0	0	0	0	0
.40	0	0	0	0	0
.45	0	0	0	0	0
.50	0	0	0	0	0
.60	0	0	0	0	0
.70	0	0	0	0	0
.80	0	0	0	0	0
.90	0	0	0	0	0
1.00	0	0	0	0	0
1.10	0	0	0	0	0
1.20	0	0	0	0	0
1.30	0	0	0	0	0
1.40	0	0	0	0	0
1.50	0	0	0	0	0
1.60	0	0	0	0	0
1.70	0	0	0	0	0
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

ENTRIES INDICATE NUMBER OF DURATION PERIODS WITH RAINFALL GREATER THAN OR EQUAL TO AMOUNT SHOWN

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

OCT-DEC INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 2208
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 103
TOTAL DAYS WITH PRECIPITATION - 19
TOTAL AMOUNT OF PRECIPITATION - 6.29 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .69 INCHES
MAXIMUM DAILY PRECIPITATION - 1.76 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 13 - .69 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 13 - 1.73 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 12 - 1.75 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 12 - 1.76 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 12 - 1.76 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 442
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

OCT-DEC INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	103	215	296	374	438
.02	64	165	231	291	357
.03	57	151	221	281	343
.04	46	139	211	271	332
.05	39	127	202	263	325
.07	32	114	187	255	315
.10	17	103	162	224	285
.15	8	77	140	194	249
.20	6	56	117	172	226
.25	5	48	99	153	207
.30	3	40	86	134	184
.35	3	35	71	107	143
.40	2	26	47	71	95
.45	2	23	45	69	93
.50	1	19	42	66	90
.60	1	16	37	55	73
.70	0	9	34	52	70
.80	0	8	27	46	64
.90	0	6	17	34	54
1.00	0	4	12	26	40
1.10	0	3	10	22	34
1.20	0	3	9	15	21
1.30	0	3	9	15	21
1.40	0	2	8	14	20
1.50	0	2	8	14	20
1.60	0	2	8	14	20
1.70	0	1	7	13	19
1.80	0	0	0	0	0
1.90	0	0	0	0	0
2.00	0	0	0	0	0

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JUL-DEC INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 4416
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 159
TOTAL DAYS WITH PRECIPITATION - 38
TOTAL AMOUNT OF PRECIPITATION - 13.31 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.32 INCHES
MAXIMUM DAILY PRECIPITATION - 2.08 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 20 - 1.32 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 13 - 1.73 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 10 DAY 30 HOUR 12 - 1.75 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 5 - 2.02 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 8 DAY 14 HOUR 5 - 2.08 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 442
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 0
TOTAL DAYS WITH PRECIPITATION - 0
TOTAL AMOUNT OF PRECIPITATION - .00 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .00 INCHES
MAXIMUM DAILY PRECIPITATION - .00 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JUL-DEC INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT	DURATION (HOURS)				
INCHES	1	6	12	18	24
.01	159	371	550	715	857
.02	105	295	451	597	741
.03	95	270	419	553	683
.04	79	248	399	533	662
.05	69	227	375	504	628
.07	58	198	330	449	557
.10	39	187	305	418	527
.15	23	152	274	379	482
.20	18	127	246	353	455
.25	12	110	213	312	408
.30	8	99	197	290	382
.35	8	89	176	257	336
.40	6	64	121	178	234
.45	5	59	118	175	229
.50	3	50	110	167	221
.60	2	33	78	120	162
.70	1	23	72	114	156
.80	1	18	61	104	146
.90	1	14	38	73	111
1.00	1	12	32	58	84
1.10	1	9	22	40	58
1.20	1	9	21	33	45
1.30	1	9	21	33	45
1.40	0	7	19	32	44
1.50	0	6	18	32	44
1.60	0	2	8	18	30
1.70	0	1	7	16	28
1.80	0	0	0	3	9
1.90	0	0	0	2	8
2.00	0	0	0	1	7

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-DEC INDEX

FOR ALL TEMPERATURES

TOTAL NUMBER OF HOURS - 8784
NUMBER OF MISSING HOURS - 29
TOTAL HOURS OF PRECIPITATION - 395
TOTAL DAYS WITH PRECIPITATION - 94
TOTAL AMOUNT OF PRECIPITATION - 40.28 INCHES
MAXIMUM 1-HOUR PRECIPITATION - 1.62 INCHES
MAXIMUM DAILY PRECIPITATION - 2.80 INCHES

1 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 26 HOUR 1 - 1.62 INCHES
6 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
12 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
18 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES
24 HOUR PERIOD IN MONTH WITH GREATEST AMOUNT PRECIPITATION STARTS MONTH 6 DAY 25 HOUR 23 - 4.25 INCHES

FOR TEMPERATURES LESS THAN OR EQUAL TO 32 DEGREES

TOTAL NUMBER OF HOURS - 1191
NUMBER OF MISSING HOURS - 0
TOTAL HOURS OF PRECIPITATION - 6
TOTAL DAYS WITH PRECIPITATION - 5
TOTAL AMOUNT OF PRECIPITATION - .07 INCHES
MAXIMUM 1-HOUR PRECIPITATION - .02 INCHES
MAXIMUM DAILY PRECIPITATION - .03 INCHES

NPPD-COOPER NUCLEAR STATION PRECIPITATION DATA FOR 2024 RAIN VERSION PC-1.0

JAN-DEC INDEX

PRECIPITATION INTENSITY - DURATION
(NUMBER OF OCCURRENCES)

AMOUNT INCHES	DURATION (HOURS) 1	6	12	18	24
.01	395	905	1359	1759	2110
.02	261	735	1132	1478	1820
.03	230	677	1063	1396	1722
.04	201	632	1026	1366	1692
.05	176	593	983	1313	1628
.07	145	517	892	1208	1503
.10	110	461	799	1103	1387
.15	73	386	703	985	1265
.20	58	314	600	881	1151
.25	40	275	528	789	1039
.30	29	240	473	711	937
.35	24	221	429	635	847
.40	21	186	352	525	696
.45	17	175	342	511	679
.50	12	144	312	469	629
.60	10	116	258	399	538
.70	7	91	224	349	476
.80	7	77	192	304	418
.90	5	60	149	248	352
1.00	5	52	122	199	279
1.10	4	43	101	162	228
1.20	4	36	88	136	184
1.30	4	29	80	131	179
1.40	2	26	69	117	166
1.50	1	22	57	103	145
1.60	1	17	45	85	127
1.70	0	15	42	76	112
1.80	0	13	31	60	90
1.90	0	12	30	54	84
2.00	0	12	30	53	83

JOINT FREQUENCY DISTRIBUTION TABLES

The tables presented in this section are results obtained from processing of the hourly meteorological data collected at the Cooper Nuclear Station (CNS). The joint frequency distribution (JFD) tables represent the frequency of occurrence, in number of observations, that a particular wind speed, wind direction, and stability category occurred simultaneously. On a quarterly and semiannual basis, the JFDs were produced for wind speed and wind direction by atmospheric stability corresponding to the seven Pasquill stability classes, and for wind speed and wind direction for all stability categories combined. Atmospheric stability was classified per Regulatory Guide 1.23, using the 100-meter to 10-meter temperature difference (delta T) for the 100-meter JFDs and the 60-meter to 10-meter delta T for the 10-meter JFDs.

JFDs of 10-Meter Wind vs. Delta T

January-March 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-MAR 2024
SITE IDENTIFIER: NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
3.51- 7.50	1	1	1	0	1	2	2	0	0	0	1	0	0	1	0	0	10
7.51-12.50	2	4	2	0	1	0	1	0	0	0	0	0	0	0	4	0	14
12.51-18.50	1	3	0	0	0	1	0	0	2	2	2	0	0	1	1	0	13
18.51-24.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
TOTAL	4	8	3	0	3	3	3	0	5	2	3	0	0	2	5	3	45

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	1	5
3.51- 7.50	1	1	3	1	2	3	0	1	0	0	0	0	1	1	0	1	15
7.51-12.50	3	2	3	0	4	3	2	1	1	2	0	0	2	0	0	0	23
12.51-18.50	3	1	0	0	0	2	2	0	2	4	1	0	0	0	1	0	16
18.51-24.00	0	0	0	0	0	0	0	2	0	1	1	0	0	0	0	2	6
>24.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3
TOTAL	7	4	6	1	7	8	4	4	6	7	2	1	4	1	1	5	69

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-MAR 2024
SITE IDENTIFIER: NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	1	1	1	1	0	1	0	0	0	0	0	1	1	0	0	1	8
3.51- 7.50	3	5	1	3	2	4	1	1	0	1	1	0	0	1	1	1	25
7.51-12.50	15	2	3	1	0	2	1	0	4	2	1	0	1	0	3	5	40
12.51-18.50	1	0	0	0	0	1	4	1	3	9	1	1	1	1	6	12	41
18.51-24.00	7	2	0	0	0	0	1	1	0	0	1	0	0	0	2	2	16
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	27	10	5	5	2	8	7	3	7	12	4	2	3	2	12	21	131

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	7	9	11	3	3	4	4	1	9	4	5	3	1	4	4	8	80
3.51- 7.50	39	22	16	6	4	7	5	6	7	7	12	4	9	11	39	30	224
7.51-12.50	41	32	15	3	3	9	12	13	12	11	12	8	7	21	52	36	287
12.51-18.50	31	16	0	0	0	4	7	8	17	10	8	5	9	8	46	50	219
18.51-24.00	13	5	1	0	0	0	0	2	8	5	2	0	1	0	14	13	64
>24.00	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	6
TOTAL	131	84	43	12	10	24	28	32	54	40	39	20	27	44	155	137	883

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-MAR 2024
SITE IDENTIFIER: NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	22	10	3	0	2	1	7	0	2	4	1	5	3	1	6	7	74
3.51- 7.50	21	12	18	3	7	11	9	11	21	10	8	3	2	8	17	12	173
7.51-12.50	18	16	4	1	1	2	4	7	24	23	4	10	8	11	13	16	162
12.51-18.50	10	0	0	0	0	0	2	15	4	2	1	0	4	0	2	2	42
18.51-24.00	0	0	0	0	0	0	0	0	10	1	0	0	0	0	1	0	12
>24.00	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
TOTAL	71	38	25	4	10	14	22	33	66	40	14	18	17	20	39	37	471

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	3	1	0	3	3	2	1	6	10	3	2	1	2	0	3	5	45
3.51- 7.50	13	6	1	1	0	1	4	6	17	1	4	2	4	8	4	3	75
7.51-12.50	1	0	0	0	0	0	1	2	20	6	1	1	2	4	0	2	40
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	17	7	1	4	3	3	6	14	47	10	7	4	9	12	7	10	162

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-MAR 2024
SITE IDENTIFIER: NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	31
1.01- 3.50	12	6	3	7	1	2	7	10	20	16	11	6	6	8	9	7	131
3.51- 7.50	3	1	3	1	0	0	0	2	4	1	1	4	2	3	3	3	31
7.51-12.50	11	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	14
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	26	8	6	8	1	2	7	12	24	17	12	11	8	11	12	11	207

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	41
1.01- 3.50	45	27	18	14	11	10	19	17	42	27	19	17	14	13	22	30	345
3.51- 7.50	81	48	43	15	16	28	21	27	49	20	27	13	18	33	64	50	553
7.51-12.50	91	57	27	5	9	16	21	23	61	44	18	20	20	36	72	60	580
12.51-18.50	46	20	0	0	0	8	15	24	28	27	13	6	15	10	56	64	332
18.51-24.00	20	7	1	0	0	0	1	5	20	7	4	0	1	0	17	18	101
>24.00	0	0	0	0	0	0	0	2	9	3	0	0	0	0	0	2	16
TOTAL	283	159	89	34	36	62	77	98	209	128	81	56	68	92	231	224	1968

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-MAR 2024
SITE IDENTIFIER: NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2184

TOTAL NUMBER OF VALID OBSERVATIONS: 1968

TOTAL NUMBER OF MISSING OBSERVATIONS: 216

PERCENT DATA RECOVERY FOR THIS PERIOD: 90.1 %

MEAN WIND SPEED FOR THIS PERIOD: 8.7 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
2.29	3.51	6.66	44.87	23.93	8.23	10.52

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	4	8	3	0	3	3	3	0	5	2	3	0	0	2	5	3	1
B	7	4	6	1	7	8	4	4	6	7	2	1	4	1	1	5	1
C	27	10	5	5	2	8	7	3	7	12	4	2	3	2	12	21	1
D	131	84	43	12	10	24	28	32	54	40	39	20	27	44	155	137	3
E	71	38	25	4	10	14	22	33	66	40	14	18	17	20	39	37	3
F	17	7	1	4	3	3	6	14	47	10	7	4	9	12	7	10	1
G	26	8	6	8	1	2	7	12	24	17	12	11	8	11	12	11	31
TOTAL	283	159	89	34	36	62	77	98	209	128	81	56	68	92	231	224	41

JFDs of 10-Meter Wind vs. Delta T

April-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	1	1	2	2	1	0	0	0	0	0	0	0	0	0	0	8
3.51- 7.50	2	3	2	2	1	4	2	3	7	3	3	1	3	0	4	1	41
7.51-12.50	0	0	5	2	4	9	12	5	5	8	6	12	1	5	3	0	77
12.51-18.50	0	0	0	0	0	0	14	4	7	0	0	1	0	3	1	1	31
18.51-24.00	0	0	0	0	0	1	5	0	0	3	0	0	0	1	0	1	11
>24.00	0	0	0	0	0	0	1	1	0	2	0	1	0	0	0	0	5
TOTAL	3	4	8	6	7	15	34	13	19	16	9	15	4	9	8	3	173

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	0	0	2	2	5	2	5	1	3	1	1	3	0	1	0	2	28
7.51-12.50	1	1	3	0	0	2	11	5	5	6	3	3	3	4	8	5	60
12.51-18.50	5	0	0	0	0	0	5	6	5	3	1	3	0	0	0	2	30
18.51-24.00	0	0	0	0	0	0	2	3	1	2	0	0	0	1	0	4	13
>24.00	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	1	5
TOTAL	6	1	6	2	5	4	23	16	14	15	5	9	3	6	8	14	137

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	0	1	2	0	0	0	0	1	0	0	0	0	0	0	1	6
3.51- 7.50	6	3	4	2	2	3	7	1	1	2	3	0	2	2	4	4	46
7.51-12.50	4	1	1	0	4	3	12	4	7	6	2	2	1	2	6	3	58
12.51-18.50	3	0	0	0	0	3	2	2	8	5	3	2	0	1	5	8	42
18.51-24.00	0	0	0	0	0	0	2	1	6	2	1	0	0	1	2	4	19
>24.00	0	0	0	0	0	2	0	0	2	1	0	0	0	0	1	0	6
TOTAL	14	4	6	4	6	11	23	8	25	16	9	4	3	6	18	20	177

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	7	2	2	6	1	4	1	2	4	0	0	2	1	0	2	1	35
3.51- 7.50	35	23	7	11	13	20	13	21	8	9	5	9	14	10	12	25	235
7.51-12.50	22	20	4	4	10	23	37	26	17	27	12	14	13	12	22	38	301
12.51-18.50	24	1	0	0	1	10	30	29	36	26	3	6	5	4	22	36	233
18.51-24.00	6	0	0	0	0	0	4	4	22	5	5	3	2	0	1	6	58
>24.00	1	0	0	0	0	1	2	1	8	4	0	0	0	0	0	0	17
TOTAL	95	46	13	21	25	58	87	83	95	71	25	34	35	26	59	106	879

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	18	7	3	3	6	3	5	5	12	7	7	2	3	5	11	7	104
3.51- 7.50	17	9	4	4	6	10	10	14	22	20	9	6	8	4	11	21	175
7.51-12.50	13	1	3	2	3	7	5	12	21	15	11	5	8	6	32	16	160
12.51-18.50	5	0	0	0	0	2	3	2	4	7	0	0	1	4	7	7	42
18.51-24.00	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	4
>24.00	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	4
TOTAL	56	17	10	10	15	22	23	34	61	50	27	13	20	19	61	51	490

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	5
1.01- 3.50	13	5	0	0	0	2	1	4	9	5	3	5	7	4	21	20	99
3.51- 7.50	5	3	0	2	1	0	0	0	3	8	2	2	1	1	6	9	43
7.51-12.50	4	0	0	0	0	0	1	0	3	3	0	0	1	4	5	1	22
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	22	8	0	2	1	2	2	4	15	16	5	7	9	9	32	30	169

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	12
1.01- 3.50	8	4	0	3	0	1	1	7	13	8	8	5	6	9	19	16	108
3.51- 7.50	1	0	0	0	0	0	0	1	1	0	0	0	1	3	6	2	15
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	4	0	3	0	1	1	8	14	8	8	5	7	13	25	18	136

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	18
1.01- 3.50	48	19	8	16	9	11	8	18	39	20	18	14	17	18	53	45	361
3.51- 7.50	66	41	19	23	28	39	37	41	45	43	23	21	29	21	43	64	583
7.51-12.50	44	23	16	8	21	44	78	52	58	65	34	36	27	34	76	63	679
12.51-18.50	37	1	0	0	1	15	54	43	60	41	7	12	6	12	35	54	378
18.51-24.00	7	0	0	1	0	1	13	8	31	12	6	3	2	3	3	15	105
>24.00	3	0	0	0	0	3	3	4	10	11	0	1	0	0	1	1	37
TOTAL	205	84	43	48	59	113	193	166	243	192	88	87	81	88	211	242	2161

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2184

TOTAL NUMBER OF VALID OBSERVATIONS: 2161

TOTAL NUMBER OF MISSING OBSERVATIONS: 23

PERCENT DATA RECOVERY FOR THIS PERIOD: 98.9 %

MEAN WIND SPEED FOR THIS PERIOD: 9.1 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
8.01	6.34	8.19	40.68	22.67	7.82	6.29

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	3	4	8	6	7	15	34	13	19	16	9	15	4	9	8	3	0
B	6	1	6	2	5	4	23	16	14	15	5	9	3	6	8	14	0
C	14	4	6	4	6	11	23	8	25	16	9	4	3	6	18	20	0
D	95	46	13	21	25	58	87	83	95	71	25	34	35	26	59	106	0
E	56	17	10	10	15	22	23	34	61	50	27	13	20	19	61	51	1
F	22	8	0	2	1	2	2	4	15	16	5	7	9	9	32	30	5
G	9	4	0	3	0	1	1	8	14	8	8	5	7	13	25	18	12
TOTAL	205	84	43	48	59	113	193	166	243	192	88	87	81	88	211	242	18

JFDs of 10-Meter Wind vs. Delta T

January-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	1	1	1	2	3	1	0	0	0	0	0	0	0	0	0	1	10
3.51- 7.50	3	4	3	2	2	6	4	3	7	3	4	1	3	1	4	1	51
7.51-12.50	2	4	7	2	5	9	13	5	5	8	6	12	1	5	7	0	91
12.51-18.50	1	3	0	0	0	1	14	4	9	2	2	1	0	4	2	1	44
18.51-24.00	0	0	0	0	0	1	5	0	2	3	0	0	0	1	0	2	14
>24.00	0	0	0	0	0	0	1	1	1	2	0	1	0	0	0	1	7
TOTAL	7	12	11	6	10	18	37	13	24	18	12	15	4	11	13	6	218

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	0	1	0	1	0	0	0	1	0	0	1	1	0	0	1	6
3.51- 7.50	1	1	5	3	7	5	5	2	3	1	1	3	1	2	0	3	43
7.51-12.50	4	3	6	0	4	5	13	6	6	8	3	3	5	4	8	5	83
12.51-18.50	8	1	0	0	0	2	7	6	7	7	2	3	0	0	1	2	46
18.51-24.00	0	0	0	0	0	0	2	5	1	3	1	0	0	1	0	6	19
>24.00	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	2	8
TOTAL	13	5	12	3	12	12	27	20	20	22	7	10	7	7	9	19	206

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	2	1	2	3	0	1	0	0	1	0	0	1	1	0	0	2	14
3.51- 7.50	9	8	5	5	4	7	8	2	1	3	4	0	2	3	5	5	71
7.51-12.50	19	3	4	1	4	5	13	4	11	8	3	2	2	2	9	8	98
12.51-18.50	4	0	0	0	0	4	6	3	11	14	4	3	1	2	11	20	83
18.51-24.00	7	2	0	0	0	0	3	2	6	2	2	0	0	1	4	6	35
>24.00	0	0	0	0	0	2	0	0	2	1	0	0	0	0	1	0	6
TOTAL	41	14	11	9	8	19	30	11	32	28	13	6	6	8	30	41	308

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	14	11	13	9	4	8	5	3	13	4	5	5	2	4	6	9	115
3.51- 7.50	74	45	23	17	17	27	18	27	15	16	17	13	23	21	51	55	459
7.51-12.50	63	52	19	7	13	32	49	39	29	38	24	22	20	33	74	74	588
12.51-18.50	55	17	0	0	1	14	37	37	53	36	11	11	14	12	68	86	452
18.51-24.00	19	5	1	0	0	0	4	6	30	10	7	3	3	0	15	19	122
>24.00	1	0	0	0	0	1	2	3	9	7	0	0	0	0	0	0	23
TOTAL	226	130	56	33	35	82	115	115	149	111	64	54	62	70	214	243	1762

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	4
1.01- 3.50	40	17	6	3	8	4	12	5	14	11	8	7	6	6	17	14	178
3.51- 7.50	38	21	22	7	13	21	19	25	43	30	17	9	10	12	28	33	348
7.51-12.50	31	17	7	3	4	9	9	19	45	38	15	15	16	17	45	32	322
12.51-18.50	15	0	0	0	0	2	5	17	8	9	1	0	5	4	9	9	84
18.51-24.00	1	0	0	1	0	0	0	0	12	1	0	0	0	0	1	0	16
>24.00	2	0	0	0	0	0	0	1	5	1	0	0	0	0	0	0	9
TOTAL	127	55	35	14	25	36	45	67	127	90	41	31	37	39	100	88	961

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	6
1.01- 3.50	16	6	0	3	3	4	2	10	19	8	5	6	9	4	24	25	144
3.51- 7.50	18	9	1	3	1	1	4	6	20	9	6	4	5	9	10	12	118
7.51-12.50	5	0	0	0	0	0	2	2	23	9	1	1	3	8	5	3	62
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	39	15	1	6	4	5	8	18	62	26	12	11	18	21	39	40	331

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	43
1.01- 3.50	20	10	3	10	1	3	8	17	33	24	19	11	12	17	28	23	239
3.51- 7.50	4	1	3	1	0	0	0	3	5	1	1	4	3	6	9	5	46
7.51-12.50	11	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1	15
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	35	12	6	11	1	3	8	20	38	25	20	16	15	24	37	29	343

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	59
1.01- 3.50	93	46	26	30	20	21	27	35	81	47	37	31	31	31	75	75	706
3.51- 7.50	147	89	62	38	44	67	58	68	94	63	50	34	47	54	107	114	1136
7.51-12.50	135	80	43	13	30	60	99	75	119	109	52	56	47	70	148	123	1259
12.51-18.50	83	21	0	0	1	23	69	67	88	68	20	18	21	22	91	118	710
18.51-24.00	27	7	1	1	0	1	14	13	51	19	10	3	3	3	20	33	206
>24.00	3	0	0	0	0	3	3	6	19	14	0	1	0	0	1	3	53
TOTAL	488	243	132	82	95	175	270	264	452	320	169	143	149	180	442	466	4129

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 4368

TOTAL NUMBER OF VALID OBSERVATIONS: 4129

TOTAL NUMBER OF MISSING OBSERVATIONS: 239

PERCENT DATA RECOVERY FOR THIS PERIOD: 94.5 %

MEAN WIND SPEED FOR THIS PERIOD: 8.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
5.28	4.99	7.46	42.67	23.27	8.02	8.31

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	7	12	11	6	10	18	37	13	24	18	12	15	4	11	13	6	1
B	13	5	12	3	12	12	27	20	20	22	7	10	7	7	9	19	1
C	41	14	11	9	8	19	30	11	32	28	13	6	6	8	30	41	1
D	226	130	56	33	35	82	115	115	149	111	64	54	62	70	214	243	3
E	127	55	35	14	25	36	45	67	127	90	41	31	37	39	100	88	4
F	39	15	1	6	4	5	8	18	62	26	12	11	18	21	39	40	6
G	35	12	6	11	1	3	8	20	38	25	20	16	15	24	37	29	43
TOTAL	488	243	132	82	95	175	270	264	452	320	169	143	149	180	442	466	59

Stability Classes by Hour of Day

10-Meter Wind vs. Delta T

January-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	1	1	D	D	D	E	E	F	F	E	E	D	D	D	D	D	D	D	D	E	F	E	D	D	E	E
24	1	2	D	E	E	E	E	D	E	D	D	-	-	-	-	-	-	D	D	D	D	D	D	E	E	F
24	1	3	F	G	G	G	G	G	G	F	F	E	-	-	-	-	A	-	D	D	D	D	D	D	D	D
24	1	4	D	-	-	-	D	-	-	-	-	-	-	A	-	-	-	-	-	-	-	-	-	-	-	D
24	1	5	-	D	D	D	D	D	D	D	D	-	-	-	A	-	-	-	-	-	A	D	E	E	E	C
24	1	6	E	B	-	-	-	D	D	D	D	D	-	C	-	D	-	D	A	D	D	E	E	D	D	D
24	1	7	D	D	D	D	D	D	D	B	B	-	-	-	-	D	-	-	D	D	-	-	-	-	A	-
24	1	8	-	-	B	-	-	C	C	-	B	B	C	B	B	B	-	B	-	-	C	E	E	E	E	E
24	1	9	E	D	D	D	D	D	D	D	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	E
24	1	10	F	E	F	E	E	D	E	E	D	E	D	D	D	D	D	D	D	D	B	E	E	E	E	D
24	1	11	D	D	E	E	D	D	E	D	D	C	C	B	D	D	D	D	D	D	D	D	D	D	-	D
24	1	12	D	D	C	C	C	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D
24	1	13	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	14	D	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	F
24	1	15	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	16	E	E	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	F
24	1	17	E	E	F	E	F	F	F	E	E	E	D	C	B	B	A	B	B	C	C	D	D	D	D	D
24	1	18	E	D	E	E	F	E	F	F	E	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D
24	1	19	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	F
24	1	20	E	F	F	E	E	F	F	F	E	E	E	E	D	D	D	D	D	D	E	E	E	E	F	F
24	1	21	E	E	E	E	D	D	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	1	22	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	D	-	D	-	-
24	1	23	-	-	D	E	E	D	D	D	D	D	D	D	-	-	-	A	-	E	E	E	E	D	E	D
24	1	24	E	B	B	E	E	D	D	E	E	D	-	-	-	-	-	-	-	-	C	-	B	C	D	D
24	1	25	D	D	D	D	D	D	D	D	D	C	C	C	-	D	B	A	D	D	D	D	E	-	D	-
24	1	26	D	D	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	-	E
24	1	27	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	1	28	D	D	D	D	D	D	E	E	E	D	D	-	-	-	-	-	-	E	G	G	G	G	G	G
24	1	29	G	G	G	G	G	G	G	G	E	D	A	D	-	-	-	-	-	B	D	D	D	E	E	E
24	1	30	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	E	F	G	G	G	G	G
24	1	31	G	G	G	G	G	G	G	F	E	E	D	D	D	D	D	D	E	E	F	F	E	E	E	F
24	2	1	G	G	G	E	F	G	G	F	F	E	-	-	-	C	-	D	C	E	E	E	D	D	E	D
24	2	2	E	E	E	E	E	F	E	E	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C	C	-	-	D	-	-
24	2	4	-	C	D	D	E	D	D	D	D	D	D	D	C	D	D	D	D	E	D	D	D	D	D	D
24	2	5	D	E	E	E	E	E	E	E	E	D	C	-	-	-	-	-	-	-	F	G	G	G	G	G
24	2	6	G	G	G	G	G	G	G	F	F	E	E	D	C	D	D	D	D	D	E	F	E	F	F	F
24	2	7	F	E	E	E	E	D	D	E	E	E	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	2	8	E	E	E	E	E	E	E	E	D	D	D	B	A	A	-	-	-	D	D	E	G	G	G	G
24	2	9	G	G	G	G	G	G	G	G	F	D	D	D	C	C	C	D	D	D	D	D	D	D	E	E
24	2	10	E	C	D	D	D	D	D	D	D	D	D	C	A	C	D	D	D	D	E	E	D	D	D	D
24	2	11	D	D	D	D	D	D	E	E	D	D	D	C	A	B	B	D	D	D	E	F	G	G	G	G
24	2	12	G	G	G	F	G	F	F	E	E	D	D	D	C	A	D	D	D	E	F	G	G	G	G	G
24	2	13	G	G	G	G	F	E	F	F	E	D	A	-	-	-	-	-	-	E	E	E	F	G	G	G
24	2	14	G	F	G	F	F	F	G	G	F	C	D	D	C	C	-	B	D	E	E	D	C	E	D	D

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	2	15	D	D	D	D	D	D	D	D	D	D	D	B	C	C	A	C	B	D	E	E	F	E	E	D
24	2	16	D	D	D	D	D	D	D	D	D	A	D	B	D	D	D	D	D	D	D	D	E	E	D	D
24	2	17	D	D	D	D	D	D	D	D	B	-	-	-	A	C	D	D	D	-	C	D	D	D	D	E
24	2	18	D	D	E	E	E	E	D	E	D	D	C	C	D	D	D	D	D	E	F	G	G	G	G	G
24	2	19	G	G	G	G	G	G	G	G	F	D	D	D	C	D	B	D	D	E	E	F	E	E	E	F
24	2	20	F	G	G	G	G	G	G	G	G	E	D	C	C	B	D	D	D	E	F	E	F	F	E	E
24	2	21	E	E	G	G	G	G	G	G	G	D	D	B	B	A	B	D	D	E	F	F	E	E	E	E
24	2	22	E	E	E	E	F	F	F	F	E	D	C	C	D	C	C	D	D	D	E	E	E	E	E	F
24	2	23	G	G	F	F	F	F	F	E	D	D	D	C	C	C	D	D	D	D	E	E	E	E	E	E
24	2	24	E	E	E	F	F	G	G	G	E	D	C	B	B	C	C	D	D	D	E	F	G	G	G	G
24	2	25	G	G	G	G	G	G	G	G	G	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	2	26	G	G	G	G	G	G	G	G	F	D	D	C	-	-	-	-	-	-	D	G	F	G	G	G
24	2	27	G	G	G	G	G	G	G	G	G	E	C	B	A	A	B	C	D	D	D	D	D	D	D	D
24	2	28	D	D	D	D	D	D	D	D	D	C	C	A	-	-	-	D	D	D	E	G	F	F	F	F
24	2	29	F	G	F	E	E	E	E	E	D	D	C	A	A	A	B	B	D	D	F	E	F	E	F	F
24	3	1	E	D	D	D	D	D	D	E	D	D	C	A	A	A	A	C	C	D	E	F	F	E	F	F
24	3	2	F	E	E	E	F	F	F	F	E	D	C	C	B	C	B	C	D	D	E	G	G	G	F	E
24	3	3	E	E	E	E	E	E	E	E	D	D	D	B	D	D	D	D	D	D	E	F	F	F	G	F
24	3	4	E	E	E	E	D	D	E	D	D	D	D	B	C	C	C	D	D	D	D	E	E	E	E	E
24	3	5	E	E	E	E	E	E	C	D	D	D	C	C	C	D	D	C	D	D	E	F	F	F	F	G
24	3	6	G	G	G	G	G	G	G	G	F	D	C	B	C	D	D	D	D	D	E	E	E	E	E	E
24	3	7	F	E	E	E	E	E	E	E	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D
24	3	8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	E	D	D
24	3	9	D	D	D	D	D	D	E	E	D	D	D	C	C	B	D	D	C	D	E	G	G	G	G	G
24	3	10	G	G	-	G	G	G	G	G	F	D	D	C	C	B	C	B	D	D	F	F	F	E	E	E
24	3	11	E	E	F	F	E	E	F	E	D	D	C	C	B	B	B	C	D	D	E	F	F	E	E	E
24	3	12	E	E	E	F	F	F	G	F	D	D	D	D	D	D	D	D	D	D	E	G	G	G	F	G
24	3	13	G	G	G	G	G	G	G	G	F	D	C	B	A	B	C	C	D	D	E	E	E	F	E	E
24	3	14	E	D	E	E	E	E	E	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	E	E
24	3	15	E	E	E	E	E	E	E	D	D	D	C	A	D	D	C	D	D	D	E	F	F	G	G	G
24	3	16	F	E	E	E	E	E	E	E	D	D	D	C	C	C	D	C	C	D	E	E	E	E	E	E
24	3	17	F	F	F	F	E	E	E	D	D	C	C	C	C	C	B	C	C	D	D	E	E	E	E	D
24	3	18	E	E	E	D	D	E	E	D	D	D	C	C	A	A	A	D	D	D	E	E	F	E	E	F
24	3	19	F	E	E	E	D	E	E	D	D	B	D	C	C	C	C	C	D	D	E	G	G	G	G	G
24	3	20	G	G	F	E	D	E	D	D	D	B	A	A	A	A	A	A	B	C	D	E	E	E	E	E
24	3	21	E	D	D	D	D	D	D	D	D	C	B	B	A	B	B	C	D	D	D	E	E	E	E	E
24	3	22	E	E	E	F	E	E	D	D	D	D	C	C	C	D	C	D	D	D	D	D	D	D	D	D
24	3	23	D	D	E	E	D	D	D	-	-	-	-	-	-	-	-	-	D	D	D	E	E	D	E	F
24	3	24	F	E	E	D	D	D	D	D	D	D	D	E	D	E	E	E	E	E	D	D	D	E	E	E
24	3	25	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	3	26	D	D	D	D	D	D	D	A	D	D	D	D	D	D	C	D	D	D	D	E	B	E	E	D
24	3	27	E	E	E	D	D	E	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	3	28	-	-	-	-	-	-	-	-	-	-	-	-	D	D	C	D	D	D	E	F	F	F	E	E
24	3	29	E	E	F	F	F	F	G	E	D	D	D	D	C	C	B	C	D	D	D	E	E	E	E	E
24	3	30	D	D	D	D	D	D	D	D	D	D	B	B	A	B	B	B	A	B	D	F	F	F	F	F

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	3	31	F	F	E	D	D	D	D	D	D	D	E	D	D	D	D	D	D	D	E	E	E	E	D	D
24	4	1	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D
24	4	2	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	E	E	D	E	E
24	4	3	E	E	D	D	D	D	D	D	D	D	D	C	C	C	C	C	D	D	E	E	E	E	E	E
24	4	4	E	E	E	F	E	E	E	D	D	D	C	C	B	B	B	C	D	C	E	F	F	G	G	G
24	4	5	G	G	G	G	F	F	E	D	D	D	C	A	B	B	B	C	C	C	D	E	E	E	D	E
24	4	6	D	E	E	D	D	D	D	D	D	C	A	A	A	C	C	D	D	D	D	E	E	E	D	E
24	4	7	E	E	E	E	E	F	F	E	D	D	D	D	D	C	D	D	D	D	D	E	E	E	E	E
24	4	8	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	9	E	G	G	G	G	E	G	E	D	D	B	B	B	D	D	D	D	D	D	G	G	G	G	G
24	4	10	G	G	G	G	G	G	G	F	E	D	D	C	D	D	D	D	D	E	E	E	E	E	E	E
24	4	11	E	E	D	D	D	D	D	D	D	B	B	B	B	A	B	C	C	D	D	E	E	E	E	E
24	4	12	F	F	E	E	E	E	E	D	D	D	B	B	B	C	C	D	D	D	D	G	G	G	G	G
24	4	13	G	G	G	G	G	F	F	E	D	C	B	B	A	D	D	D	C	D	D	E	E	E	E	E
24	4	14	E	E	E	F	G	G	G	E	D	D	A	A	-	A	A	A	B	C	E	F	F	E	E	E
24	4	15	E	E	E	F	E	E	E	D	D	B	A	A	-	-	A	A	B	B	D	D	D	D	E	E
24	4	16	D	D	D	D	D	E	D	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D
24	4	17	E	D	E	E	D	D	D	D	D	D	D	D	C	C	C	C	C	C	D	E	F	F	E	E
24	4	18	E	E	E	E	D	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	19	E	E	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	20	E	E	E	E	E	E	E	D	D	C	B	C	B	C	C	D	C	D	D	D	D	E	E	F
24	4	21	F	G	G	F	F	F	E	D	D	D	D	B	C	B	D	D	D	D	D	F	G	F	F	F
24	4	22	F	F	F	F	F	E	E	E	D	C	B	A	B	B	A	C	D	D	D	E	E	E	E	E
24	4	23	E	E	E	E	E	F	F	E	D	D	D	C	C	B	C	C	D	D	E	E	G	G	F	F
24	4	24	G	G	G	G	G	F	F	E	D	C	C	B	A	A	D	B	D	D	D	E	E	E	E	E
24	4	25	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	4	26	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	D	E	E	D	E	E	D
24	4	27	E	E	E	E	F	F	E	D	D	D	D	C	C	D	D	E	E	E	E	E	E	E	E	E
24	4	28	E	E	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E
24	4	29	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	F	G	G	G	F
24	4	30	F	F	F	F	F	F	F	F	E	C	B	B	A	D	D	D	E	E	F	G	F	E	E	E
24	5	1	E	E	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	5	2	D	D	E	E	D	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F
24	5	3	G	G	G	G	G	G	G	F	E	D	D	C	B	A	A	A	B	C	D	E	E	E	D	D
24	5	4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	C	D	E	E	G	G	G	G
24	5	5	G	G	G	G	G	F	F	E	D	D	C	C	C	C	C	C	D	D	B	D	E	E	E	E
24	5	6	E	D	D	D	D	D	D	D	D	D	B	A	C	D	C	D	D	D	D	D	D	E	E	E
24	5	7	D	E	E	E	E	E	D	D	D	C	C	B	B	A	B	C	B	D	D	F	G	F	F	F
24	5	8	G	F	F	F	F	G	E	D	C	A	A	A	A	A	A	B	D	A	D	E	E	E	E	E
24	5	9	E	E	E	E	E	E	E	D	C	C	D	B	B	B	C	D	D	D	E	E	E	E	G	G
24	5	10	G	G	G	G	F	E	E	D	C	B	A	D	C	A	A	A	C	D	D	D	E	F	F	F
24	5	11	F	G	G	G	G	G	E	E	C	A	-	A	-	-	-	A	A	A	C	E	G	F	F	F
24	5	12	E	E	E	E	E	E	D	D	C	A	A	A	A	B	B	B	D	D	D	D	D	D	D	D
24	5	13	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	E
24	5	14	E	E	E	E	E	E	E	D	C	D	D	D	D	B	D	D	D	D	E	F	G	F	F	F

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

YR	MN	DY	HOURS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	5	15	F	E	E	E	E	E	D	D	C	C	B	B	B	A	C	D	D	D	D	E	D	E	E	E
24	5	16	E	F	E	E	E	E	D	C	D	D	D	D	C	A	C	A	A	C	D	E	F	G	F	G
24	5	17	G	G	G	G	G	G	F	D	B	A	A	-	-	A	A	A	A	D	E	E	E	E	E	E
24	5	18	E	E	E	E	E	E	D	D	D	A	A	-	-	A	B	C	D	D	D	E	F	F	F	E
24	5	19	E	E	E	E	E	D	D	D	D	D	B	A	A	C	B	A	D	E	E	F	E	E	E	E
24	5	20	E	E	F	F	D	E	E	D	D	B	A	B	A	B	B	A	B	D	C	D	D	D	D	D
24	5	21	D	D	D	D	D	D	D	D	C	D	D	D	D	A	A	B	C	C	D	D	D	D	D	D
24	5	22	E	E	E	E	E	E	D	D	B	B	A	A	A	-	A	B	B	D	D	E	E	E	E	E
24	5	23	E	E	E	E	E	F	E	C	B	A	A	A	-	-	-	-	-	A	D	D	B	D	D	D
24	5	24	D	C	D	D	D	D	D	C	C	C	D	D	A	C	C	D	D	D	D	E	E	F	G	G
24	5	25	G	G	G	G	G	F	E	C	D	C	A	A	-	-	-	A	A	A	D	D	D	D	E	E
24	5	26	D	D	E	E	E	E	D	C	D	B	B	A	A	A	A	A	D	A	E	E	E	E	F	F
24	5	27	E	D	E	E	D	D	D	D	D	D	D	D	D	C	A	D	D	D	D	D	E	F	G	G
24	5	28	G	F	F	F	F	F	E	C	B	B	A	B	D	C	D	D	D	D	E	E	F	F	G	F
24	5	29	G	F	F	G	F	E	D	C	B	A	A	A	A	A	A	A	A	A	A	C	D	D	E	D
24	5	30	D	D	D	D	D	D	D	B	B	A	A	A	A	A	-	A	C	E	D	E	D	E	D	D
24	5	31	D	D	D	D	D	D	D	D	D	D	C	D	C	C	D	C	D	D	D	E	F	F	F	F
24	6	1	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	C	A	A	A	F	G	G	G	F
24	6	2	F	F	F	F	E	D	D	D	C	B	B	B	C	B	C	C	D	D	D	D	D	D	D	D
24	6	3	D	D	E	E	D	E	D	D	B	B	B	B	A	A	C	C	C	B	D	D	E	E	E	E
24	6	4	E	E	F	F	E	E	E	D	B	A	A	A	A	A	A	C	E	D	D	E	D	E	E	E
24	6	5	E	F	F	G	F	E	E	D	D	B	B	A	A	A	A	B	A	B	B	E	E	E	F	G
24	6	6	G	F	E	F	F	E	D	D	C	D	D	D	D	D	A	D	D	D	E	F	G	G	G	G
24	6	7	G	G	G	F	G	G	F	E	C	B	A	D	A	A	A	A	B	D	E	D	D	E	D	D
24	6	8	E	E	E	E	F	F	D	C	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	E
24	6	9	E	E	E	E	F	F	E	D	D	D	D	D	C	D	D	D	D	D	E	F	G	G	G	F
24	6	10	G	G	G	G	G	G	F	E	D	C	C	A	C	C	A	A	A	A	A	E	F	F	F	G
24	6	11	G	F	G	F	E	E	D	D	D	B	B	A	A	A	A	A	A	A	D	E	E	E	E	E
24	6	12	E	E	E	E	E	E	D	C	D	D	B	B	A	A	A	B	C	D	D	D	D	D	E	D
24	6	13	D	D	D	E	F	F	E	D	D	C	A	-	A	A	C	D	D	D	D	E	E	E	E	E
24	6	14	F	F	F	E	E	E	E	D	B	A	A	A	A	A	-	A	A	D	D	E	E	E	E	E
24	6	15	F	E	D	D	D	D	D	D	D	C	B	A	A	A	A	B	B	C	C	D	E	E	E	E
24	6	16	E	D	D	D	D	D	E	D	D	C	D	D	D	D	D	D	D	D	D	D	D	E	E	D
24	6	17	D	D	D	E	E	E	D	C	C	C	B	B	B	B	C	C	D	D	D	D	D	E	D	D
24	6	18	D	D	D	D	D	D	D	D	D	C	D	D	D	C	D	D	D	D	D	D	E	D	D	D
24	6	19	D	D	D	D	D	D	D	D	D	D	D	D	C	C	D	D	D	D	D	D	D	D	D	D
24	6	20	D	D	D	D	D	D	D	D	C	C	C	C	B	A	A	B	B	C	B	D	D	D	D	E
24	6	21	D	E	E	E	E	E	D	C	C	D	C	C	D	C	A	D	D	D	D	D	D	E	D	D
24	6	22	D	D	D	E	E	E	D	D	D	D	D	C	B	A	C	B	B	D	D	D	D	E	E	E
24	6	23	E	E	E	F	F	F	E	D	C	B	A	A	A	A	A	A	B	C	D	E	F	F	E	E
24	6	24	E	E	E	E	D	E	D	C	B	B	B	B	A	B	C	D	D	D	E	E	E	E	D	D
24	6	25	D	D	D	D	D	D	D	C	B	B	A	A	A	A	A	B	C	D	D	E	E	F	E	E
24	6	26	D	D	D	D	D	D	D	D	C	D	D	D	D	B	B	B	A	D	D	F	G	G	G	G
24	6	27	G	G	F	E	E	D	D	D	C	B	B	C	D	D	D	C	C	C	D	D	D	D	D	D
24	6	28	D	D	D	D	E	D	D	D	D	D	C	C	D	C	C	D	D	D	D	D	D	F	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	6	29	F	F	E	E	D	D	D	D	B	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D
24	6	30	D	D	D	D	D	E	D	D	C	C	C	B	B	B	B	B	C	C	D	D	D	D	D	D

JFDs of 10-Meter Wind vs. Delta T

July-September 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	1	0	2	0	1	1	4	5	1	2	0	0	17
3.51- 7.50	0	0	10	4	2	4	4	8	3	7	4	5	3	2	0	1	57
7.51-12.50	3	4	5	2	1	5	31	35	8	3	2	0	0	1	4	0	104
12.51-18.50	1	0	0	0	1	1	14	34	9	0	0	0	0	0	0	0	60
18.51-24.00	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	4	15	6	5	10	51	78	23	11	10	10	4	5	4	1	241

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	2	1	0	0	2	1	0	1	0	0	1	1	10
3.51- 7.50	4	3	2	7	2	11	10	4	1	3	6	7	0	3	2	1	66
7.51-12.50	6	11	1	0	1	6	13	14	22	4	2	0	1	4	2	0	87
12.51-18.50	2	0	0	0	0	0	1	8	2	0	0	0	0	0	0	1	14
18.51-24.00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	14	4	7	5	18	25	26	28	8	8	8	1	7	5	3	179

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	2	4	1	1	1	0	2	2	0	1	1	1	1	1	2	21
3.51- 7.50	4	5	2	3	2	7	8	6	5	5	6	3	3	6	6	4	75
7.51-12.50	11	6	2	0	0	1	9	10	12	5	1	1	0	5	10	6	79
12.51-18.50	0	0	0	0	0	0	9	5	10	2	0	0	0	0	1	0	27
18.51-24.00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	16	13	8	4	3	9	27	23	30	12	8	5	4	12	18	12	204

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	2	11	7	10	8	11	5	3	3	3	5	5	4	4	1	2	84
3.51- 7.50	41	27	11	9	17	29	52	27	15	5	11	2	5	5	16	18	290
7.51-12.50	14	11	2	0	2	7	52	28	16	12	7	0	2	2	14	18	187
12.51-18.50	8	1	0	0	0	0	9	2	16	5	0	0	1	0	4	1	47
18.51-24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	65	50	20	19	27	47	118	60	51	25	23	7	12	11	35	39	610

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	7
1.01- 3.50	26	8	3	8	5	5	9	14	27	20	8	4	6	6	24	20	193
3.51- 7.50	24	7	2	1	5	12	16	51	50	10	1	1	2	4	11	11	208
7.51-12.50	5	0	0	0	0	1	2	5	18	8	1	0	1	2	2	1	46
12.51-18.50	4	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	8
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	59	15	5	9	10	18	27	70	96	39	10	5	9	12	38	34	463

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	20
1.01- 3.50	27	4	2	1	2	2	5	6	23	18	14	10	16	20	35	29	214
3.51- 7.50	3	0	0	0	0	0	2	2	19	9	2	3	1	2	8	2	53
7.51-12.50	0	0	0	0	0	0	0	0	7	2	1	0	1	1	0	0	12
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	30	4	2	1	2	2	7	8	49	29	17	13	18	23	43	31	299

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	32
1.01- 3.50	3	1	1	0	0	2	0	2	16	12	15	7	13	31	32	25	160
3.51- 7.50	1	0	0	0	0	0	0	0	0	0	2	0	2	0	1	2	8
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	1	1	0	0	2	0	2	16	12	17	7	16	31	33	27	201

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	60
1.01- 3.50	59	26	18	20	19	22	21	27	74	55	47	33	41	64	94	79	699
3.51- 7.50	77	42	27	24	28	63	92	98	93	39	32	21	16	22	44	39	757
7.51-12.50	39	32	10	2	4	20	107	92	83	34	14	1	6	15	32	25	516
12.51-18.50	15	1	0	0	1	1	33	49	38	8	0	0	1	0	6	3	156
18.51-24.00	0	0	0	0	0	0	2	1	5	0	0	0	0	0	0	1	9
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	190	101	55	46	52	106	255	267	293	136	93	55	64	101	176	147	2197

NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2208

TOTAL NUMBER OF VALID OBSERVATIONS: 2197

TOTAL NUMBER OF MISSING OBSERVATIONS: 11

PERCENT DATA RECOVERY FOR THIS PERIOD: 99.5 %

MEAN WIND SPEED FOR THIS PERIOD: 5.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
10.97	8.15	9.29	27.77	21.07	13.61	9.15

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	4	4	15	6	5	10	51	78	23	11	10	10	4	5	4	1	0
B	12	14	4	7	5	18	25	26	28	8	8	8	1	7	5	3	0
C	16	13	8	4	3	9	27	23	30	12	8	5	4	12	18	12	0
D	65	50	20	19	27	47	118	60	51	25	23	7	12	11	35	39	1
E	59	15	5	9	10	18	27	70	96	39	10	5	9	12	38	34	7
F	30	4	2	1	2	2	7	8	49	29	17	13	18	23	43	31	20
G	4	1	1	0	0	2	0	2	16	12	17	7	16	31	33	27	32
TOTAL	190	101	55	46	52	106	255	267	293	136	93	55	64	101	176	147	60

JFDs of 10-Meter Wind vs. Delta T

October-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12.51-18.50	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	7
18.51-24.00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	0	0	2	0	0	0	0	1	8	0	0	0	0	0	0	0	11

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	2	2	0	1	0	1	0	0	0	0	1	0	0	0	0	1	8
7.51-12.50	2	2	2	2	0	0	0	0	0	1	0	0	0	0	0	3	12
12.51-18.50	1	0	0	0	0	0	0	2	4	1	0	0	0	0	0	2	10
18.51-24.00	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3
>24.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL	5	4	2	3	1	1	0	2	9	2	1	0	0	0	0	6	36

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	4
3.51- 7.50	5	4	0	1	2	1	4	2	0	0	0	1	0	0	0	2	22
7.51-12.50	0	5	4	1	0	0	0	0	0	5	1	0	0	1	0	1	18
12.51-18.50	0	0	0	0	0	3	1	0	5	8	0	0	0	0	0	6	23
18.51-24.00	0	0	0	0	0	0	0	1	4	3	0	0	0	0	0	0	8
>24.00	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	7
TOTAL	6	9	5	3	2	5	5	3	13	19	1	1	0	1	0	9	82

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	6	4	7	7	8	8	4	6	1	4	2	1	0	4	4	7	73
3.51- 7.50	32	24	21	14	10	21	16	14	5	5	7	5	6	14	16	21	231
7.51-12.50	19	19	10	9	11	17	21	15	16	9	6	9	12	18	37	49	277
12.51-18.50	8	0	0	0	1	6	16	15	20	6	1	3	5	15	30	60	186
18.51-24.00	0	0	0	0	0	0	6	1	18	5	1	2	0	5	3	6	47
>24.00	0	0	0	0	0	0	0	0	8	3	0	0	0	0	0	0	11
TOTAL	65	47	38	30	30	52	63	51	68	32	17	20	23	56	90	143	825

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	9	12	15	3	7	6	12	10	10	8	3	1	1	13	6	7	123
3.51- 7.50	20	18	10	13	7	19	23	20	21	10	12	5	10	13	21	21	243
7.51-12.50	24	6	4	0	0	5	39	32	34	23	14	7	11	16	34	19	268
12.51-18.50	8	3	0	0	0	1	6	10	17	4	0	0	0	1	9	7	66
18.51-24.00	0	0	0	0	0	0	0	0	2	9	0	0	0	0	2	3	16
>24.00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
TOTAL	61	39	29	16	14	31	80	72	85	56	29	13	22	43	72	57	720

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	14
1.01- 3.50	22	3	6	5	8	2	12	14	11	10	10	3	6	7	8	9	136
3.51- 7.50	18	8	0	1	0	1	4	14	34	10	2	2	6	6	5	5	116
7.51-12.50	1	0	0	0	0	0	0	1	16	2	0	1	2	3	3	0	29
12.51-18.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	41	11	6	6	8	3	16	29	62	22	12	6	14	16	16	14	296

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	42
1.01- 3.50	8	8	2	1	1	1	4	8	33	17	12	9	8	10	12	20	154
3.51- 7.50	5	0	0	1	0	0	1	1	4	2	1	0	1	5	5	0	26
7.51-12.50	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	6
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	16	8	2	2	2	1	5	9	38	19	13	9	9	15	17	21	228

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	57
1.01- 3.50	46	27	31	17	25	18	32	38	55	39	27	14	15	34	30	43	491
3.51- 7.50	82	56	32	31	19	43	48	51	64	27	23	13	23	38	47	50	647
7.51-12.50	49	32	21	12	12	22	60	48	67	40	21	17	25	38	74	73	611
12.51-18.50	17	3	0	0	1	10	23	27	54	19	1	3	5	16	39	75	293
18.51-24.00	0	0	0	0	0	0	6	3	27	17	1	2	0	5	5	9	75
>24.00	0	0	0	0	0	0	0	0	16	8	0	0	0	0	0	0	24
TOTAL	194	118	84	60	57	93	169	167	283	150	73	49	68	131	195	250	2198

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2208

TOTAL NUMBER OF VALID OBSERVATIONS: 2198

TOTAL NUMBER OF MISSING OBSERVATIONS: 10

PERCENT DATA RECOVERY FOR THIS PERIOD: 99.5 %

MEAN WIND SPEED FOR THIS PERIOD: 7.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.50	1.64	3.73	37.53	32.76	13.47	10.37

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	2	0	0	0	0	1	8	0	0	0	0	0	0	0	0
B	5	4	2	3	1	1	0	2	9	2	1	0	0	0	0	6	0
C	6	9	5	3	2	5	5	3	13	19	1	1	0	1	0	9	0
D	65	47	38	30	30	52	63	51	68	32	17	20	23	56	90	143	0
E	61	39	29	16	14	31	80	72	85	56	29	13	22	43	72	57	1
F	41	11	6	6	8	3	16	29	62	22	12	6	14	16	16	14	14
G	16	8	2	2	2	1	5	9	38	19	13	9	9	15	17	21	42
TOTAL	194	118	84	60	57	93	169	167	283	150	73	49	68	131	195	250	57

JFDs of 10-Meter Wind vs. Delta T

July-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	1	0	2	0	1	1	4	5	1	2	0	0	17
3.51- 7.50	0	0	11	4	2	4	4	8	3	7	4	5	3	2	0	1	58
7.51-12.50	3	4	6	2	1	5	31	35	8	3	2	0	0	1	4	0	105
12.51-18.50	1	0	0	0	1	1	14	34	16	0	0	0	0	0	0	0	67
18.51-24.00	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	4	4	17	6	5	10	51	79	31	11	10	10	4	5	4	1	252

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	3	1	0	0	2	1	0	1	0	0	1	1	11
3.51- 7.50	6	5	2	8	2	12	10	4	1	3	7	7	0	3	2	2	74
7.51-12.50	8	13	3	2	1	6	13	14	22	5	2	0	1	4	2	3	99
12.51-18.50	3	0	0	0	0	0	1	10	6	1	0	0	0	0	0	3	24
18.51-24.00	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	5
>24.00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL	17	18	6	10	6	19	25	28	37	10	9	8	1	7	5	9	215

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	2	2	5	2	1	2	0	2	2	0	1	1	1	1	1	2	25
3.51- 7.50	9	9	2	4	4	8	12	8	5	5	6	4	3	6	6	6	97
7.51-12.50	11	11	6	1	0	1	9	10	12	10	2	1	0	6	10	7	97
12.51-18.50	0	0	0	0	0	3	10	5	15	10	0	0	0	0	1	6	50
18.51-24.00	0	0	0	0	0	0	1	1	5	3	0	0	0	0	0	0	10
>24.00	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	7
TOTAL	22	22	13	7	5	14	32	26	43	31	9	6	4	13	18	21	286

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	8	15	14	17	16	19	9	9	4	7	7	6	4	8	5	9	157
3.51- 7.50	73	51	32	23	27	50	68	41	20	10	18	7	11	19	32	39	521
7.51-12.50	33	30	12	9	13	24	73	43	32	21	13	9	14	20	51	67	464
12.51-18.50	16	1	0	0	1	6	25	17	36	11	1	3	6	15	34	61	233
18.51-24.00	0	0	0	0	0	0	6	1	19	5	1	2	0	5	3	6	48
>24.00	0	0	0	0	0	0	0	0	8	3	0	0	0	0	0	0	11
TOTAL	130	97	58	49	57	99	181	111	119	57	40	27	35	67	125	182	1435

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	8
1.01- 3.50	35	20	18	11	12	11	21	24	37	28	11	5	7	19	30	27	316
3.51- 7.50	44	25	12	14	12	31	39	71	71	20	13	6	12	17	32	32	451
7.51-12.50	29	6	4	0	0	6	41	37	52	31	15	7	12	18	36	20	314
12.51-18.50	12	3	0	0	0	1	6	10	18	5	0	0	0	1	10	8	74
18.51-24.00	0	0	0	0	0	0	0	0	2	9	0	0	0	0	2	4	17
>24.00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
TOTAL	120	54	34	25	24	49	107	142	181	95	39	18	31	55	110	91	1183

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	34
1.01- 3.50	49	7	8	6	10	4	17	20	34	28	24	13	22	27	43	38	350
3.51- 7.50	21	8	0	1	0	1	6	16	53	19	4	5	7	8	13	7	169
7.51-12.50	1	0	0	0	0	0	0	1	23	4	1	1	3	4	3	0	41
12.51-18.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	71	15	8	7	10	5	23	37	111	51	29	19	32	39	59	45	595

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	74
1.01- 3.50	11	9	3	1	1	3	4	10	49	29	27	16	21	41	44	45	314
3.51- 7.50	6	0	0	1	0	0	1	1	4	2	3	0	3	5	6	2	34
7.51-12.50	3	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	7
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	9	3	2	2	3	5	11	54	31	30	16	25	46	50	48	429

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	117
1.01- 3.50	105	53	49	37	44	40	53	65	129	94	74	47	56	98	124	122	1190
3.51- 7.50	159	98	59	55	47	106	140	149	157	66	55	34	39	60	91	89	1404
7.51-12.50	88	64	31	14	16	42	167	140	150	74	35	18	31	53	106	98	1127
12.51-18.50	32	4	0	0	2	11	56	76	92	27	1	3	6	16	45	78	449
18.51-24.00	0	0	0	0	0	0	8	4	32	17	1	2	0	5	5	10	84
>24.00	0	0	0	0	0	0	0	0	16	8	0	0	0	0	0	0	24
TOTAL	384	219	139	106	109	199	424	434	576	286	166	104	132	232	371	397	4395

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 4416

TOTAL NUMBER OF VALID OBSERVATIONS: 4395

TOTAL NUMBER OF MISSING OBSERVATIONS: 21

PERCENT DATA RECOVERY FOR THIS PERIOD: 99.5 %

MEAN WIND SPEED FOR THIS PERIOD: 6.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
5.73	4.89	6.51	32.65	26.92	13.54	9.76

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	4	4	17	6	5	10	51	79	31	11	10	10	4	5	4	1	0
B	17	18	6	10	6	19	25	28	37	10	9	8	1	7	5	9	0
C	22	22	13	7	5	14	32	26	43	31	9	6	4	13	18	21	0
D	130	97	58	49	57	99	181	111	119	57	40	27	35	67	125	182	1
E	120	54	34	25	24	49	107	142	181	95	39	18	31	55	110	91	8
F	71	15	8	7	10	5	23	37	111	51	29	19	32	39	59	45	34
G	20	9	3	2	2	3	5	11	54	31	30	16	25	46	50	48	74
TOTAL	384	219	139	106	109	199	424	434	576	286	166	104	132	232	371	397	117

Stability Classes by Hour of Day

10-Meter Wind vs. Delta T

July-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	7	1	D	D	D	D	D	D	D	D	D	D	C	B	C	C	C	C	C	C	C	D	D	D	D	D
24	7	2	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	7	3	E	E	E	E	E	F	E	D	D	D	C	C	D	D	D	D	D	D	D	D	D	D	D	D
24	7	4	D	D	D	D	D	D	D	D	D	C	C	C	D	C	C	C	B	C	C	D	E	F	G	G
24	7	5	G	F	E	E	D	D	D	D	D	D	D	C	C	C	C	C	C	C	D	E	F	G	G	G
24	7	6	G	F	E	E	F	E	E	D	D	D	C	C	B	B	C	B	C	D	E	D	E	D	D	D
24	7	7	D	D	E	E	D	D	D	D	D	D	C	D	C	C	C	C	C	C	D	E	E	D	D	E
24	7	8	F	E	E	F	D	E	D	D	C	D	C	C	C	D	D	D	D	D	E	F	G	G	G	G
24	7	9	F	F	G	F	F	E	D	D	D	C	D	B	D	D	D	C	D	B	D	F	G	G	F	G
24	7	10	F	E	E	E	E	E	E	D	D	C	C	C	C	B	B	B	C	C	E	E	E	F	E	E
24	7	11	E	E	E	E	D	D	D	D	C	C	B	B	B	B	B	B	B	B	B	D	E	E	D	D
24	7	12	D	D	D	D	D	D	D	D	C	B	B	C	B	B	A	A	B	B	B	C	D	D	D	D
24	7	13	D	D	D	D	E	E	D	D	D	D	D	D	D	C	D	D	D	D	D	E	E	E	E	E
24	7	14	E	E	E	E	F	E	D	D	C	B	B	A	C	C	C	A	C	C	D	F	G	G	G	F
24	7	15	E	E	E	E	E	E	E	D	C	C	D	B	A	B	C	A	B	D	D	E	E	D	E	D
24	7	16	E	E	E	D	D	D	C	D	B	D	C	B	D	D	D	D	C	A	B	D	F	F	F	F
24	7	17	F	E	F	F	F	F	F	D	D	D	A	A	C	C	B	C	D	D	D	E	E	E	F	F
24	7	18	G	F	F	E	E	F	E	D	C	C	B	A	B	B	B	B	A	A	B	D	F	F	G	G
24	7	19	F	F	E	E	E	E	E	D	D	C	B	B	B	B	A	B	B	C	D	D	D	D	D	D
24	7	20	D	D	D	E	E	E	D	-	D	D	C	C	C	D	D	C	D	D	D	E	E	E	E	E
24	7	21	E	F	E	F	E	E	E	E	D	C	D	D	B	B	B	B	A	B	E	F	G	G	F	F
24	7	22	F	F	F	F	E	F	E	D	D	C	C	A	A	A	A	B	A	B	E	F	G	G	F	F
24	7	23	G	F	G	G	F	F	F	D	D	C	B	B	A	A	A	B	B	C	E	F	F	F	F	F
24	7	24	F	F	F	F	F	F	F	E	D	C	A	A	A	A	A	A	B	C	D	E	F	F	G	G
24	7	25	F	F	F	F	F	F	E	D	D	C	B	A	A	A	B	B	B	B	C	D	E	E	E	E
24	7	26	D	D	E	E	E	E	E	D	C	B	B	B	B	B	B	B	D	D	D	E	F	F	E	E
24	7	27	E	E	E	E	E	E	E	D	C	A	A	C	A	A	A	A	A	E	E	E	E	D	D	E
24	7	28	D	D	E	E	E	E	E	D	C	C	D	D	C	C	B	C	D	D	D	D	D	D	D	E
24	7	29	E	E	E	F	F	F	F	E	C	D	D	A	A	A	A	B	B	B	E	E	F	F	F	F
24	7	30	E	E	D	D	D	D	D	C	B	A	A	A	A	-	A	A	D	E	E	E	D	D	D	D
24	7	31	D	E	E	E	E	E	E	D	B	A	A	A	A	A	A	A	D	D	D	D	D	E	E	F
24	8	1	F	E	E	E	F	F	E	D	D	D	C	C	D	A	A	A	D	D	D	E	E	E	F	F
24	8	2	F	F	E	E	E	E	D	C	D	D	C	B	B	B	B	B	C	D	D	F	G	G	G	G
24	8	3	F	G	G	G	F	F	F	E	C	A	A	B	A	A	A	A	C	D	E	F	F	F	F	E
24	8	4	F	F	F	F	F	F	F	D	D	D	D	D	C	D	D	D	D	E	E	E	E	F	E	E
24	8	5	E	F	F	G	F	F	F	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	D	D
24	8	6	D	D	D	D	D	D	D	D	C	B	D	C	B	B	B	C	D	C	D	D	D	D	D	D
24	8	7	D	D	D	E	E	E	E	D	C	B	A	-	A	A	A	A	A	B	D	E	F	F	F	F
24	8	8	F	F	E	E	E	E	E	D	D	D	D	C	D	B	B	C	D	D	D	E	F	E	E	F
24	8	9	G	G	F	E	E	E	E	D	D	C	C	C	A	A	B	C	B	D	D	F	G	G	G	G
24	8	10	G	G	G	G	F	F	F	E	D	D	D	C	B	C	B	B	C	D	D	E	E	E	E	F
24	8	11	F	E	E	E	F	F	E	D	D	D	D	B	B	C	A	B	D	D	D	D	D	D	D	D
24	8	12	D	D	D	D	D	D	D	D	C	C	C	C	C	C	B	C	D	D	D	D	D	E	E	D
24	8	13	D	D	D	D	D	D	D	D	D	D	C	A	B	B	B	C	C	D	D	D	D	D	D	D

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	8	14	D	D	D	D	D	D	D	D	D	C	B	A	A	A	A	B	C	D	D	E	E	D	D	E
24	8	15	E	E	E	E	E	E	D	D	C	D	B	B	A	B	A	B	D	C	E	F	G	G	G	G
24	8	16	G	F	G	F	F	F	E	D	D	B	C	C	D	B	B	C	C	D	F	G	G	G	G	G
24	8	17	G	G	E	E	E	E	E	D	D	C	D	A	A	A	B	E	D	D	E	F	F	F	F	F
24	8	18	E	E	F	F	F	F	F	D	D	D	D	D	D	C	C	D	D	D	E	E	E	E	E	E
24	8	19	E	E	E	E	E	F	F	E	D	C	A	A	A	A	A	A	A	C	D	E	F	E	E	E
24	8	20	F	E	E	E	E	E	D	D	D	D	D	D	C	C	B	B	B	C	D	D	E	E	E	E
24	8	21	D	E	E	E	E	E	D	D	D	C	B	A	A	A	A	A	A	B	D	D	D	D	D	D
24	8	22	D	D	D	D	D	D	E	D	D	C	C	B	B	D	A	A	A	B	D	D	E	D	D	E
24	8	23	E	E	E	E	E	E	E	D	D	D	D	D	D	B	A	A	B	B	D	D	D	D	D	D
24	8	24	E	E	E	E	E	E	E	D	D	B	A	A	A	A	A	A	A	A	C	D	D	D	D	D
24	8	25	D	D	D	D	D	D	D	D	C	C	D	C	D	C	D	D	E	E	E	E	E	E	E	E
24	8	26	F	F	F	F	F	F	E	D	D	B	A	A	A	A	B	D	D	E	F	G	G	G	G	G
24	8	27	G	D	D	D	D	E	E	D	A	A	A	A	A	A	A	-	-	D	F	F	F	E	E	E
24	8	28	E	E	E	D	E	E	E	D	D	B	A	A	A	A	A	A	A	A	D	E	E	E	E	E
24	8	29	E	E	E	E	E	F	E	D	C	C	C	A	C	D	C	D	D	E	D	D	D	D	D	D
24	8	30	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	E	G	G	G	G	F
24	8	31	F	G	G	G	F	F	F	E	D	C	B	A	A	A	A	A	B	D	F	G	G	G	G	G
24	9	1	F	F	G	F	F	F	E	D	B	C	B	A	A	A	A	B	D	D	E	F	F	F	F	F
24	9	2	F	G	G	G	F	G	G	E	D	C	A	A	A	B	B	B	C	D	F	F	F	F	F	G
24	9	3	G	F	F	F	F	F	E	D	D	C	B	A	A	A	A	A	A	B	D	F	E	F	E	E
24	9	4	F	F	F	E	E	F	F	E	D	C	A	A	A	A	A	A	C	C	E	E	E	E	F	F
24	9	5	F	F	F	F	F	F	F	F	D	C	D	C	A	A	B	B	D	C	D	E	E	E	E	E
24	9	6	E	E	E	E	E	E	E	D	D	B	B	A	A	B	C	D	C	D	E	F	F	G	G	G
24	9	7	G	G	G	G	G	G	G	F	D	B	B	A	B	A	A	B	B	D	E	F	G	G	G	G
24	9	8	G	F	G	G	G	G	F	E	D	B	A	A	A	A	A	A	B	C	E	F	F	F	F	F
24	9	9	E	F	F	F	G	G	G	E	D	C	B	A	A	A	A	B	C	D	E	F	F	F	F	F
24	9	10	F	F	E	F	F	G	F	E	D	B	B	A	A	A	A	A	B	D	E	F	F	F	F	G
24	9	11	G	G	G	G	F	F	F	F	D	C	B	A	A	A	A	A	A	D	F	F	F	F	F	E
24	9	12	F	F	F	F	F	E	E	E	D	C	A	A	A	A	A	A	C	D	E	E	F	F	F	E
24	9	13	F	F	F	F	F	F	G	F	C	C	A	A	-	-	A	A	A	B	D	D	D	D	E	E
24	9	14	E	E	E	E	E	E	E	E	D	D	C	A	A	A	A	-	A	C	E	D	E	E	E	E
24	9	15	E	E	E	E	E	E	E	D	C	B	B	A	A	A	A	-	A	B	D	E	F	F	F	E
24	9	16	E	E	E	F	E	E	E	D	B	B	A	A	A	A	A	A	A	D	D	D	E	E	E	E
24	9	17	E	E	E	E	E	E	E	D	D	C	A	A	A	A	A	A	A	D	D	E	F	F	F	E
24	9	18	E	E	E	E	E	E	E	D	C	C	C	A	A	A	A	A	B	C	D	D	E	E	E	E
24	9	19	E	E	E	E	E	E	E	D	D	B	A	B	C	A	A	A	D	D	F	F	E	E	E	E
24	9	20	E	F	G	G	G	G	G	F	D	B	A	A	-	A	-	A	A	D	E	F	E	E	E	F
24	9	21	F	F	E	F	E	E	E	E	D	D	D	D	A	A	A	A	D	D	E	E	E	E	E	E
24	9	22	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	E	E
24	9	23	E	E	E	E	F	G	F	E	D	D	D	D	C	D	C	D	C	E	G	G	G	G	G	G
24	9	24	G	G	G	G	F	F	F	F	E	D	D	D	A	D	D	D	D	E	F	G	G	G	G	G
24	9	25	G	G	G	G	G	G	G	F	D	D	D	D	B	C	B	D	D	E	G	G	G	G	G	G
24	9	26	G	G	G	G	G	G	G	F	E	D	C	C	B	A	A	B	C	E	G	G	G	G	G	G
24	9	27	G	G	G	G	G	G	G	F	D	D	D	D	B	B	D	D	D	E	E	G	G	G	G	G

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	9	28	G	F	F	F	F	F	F	E	D	C	C	C	C	C	C	D	D	E	G	G	G	G	G	G
24	9	29	G	G	G	G	G	G	G	G	E	E	D	B	A	A	A	B	D	E	F	F	G	G	G	G
24	9	30	G	G	G	G	G	G	G	F	D	D	C	B	B	A	B	B	C	F	E	E	E	E	E	E
24	10	1	E	E	E	E	E	E	E	E	D	C	C	B	B	B	B	C	D	E	G	G	G	G	G	G
24	10	2	G	G	G	G	G	G	G	F	D	C	A	A	A	A	A	B	D	E	F	F	F	G	G	G
24	10	3	F	F	F	F	F	G	F	E	D	D	C	C	B	A	B	D	D	D	F	F	E	E	E	E
24	10	4	E	E	E	E	E	E	E	D	D	D	C	B	B	B	B	C	D	D	E	E	E	F	E	E
24	10	5	E	F	F	F	F	F	F	F	D	D	C	D	C	C	D	D	C	D	E	E	E	E	E	E
24	10	6	F	F	G	G	G	G	G	F	D	D	C	B	B	C	C	B	D	E	F	G	G	G	G	G
24	10	7	G	G	G	G	G	G	G	G	E	D	C	D	C	C	D	D	D	F	G	G	G	G	G	G
24	10	8	G	G	G	G	G	G	G	F	E	D	D	D	C	C	C	D	D	E	F	F	G	G	G	G
24	10	9	G	G	G	G	G	G	G	G	E	D	D	D	C	B	C	D	D	E	F	G	G	G	G	G
24	10	10	G	G	G	G	G	G	F	F	D	D	D	A	B	A	B	B	C	E	F	F	F	F	F	G
24	10	11	F	E	G	F	F	F	G	F	D	C	D	C	C	B	B	C	D	G	F	F	F	F	F	F
24	10	12	E	E	E	F	F	F	F	G	D	D	D	C	B	D	C	D	D	E	E	F	F	G	G	G
24	10	13	G	G	F	F	F	E	E	E	D	D	D	C	B	B	C	D	D	E	E	E	E	F	E	F
24	10	14	F	F	F	F	G	G	G	G	E	D	D	D	D	D	C	D	D	E	F	G	G	G	G	F
24	10	15	E	F	E	E	E	E	E	E	D	D	B	A	C	C	D	D	D	E	F	G	G	G	G	G
24	10	16	G	G	G	G	G	G	G	G	F	D	D	D	C	D	D	D	E	F	F	F	F	F	F	F
24	10	17	F	E	E	E	F	F	E	E	D	D	D	A	B	B	C	C	D	E	E	E	E	E	E	E
24	10	18	E	E	E	E	E	E	E	E	D	D	C	B	B	A	B	C	D	E	E	E	F	E	F	F
24	10	19	E	E	E	E	F	F	F	E	D	D	D	C	C	C	C	C	D	E	F	F	E	E	E	E
24	10	20	E	F	G	E	E	E	F	F	E	D	D	C	C	C	C	C	D	E	F	F	F	E	E	F
24	10	21	E	F	F	E	F	F	F	F	E	D	D	C	B	B	D	D	D	E	E	E	E	G	F	E
24	10	22	E	E	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	F	G	G	F	E	E	E
24	10	23	E	E	E	E	E	E	E	E	E	D	D	D	D	B	D	D	D	E	F	G	G	G	G	G
24	10	24	G	F	F	F	E	E	E	E	E	D	D	D	D	D	D	D	D	E	F	E	E	E	E	E
24	10	25	E	E	E	E	E	E	E	E	D	B	D	C	C	D	D	D	D	E	F	F	F	F	F	F
24	10	26	F	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	D	E	E	F	F	F	F	G
24	10	27	F	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	D	E	F	F	E	E	E	E
24	10	28	E	E	E	E	E	E	E	E	D	D	D	D	D	C	D	D	E	E	F	F	E	E	E	E
24	10	29	E	E	E	E	E	E	E	E	D	D	C	C	C	C	D	D	D	D	E	E	E	E	D	D
24	10	30	D	D	D	E	E	E	E	E	D	E	D	D	E	D	D	E	D	E	D	E	D	D	D	E
24	10	31	D	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	G	G	G	G	G	G
24	11	1	G	G	G	F	F	F	F	F	D	D	D	D	D	D	D	D	E	E	F	F	F	F	E	E
24	11	2	E	F	F	F	F	F	F	E	E	E	E	E	D	D	D	D	E	E	E	E	E	E	E	E
24	11	3	E	E	E	E	E	E	D	E	E	E	D	D	D	D	D	E	E	E	E	E	E	E	E	E
24	11	4	E	E	E	E	E	E	E	E	E	D	E	D	D	D	E	E	E	E	E	E	E	E	E	E
24	11	5	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	F	G	G	G	G	G
24	11	6	G	G	F	G	G	F	E	F	E	E	E	E	E	D	D	D	E	E	G	G	F	F	F	E
24	11	7	E	E	E	E	F	F	F	E	D	D	D	C	C	C	C	D	D	E	F	F	F	F	F	F
24	11	8	F	F	F	F	F	F	F	F	E	D	E	E	D	D	D	D	E	E	E	E	E	E	E	E
24	11	9	D	D	E	E	D	D	D	D	-	-	C	D	D	D	D	D	E	F	E	E	E	E	E	E
24	11	10	E	E	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	E	F	F	G	G	G	G
24	11	11	F	F	F	F	G	G	G	G	F	D	D	D	D	D	B	C	D	E	F	F	E	E	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	11	12	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	11	13	E	E	E	E	E	E	E	E	E	E	E	E	E	E	D	D	E	E	E	E	E	E	E	E
24	11	14	E	E	E	E	E	F	E	E	D	E	D	D	D	D	D	D	E	F	G	F	G	G	G	G
24	11	15	G	G	G	G	G	G	G	G	G	E	D	E	D	D	D	D	E	E	E	E	E	E	E	E
24	11	16	E	F	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E
24	11	17	E	E	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	F	F	F	F	F	F
24	11	18	E	E	E	E	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	E	D	D	D
24	11	19	D	D	D	D	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	11	20	E	E	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	D
24	11	21	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	11	22	E	E	F	E	E	F	E	E	E	D	D	D	D	D	D	D	E	F	G	G	G	G	G	G
24	11	23	G	G	G	G	F	E	F	F	E	E	E	D	D	D	E	E	E	E	E	E	E	F	F	E
24	11	24	F	F	G	G	F	F	G	G	F	E	D	D	D	D	D	E	E	D	D	D	D	D	D	D
24	11	25	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	E	E	E	F	G	G	G
24	11	26	G	G	G	G	F	F	F	G	F	E	E	D	D	D	D	E	D	E	E	E	F	F	F	F
24	11	27	F	F	E	F	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	11	28	E	D	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	11	29	E	E	E	F	F	E	E	E	D	D	D	D	C	D	D	D	D	E	E	E	E	E	E	E
24	11	30	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	1	D	D	E	E	E	E	E	E	D	D	C	C	C	C	D	C	D	E	D	D	D	D	E	E
24	12	2	E	E	F	F	E	D	E	D	D	D	C	D	D	D	D	D	D	E	E	E	E	E	E	E
24	12	3	F	E	D	D	D	E	E	E	D	D	D	D	C	B	C	D	E	E	E	F	F	F	E	E
24	12	4	E	E	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	E	E	E	D	D	D
24	12	5	D	D	D	D	D	D	D	D	D	D	B	D	D	D	D	D	D	D	D	D	E	F	F	F
24	12	6	E	F	E	E	E	E	F	F	E	D	D	D	D	D	D	D	E	G	G	F	G	G	G	G
24	12	7	G	G	G	G	G	G	G	F	F	E	E	D	D	D	D	E	E	E	E	E	E	E	E	E
24	12	8	E	E	E	E	E	E	E	F	F	E	D	D	D	D	C	D	E	E	E	E	E	E	E	F
24	12	9	E	F	F	F	F	G	G	F	F	F	D	E	D	E	E	E	E	E	D	D	D	D	E	E
24	12	10	E	E	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	D
24	12	11	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	12	D	D	D	D	D	D	D	D	D	D	D	D	D	C	C	D	D	D	E	E	D	D	D	D
24	12	13	D	D	D	D	D	D	D	D	D	D	C	C	C	D	D	D	D	D	D	D	D	D	D	D
24	12	14	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E
24	12	15	E	D	E	E	E	E	D	E	E	D	D	D	D	D	D	E	E	F	F	F	F	F	G	G
24	12	16	G	G	G	G	F	E	E	E	E	E	D	D	D	D	E	D	E	F	F	F	G	G	G	G
24	12	17	G	G	G	G	G	G	G	G	G	F	E	D	D	D	E	E	E	E	E	D	D	D	E	E
24	12	18	E	E	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	F	F	F	F	F	F	F
24	12	19	E	E	E	E	E	E	E	E	D	D	D	D	D	D	E	E	D	D	D	D	D	D	D	D
24	12	20	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F	F
24	12	21	F	G	G	F	F	E	E	F	F	D	D	D	D	D	D	D	E	F	F	F	F	F	F	E
24	12	22	E	F	F	E	E	E	E	E	E	D	D	D	D	C	D	D	D	E	E	F	F	F	F	F
24	12	23	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	F	F	G	G	F	F
24	12	24	F	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	25	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	26	D	E	E	D	D	D	D	D	D	E	D	D	E	D	E	E	E	E	E	E	E	E	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	12	27	E	E	E	E	E	E	E	E	E	E	E	E	D	D	E	D	D	E	E	E	F	E	E	E
24	12	28	E	E	F	F	F	E	E	D	D	D	E	D	D	E	E	E	D	D	D	D	D	D	D	D
24	12	29	E	D	D	D	E	E	E	F	F	D	D	D	D	D	D	D	D	F	F	F	F	F	F	E
24	12	30	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	D	D	D	D	D	D
24	12	31	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

JFDs of 10-Meter Wind vs. Delta T

January-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	1	1	1	2	4	1	2	0	1	1	4	5	1	2	0	1	27
3.51- 7.50	3	4	14	6	4	10	8	11	10	10	8	6	6	3	4	2	109
7.51-12.50	5	8	13	4	6	14	44	40	13	11	8	12	1	6	11	0	196
12.51-18.50	2	3	0	0	1	2	28	38	25	2	2	1	0	4	2	1	111
18.51-24.00	0	0	0	0	0	1	5	2	4	3	0	0	0	1	0	2	18
>24.00	0	0	0	0	0	0	1	1	2	2	0	1	0	0	0	1	8
TOTAL	11	16	28	12	15	28	88	92	55	29	22	25	8	16	17	7	470

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	0	2	0	4	1	0	0	3	1	0	2	1	0	1	2	17
3.51- 7.50	7	6	7	11	9	17	15	6	4	4	8	10	1	5	2	5	117
7.51-12.50	12	16	9	2	5	11	26	20	28	13	5	3	6	8	10	8	182
12.51-18.50	11	1	0	0	0	2	8	16	13	8	2	3	0	0	1	5	70
18.51-24.00	0	0	0	0	0	0	3	5	5	3	1	0	0	1	0	6	24
>24.00	0	0	0	0	0	0	0	1	4	3	0	0	0	0	0	2	10
TOTAL	30	23	18	13	18	31	52	48	57	32	16	18	8	14	14	28	421

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	4	3	7	5	1	3	0	2	3	0	1	2	2	1	1	4	39
3.51- 7.50	18	17	7	9	8	15	20	10	6	8	10	4	5	9	11	11	168
7.51-12.50	30	14	10	2	4	6	22	14	23	18	5	3	2	8	19	15	195
12.51-18.50	4	0	0	0	0	7	16	8	26	24	4	3	1	2	12	26	133
18.51-24.00	7	2	0	0	0	0	4	3	11	5	2	0	0	1	4	6	45
>24.00	0	0	0	0	0	2	0	0	6	4	0	0	0	0	1	0	13
TOTAL	63	36	24	16	13	33	62	37	75	59	22	12	10	21	48	62	594

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	4
1.01- 3.50	22	26	27	26	20	27	14	12	17	11	12	11	6	12	11	18	272
3.51- 7.50	147	96	55	40	44	77	86	68	35	26	35	20	34	40	83	94	980
7.51-12.50	96	82	31	16	26	56	122	82	61	59	37	31	34	53	125	141	1052
12.51-18.50	71	18	0	0	2	20	62	54	89	47	12	14	20	27	102	147	685
18.51-24.00	19	5	1	0	0	0	10	7	49	15	8	5	3	5	18	25	170
>24.00	1	0	0	0	0	1	2	3	17	10	0	0	0	0	0	0	34
TOTAL	356	227	114	82	92	181	296	226	268	168	104	81	97	137	339	425	3197

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	12
1.01- 3.50	75	37	24	14	20	15	33	29	51	39	19	12	13	25	47	41	494
3.51- 7.50	82	46	34	21	25	52	58	96	114	50	30	15	22	29	60	65	799
7.51-12.50	60	23	11	3	4	15	50	56	97	69	30	22	28	35	81	52	636
12.51-18.50	27	3	0	0	0	3	11	27	26	14	1	0	5	5	19	17	158
18.51-24.00	1	0	0	1	0	0	0	0	14	10	0	0	0	0	3	4	33
>24.00	2	0	0	0	0	0	0	1	6	3	0	0	0	0	0	0	12
TOTAL	247	109	69	39	49	85	152	209	308	185	80	49	68	94	210	179	2144

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	40
1.01- 3.50	65	13	8	9	13	8	19	30	53	36	29	19	31	31	67	63	494
3.51- 7.50	39	17	1	4	1	2	10	22	73	28	10	9	12	17	23	19	287
7.51-12.50	6	0	0	0	0	0	2	3	46	13	2	2	6	12	8	3	103
12.51-18.50	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	110	30	9	13	14	10	31	55	173	77	41	30	50	60	98	85	926

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	117
1.01- 3.50	31	19	6	11	2	6	12	27	82	53	46	27	33	58	72	68	553
3.51- 7.50	10	1	3	2	0	0	1	4	9	3	4	4	6	11	15	7	80
7.51-12.50	14	1	0	0	1	0	0	0	1	0	0	1	1	1	0	2	22
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	55	21	9	13	3	6	13	31	92	56	50	32	40	70	87	77	772

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 10.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	176
1.01- 3.50	198	99	75	67	64	61	80	100	210	141	111	78	87	129	199	197	1896
3.51- 7.50	306	187	121	93	91	173	198	217	251	129	105	68	86	114	198	203	2540
7.51-12.50	223	144	74	27	46	102	266	215	269	183	87	74	78	123	254	221	2386
12.51-18.50	115	25	0	0	3	34	125	143	180	95	21	21	27	38	136	196	1159
18.51-24.00	27	7	1	1	0	1	22	17	83	36	11	5	3	8	25	43	290
>24.00	3	0	0	0	0	3	3	6	35	22	0	1	0	0	1	3	77
TOTAL	872	462	271	188	204	374	694	698	1028	606	335	247	281	412	813	863	8524

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:10M WIND VS 10M DELTA T - JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 60.0 AND 10.0 METERS
WIND MEASURED AT: 10.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 8784

TOTAL NUMBER OF VALID OBSERVATIONS: 8524

TOTAL NUMBER OF MISSING OBSERVATIONS: 260

PERCENT DATA RECOVERY FOR THIS PERIOD: 97.0 %

MEAN WIND SPEED FOR THIS PERIOD: 7.9 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
5.51	4.94	6.97	37.51	25.15	10.86	9.06

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	11	16	28	12	15	28	88	92	55	29	22	25	8	16	17	7	1
B	30	23	18	13	18	31	52	48	57	32	16	18	8	14	14	28	1
C	63	36	24	16	13	33	62	37	75	59	22	12	10	21	48	62	1
D	356	227	114	82	92	181	296	226	268	168	104	81	97	137	339	425	4
E	247	109	69	39	49	85	152	209	308	185	80	49	68	94	210	179	12
F	110	30	9	13	14	10	31	55	173	77	41	30	50	60	98	85	40
G	55	21	9	13	3	6	13	31	92	56	50	32	40	70	87	77	117
TOTAL	872	462	271	188	204	374	694	698	1028	606	335	247	281	412	813	863	176

JFDs of 100-Meter Wind vs. Delta T

January-March 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-MAR 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12.51-18.50	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-MAR 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	1	3	2	0	0	0	1	0	0	0	0	0	0	0	0	1	8
12.51-18.50	0	1	2	0	0	1	2	1	1	2	0	0	0	0	0	1	11
18.51-24.00	0	0	0	0	0	0	1	0	1	4	0	0	0	0	0	4	10
>24.00	0	0	0	0	0	0	0	1	1	1	1	0	1	0	0	3	8
TOTAL	1	5	4	0	0	1	4	2	3	7	1	0	1	0	0	9	38

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	1	4	4	3	0	2	4	3	1	5	3	3	3	2	2	41
3.51- 7.50	25	8	12	10	5	6	8	11	2	3	7	8	4	12	13	13	147
7.51-12.50	28	19	16	15	20	12	21	2	16	15	4	7	9	10	37	31	262
12.51-18.50	30	27	20	12	6	32	19	5	8	39	7	5	15	8	49	62	344
18.51-24.00	20	7	1	0	2	9	8	9	16	4	7	8	6	4	40	33	174
>24.00	38	6	0	0	0	0	2	3	18	7	1	1	0	0	15	31	122
TOTAL	142	68	53	41	36	59	60	34	63	69	31	32	37	37	156	172	1090

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-MAR 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	1	1	2	3	3	2	1	0	2	1	2	2	1	2	0	26
3.51- 7.50	14	10	6	8	6	6	3	3	2	1	4	4	1	1	4	9	82
7.51-12.50	10	10	9	8	5	12	5	9	6	12	7	6	0	3	9	21	132
12.51-18.50	14	8	10	8	15	22	8	16	25	26	14	6	4	9	17	40	242
18.51-24.00	11	4	0	2	2	3	3	4	14	16	6	8	6	16	12	9	116
>24.00	5	1	0	0	0	0	0	3	22	4	1	1	4	2	8	6	57
TOTAL	57	34	26	28	31	46	21	36	69	61	33	27	17	32	52	85	655

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	1	0	1	0	0	0	0	2	1	0	0	1	1	0	0	8
3.51- 7.50	5	0	1	2	0	2	1	0	1	2	1	0	0	1	4	3	23
7.51-12.50	3	1	4	1	2	0	3	6	9	2	1	2	2	1	7	3	47
12.51-18.50	1	1	3	2	1	11	1	8	11	5	3	8	2	2	5	7	71
18.51-24.00	0	0	0	0	0	1	0	1	0	5	0	3	4	2	2	0	18
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3
TOTAL	10	3	8	6	3	14	5	15	23	15	5	13	10	9	18	13	170

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-MAR 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	0	2	1	1	1	0	0	1	1	1	3	2	2	0	1	19
3.51- 7.50	3	5	2	4	3	4	2	1	5	6	5	5	2	4	5	8	64
7.51-12.50	0	2	1	0	3	3	6	4	17	6	4	9	3	7	6	7	78
12.51-18.50	0	0	1	0	0	0	4	4	3	3	2	8	2	1	1	1	30
18.51-24.00	0	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	5
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6	7	6	5	7	8	12	9	26	16	13	26	10	16	12	17	196

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	8	3	7	8	7	4	4	5	6	5	7	8	8	7	4	3	94
3.51- 7.50	47	24	21	24	14	18	14	15	10	12	17	17	7	18	26	33	317
7.51-12.50	42	36	32	24	30	27	36	21	48	35	16	24	14	21	59	63	528
12.51-18.50	45	40	37	22	22	66	34	34	48	75	26	27	23	20	72	111	702
18.51-24.00	31	11	1	2	4	13	12	14	31	29	14	20	17	24	54	46	323
>24.00	43	7	0	0	0	0	2	7	41	12	3	2	6	4	23	40	190
TOTAL	216	121	98	80	77	128	102	96	184	168	83	98	75	94	238	296	2154

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-MAR 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 3/31/24

*** JAN-MAR 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2184

TOTAL NUMBER OF VALID OBSERVATIONS: 2154

TOTAL NUMBER OF MISSING OBSERVATIONS: 30

PERCENT DATA RECOVERY FOR THIS PERIOD: 98.6 %

MEAN WIND SPEED FOR THIS PERIOD: 14.1 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 36

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 34

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 36

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.23	1.76	50.60	30.41	7.89	9.10

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	1	5	4	0	0	1	4	2	3	7	1	0	1	0	0	9	0
D	142	68	53	41	36	59	60	34	63	69	31	32	37	37	156	172	0
E	57	34	26	28	31	46	21	36	69	61	33	27	17	32	52	85	0
F	10	3	8	6	3	14	5	15	23	15	5	13	10	9	18	13	0
G	6	7	6	5	7	8	12	9	26	16	13	26	10	16	12	17	0
TOTAL	216	121	98	80	77	128	102	96	184	168	83	98	75	94	238	296	0

JFDs of 100-Meter Wind vs. Delta T

April-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3
12.51-18.50	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
18.51-24.00	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
>24.00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3
TOTAL	1	0	3	2	0	0	0	0	0	3	0	0	0	0	0	2	11

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
7.51-12.50	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	6
12.51-18.50	3	0	2	0	0	1	0	0	0	1	0	0	0	0	0	8	15
18.51-24.00	2	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	8
>24.00	0	0	0	0	0	2	0	0	0	5	0	0	0	0	0	3	10
TOTAL	6	3	3	1	0	4	2	0	0	8	0	0	0	0	0	16	43

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	1	3	7	1	0	0	1	0	0	0	0	1	0	0	1	15
3.51- 7.50	21	18	9	6	6	12	18	9	10	11	1	7	9	11	4	15	167
7.51-12.50	14	23	13	9	13	19	34	30	20	24	17	14	19	20	31	30	330
12.51-18.50	17	6	4	4	5	15	44	32	31	18	19	21	10	8	31	51	316
18.51-24.00	8	2	0	0	2	18	37	12	23	12	4	3	2	4	15	36	178
>24.00	15	0	0	0	0	1	26	15	27	12	8	6	9	4	5	15	143
TOTAL	75	50	29	26	27	65	159	99	111	77	49	51	50	47	86	148	1149

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	3	1	1	1	1	1	3	1	1	2	0	0	0	0	1	0	16
3.51- 7.50	7	9	3	3	5	8	8	7	2	3	2	3	3	3	5	8	79
7.51-12.50	9	9	16	5	12	9	18	15	17	14	6	2	3	1	6	13	155
12.51-18.50	12	8	7	3	8	22	22	17	29	24	29	7	7	11	8	38	252
18.51-24.00	6	2	1	1	3	10	5	12	24	16	8	4	6	6	16	21	141
>24.00	1	0	1	0	0	3	1	5	17	3	0	0	0	0	3	4	38
TOTAL	38	29	29	13	29	53	57	57	90	62	45	16	19	21	39	84	682

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
1.01- 3.50	0	2	2	2	2	1	2	0	0	0	0	0	0	0	1	1	13
3.51- 7.50	5	5	4	6	3	1	4	2	4	4	0	3	1	1	2	3	48
7.51-12.50	5	7	6	1	5	3	10	10	5	9	1	2	1	3	2	10	80
12.51-18.50	3	3	0	0	1	0	4	4	1	7	1	3	2	2	5	12	48
18.51-24.00	2	0	1	0	1	0	0	0	0	4	3	0	0	2	1	7	21
>24.00	0	0	0	0	0	0	0	0	1	0	1	0	0	0	5	1	8
TOTAL	15	17	13	9	12	5	20	16	11	24	6	8	4	8	16	34	220

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
3.51- 7.50	2	3	1	0	2	1	4	3	0	0	1	1	2	0	1	1	22
7.51-12.50	0	1	0	0	0	4	4	4	2	3	2	5	4	1	1	5	36
12.51-18.50	0	1	0	0	0	0	0	3	4	5	1	0	0	0	1	3	18
18.51-24.00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	5	1	0	2	5	8	12	6	8	5	6	6	1	3	9	79

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	3	4	7	10	4	2	5	3	1	2	1	0	1	0	2	2	47
3.51- 7.50	35	37	17	16	16	22	34	21	16	18	4	14	15	15	12	27	319
7.51-12.50	29	41	37	16	30	36	66	59	44	50	26	23	27	25	40	61	610
12.51-18.50	35	18	14	8	14	38	70	56	65	55	50	31	19	21	45	112	651
18.51-24.00	19	4	2	1	6	28	44	25	47	35	15	7	8	12	32	67	352
>24.00	16	0	1	0	0	6	27	20	45	22	9	6	9	4	13	24	202
TOTAL	137	104	78	51	70	132	246	184	218	182	105	81	79	77	144	293	2184

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T APR-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 4/ 1/24 - 6/30/24

*** APR-JUN 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2184

TOTAL NUMBER OF VALID OBSERVATIONS: 2184

TOTAL NUMBER OF MISSING OBSERVATIONS: 0

PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %

MEAN WIND SPEED FOR THIS PERIOD: 14.4 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 0

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 0

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.50	1.97	52.61	31.23	10.07	3.62

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	1	0	3	2	0	0	0	0	0	3	0	0	0	0	0	2	0
C	6	3	3	1	0	4	2	0	0	8	0	0	0	0	0	16	0
D	75	50	29	26	27	65	159	99	111	77	49	51	50	47	86	148	0
E	38	29	29	13	29	53	57	57	90	62	45	16	19	21	39	84	1
F	15	17	13	9	12	5	20	16	11	24	6	8	4	8	16	34	2
G	2	5	1	0	2	5	8	12	6	8	5	6	6	1	3	9	0
TOTAL	137	104	78	51	70	132	246	184	218	182	105	81	79	77	144	293	3

JFDs of 100-Meter Wind vs. Delta T

January-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	4
12.51-18.50	0	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	6
18.51-24.00	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
>24.00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	3
TOTAL	1	4	4	2	0	0	0	0	0	3	0	0	0	0	0	2	16

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
7.51-12.50	2	4	2	0	0	1	1	0	0	0	0	0	0	0	0	4	14
12.51-18.50	3	1	4	0	0	2	2	1	1	3	0	0	0	0	0	9	26
18.51-24.00	2	0	0	0	0	0	3	0	1	6	0	0	0	0	0	6	18
>24.00	0	0	0	0	0	2	0	1	1	6	1	0	1	0	0	6	18
TOTAL	7	8	7	1	0	5	6	2	3	15	1	0	1	0	0	25	81

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	2	7	11	4	0	2	5	3	1	5	3	4	3	2	3	56
3.51- 7.50	46	26	21	16	11	18	26	20	12	14	8	15	13	23	17	28	314
7.51-12.50	42	42	29	24	33	31	55	32	36	39	21	21	28	30	68	61	592
12.51-18.50	47	33	24	16	11	47	63	37	39	57	26	26	25	16	80	113	660
18.51-24.00	28	9	1	0	4	27	45	21	39	16	11	11	8	8	55	69	352
>24.00	53	6	0	0	0	1	28	18	45	19	9	7	9	4	20	46	265
TOTAL	217	118	82	67	63	124	219	133	174	146	80	83	87	84	242	320	2239

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	6	2	2	3	4	4	5	2	1	4	1	2	2	1	3	0	42
3.51- 7.50	21	19	9	11	11	14	11	10	4	4	6	7	4	4	9	17	161
7.51-12.50	19	19	25	13	17	21	23	24	23	26	13	8	3	4	15	34	287
12.51-18.50	26	16	17	11	23	44	30	33	54	50	43	13	11	20	25	78	494
18.51-24.00	17	6	1	3	5	13	8	16	38	32	14	12	12	22	28	30	257
>24.00	6	1	1	0	0	3	1	8	39	7	1	1	4	2	11	10	95
TOTAL	95	63	55	41	60	99	78	93	159	123	78	43	36	53	91	169	1337

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
1.01- 3.50	1	3	2	3	2	1	2	0	2	1	0	0	1	1	1	1	21
3.51- 7.50	10	5	5	8	3	3	5	2	5	6	1	3	1	2	6	6	71
7.51-12.50	8	8	10	2	7	3	13	16	14	11	2	4	3	4	9	13	127
12.51-18.50	4	4	3	2	2	11	5	12	12	12	4	11	4	4	10	19	119
18.51-24.00	2	0	1	0	1	1	0	1	0	9	3	3	4	4	3	7	39
>24.00	0	0	0	0	0	0	0	0	1	0	1	0	1	2	5	1	11
TOTAL	25	20	21	15	15	19	25	31	34	39	11	21	14	17	34	47	390

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	0	2	1	1	1	0	1	1	1	2	3	2	2	0	1	21
3.51- 7.50	5	8	3	4	5	5	6	4	5	6	6	6	4	4	6	9	86
7.51-12.50	0	3	1	0	3	7	10	8	19	9	6	14	7	8	7	12	114
12.51-18.50	0	1	1	0	0	0	4	7	7	8	3	8	2	1	2	4	48
18.51-24.00	0	0	0	0	0	0	0	1	0	0	1	1	1	2	0	0	6
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	12	7	5	9	13	20	21	32	24	18	32	16	17	15	26	275

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	11	7	14	18	11	6	9	8	7	7	8	8	9	7	6	5	141
3.51- 7.50	82	61	38	40	30	40	48	36	26	30	21	31	22	33	38	60	636
7.51-12.50	71	77	69	40	60	63	102	80	92	85	42	47	41	46	99	124	1138
12.51-18.50	80	58	51	30	36	104	104	90	113	130	76	58	42	41	117	223	1353
18.51-24.00	50	15	3	3	10	41	56	39	78	64	29	27	25	36	86	113	675
>24.00	59	7	1	0	0	6	29	27	86	34	12	8	15	8	36	64	392
TOTAL	353	225	176	131	147	260	348	280	402	350	188	179	154	171	382	589	4338

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24

*** JAN-JUN 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 4368

TOTAL NUMBER OF VALID OBSERVATIONS: 4338

TOTAL NUMBER OF MISSING OBSERVATIONS: 30

PERCENT DATA RECOVERY FOR THIS PERIOD: 99.3 %

MEAN WIND SPEED FOR THIS PERIOD: 14.2 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 36

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 34

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 36

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.37	1.87	51.61	30.82	8.99	6.34

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	1	4	4	2	0	0	0	0	0	3	0	0	0	0	0	2	0
C	7	8	7	1	0	5	6	2	3	15	1	0	1	0	0	25	0
D	217	118	82	67	63	124	219	133	174	146	80	83	87	84	242	320	0
E	95	63	55	41	60	99	78	93	159	123	78	43	36	53	91	169	1
F	25	20	21	15	15	19	25	31	34	39	11	21	14	17	34	47	2
G	8	12	7	5	9	13	20	21	32	24	18	32	16	17	15	26	0
TOTAL	353	225	176	131	147	260	348	280	402	350	188	179	154	171	382	589	3

Stability Classes by Hour of Day

100-Meter Wind vs. Delta T

January-June 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	1	1	D	E	E	E	E	F	F	E	E	D	D	D	D	D	D	D	D	E	F	E	E	E	E	E
24	1	2	E	E	E	E	E	D	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	F	F
24	1	3	F	G	G	G	G	G	G	G	G	F	E	E	D	E	E	D	D	E	E	D	D	D	D	D
24	1	4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	5	D	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	D	D	E
24	1	6	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D
24	1	7	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	8	D	D	D	D	E	E	E	D	D	E	E	E	D	D	E	E	D	D	D	D	E	D	E	D
24	1	9	D	D	D	D	D	D	D	D	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E	E
24	1	10	F	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	E	E
24	1	11	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	D	D	D
24	1	12	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	13	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	14	E	E	E	E	E	D	D	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	F	F
24	1	15	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	1	16	E	E	E	E	E	F	E	F	E	E	D	D	D	D	D	D	D	E	E	E	E	E	E	F
24	1	17	F	F	F	E	F	F	F	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E
24	1	18	E	E	E	E	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	1	19	D	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	F
24	1	20	E	F	F	F	F	F	F	F	F	E	E	D	E	D	D	D	D	D	E	E	E	E	F	E
24	1	21	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	D	D	D	D
24	1	22	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	1	23	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	1	24	E	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E
24	1	25	E	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	D	D	D
24	1	26	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	1	27	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	E	E
24	1	28	E	E	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	E	F	G	G	G	G	G
24	1	29	G	G	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	E	E	F	E	E	E	E
24	1	30	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	F	F	G	G	G	G
24	1	31	G	G	G	G	G	G	G	F	E	E	D	D	D	D	D	D	E	E	F	F	E	F	F	F
24	2	1	G	G	G	F	F	G	G	F	F	F	D	D	D	D	D	D	E	E	F	F	E	E	F	E
24	2	2	F	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	E	D	D	D	D	D
24	2	3	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E
24	2	4	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	2	5	E	E	F	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	F	G	F	G	G	G
24	2	6	G	G	G	G	G	G	F	F	F	E	E	D	D	D	D	D	D	E	E	F	F	F	F	F
24	2	7	F	E	E	F	F	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	2	8	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	2	9	G	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	2	10	D	E	E	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	E	D	E	E	E	E
24	2	11	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	F	G	G	G
24	2	12	G	G	G	G	G	F	F	F	E	E	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	2	13	G	G	G	G	F	F	F	F	E	E	D	D	D	D	D	D	D	E	E	F	F	F	G	G
24	2	14	G	F	G	F	F	G	G	G	F	D	D	D	D	D	D	D	D	E	E	E	E	E	E	D

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

YR	MN	DY	HOURS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	2	15	D	D	D	D	D	D	D	D	D	D	D	C	D	C	D	D	D	D	E	E	E	E	E	D
24	2	16	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	D
24	2	17	D	D	D	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	2	18	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	2	19	G	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	D	E	E	E	E	E	E	F
24	2	20	F	F	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	2	21	E	E	G	G	G	G	G	G	G	D	D	D	D	D	D	D	D	E	E	F	E	E	E	E
24	2	22	E	E	E	E	E	F	E	F	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	2	23	F	G	F	G	G	G	F	F	E	D	D	D	D	D	D	D	D	D	E	E	D	E	E	E
24	2	24	E	E	E	E	F	F	G	F	E	D	D	C	C	D	D	D	D	D	E	F	G	G	G	G
24	2	25	G	G	G	G	G	G	G	G	G	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	2	26	G	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	D	D	E	G	G	G	G	G
24	2	27	G	G	G	G	G	G	G	G	G	E	D	C	C	C	C	D	D	D	D	D	D	D	D	D
24	2	28	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	E	E	E
24	2	29	E	F	F	E	E	E	E	E	D	D	D	C	C	C	D	D	D	D	E	E	E	E	E	E
24	3	1	E	D	D	D	D	D	D	E	D	D	D	C	C	C	C	D	D	D	E	E	E	E	E	E
24	3	2	E	E	E	E	F	F	F	F	E	D	D	D	C	C	C	D	D	D	E	F	G	G	F	E
24	3	3	E	E	E	E	E	E	E	E	D	D	D	C	D	C	D	D	D	D	E	E	F	F	F	F
24	3	4	E	E	E	E	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	3	5	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	F	E	F	G
24	3	6	G	G	G	G	G	G	G	G	G	D	D	C	D	D	D	D	D	D	E	E	E	E	E	E
24	3	7	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	3	8	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	3	9	E	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	3	10	G	G	-	G	G	G	G	G	F	D	D	D	D	D	D	D	D	D	F	F	E	E	E	E
24	3	11	E	E	E	E	E	E	E	E	D	D	D	D	D	C	D	D	D	D	E	E	E	E	E	E
24	3	12	E	E	E	E	E	E	F	F	D	D	D	D	D	D	D	D	D	D	E	F	G	G	F	G
24	3	13	G	G	G	G	G	G	G	G	G	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	3	14	E	D	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	3	15	E	E	E	E	D	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F
24	3	16	F	F	F	F	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	3	17	F	F	F	F	F	E	E	D	D	D	C	D	C	D	C	C	D	D	D	D	D	E	E	E
24	3	18	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F
24	3	19	F	E	E	E	E	E	E	E	D	D	D	D	C	D	D	D	D	D	E	G	G	G	G	G
24	3	20	G	G	G	E	E	E	E	D	D	C	B	B	B	B	C	C	D	D	D	E	E	E	E	E
24	3	21	D	D	D	D	D	D	D	D	D	D	D	D	C	C	C	D	D	D	D	E	E	E	E	E
24	3	22	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	3	23	D	D	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	3	24	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	D	E	E	E	E
24	3	25	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	3	26	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	D
24	3	27	D	D	E	E	E	E	E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	3	28	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	E	E	E	F	E	E
24	3	29	E	E	E	E	E	F	F	D	D	D	D	D	D	D	D	D	D	D	D	E	E	D	D	D
24	3	30	D	D	D	D	D	D	D	D	D	D	D	D	B	D	C	C	C	D	D	E	F	F	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	3	31	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	4	1	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D
24	4	2	D	D	D	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	D	E	E	D	E	E
24	4	3	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	4	E	E	E	F	E	E	E	D	D	D	D	C	B	C	D	C	C	D	D	E	E	G	G	G
24	4	5	G	G	G	G	F	E	E	E	D	D	D	C	C	D	D	D	D	D	E	E	E	E	E	E
24	4	6	D	E	E	D	D	D	D	D	D	D	D	D	D	C	C	D	D	D	D	E	D	E	E	E
24	4	7	E	D	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	8	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	D	D	E
24	4	9	E	F	F	G	F	F	G	E	D	D	D	D	D	D	D	D	D	D	D	F	F	F	G	G
24	4	10	G	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	4	11	E	D	D	D	D	D	D	D	D	D	D	C	B	C	C	D	D	D	D	E	E	E	E	E
24	4	12	F	F	F	F	E	F	F	D	D	D	D	C	D	D	D	D	D	D	D	F	F	G	G	G
24	4	13	G	G	G	G	G	F	F	D	D	D	D	D	C	D	D	D	D	D	D	E	E	E	E	E
24	4	14	E	E	E	F	F	F	F	E	D	D	B	B	B	B	B	C	C	D	E	E	F	E	E	E
24	4	15	E	E	E	E	E	E	E	D	D	D	D	D	C	C	D	D	D	D	D	D	D	D	E	E
24	4	16	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	4	17	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	E	E
24	4	18	D	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	4	19	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	4	20	E	E	E	E	E	E	E	D	D	C	B	C	D	C	C	D	D	D	D	D	D	D	E	E
24	4	21	F	F	G	F	G	F	E	D	D	D	D	D	D	D	D	D	D	D	D	E	G	F	F	F
24	4	22	F	F	F	F	F	E	E	E	D	D	C	C	B	C	C	D	D	D	D	E	E	E	E	E
24	4	23	E	E	E	E	E	E	F	E	D	D	D	D	D	C	D	C	D	D	D	E	F	F	F	F
24	4	24	F	G	G	G	F	E	E	D	D	D	D	C	C	D	D	D	D	D	D	E	E	E	E	E
24	4	25	E	E	D	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	4	26	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	E	E	E	E	E	E
24	4	27	E	E	E	E	E	F	F	E	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E	E
24	4	28	E	E	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	4	29	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	F	F	F	F	F
24	4	30	F	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	E	E	F	F	F	F	E	E
24	5	1	E	E	E	E	F	E	E	E	D	D	D	D	D	E	D	D	D	D	E	E	E	E	E	E
24	5	2	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	F
24	5	3	F	F	G	G	G	G	G	F	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	4	E	D	E	D	D	D	D	D	D	D	D	D	D	C	D	D	D	D	E	F	F	F	F	F
24	5	5	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	6	E	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	7	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	F	G	F	F	F
24	5	8	G	F	F	F	F	F	E	E	D	D	D	D	D	D	C	D	D	D	D	E	E	E	E	E
24	5	9	E	E	E	E	E	F	E	D	D	D	D	D	C	C	C	D	D	D	D	E	E	E	F	F
24	5	10	F	G	F	G	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F
24	5	11	F	F	G	G	G	G	F	F	D	D	D	D	D	D	D	D	D	D	D	E	G	F	F	F
24	5	12	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D	E
24	5	13	D	D	E	E	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	E
24	5	14	E	E	E	E	E	E	E	E	D	D	D	D	C	D	D	D	D	D	E	E	F	F	F	F

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	5	15	F	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	5	16	E	F	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	G	
24	5	17	G	G	G	G	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	
24	5	18	E	E	E	E	E	E	E	D	D	D	D	D	D	D	C	C	D	D	D	E	F	F	F	E
24	5	19	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	F	F	F	E	E
24	5	20	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	21	E	E	E	E	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E
24	5	22	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	23	E	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	5	24	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G
24	5	25	G	G	G	G	G	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	5	26	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	E	D	E	E	E	F	F	F	
24	5	27	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G	
24	5	28	G	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F
24	5	29	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	5	30	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	D	E	E	E
24	5	31	E	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	6	1	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	C	D	D	F	F	G	G	G
24	6	2	F	F	F	F	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	3	D	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	4	E	E	F	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	D	E	E	E
24	6	5	E	E	E	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F
24	6	6	F	F	E	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G
24	6	7	G	G	G	G	G	G	G	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	D	D
24	6	8	E	E	E	E	F	F	E	D	D	D	D	D	D	D	D	E	D	D	D	D	E	E	F	F
24	6	9	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	G	G	F
24	6	10	F	F	F	G	G	G	F	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F
24	6	11	F	F	F	F	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	12	E	E	E	E	E	E	E	D	D	D	D	D	B	C	B	C	C	D	D	E	E	E	E	E
24	6	13	E	D	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	6	14	F	F	F	F	E	F	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	6	15	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	16	E	E	E	E	E	D	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	17	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	18	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	6	19	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	6	20	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	21	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	6	22	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	6	23	E	E	E	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	E
24	6	24	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	6	25	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	E	E
24	6	26	E	E	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	G	F	F
24	6	27	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	6	28	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-JUN 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 1/ 1/24 - 6/30/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	6	29	F	F	F	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	6	30	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	D	D

JFDs of 100-Meter Wind vs. Delta T

July-September 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12.51-18.50	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
18.51-24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	3
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	5	0	1	0	0	0	0	1	0	0	0	0	0	0	2	14

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	1	0	3	2	1	1	0	0	0	0	0	0	0	0	0	0	8
7.51-12.50	4	4	7	1	0	4	0	0	0	0	0	0	0	0	0	1	21
12.51-18.50	12	3	0	0	0	0	0	2	2	0	0	0	0	0	0	0	19
18.51-24.00	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	3
>24.00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL	17	7	10	3	1	5	0	5	3	0	0	0	0	0	0	1	52

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	3	5	4	5	9	4	3	1	7	3	6	4	6	5	2	70
3.51- 7.50	23	10	11	14	14	63	37	16	8	14	22	11	14	9	5	11	282
7.51-12.50	28	14	6	10	6	31	84	51	23	22	6	3	8	11	22	18	343
12.51-18.50	26	5	3	1	1	1	57	69	24	10	0	1	0	8	10	16	232
18.51-24.00	7	0	0	0	0	0	5	14	10	0	0	0	0	0	0	6	42
>24.00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	87	33	25	29	26	104	187	153	66	53	31	21	26	34	42	53	970

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	2	4	4	3	6	12	1	0	0	3	2	1	1	1	0	0	40
3.51- 7.50	11	4	8	6	8	51	9	6	4	4	3	5	8	5	2	7	141
7.51-12.50	14	13	8	7	12	28	63	45	16	3	1	4	4	5	5	12	240
12.51-18.50	23	9	2	5	2	1	38	67	24	12	7	0	0	3	5	14	212
18.51-24.00	4	1	0	0	0	0	1	7	8	1	1	1	0	1	2	6	33
>24.00	1	0	0	0	0	0	0	0	1	0	0	1	0	1	0	2	6
TOTAL	55	31	22	21	28	92	112	125	53	23	14	12	13	16	14	41	672

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	3	4	1	4	5	3	3	2	3	0	3	0	2	1	0	34
3.51- 7.50	5	15	12	7	9	14	8	4	2	5	5	2	2	0	5	3	98
7.51-12.50	7	10	5	1	3	6	31	21	12	11	8	12	7	6	4	5	149
12.51-18.50	6	2	2	1	0	0	1	18	12	13	2	1	2	2	2	10	74
18.51-24.00	0	0	0	0	0	0	0	5	4	5	0	1	0	1	1	0	17
>24.00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL	18	30	23	10	16	25	43	51	32	38	15	19	11	11	13	18	374

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	2	2	1	0	0	2	1	1	3	0	0	0	0	0	1	3	16
3.51- 7.50	0	1	3	4	2	6	2	4	1	3	5	2	2	1	4	4	44
7.51-12.50	4	11	3	0	1	0	4	6	4	2	3	2	6	0	1	2	49
12.51-18.50	3	0	0	0	0	0	0	0	0	2	2	3	1	1	1	0	13
18.51-24.00	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	14	7	4	3	8	7	11	8	8	11	7	9	2	7	9	125

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
1.01- 3.50	7	12	14	8	15	28	9	7	6	13	5	10	5	9	7	5	160
3.51- 7.50	40	30	37	34	34	135	56	30	15	26	35	20	26	15	16	25	574
7.51-12.50	57	53	29	19	22	69	182	123	55	38	18	21	25	22	32	38	803
12.51-18.50	75	23	7	7	3	2	96	156	62	37	11	5	3	14	18	40	559
18.51-24.00	11	1	0	0	0	0	6	28	24	7	2	2	0	2	3	14	100
>24.00	1	1	0	0	0	0	0	1	1	1	0	1	0	1	0	2	9
TOTAL	191	120	87	68	74	234	349	345	163	122	71	59	59	63	76	124	2207

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-SEP 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 9/30/24

*** JUL-SEP 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2208

TOTAL NUMBER OF VALID OBSERVATIONS: 2207

TOTAL NUMBER OF MISSING OBSERVATIONS: 1

PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %

MEAN WIND SPEED FOR THIS PERIOD: 10.1 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 2

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 0

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 2

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.63	2.36	43.95	30.45	16.95	5.66

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	5	5	0	1	0	0	0	0	1	0	0	0	0	0	0	2	0
C	17	7	10	3	1	5	0	5	3	0	0	0	0	0	0	1	0
D	87	33	25	29	26	104	187	153	66	53	31	21	26	34	42	53	0
E	55	31	22	21	28	92	112	125	53	23	14	12	13	16	14	41	0
F	18	30	23	10	16	25	43	51	32	38	15	19	11	11	13	18	1
G	9	14	7	4	3	8	7	11	8	8	11	7	9	2	7	9	1
TOTAL	191	120	87	68	74	234	349	345	163	122	71	59	59	63	76	124	2

JFDs of 100-Meter Wind vs. Delta T

October-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18.51-24.00	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	4
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	1	6

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	6
12.51-18.50	5	1	4	0	0	0	0	0	3	0	0	0	0	0	0	1	14
18.51-24.00	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5	9
>24.00	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6
TOTAL	8	4	6	1	0	0	0	0	11	0	0	0	0	0	0	7	37

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	2	2	3	1	1	5	0	0	0	0	3	0	2	3	0	1	23
3.51- 7.50	13	12	13	11	12	23	13	8	3	2	5	4	3	13	12	12	159
7.51-12.50	29	16	17	11	14	27	32	15	5	11	5	9	8	17	20	23	259
12.51-18.50	24	12	21	24	10	12	17	27	20	11	5	0	7	11	38	37	276
18.51-24.00	10	5	0	0	0	1	3	25	30	3	1	2	3	18	28	53	182
>24.00	5	0	0	0	0	0	5	6	15	8	0	3	2	11	10	25	90
TOTAL	83	47	54	47	37	68	70	81	73	35	19	18	25	73	108	151	989

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	1	2	0	2	2	3	1	1	0	1	1	0	0	0	2	0	16
3.51- 7.50	9	4	7	8	6	36	14	7	5	5	4	2	1	1	5	4	118
7.51-12.50	8	13	5	9	9	17	27	18	7	7	1	4	1	5	8	6	145
12.51-18.50	12	12	9	6	12	9	17	53	11	15	9	5	5	5	11	37	228
18.51-24.00	16	2	0	0	0	0	7	40	25	13	10	5	11	13	14	22	178
>24.00	2	0	0	0	0	0	2	4	24	2	1	2	4	1	1	6	49
TOTAL	48	33	21	25	29	65	68	123	72	43	26	18	22	25	41	75	734

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	1	0	2	1	5	2	0	1	0	0	0	0	1	1	0	14
3.51- 7.50	3	3	2	2	6	15	3	1	0	2	0	1	0	0	1	2	41
7.51-12.50	2	7	8	4	3	4	27	17	2	4	4	2	2	3	1	5	95
12.51-18.50	2	6	2	1	1	0	9	29	12	12	0	3	3	6	7	4	97
18.51-24.00	0	0	0	0	0	0	0	10	12	3	0	0	3	4	5	0	37
>24.00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL	7	17	12	9	11	24	41	57	27	22	4	6	8	14	15	11	285

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	1	0	1	0	2	2	1	0	0	1	0	1	1	2	0	12
3.51- 7.50	0	0	0	2	5	6	4	2	1	5	1	1	2	2	0	3	34
7.51-12.50	3	1	5	3	1	0	9	17	15	6	3	1	4	2	2	4	76
12.51-18.50	5	0	0	0	0	0	0	4	12	0	0	0	4	2	3	1	31
18.51-24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	8	2	5	6	6	8	15	24	30	11	5	2	11	9	7	8	157

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	6	4	6	4	15	5	2	1	1	5	0	3	5	5	1	66
3.51- 7.50	25	19	22	24	29	80	34	18	9	14	10	8	6	16	18	21	353
7.51-12.50	43	40	36	27	27	48	95	67	29	28	13	16	15	27	31	39	581
12.51-18.50	48	31	37	31	23	21	43	113	58	38	14	8	19	24	59	80	647
18.51-24.00	28	7	0	0	0	1	10	75	73	19	11	7	17	37	47	81	413
>24.00	7	0	0	0	0	0	7	10	47	11	1	5	6	12	11	31	148
TOTAL	154	103	99	88	83	165	194	285	217	111	54	44	66	121	171	253	2208

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T OCT-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 10/ 1/24 - 12/31/24

*** OCT-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 2208

TOTAL NUMBER OF VALID OBSERVATIONS: 2208

TOTAL NUMBER OF MISSING OBSERVATIONS: 0

PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %

MEAN WIND SPEED FOR THIS PERIOD: 13.9 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 24

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 24

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 24

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.27	1.68	44.79	33.24	12.91	7.11

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	1	0
C	8	4	6	1	0	0	0	0	11	0	0	0	0	0	0	7	0
D	83	47	54	47	37	68	70	81	73	35	19	18	25	73	108	151	0
E	48	33	21	25	29	65	68	123	72	43	26	18	22	25	41	75	0
F	7	17	12	9	11	24	41	57	27	22	4	6	8	14	15	11	0
G	8	2	5	6	6	8	15	24	30	11	5	2	11	9	7	8	0
TOTAL	154	103	99	88	83	165	194	285	217	111	54	44	66	121	171	253	0

JFDs of 100-Meter Wind vs. Delta T

July-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12.51-18.50	5	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	10
18.51-24.00	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	3	7
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	5	5	1	1	0	0	0	0	5	0	0	0	0	0	0	3	20

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3.51- 7.50	1	0	3	3	1	1	0	0	0	0	0	0	0	0	0	0	9
7.51-12.50	5	7	8	1	0	4	0	0	0	0	0	0	0	0	0	2	27
12.51-18.50	17	4	4	0	0	0	0	2	5	0	0	0	0	0	0	1	33
18.51-24.00	2	0	0	0	0	0	0	2	3	0	0	0	0	0	0	5	12
>24.00	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	7
TOTAL	25	11	16	4	1	5	0	5	14	0	0	0	0	0	0	8	89

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	5	5	8	5	6	14	4	3	1	7	6	6	6	9	5	3	93
3.51- 7.50	36	22	24	25	26	86	50	24	11	16	27	15	17	22	17	23	441
7.51-12.50	57	30	23	21	20	58	116	66	28	33	11	12	16	28	42	41	602
12.51-18.50	50	17	24	25	11	13	74	96	44	21	5	1	7	19	48	53	508
18.51-24.00	17	5	0	0	0	1	8	39	40	3	1	2	3	18	28	59	224
>24.00	5	1	0	0	0	0	5	6	15	8	0	3	2	11	10	25	91
TOTAL	170	80	79	76	63	172	257	234	139	88	50	39	51	107	150	204	1959

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	3	6	4	5	8	15	2	1	0	4	3	1	1	1	2	0	56
3.51- 7.50	20	8	15	14	14	87	23	13	9	9	7	7	9	6	7	11	259
7.51-12.50	22	26	13	16	21	45	90	63	23	10	2	8	5	10	13	18	385
12.51-18.50	35	21	11	11	14	10	55	120	35	27	16	5	5	8	16	51	440
18.51-24.00	20	3	0	0	0	0	8	47	33	14	11	6	11	14	16	28	211
>24.00	3	0	0	0	0	0	2	4	25	2	1	3	4	2	1	8	55
TOTAL	103	64	43	46	57	157	180	248	125	66	40	30	35	41	55	116	1406

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	0	4	4	3	5	10	5	3	3	3	0	3	0	3	2	0	48
3.51- 7.50	8	18	14	9	15	29	11	5	2	7	5	3	2	0	6	5	139
7.51-12.50	9	17	13	5	6	10	58	38	14	15	12	14	9	9	5	10	244
12.51-18.50	8	8	4	2	1	0	10	47	24	25	2	4	5	8	9	14	171
18.51-24.00	0	0	0	0	0	0	0	15	16	8	0	1	3	5	6	0	54
>24.00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
TOTAL	25	47	35	19	27	49	84	108	59	60	19	25	19	25	28	29	659

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	2	3	1	1	0	4	3	2	3	0	1	0	1	1	3	3	28
3.51- 7.50	0	1	3	6	7	12	6	6	2	8	6	3	4	3	4	7	78
7.51-12.50	7	12	8	3	2	0	13	23	19	8	6	3	10	2	3	6	125
12.51-18.50	8	0	0	0	0	0	0	4	12	2	2	3	5	3	4	1	44
18.51-24.00	0	0	0	0	0	0	0	0	1	1	1	0	0	2	0	0	5
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	17	16	12	10	9	16	22	35	38	19	16	9	20	11	14	17	282

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	2
1.01- 3.50	10	18	18	14	19	43	14	9	7	14	10	10	8	14	12	6	226
3.51- 7.50	65	49	59	58	63	215	90	48	24	40	45	28	32	31	34	46	927
7.51-12.50	100	93	65	46	49	117	277	190	84	66	31	37	40	49	63	77	1384
12.51-18.50	123	54	44	38	26	23	139	269	120	75	25	13	22	38	77	120	1206
18.51-24.00	39	8	0	0	0	1	16	103	97	26	13	9	17	39	50	95	513
>24.00	8	1	0	0	0	0	7	11	48	12	1	6	6	13	11	33	157
TOTAL	345	223	186	156	157	399	543	630	380	233	125	103	125	184	247	377	4415

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24

*** JUL-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 4416

TOTAL NUMBER OF VALID OBSERVATIONS: 4415

TOTAL NUMBER OF MISSING OBSERVATIONS: 1

PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %

MEAN WIND SPEED FOR THIS PERIOD: 12.0 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 26

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 24

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 26

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.45	2.02	44.37	31.85	14.93	6.39

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	5	5	1	1	0	0	0	0	5	0	0	0	0	0	0	3	0
C	25	11	16	4	1	5	0	5	14	0	0	0	0	0	0	8	0
D	170	80	79	76	63	172	257	234	139	88	50	39	51	107	150	204	0
E	103	64	43	46	57	157	180	248	125	66	40	30	35	41	55	116	0
F	25	47	35	19	27	49	84	108	59	60	19	25	19	25	28	29	1
G	17	16	12	10	9	16	22	35	38	19	16	9	20	11	14	17	1
TOTAL	345	223	186	156	157	399	543	630	380	233	125	103	125	184	247	377	2

Stability Classes by Hour of Day

100-Meter Wind vs. Delta T

July-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	7	1	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	7	2	E	E	E	E	E	E	E	E	D	D	D	D	D	E	E	E	D	D	D	D	D	E	E	E
24	7	3	E	E	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	7	4	E	E	D	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G
24	7	5	G	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	G	G	G
24	7	6	G	F	F	F	F	F	E	E	D	E	D	D	D	D	D	D	D	D	E	E	E	E	D	D
24	7	7	E	D	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	7	8	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F
24	7	9	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	F	F	F	F	F
24	7	10	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	E
24	7	11	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E
24	7	12	E	E	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	D
24	7	13	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	7	14	E	E	E	E	F	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	G	F
24	7	15	F	F	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	7	16	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F
24	7	17	F	E	F	F	F	F	E	D	D	D	D	D	C	D	C	D	D	D	D	E	E	E	F	F
24	7	18	F	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	C	D	F	F	F	F
24	7	19	F	F	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E
24	7	20	E	E	D	E	E	E	D	-	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	7	21	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F
24	7	22	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F	F
24	7	23	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F	F
24	7	24	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F
24	7	25	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	7	26	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	E	E
24	7	27	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	7	28	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	7	29	E	E	E	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F
24	7	30	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	7	31	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	D	D	E	D	E	E	F
24	8	1	F	E	E	E	F	F	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F
24	8	2	F	F	F	E	F	E	E	D	D	D	D	C	B	C	C	C	D	D	D	E	F	F	G	G
24	8	3	G	G	G	G	G	F	F	E	D	D	D	D	D	D	D	D	D	E	E	F	F	F	G	F
24	8	4	F	F	F	F	F	F	F	E	E	D	D	D	D	D	D	E	E	E	E	E	E	F	F	F
24	8	5	E	F	F	F	F	F	F	E	E	D	D	D	D	D	D	E	E	E	E	F	E	E	E	E
24	8	6	D	D	D	D	D	D	D	D	D	D	D	C	B	C	C	C	D	D	D	D	D	D	D	E
24	8	7	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F
24	8	8	F	F	E	E	E	E	E	D	D	D	D	D	D	B	B	D	D	D	D	E	F	F	E	F
24	8	9	F	F	F	E	E	E	E	D	D	C	D	D	D	D	D	D	D	D	D	F	F	F	F	G
24	8	10	G	G	G	G	G	F	F	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F
24	8	11	F	E	E	E	F	F	E	E	D	D	D	D	D	D	D	D	D	D	E	D	D	D	D	D
24	8	12	E	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	D
24	8	13	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																							
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	8	14	D	D	D	D	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	8	15	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	F	F	G	G	G
24	8	16	G	F	G	G	G	F	F	E	D	D	D	D	E	D	D	D	D	D	E	F	G	G	G	F
24	8	17	G	F	E	E	E	E	E	D	D	D	D	D	D	D	D	E	D	D	E	F	F	F	F	F
24	8	18	E	E	E	E	F	F	E	E	D	D	D	E	D	D	D	E	E	E	E	E	E	E	E	E
24	8	19	E	E	E	F	E	F	F	E	D	D	C	C	C	C	C	C	D	D	D	E	F	E	E	E
24	8	20	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	8	21	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	D
24	8	22	D	D	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	8	23	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	D	E	E
24	8	24	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	8	25	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E	F	F
24	8	26	F	F	F	F	F	F	E	E	E	D	D	D	D	D	D	E	E	E	E	G	G	G	G	G
24	8	27	F	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	F	F	F	E	E	E
24	8	28	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	E
24	8	29	E	E	E	E	E	E	E	E	D	D	D	D	D	E	D	D	E	E	D	D	E	E	D	D
24	8	30	D	D	E	D	E	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F	F
24	8	31	F	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	E	F	G	F	G	G
24	9	1	G	F	F	G	F	E	E	D	D	D	C	B	B	B	B	C	D	D	E	F	F	F	F	F
24	9	2	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	G
24	9	3	F	F	F	F	F	F	E	E	D	D	D	D	D	D	D	D	D	D	D	F	E	F	E	E
24	9	4	E	F	F	E	E	E	F	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	F
24	9	5	F	F	F	F	F	F	F	F	D	D	D	D	C	C	B	D	D	D	D	E	E	E	E	E
24	9	6	E	E	E	E	E	E	E	D	D	C	C	B	B	B	C	D	D	D	E	E	F	F	F	F
24	9	7	F	G	G	G	G	G	G	F	D	D	D	B	C	C	C	D	D	D	E	F	F	F	F	G
24	9	8	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F	F
24	9	9	F	F	F	F	F	F	F	E	D	D	D	D	C	D	D	D	D	D	E	F	F	F	F	E
24	9	10	E	E	E	F	F	F	F	E	D	D	D	D	D	D	D	D	D	E	E	E	F	E	F	F
24	9	11	F	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	F	F	F	F	F	E
24	9	12	F	F	F	F	F	E	E	E	D	D	D	D	D	D	D	D	D	D	E	F	F	F	F	E
24	9	13	E	F	F	F	F	F	F	F	D	D	C	C	C	C	C	D	D	D	D	D	E	E	E	E
24	9	14	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	9	15	E	E	E	E	E	E	E	E	D	D	D	C	D	D	D	D	D	D	E	E	F	F	F	E
24	9	16	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	9	17	E	E	E	E	E	E	E	D	D	D	D	C	C	C	D	D	D	D	E	E	F	F	F	E
24	9	18	E	E	E	E	E	E	E	D	D	D	D	D	D	C	C	D	D	D	E	E	E	E	E	E
24	9	19	E	E	E	E	E	E	E	E	D	D	B	D	D	D	D	D	D	E	F	F	E	E	E	E
24	9	20	F	F	F	G	G	G	G	F	E	D	D	D	D	D	D	D	D	D	E	F	E	F	E	F
24	9	21	F	F	F	F	E	E	E	E	D	D	D	D	C	D	D	D	D	E	E	E	E	E	E	E
24	9	22	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	E	E
24	9	23	E	E	E	E	E	F	F	E	D	D	D	D	D	D	D	D	D	E	F	G	G	G	G	G
24	9	24	G	G	G	G	F	F	F	F	E	E	D	D	D	D	D	E	D	E	F	F	G	G	G	G
24	9	25	G	G	G	G	G	G	G	F	D	D	D	D	C	D	D	D	D	E	F	G	G	G	G	G
24	9	26	G	G	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	E	F	G	F	G	G	G
24	9	27	G	G	F	G	G	G	G	F	E	D	D	C	C	C	D	D	D	E	E	F	G	G	G	G

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	9	28	F	F	F	F	F	F	F	E	D	D	C	C	C	D	D	D	E	E	F	G	G	G	G	G
24	9	29	G	G	G	G	G	G	G	G	E	D	D	C	C	C	C	D	D	E	F	F	G	G	G	G
24	9	30	G	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	10	1	E	E	E	E	E	E	E	E	D	C	C	C	C	C	D	D	D	E	F	F	G	G	G	G
24	10	2	G	G	G	G	G	G	G	F	D	D	C	B	B	B	C	C	D	E	F	F	F	F	G	F
24	10	3	F	F	F	F	F	F	F	E	D	D	D	D	D	C	C	D	D	E	E	E	E	E	E	E
24	10	4	E	E	E	E	E	E	E	D	D	D	C	C	C	D	D	D	D	D	E	E	F	E	E	E
24	10	5	E	E	E	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	10	6	E	F	G	G	G	G	G	F	D	D	D	C	B	C	C	D	D	E	E	F	F	G	G	G
24	10	7	G	G	G	G	G	G	G	G	E	D	D	D	D	D	D	D	D	D	F	F	G	G	G	G
24	10	8	G	G	G	G	G	G	G	F	F	E	D	D	D	D	D	D	D	D	E	F	F	F	G	G
24	10	9	G	G	G	G	G	G	G	G	F	E	D	D	D	D	D	D	D	E	E	E	F	F	F	G
24	10	10	G	G	G	F	G	G	F	F	E	E	E	D	D	D	D	D	D	D	E	F	F	F	F	F
24	10	11	E	E	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	F	E	E	F	F	E
24	10	12	E	E	E	E	F	F	E	G	E	D	D	D	D	D	D	D	D	D	E	E	E	E	F	G
24	10	13	G	G	F	F	F	E	E	D	D	D	D	C	C	C	D	D	D	E	E	E	E	E	E	E
24	10	14	F	F	F	F	F	G	G	G	E	D	D	D	D	D	C	D	D	E	F	F	F	G	G	F
24	10	15	E	E	E	E	D	D	D	D	D	D	D	B	C	C	C	D	D	E	E	F	F	G	G	G
24	10	16	G	G	G	G	G	G	G	G	F	E	D	D	D	C	D	D	D	E	F	F	F	F	E	E
24	10	17	E	E	E	E	E	E	E	E	D	D	C	B	C	C	D	D	D	E	E	E	E	E	E	E
24	10	18	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	F	E	E	E
24	10	19	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	F	F	E	E	E	E
24	10	20	E	F	F	E	E	E	F	E	E	D	D	D	D	D	D	D	D	E	E	F	F	F	F	F
24	10	21	F	F	F	F	F	F	F	F	E	D	D	D	C	D	D	D	E	E	E	E	E	F	E	E
24	10	22	E	E	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	F	G	F	E	E	E
24	10	23	E	E	E	E	E	D	E	E	D	D	D	D	D	D	D	D	D	E	F	F	G	F	F	F
24	10	24	G	F	F	F	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	10	25	D	D	D	E	E	E	E	E	D	D	D	C	C	C	D	D	D	E	E	F	F	F	F	F
24	10	26	F	G	G	G	G	G	G	G	F	D	D	D	D	D	D	D	D	E	E	F	F	F	F	F
24	10	27	F	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	F	F	E	E	E	E
24	10	28	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	F	E	E	E	E	E
24	10	29	E	E	E	E	E	E	E	E	D	D	C	D	C	C	D	D	D	E	E	E	E	E	E	D
24	10	30	E	E	E	E	E	E	E	E	D	E	E	D	E	D	D	D	D	D	D	D	D	D	D	D
24	10	31	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	F	F	F	G	G	G
24	11	1	G	G	G	F	F	F	F	F	E	D	D	D	D	D	D	D	D	E	F	F	F	E	E	E
24	11	2	E	E	F	E	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	11	3	E	E	E	E	E	E	D	E	E	E	D	D	D	D	D	D	E	D	D	D	E	E	E	E
24	11	4	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	11	5	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F	F
24	11	6	G	F	F	G	G	G	F	F	F	E	E	E	E	D	D	D	D	E	E	F	F	F	E	E
24	11	7	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	F	F	F	F	E
24	11	8	F	F	F	F	F	F	F	F	F	E	E	E	D	D	D	D	D	E	E	E	E	E	E	E
24	11	9	E	D	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	11	10	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	F	F	F	G	G	G
24	11	11	F	F	F	F	F	G	G	F	E	D	D	C	D	C	D	D	D	E	E	F	E	E	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	11	12	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	11	13	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E
24	11	14	E	E	E	E	E	F	F	E	E	D	D	D	D	D	D	D	E	E	G	F	F	G	G	G
24	11	15	G	G	G	G	G	G	G	G	G	E	E	E	D	D	D	D	E	E	E	E	E	E	E	E
24	11	16	E	F	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E
24	11	17	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	F	F	F	F	F
24	11	18	E	E	E	E	E	F	F	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D
24	11	19	D	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	11	20	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	D
24	11	21	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	11	22	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	F	F	F	G	G
24	11	23	G	F	G	F	F	F	F	F	E	E	E	D	D	D	D	D	E	E	E	E	E	F	F	F
24	11	24	F	F	F	F	F	F	F	F	F	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	11	25	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	G	G
24	11	26	G	G	G	G	F	G	F	F	F	E	D	D	D	D	D	D	D	E	E	E	E	E	F	F
24	11	27	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	E	D	E	E
24	11	28	E	D	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E
24	11	29	E	E	E	F	F	E	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E
24	11	30	E	E	E	E	D	D	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D
24	12	1	D	D	D	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E
24	12	2	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	12	3	E	E	E	D	D	E	E	E	D	D	D	D	D	D	D	D	D	E	E	E	E	F	E	E
24	12	4	E	E	E	E	F	F	F	F	F	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	5	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F
24	12	6	F	E	F	F	E	E	E	F	E	D	D	D	D	D	D	D	E	F	F	F	F	G	F	G
24	12	7	G	F	G	G	G	G	G	F	F	E	D	D	D	D	D	D	E	E	E	E	E	E	E	E
24	12	8	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	E	E	F
24	12	9	F	F	G	F	F	F	G	F	F	F	D	D	D	D	D	D	D	D	D	D	D	D	D	E
24	12	10	E	E	D	D	E	E	E	F	E	D	D	D	D	D	D	D	D	D	E	E	E	E	E	D
24	12	11	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	12	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	13	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	14	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	15	D	D	D	D	E	D	D	D	D	D	D	D	D	D	D	D	E	F	E	F	F	F	F	G
24	12	16	G	G	G	G	F	E	E	E	E	E	D	D	D	D	D	D	E	E	F	F	G	G	G	G
24	12	17	G	G	G	G	G	G	G	G	G	F	E	D	D	D	E	E	E	E	E	D	D	D	D	E
24	12	18	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	E	E	E
24	12	19	E	E	E	E	D	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	20	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	F
24	12	21	E	F	F	F	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E	E	E
24	12	22	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	E	E	E	E	E	F	E
24	12	23	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	E	E	E	E	F	G	F	F
24	12	24	F	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	25	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E
24	12	26	E	E	E	E	E	D	E	E	E	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JUL-DEC 2024
SITE IDENTIFIER: PPD
DATA PERIOD EXAMINED: 7/ 1/24 - 12/31/24
STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS

HOURLY STABILITIES

			HOURS																					
YR	MN	DY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
24	12	27	E	E	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	E	E	E	F	F	E	E
24	12	28	E	E	E	F	E	E	E	D	D	D	E	D	D	E	D	E	D	E	E	E	E	D	D	E
24	12	29	E	E	E	E	E	E	E	F	F	D	D	D	D	D	D	D	D	E	E	F	F	F	F	E
24	12	30	E	E	E	E	E	E	E	E	E	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
24	12	31	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

JFDs of 100-Meter Wind vs. Delta T

January-December 2024

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.51-12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.51-18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.51-24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 7.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7.51-12.50	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5
12.51-18.50	5	7	3	1	0	0	0	0	0	0	0	0	0	0	0	0	16
18.51-24.00	1	0	0	0	0	0	0	0	4	1	0	0	0	0	0	4	10
>24.00	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	4
TOTAL	6	9	5	3	0	0	0	0	5	3	0	0	0	0	0	5	36

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3.51- 7.50	1	3	3	4	1	1	0	0	0	0	0	0	0	0	0	0	13
7.51-12.50	7	11	10	1	0	5	1	0	0	0	0	0	0	0	0	6	41
12.51-18.50	20	5	8	0	0	2	2	3	6	3	0	0	0	0	0	10	59
18.51-24.00	4	0	0	0	0	0	3	2	4	6	0	0	0	0	0	11	30
>24.00	0	0	0	0	0	2	0	2	7	6	1	0	1	0	0	6	25
TOTAL	32	19	23	5	1	10	6	7	17	15	1	0	1	0	0	33	170

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
1.01- 3.50	6	7	15	16	10	14	6	8	4	8	11	9	10	12	7	6	149
3.51- 7.50	82	48	45	41	37	104	76	44	23	30	35	30	30	45	34	51	755
7.51-12.50	99	72	52	45	53	89	171	98	64	72	32	33	44	58	110	102	1194
12.51-18.50	97	50	48	41	22	60	137	133	83	78	31	27	32	35	128	166	1168
18.51-24.00	45	14	1	0	4	28	53	60	79	19	12	13	11	26	83	128	576
>24.00	58	7	0	0	0	1	33	24	60	27	9	10	11	15	30	71	356
TOTAL	387	198	161	143	126	296	476	367	313	234	130	122	138	191	392	524	4198

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	9	8	6	8	12	19	7	3	1	8	4	3	3	2	5	0	98
3.51- 7.50	41	27	24	25	25	101	34	23	13	13	13	14	13	10	16	28	420
7.51-12.50	41	45	38	29	38	66	113	87	46	36	15	16	8	14	28	52	672
12.51-18.50	61	37	28	22	37	54	85	153	89	77	59	18	16	28	41	129	934
18.51-24.00	37	9	1	3	5	13	16	63	71	46	25	18	23	36	44	58	468
>24.00	9	1	1	0	0	3	3	12	64	9	2	4	8	4	12	18	150
TOTAL	198	127	98	87	117	256	258	341	284	189	118	73	71	94	146	285	2743

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	3
1.01- 3.50	1	7	6	6	7	11	7	3	5	4	0	3	1	4	3	1	69
3.51- 7.50	18	23	19	17	18	32	16	7	7	13	6	6	3	2	12	11	210
7.51-12.50	17	25	23	7	13	13	71	54	28	26	14	18	12	13	14	23	371
12.51-18.50	12	12	7	4	3	11	15	59	36	37	6	15	9	12	19	33	290
18.51-24.00	2	0	1	0	1	1	0	16	16	17	3	4	7	9	9	7	93
>24.00	0	0	0	0	0	0	0	0	1	2	1	0	1	2	5	1	13
TOTAL	50	67	56	34	42	68	109	139	93	99	30	46	33	42	62	76	1049

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	1
1.01- 3.50	5	3	3	2	1	5	3	3	4	1	3	3	3	3	3	4	49
3.51- 7.50	5	9	6	10	12	17	12	10	7	14	12	9	8	7	10	16	164
7.51-12.50	7	15	9	3	5	7	23	31	38	17	12	17	17	10	10	18	239
12.51-18.50	8	1	1	0	0	0	4	11	19	10	5	11	7	4	6	5	92
18.51-24.00	0	0	0	0	0	0	0	1	1	1	2	1	1	4	0	0	11
>24.00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	25	28	19	15	18	29	42	56	70	43	34	41	36	28	29	43	557

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 100.00 METERS

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	5
1.01- 3.50	21	25	32	32	30	49	23	17	14	21	18	18	17	21	18	11	367
3.51- 7.50	147	110	97	98	93	255	138	84	50	70	66	59	54	64	72	106	1563
7.51-12.50	171	170	134	86	109	180	379	270	176	151	73	84	81	95	162	201	2522
12.51-18.50	203	112	95	68	62	127	243	359	233	205	101	71	64	79	194	343	2559
18.51-24.00	89	23	3	3	10	42	72	142	175	90	42	36	42	75	136	208	1188
>24.00	67	8	1	0	0	6	36	38	134	46	13	14	21	21	47	97	549
TOTAL	698	448	362	287	304	659	891	910	782	583	313	282	279	355	629	966	8753

PROGRAM: JFD VERSION: PC-1.2
NPPD-COOPER NUCLEAR STATION JFD:100M WIND VS 10M DELTA T JAN-DEC 2024
SITE IDENTIFIER:NPPD
DATA PERIOD EXAMINED: 1/ 1/24 - 12/31/24

*** JAN-DEC 2024 ***

STABILITY BASED ON: DELTA T BETWEEN 100.0 AND 10.0 METERS
WIND MEASURED AT: 100.0 METERS
WIND THRESHOLD AT: 1.00 MPH

TOTAL NUMBER OF OBSERVATIONS: 8784

TOTAL NUMBER OF VALID OBSERVATIONS: 8753

TOTAL NUMBER OF MISSING OBSERVATIONS: 31

PERCENT DATA RECOVERY FOR THIS PERIOD: 99.6 %

MEAN WIND SPEED FOR THIS PERIOD: 13.1 MPH

NUMBER OF OBSERVATIONS WITH BACKUP WIND SPEED: 62

NUMBER OF OBSERVATIONS WITH BACKUP WIND DIRECTION: 58

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 62

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
.00	.41	1.94	47.96	31.34	11.98	6.36

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	6	9	5	3	0	0	0	0	5	3	0	0	0	0	0	5	0
C	32	19	23	5	1	10	6	7	17	15	1	0	1	0	0	33	0
D	387	198	161	143	126	296	476	367	313	234	130	122	138	191	392	524	0
E	198	127	98	87	117	256	258	341	284	189	118	73	71	94	146	285	1
F	50	67	56	34	42	68	109	139	93	99	30	46	33	42	62	76	3
G	25	28	19	15	18	29	42	56	70	43	34	41	36	28	29	43	1
TOTAL	698	448	362	287	304	659	891	910	782	583	313	282	279	355	629	966	5

ATMOSPHERIC DIFFUSION ESTIMATES

The tables of atmospheric diffusion estimates in this section were generated using the latest version of the computer code XOQDOQ included as part of NRCDose 2.3.20 (ORNL 2015). Data are given for 22 distances and 16 compass points (directions from site) centered on the Cooper Nuclear Station (CNS). Tables are presented for the ground-level (vent) and elevated (stack) release options separately, and for the following time periods in 2024: January-March, April-June, January-June, July-September, October-December, July-December, and January-December.

The most recent 5-year average X/Q, depleted X/Q, and D/Q values for CNS have been calculated and compared to the 2024 annual values provided herein. The differences in both peak directions and magnitudes were small and were likely the result of minor year-to-year climatological fluctuations. The most recent 5-year average X/Q, depleted X/Q, and D/Q values are representative of conditions around CNS and are available for use in dose calculations as necessary.

Atmospheric Diffusion Estimates

Ground Level Releases

January-March 2024

VENTS GROUND LEVEL RELEASES - JAN-MAR 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	8.711E-05	2.826E-05	1.469E-05	7.275E-06	2.974E-06	1.631E-06	1.044E-06	7.342E-07	5.504E-07	4.318E-07	3.505E-07
SSW	4.605E-05	1.518E-05	7.914E-06	3.915E-06	1.583E-06	8.615E-07	5.482E-07	3.839E-07	2.868E-07	2.243E-07	1.815E-07
SW	2.794E-05	9.344E-06	4.859E-06	2.393E-06	9.583E-07	5.180E-07	3.280E-07	2.288E-07	1.703E-07	1.328E-07	1.072E-07
WSW	2.794E-05	8.362E-06	4.150E-06	2.033E-06	8.623E-07	4.846E-07	3.158E-07	2.254E-07	1.710E-07	1.356E-07	1.110E-07
W	1.257E-05	3.987E-06	2.096E-06	1.044E-06	4.196E-07	2.274E-07	1.443E-07	1.009E-07	7.525E-08	5.878E-08	4.752E-08
WNW	1.728E-05	5.592E-06	2.908E-06	1.437E-06	5.765E-07	3.122E-07	1.980E-07	1.383E-07	1.031E-07	8.050E-08	6.506E-08
NW	3.431E-05	1.082E-05	5.532E-06	2.731E-06	1.135E-06	6.296E-07	4.064E-07	2.879E-07	2.170E-07	1.711E-07	1.394E-07
NNW	4.542E-05	1.376E-05	6.978E-06	3.457E-06	1.464E-06	8.211E-07	5.345E-07	3.810E-07	2.888E-07	2.286E-07	1.870E-07
N	9.650E-05	2.934E-05	1.496E-05	7.427E-06	3.133E-06	1.754E-06	1.139E-06	8.111E-07	6.141E-07	4.857E-07	3.970E-07
NNE	6.349E-05	1.935E-05	9.688E-06	4.755E-06	2.014E-06	1.131E-06	7.364E-07	5.253E-07	3.983E-07	3.155E-07	2.582E-07
NE	4.447E-05	1.356E-05	6.778E-06	3.325E-06	1.405E-06	7.878E-07	5.125E-07	3.652E-07	2.767E-07	2.190E-07	1.791E-07
ENE	3.040E-05	9.433E-06	4.767E-06	2.342E-06	9.794E-07	5.454E-07	3.531E-07	2.508E-07	1.895E-07	1.496E-07	1.221E-07
E	2.986E-05	9.172E-06	4.647E-06	2.290E-06	9.571E-07	5.327E-07	3.448E-07	2.448E-07	1.849E-07	1.460E-07	1.191E-07
ESE	3.808E-05	1.180E-05	5.964E-06	2.937E-06	1.230E-06	6.855E-07	4.440E-07	3.153E-07	2.383E-07	1.882E-07	1.536E-07
SE	5.857E-05	1.905E-05	9.839E-06	4.859E-06	1.983E-06	1.086E-06	6.938E-07	4.876E-07	3.652E-07	2.863E-07	2.322E-07
SSE	5.588E-05	1.815E-05	9.422E-06	4.661E-06	1.888E-06	1.029E-06	6.551E-07	4.591E-07	3.431E-07	2.685E-07	2.174E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.920E-07	1.540E-07	1.016E-07	5.985E-08	4.130E-08	3.105E-08	2.462E-08	2.026E-08	1.712E-08	1.476E-08	1.294E-08
SSW	1.508E-07	7.879E-08	5.168E-08	3.018E-08	2.071E-08	1.550E-08	1.225E-08	1.005E-08	8.474E-09	7.293E-09	6.380E-09
SW	8.895E-08	4.612E-08	3.010E-08	1.746E-08	1.193E-08	8.899E-09	7.015E-09	5.743E-09	4.833E-09	4.154E-09	3.629E-09
WSW	9.319E-08	5.056E-08	3.403E-08	2.058E-08	1.446E-08	1.102E-08	8.837E-09	7.337E-09	6.248E-09	5.425E-09	4.782E-09
W	3.949E-08	2.067E-08	1.357E-08	7.938E-09	5.451E-09	4.082E-09	3.227E-09	2.648E-09	2.233E-09	1.922E-09	1.681E-09
WNW	5.403E-08	2.817E-08	1.845E-08	1.077E-08	7.404E-09	5.548E-09	4.389E-09	3.604E-09	3.041E-09	2.619E-09	2.292E-09
NW	1.166E-07	6.232E-08	4.152E-08	2.475E-08	1.722E-08	1.302E-08	1.037E-08	8.568E-09	7.265E-09	6.284E-09	5.521E-09
NNW	1.569E-07	8.485E-08	5.697E-08	3.430E-08	2.401E-08	1.824E-08	1.459E-08	1.209E-08	1.027E-08	8.906E-09	7.840E-09
N	3.328E-07	1.795E-07	1.203E-07	7.229E-08	5.053E-08	3.834E-08	3.063E-08	2.536E-08	2.154E-08	1.866E-08	1.642E-08
NNE	2.167E-07	1.174E-07	7.892E-08	4.762E-08	3.339E-08	2.540E-08	2.034E-08	1.687E-08	1.435E-08	1.245E-08	1.096E-08
NE	1.503E-07	8.122E-08	5.452E-08	3.284E-08	2.300E-08	1.748E-08	1.398E-08	1.159E-08	9.856E-09	8.547E-09	7.526E-09
ENE	1.023E-07	5.501E-08	3.680E-08	2.207E-08	1.541E-08	1.169E-08	9.340E-09	7.731E-09	6.566E-09	5.688E-09	5.005E-09
E	9.978E-08	5.365E-08	3.589E-08	2.152E-08	1.503E-08	1.140E-08	9.109E-09	7.539E-09	6.403E-09	5.547E-09	4.880E-09
ESE	1.286E-07	6.905E-08	4.615E-08	2.763E-08	1.927E-08	1.460E-08	1.166E-08	9.641E-09	8.185E-09	7.087E-09	6.233E-09
SE	1.933E-07	1.016E-07	6.697E-08	3.933E-08	2.708E-08	2.033E-08	1.610E-08	1.323E-08	1.117E-08	9.631E-09	8.436E-09
SSE	1.807E-07	9.460E-08	6.213E-08	3.635E-08	2.498E-08	1.872E-08	1.481E-08	1.216E-08	1.026E-08	8.837E-09	7.735E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.441E-05	3.333E-06	1.076E-06	5.578E-07	3.529E-07	1.614E-07	6.089E-08	3.121E-08	2.031E-08	1.478E-08
SSW	7.751E-06	1.781E-06	5.660E-07	2.907E-07	1.828E-07	8.276E-08	3.075E-08	1.559E-08	1.008E-08	7.305E-09
SW	4.760E-06	1.081E-06	3.390E-07	1.728E-07	1.080E-07	4.852E-08	1.781E-08	8.953E-09	5.760E-09	4.161E-09
WSW	4.145E-06	9.545E-07	3.247E-07	1.731E-07	1.117E-07	5.268E-08	2.085E-08	1.107E-08	7.351E-09	5.431E-09
W	2.049E-06	4.730E-07	1.491E-07	7.630E-08	4.788E-08	2.170E-08	8.085E-09	4.105E-09	2.655E-09	1.925E-09
WNW	2.851E-06	6.502E-07	2.046E-07	1.046E-07	6.555E-08	2.960E-08	1.098E-08	5.579E-09	3.614E-09	2.623E-09
NW	5.461E-06	1.265E-06	4.185E-07	2.198E-07	1.404E-07	6.514E-08	2.513E-08	1.308E-08	8.588E-09	6.292E-09
NNW	6.920E-06	1.621E-06	5.495E-07	2.922E-07	1.882E-07	8.847E-08	3.477E-08	1.832E-08	1.211E-08	8.916E-09
N	1.481E-05	3.474E-06	1.172E-06	6.215E-07	3.995E-07	1.873E-07	7.329E-08	3.851E-08	2.541E-08	1.869E-08
NNE	9.643E-06	2.231E-06	7.571E-07	4.031E-07	2.598E-07	1.224E-07	4.825E-08	2.551E-08	1.690E-08	1.246E-08
NE	6.752E-06	1.558E-06	5.270E-07	2.800E-07	1.803E-07	8.470E-08	3.328E-08	1.755E-08	1.161E-08	8.557E-09
ENE	4.726E-06	1.089E-06	3.634E-07	1.918E-07	1.229E-07	5.742E-08	2.238E-08	1.174E-08	7.747E-09	5.695E-09
E	4.605E-06	1.065E-06	3.549E-07	1.872E-07	1.199E-07	5.601E-08	2.183E-08	1.145E-08	7.555E-09	5.554E-09
ESE	5.915E-06	1.367E-06	4.570E-07	2.412E-07	1.546E-07	7.211E-08	2.803E-08	1.467E-08	9.662E-09	7.096E-09
SE	9.672E-06	2.223E-06	7.158E-07	3.701E-07	2.338E-07	1.066E-07	4.003E-08	2.044E-08	1.327E-08	9.646E-09
SSE	9.246E-06	2.122E-06	6.763E-07	3.478E-07	2.189E-07	9.931E-08	3.703E-08	1.883E-08	1.219E-08	8.850E-09

VENTS GROUND LEVEL RELEASES - JAN-MAR 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	8.691E-05	2.814E-05	1.460E-05	7.217E-06	2.937E-06	1.603E-06	1.021E-06	7.153E-07	5.339E-07	4.169E-07	3.368E-07
SSW	4.594E-05	1.512E-05	7.867E-06	3.884E-06	1.564E-06	8.472E-07	5.367E-07	3.742E-07	2.782E-07	2.165E-07	1.744E-07
SW	2.788E-05	9.308E-06	4.832E-06	2.375E-06	9.474E-07	5.101E-07	3.216E-07	2.234E-07	1.656E-07	1.286E-07	1.034E-07
WSW	2.785E-05	8.309E-06	4.112E-06	2.008E-06	8.464E-07	4.726E-07	3.060E-07	2.170E-07	1.636E-07	1.288E-07	1.048E-07
W	1.254E-05	3.970E-06	2.083E-06	1.036E-06	4.145E-07	2.237E-07	1.414E-07	9.840E-08	7.307E-08	5.682E-08	4.574E-08
WNW	1.724E-05	5.570E-06	2.891E-06	1.426E-06	5.697E-07	3.072E-07	1.940E-07	1.349E-07	1.001E-07	7.781E-08	6.261E-08
NW	3.421E-05	1.076E-05	5.489E-06	2.703E-06	1.117E-06	6.162E-07	3.955E-07	2.785E-07	2.088E-07	1.636E-07	1.326E-07
NNW	4.529E-05	1.368E-05	6.924E-06	3.422E-06	1.441E-06	8.038E-07	5.203E-07	3.688E-07	2.780E-07	2.188E-07	1.780E-07
N	9.623E-05	2.919E-05	1.485E-05	7.353E-06	3.086E-06	1.718E-06	1.110E-06	7.859E-07	5.917E-07	4.655E-07	3.784E-07
NNE	6.330E-05	1.924E-05	9.604E-06	4.701E-06	1.979E-06	1.104E-06	7.146E-07	5.065E-07	3.817E-07	3.005E-07	2.443E-07
NE	4.434E-05	1.348E-05	6.720E-06	3.287E-06	1.381E-06	7.694E-07	4.974E-07	3.523E-07	2.652E-07	2.086E-07	1.696E-07
ENE	3.031E-05	9.382E-06	4.730E-06	2.318E-06	9.641E-07	5.339E-07	3.438E-07	2.428E-07	1.824E-07	1.433E-07	1.163E-07
E	2.978E-05	9.123E-06	4.611E-06	2.267E-06	9.425E-07	5.217E-07	3.358E-07	2.371E-07	1.781E-07	1.398E-07	1.135E-07
ESE	3.798E-05	1.174E-05	5.921E-06	2.909E-06	1.212E-06	6.719E-07	4.329E-07	3.058E-07	2.298E-07	1.805E-07	1.465E-07
SE	5.844E-05	1.897E-05	9.781E-06	4.822E-06	1.959E-06	1.068E-06	6.793E-07	4.752E-07	3.543E-07	2.764E-07	2.231E-07
SSE	5.576E-05	1.808E-05	9.368E-06	4.626E-06	1.866E-06	1.012E-06	6.419E-07	4.479E-07	3.332E-07	2.596E-07	2.092E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.794E-07	1.439E-07	9.284E-08	5.226E-08	3.453E-08	2.488E-08	1.894E-08	1.498E-08	1.219E-08	1.014E-08	8.576E-09
SSW	1.443E-07	7.365E-08	4.719E-08	2.632E-08	1.728E-08	1.238E-08	9.385E-09	7.394E-09	5.994E-09	4.968E-09	4.190E-09
SW	8.540E-08	4.335E-08	2.770E-08	1.541E-08	1.011E-08	7.252E-09	5.504E-09	4.343E-09	3.528E-09	2.930E-09	2.476E-09
WSW	8.740E-08	4.591E-08	2.992E-08	1.700E-08	1.125E-08	8.083E-09	6.124E-09	4.815E-09	3.890E-09	3.210E-09	2.695E-09
W	3.785E-08	1.937E-08	1.245E-08	6.968E-09	4.586E-09	3.295E-09	2.502E-09	1.975E-09	1.603E-09	1.330E-09	1.122E-09
WNW	5.176E-08	2.638E-08	1.690E-08	9.434E-09	6.210E-09	4.462E-09	3.389E-09	2.675E-09	2.173E-09	1.803E-09	1.523E-09
NW	1.102E-07	5.724E-08	3.705E-08	2.088E-08	1.375E-08	9.861E-09	7.465E-09	5.869E-09	4.744E-09	3.919E-09	3.294E-09
NNW	1.485E-07	7.806E-08	5.096E-08	2.905E-08	1.929E-08	1.392E-08	1.060E-08	8.373E-09	6.799E-09	5.639E-09	4.757E-09
N	3.155E-07	1.656E-07	1.080E-07	6.157E-08	4.089E-08	2.954E-08	2.251E-08	1.780E-08	1.447E-08	1.202E-08	1.015E-08
NNE	2.038E-07	1.070E-07	6.973E-08	3.959E-08	2.618E-08	1.882E-08	1.426E-08	1.122E-08	9.071E-09	7.493E-09	6.296E-09
NE	1.414E-07	7.406E-08	4.820E-08	2.732E-08	1.804E-08	1.295E-08	9.810E-09	7.712E-09	6.231E-09	5.144E-09	4.320E-09
ENE	9.686E-08	5.066E-08	3.298E-08	1.874E-08	1.243E-08	8.970E-09	6.829E-09	5.397E-09	4.385E-09	3.639E-09	3.073E-09
E	9.453E-08	4.944E-08	3.218E-08	1.828E-08	1.212E-08	8.744E-09	6.654E-09	5.256E-09	4.268E-09	3.540E-09	2.988E-09
ESE	1.220E-07	6.378E-08	4.150E-08	2.357E-08	1.562E-08	1.127E-08	8.581E-09	6.782E-09	5.512E-09	4.576E-09	3.865E-09
SE	1.849E-07	9.492E-08	6.106E-08	3.420E-08	2.249E-08	1.614E-08	1.224E-08	9.651E-09	7.826E-09	6.487E-09	5.472E-09
SSE	1.732E-07	8.861E-08	5.690E-08	3.183E-08	2.094E-08	1.504E-08	1.142E-08	9.014E-09	7.318E-09	6.074E-09	5.129E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
	SEGMENT BOUNDARIES IN MILES FROM THE SITE									
S	1.433E-05	3.295E-06	1.054E-06	5.412E-07	3.393E-07	1.513E-07	5.340E-08	2.508E-08	1.505E-08	1.017E-08
SSW	7.708E-06	1.761E-06	5.545E-07	2.821E-07	1.758E-07	7.759E-08	2.694E-08	1.249E-08	7.429E-09	4.984E-09
SW	4.735E-06	1.070E-06	3.326E-07	1.680E-07	1.042E-07	4.574E-08	1.579E-08	7.315E-09	4.364E-09	2.939E-09
WSW	4.110E-06	9.384E-07	3.148E-07	1.656E-07	1.055E-07	4.802E-08	1.731E-08	8.143E-09	4.837E-09	3.221E-09
W	2.037E-06	4.678E-07	1.462E-07	7.412E-08	4.610E-08	2.040E-08	7.127E-09	3.322E-09	1.984E-09	1.334E-09
WNW	2.835E-06	6.433E-07	2.005E-07	1.016E-07	6.309E-08	2.781E-08	9.660E-09	4.499E-09	2.688E-09	1.809E-09
NW	5.422E-06	1.247E-06	4.075E-07	2.115E-07	1.335E-07	6.004E-08	2.130E-08	9.940E-09	5.897E-09	3.932E-09
NNW	6.870E-06	1.598E-06	5.353E-07	2.814E-07	1.792E-07	8.167E-08	2.958E-08	1.402E-08	8.409E-09	5.656E-09
N	1.470E-05	3.426E-06	1.142E-06	5.991E-07	3.809E-07	1.733E-07	6.271E-08	2.976E-08	1.788E-08	1.205E-08
NNE	9.566E-06	2.195E-06	7.352E-07	3.864E-07	2.460E-07	1.119E-07	4.033E-08	1.896E-08	1.127E-08	7.517E-09
NE	6.698E-06	1.533E-06	5.119E-07	2.685E-07	1.707E-07	7.752E-08	2.784E-08	1.305E-08	7.747E-09	5.161E-09
ENE	4.692E-06	1.074E-06	3.541E-07	1.847E-07	1.171E-07	5.307E-08	1.910E-08	9.037E-09	5.421E-09	3.650E-09
E	4.572E-06	1.050E-06	3.459E-07	1.804E-07	1.143E-07	5.179E-08	1.863E-08	8.809E-09	5.279E-09	3.551E-09
ESE	5.875E-06	1.349E-06	4.458E-07	2.327E-07	1.475E-07	6.682E-08	2.402E-08	1.136E-08	6.812E-09	4.590E-09
SE	9.619E-06	2.199E-06	7.012E-07	3.592E-07	2.248E-07	9.986E-08	3.497E-08	1.628E-08	9.696E-09	6.508E-09
SSE	9.196E-06	2.100E-06	6.631E-07	3.379E-07	2.108E-07	9.331E-08	3.256E-08	1.517E-08	9.056E-09	6.093E-09

VENTS GROUND LEVEL RELEASES - JAN-MAR 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	8.239E-05	2.577E-05	1.307E-05	6.354E-06	2.517E-06	1.344E-06	8.401E-07	5.789E-07	4.258E-07	3.282E-07	2.620E-07
SSW	4.355E-05	1.385E-05	7.041E-06	3.419E-06	1.340E-06	7.100E-07	4.414E-07	3.027E-07	2.218E-07	1.704E-07	1.357E-07
SW	2.643E-05	8.523E-06	4.323E-06	2.090E-06	8.112E-07	4.271E-07	2.642E-07	1.805E-07	1.319E-07	1.010E-07	8.024E-08
WSW	2.642E-05	7.622E-06	3.688E-06	1.773E-06	7.285E-07	3.984E-07	2.535E-07	1.771E-07	1.318E-07	1.025E-07	8.254E-08
W	1.189E-05	3.636E-06	1.865E-06	9.120E-07	3.551E-07	1.874E-07	1.162E-07	7.958E-08	5.823E-08	4.468E-08	3.554E-08
WNW	1.634E-05	5.101E-06	2.587E-06	1.255E-06	4.880E-07	2.573E-07	1.595E-07	1.091E-07	7.978E-08	6.120E-08	4.865E-08
NW	3.244E-05	9.862E-06	4.919E-06	2.383E-06	9.599E-07	5.182E-07	3.266E-07	2.265E-07	1.675E-07	1.297E-07	1.039E-07
NNW	4.295E-05	1.254E-05	6.204E-06	3.017E-06	1.238E-06	6.758E-07	4.296E-07	2.999E-07	2.229E-07	1.733E-07	1.394E-07
N	9.126E-05	2.676E-05	1.330E-05	6.483E-06	2.649E-06	1.443E-06	9.160E-07	6.385E-07	4.741E-07	3.683E-07	2.961E-07
NNE	6.004E-05	1.764E-05	8.612E-06	4.149E-06	1.702E-06	9.299E-07	5.914E-07	4.130E-07	3.071E-07	2.389E-07	1.922E-07
NE	4.205E-05	1.237E-05	6.025E-06	2.901E-06	1.188E-06	6.480E-07	4.116E-07	2.871E-07	2.133E-07	1.658E-07	1.333E-07
ENE	2.875E-05	8.601E-06	4.239E-06	2.044E-06	8.281E-07	4.489E-07	2.839E-07	1.974E-07	1.462E-07	1.134E-07	9.106E-08
E	2.824E-05	8.363E-06	4.132E-06	1.999E-06	8.093E-07	4.385E-07	2.772E-07	1.927E-07	1.427E-07	1.107E-07	8.884E-08
ESE	3.601E-05	1.076E-05	5.304E-06	2.564E-06	1.040E-06	5.644E-07	3.571E-07	2.483E-07	1.840E-07	1.427E-07	1.146E-07
SE	5.540E-05	1.737E-05	8.753E-06	4.244E-06	1.678E-06	8.946E-07	5.586E-07	3.845E-07	2.825E-07	2.176E-07	1.736E-07
SSE	5.286E-05	1.656E-05	8.383E-06	4.071E-06	1.598E-06	8.479E-07	5.276E-07	3.621E-07	2.655E-07	2.041E-07	1.626E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.149E-07	1.064E-07	6.649E-08	3.575E-08	2.285E-08	1.605E-08	1.197E-08	9.296E-09	7.443E-09	6.098E-09	5.088E-09
SSW	1.110E-07	5.447E-08	3.381E-08	1.802E-08	1.145E-08	8.006E-09	5.947E-09	4.606E-09	3.677E-09	3.006E-09	2.503E-09
SW	6.553E-08	3.194E-08	1.974E-08	1.046E-08	6.627E-09	4.625E-09	3.430E-09	2.654E-09	2.118E-09	1.731E-09	1.441E-09
WSW	6.820E-08	3.466E-08	2.202E-08	1.210E-08	7.836E-09	5.553E-09	4.166E-09	3.250E-09	2.610E-09	2.143E-09	1.791E-09
W	2.908E-08	1.430E-08	8.893E-09	4.750E-09	3.023E-09	2.117E-09	1.574E-09	1.221E-09	9.756E-10	7.982E-10	6.652E-10
WNW	3.978E-08	1.948E-08	1.208E-08	6.440E-09	4.101E-09	2.872E-09	2.136E-09	1.657E-09	1.324E-09	1.084E-09	9.032E-10
NW	8.553E-08	4.286E-08	2.698E-08	1.464E-08	9.400E-09	6.620E-09	4.943E-09	3.843E-09	3.077E-09	2.521E-09	2.102E-09
NNW	1.151E-07	5.839E-08	3.705E-08	2.031E-08	1.313E-08	9.296E-09	6.970E-09	5.438E-09	4.368E-09	3.588E-09	2.999E-09
N	2.443E-07	1.236E-07	7.834E-08	4.286E-08	2.769E-08	1.959E-08	1.468E-08	1.145E-08	9.198E-09	7.555E-09	6.317E-09
NNE	1.587E-07	8.057E-08	5.115E-08	2.804E-08	1.813E-08	1.283E-08	9.616E-09	7.497E-09	6.017E-09	4.938E-09	4.124E-09
NE	1.101E-07	5.575E-08	3.534E-08	1.934E-08	1.249E-08	8.831E-09	6.613E-09	5.153E-09	4.134E-09	3.391E-09	2.831E-09
ENE	7.507E-08	3.787E-08	2.394E-08	1.307E-08	8.439E-09	5.967E-09	4.471E-09	3.486E-09	2.799E-09	2.299E-09	1.922E-09
E	7.323E-08	3.694E-08	2.336E-08	1.275E-08	8.229E-09	5.818E-09	4.358E-09	3.398E-09	2.728E-09	2.240E-09	1.872E-09
ESE	9.443E-08	4.757E-08	3.006E-08	1.639E-08	1.056E-08	7.463E-09	5.588E-09	4.355E-09	3.495E-09	2.869E-09	2.397E-09
SE	1.423E-07	7.025E-08	4.379E-08	2.346E-08	1.495E-08	1.048E-08	7.795E-09	6.045E-09	4.832E-09	3.953E-09	3.293E-09
SSE	1.331E-07	6.544E-08	4.068E-08	2.173E-08	1.383E-08	9.687E-09	7.204E-09	5.585E-09	4.464E-09	3.652E-09	3.043E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.291E-05	2.848E-06	8.699E-07	4.323E-07	2.642E-07	1.128E-07	3.685E-08	1.623E-08	9.353E-09	6.122E-09
SSW	6.943E-06	1.522E-06	4.575E-07	2.254E-07	1.368E-07	5.786E-08	1.861E-08	8.101E-09	4.635E-09	3.019E-09
SW	4.264E-06	9.247E-07	2.742E-07	1.340E-07	8.095E-08	3.398E-08	1.082E-08	4.681E-09	2.672E-09	1.738E-09
WSW	3.711E-06	8.139E-07	2.616E-07	1.336E-07	8.316E-08	3.650E-08	1.241E-08	5.607E-09	3.268E-09	2.151E-09
W	1.835E-06	4.043E-07	1.206E-07	5.917E-08	3.586E-08	1.518E-08	4.903E-09	2.142E-09	1.228E-09	8.015E-10
WNW	2.554E-06	5.559E-07	1.654E-07	8.107E-08	4.908E-08	2.070E-08	6.654E-09	2.905E-09	1.667E-09	1.088E-09
NW	4.891E-06	1.080E-06	3.377E-07	1.699E-07	1.047E-07	4.529E-08	1.505E-08	6.691E-09	3.866E-09	2.531E-09
NNW	6.197E-06	1.383E-06	4.434E-07	2.260E-07	1.405E-07	6.151E-08	2.084E-08	9.388E-09	5.468E-09	3.601E-09
N	1.326E-05	2.965E-06	9.457E-07	4.808E-07	2.983E-07	1.303E-07	4.400E-08	1.979E-08	1.152E-08	7.583E-09
NNE	8.635E-06	1.903E-06	6.103E-07	3.113E-07	1.936E-07	8.486E-08	2.877E-08	1.296E-08	7.539E-09	4.956E-09
NE	6.046E-06	1.329E-06	4.248E-07	2.163E-07	1.343E-07	5.875E-08	1.985E-08	8.919E-09	5.182E-09	3.404E-09
ENE	4.233E-06	9.298E-07	2.933E-07	1.484E-07	9.177E-08	3.995E-08	1.343E-08	6.028E-09	3.506E-09	2.307E-09
E	4.124E-06	9.089E-07	2.864E-07	1.448E-07	8.954E-08	3.897E-08	1.310E-08	5.877E-09	3.417E-09	2.248E-09
ESE	5.298E-06	1.167E-06	3.689E-07	1.866E-07	1.154E-07	5.020E-08	1.684E-08	7.540E-09	4.379E-09	2.880E-09
SE	8.665E-06	1.900E-06	5.786E-07	2.869E-07	1.750E-07	7.449E-08	2.420E-08	1.060E-08	6.083E-09	3.969E-09
SSE	8.283E-06	1.814E-06	5.468E-07	2.697E-07	1.640E-07	6.947E-08	2.243E-08	9.800E-09	5.621E-09	3.667E-09

VENTS GROUND LEVEL RELEASES - JAN-MAR 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	3.380E-07	1.143E-07	5.868E-08	2.790E-08	1.002E-08	4.970E-09	2.926E-09	1.916E-09	1.348E-09	9.992E-10	7.700E-10
SSW	1.898E-07	6.419E-08	3.296E-08	1.567E-08	5.629E-09	2.791E-09	1.644E-09	1.076E-09	7.573E-10	5.612E-10	4.325E-10
SW	1.064E-07	3.596E-08	1.847E-08	8.779E-09	3.153E-09	1.564E-09	9.208E-10	6.029E-10	4.242E-10	3.144E-10	2.423E-10
WSW	4.232E-08	1.431E-08	7.348E-09	3.493E-09	1.255E-09	6.223E-10	3.664E-10	2.399E-10	1.688E-10	1.251E-10	9.641E-11
W	4.378E-08	1.480E-08	7.600E-09	3.613E-09	1.298E-09	6.437E-10	3.790E-10	2.482E-10	1.746E-10	1.294E-10	9.973E-11
WNW	7.395E-08	2.501E-08	1.284E-08	6.104E-09	2.192E-09	1.087E-09	6.402E-10	4.192E-10	2.950E-10	2.186E-10	1.685E-10
NW	9.310E-08	3.148E-08	1.617E-08	7.685E-09	2.761E-09	1.369E-09	8.061E-10	5.278E-10	3.714E-10	2.752E-10	2.121E-10
NNW	1.183E-07	4.001E-08	2.054E-08	9.766E-09	3.508E-09	1.740E-09	1.024E-09	6.708E-10	4.720E-10	3.498E-10	2.695E-10
N	2.525E-07	8.539E-08	4.384E-08	2.084E-08	7.487E-09	3.713E-09	2.186E-09	1.432E-09	1.007E-09	7.465E-10	5.753E-10
NNE	1.555E-07	5.260E-08	2.701E-08	1.284E-08	4.612E-09	2.287E-09	1.347E-09	8.818E-10	6.205E-10	4.598E-10	3.543E-10
NE	9.871E-08	3.338E-08	1.714E-08	8.148E-09	2.927E-09	1.451E-09	8.546E-10	5.596E-10	3.938E-10	2.918E-10	2.249E-10
ENE	6.835E-08	2.311E-08	1.187E-08	5.642E-09	2.027E-09	1.005E-09	5.918E-10	3.875E-10	2.727E-10	2.021E-10	1.557E-10
E	8.232E-08	2.784E-08	1.429E-08	6.795E-09	2.441E-09	1.210E-09	7.127E-10	4.667E-10	3.284E-10	2.434E-10	1.875E-10
ESE	1.107E-07	3.744E-08	1.922E-08	9.139E-09	3.283E-09	1.628E-09	9.586E-10	6.277E-10	4.417E-10	3.273E-10	2.522E-10
SE	2.749E-07	9.296E-08	4.773E-08	2.269E-08	8.151E-09	4.042E-09	2.380E-09	1.558E-09	1.097E-09	8.127E-10	6.263E-10
SSE	2.674E-07	9.041E-08	4.642E-08	2.207E-08	7.927E-09	3.931E-09	2.315E-09	1.516E-09	1.066E-09	7.904E-10	6.091E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	6.117E-10	2.717E-10	1.646E-10	8.320E-11	5.036E-11	3.376E-11	2.419E-11	1.817E-11	1.412E-11	1.128E-11	9.209E-12
SSW	3.436E-10	1.526E-10	9.246E-11	4.673E-11	2.829E-11	1.896E-11	1.359E-11	1.020E-11	7.934E-12	6.338E-12	5.173E-12
SW	1.925E-10	8.551E-11	5.180E-11	2.618E-11	1.585E-11	1.062E-11	7.613E-12	5.716E-12	4.445E-12	3.550E-12	2.898E-12
WSW	7.659E-11	3.403E-11	2.061E-11	1.042E-11	6.306E-12	4.228E-12	3.029E-12	2.275E-12	1.769E-12	1.413E-12	1.153E-12
W	7.923E-11	3.520E-11	2.132E-11	1.078E-11	6.522E-12	4.373E-12	3.134E-12	2.353E-12	1.829E-12	1.461E-12	1.193E-12
WNW	1.338E-10	5.945E-11	3.601E-11	1.820E-11	1.102E-11	7.387E-12	5.293E-12	3.975E-12	3.090E-12	2.469E-12	2.015E-12
NW	1.685E-10	7.486E-11	4.534E-11	2.292E-11	1.387E-11	9.301E-12	6.665E-12	5.004E-12	3.891E-12	3.108E-12	2.537E-12
NNW	2.141E-10	9.513E-11	5.762E-11	2.913E-11	1.763E-11	1.182E-11	8.469E-12	6.360E-12	4.945E-12	3.950E-12	3.224E-12
N	4.570E-10	2.030E-10	1.230E-10	6.216E-11	3.762E-11	2.523E-11	1.808E-11	1.357E-11	1.055E-11	8.430E-12	6.881E-12
NNE	2.815E-10	1.251E-10	7.575E-11	3.829E-11	2.317E-11	1.554E-11	1.113E-11	8.360E-12	6.500E-12	5.193E-12	4.238E-12
NE	1.787E-10	7.936E-11	4.807E-11	2.430E-11	1.471E-11	9.861E-12	7.066E-12	5.306E-12	4.125E-12	3.295E-12	2.690E-12
ENE	1.237E-10	5.496E-11	3.329E-11	1.683E-11	1.018E-11	6.828E-12	4.893E-12	3.674E-12	2.857E-12	2.282E-12	1.863E-12
E	1.490E-10	6.619E-11	4.009E-11	2.026E-11	1.227E-11	8.224E-12	5.893E-12	4.425E-12	3.440E-12	2.748E-12	2.243E-12
ESE	2.004E-10	8.902E-11	5.393E-11	2.726E-11	1.650E-11	1.106E-11	7.926E-12	5.951E-12	4.627E-12	3.696E-12	3.017E-12
SE	4.975E-10	2.210E-10	1.339E-10	6.767E-11	4.096E-11	2.746E-11	1.968E-11	1.478E-11	1.149E-11	9.177E-12	7.491E-12
SSE	4.839E-10	2.150E-10	1.302E-10	6.581E-11	3.983E-11	2.671E-11	1.914E-11	1.437E-11	1.117E-11	8.925E-12	7.285E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	5.736E-08	1.175E-08	3.067E-09	1.377E-09	7.793E-10	2.997E-10	8.669E-11	3.436E-11	1.835E-11	1.136E-11
SSW	3.222E-08	6.599E-09	1.723E-09	7.737E-10	4.377E-10	1.683E-10	4.869E-11	1.930E-11	1.031E-11	6.379E-12
SW	1.805E-08	3.697E-09	9.651E-10	4.335E-10	2.452E-10	9.430E-11	2.728E-11	1.081E-11	5.774E-12	3.574E-12
WSW	7.182E-09	1.471E-09	3.840E-10	1.725E-10	9.758E-11	3.752E-11	1.086E-11	4.302E-12	2.298E-12	1.422E-12
W	7.429E-09	1.522E-09	3.972E-10	1.784E-10	1.009E-10	3.881E-11	1.123E-11	4.450E-12	2.377E-12	1.471E-12
WNW	1.255E-08	2.570E-09	6.710E-10	3.014E-10	1.705E-10	6.556E-11	1.897E-11	7.518E-12	4.014E-12	2.485E-12
NW	1.580E-08	3.236E-09	8.449E-10	3.795E-10	2.147E-10	8.255E-11	2.388E-11	9.465E-12	5.055E-12	3.129E-12
NNW	2.008E-08	4.113E-09	1.074E-09	4.822E-10	2.728E-10	1.049E-10	3.035E-11	1.203E-11	6.423E-12	3.976E-12
N	4.285E-08	8.778E-09	2.292E-09	1.029E-09	5.822E-10	2.239E-10	6.477E-11	2.567E-11	1.371E-11	8.486E-12
NNE	2.640E-08	5.407E-09	1.411E-09	6.339E-10	3.586E-10	1.379E-10	3.990E-11	1.581E-11	8.444E-12	5.227E-12
NE	1.675E-08	3.431E-09	8.958E-10	4.023E-10	2.276E-10	8.752E-11	2.532E-11	1.004E-11	5.359E-12	3.317E-12
ENE	1.160E-08	2.376E-09	6.203E-10	2.786E-10	1.576E-10	6.061E-11	1.753E-11	6.949E-12	3.711E-12	2.297E-12
E	1.397E-08	2.862E-09	7.470E-10	3.355E-10	1.898E-10	7.299E-11	2.112E-11	8.369E-12	4.469E-12	2.766E-12
ESE	1.879E-08	3.849E-09	1.005E-09	4.513E-10	2.553E-10	9.817E-11	2.840E-11	1.126E-11	6.011E-12	3.721E-12
SE	4.665E-08	9.556E-09	2.495E-09	1.120E-09	6.338E-10	2.437E-10	7.051E-11	2.795E-11	1.492E-11	9.238E-12
SSE	4.537E-08	9.294E-09	2.426E-09	1.090E-09	6.164E-10	2.371E-10	6.858E-11	2.718E-11	1.451E-11	8.984E-12

VENTS GROUND LEVEL RELEASES - JAN-MAR 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.3E-05	1.3E-05	1.1E-05	5.0E-08
A	Site Boundary	SSW	.82	6.3E-06	6.2E-06	5.6E-06	2.6E-08
A	Site Boundary	SW	.97	2.5E-06	2.5E-06	2.2E-06	9.4E-09
A	Site Boundary	WSW	.93	2.5E-06	2.4E-06	2.2E-06	4.3E-09
A	Site Boundary	W	.91	1.3E-06	1.3E-06	1.1E-06	4.6E-09
A	Site Boundary	WNW	.94	1.7E-06	1.7E-06	1.5E-06	7.2E-09
A	Site Boundary	NW	.81	4.6E-06	4.5E-06	4.0E-06	1.3E-08
A	Site Boundary	NNW	.69	8.0E-06	8.0E-06	7.2E-06	2.4E-08
A	Site Boundary	N	.67	1.8E-05	1.8E-05	1.6E-05	5.2E-08
A	Site Boundary	NNE	.60	1.4E-05	1.4E-05	1.3E-05	3.9E-08
A	Site Boundary	NE	.62	9.2E-06	9.1E-06	8.3E-06	2.3E-08
A	Site Boundary	ENE	.59	7.2E-06	7.2E-06	6.5E-06	1.8E-08
A	Site Boundary	E	.53	8.4E-06	8.4E-06	7.7E-06	2.6E-08
A	Site Boundary	ESE	.54	1.0E-05	1.0E-05	9.5E-06	3.3E-08
A	Site Boundary	SE	.65	1.2E-05	1.2E-05	1.1E-05	6.1E-08
A	Site Boundary	SSE	.81	7.8E-06	7.7E-06	6.9E-06	3.8E-08
A	Nearest Res	SW	1.30	1.3E-06	1.3E-06	1.1E-06	4.5E-09
A	Nearest Res	WSW	1.80	6.0E-07	5.8E-07	5.0E-07	8.0E-10
A	Nearest Res	WNW	2.40	2.1E-07	2.1E-07	1.7E-07	7.0E-10
A	Nearest Res	NW	.90	3.5E-06	3.5E-06	3.1E-06	1.0E-08
A	Nearest Res	NNW	1.90	9.1E-07	8.9E-07	7.5E-07	2.0E-09
A	Nearest Res	NE	1.60	1.2E-06	1.2E-06	1.0E-06	2.5E-09
A	Nearest Res	ENE	1.70	7.6E-07	7.4E-07	6.3E-07	1.5E-09
A	Nearest Res	E	2.00	5.3E-07	5.2E-07	4.4E-07	1.2E-09
A	Nearest Res	SE	2.90	5.2E-07	5.1E-07	4.1E-07	1.7E-09
A	Nearest Cow	NNW	3.50	2.9E-07	2.8E-07	2.2E-07	4.7E-10
A	Nearest Garde	SW	2.20	4.3E-07	4.2E-07	3.5E-07	1.2E-09
A	Nearest Garde	WSW	2.40	3.4E-07	3.3E-07	2.8E-07	4.0E-10
A	Nearest Garde	WNW	2.60	1.8E-07	1.8E-07	1.5E-07	5.8E-10
A	Nearest Garde	NNW	2.70	4.6E-07	4.5E-07	3.7E-07	8.6E-10
A	Nearest Garde	ENE	1.70	7.6E-07	7.4E-07	6.3E-07	1.5E-09
A	Nearest Garde	E	2.00	5.3E-07	5.2E-07	4.4E-07	1.2E-09
A	Nearest Garde	ESE	2.20	5.7E-07	5.6E-07	4.6E-07	1.3E-09
A	Nearest Garde	SE	2.90	5.2E-07	5.1E-07	4.1E-07	1.7E-09

Atmospheric Diffusion Estimates

Ground Level Releases

April-June 2024

VENTS GROUND LEVEL RELEASES - APR-JUN 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	5.811E-05	1.896E-05	1.011E-05	5.078E-06	2.060E-06	1.123E-06	7.151E-07	5.012E-07	3.745E-07	2.929E-07	2.371E-07
SSW	2.556E-05	8.320E-06	4.410E-06	2.208E-06	8.960E-07	4.885E-07	3.112E-07	2.181E-07	1.630E-07	1.275E-07	1.032E-07
SW	6.577E-06	2.244E-06	1.186E-06	5.819E-07	2.221E-07	1.161E-07	7.168E-08	4.898E-08	3.584E-08	2.754E-08	2.195E-08
WSW	1.458E-05	4.730E-06	2.434E-06	1.196E-06	4.811E-07	2.609E-07	1.657E-07	1.159E-07	8.642E-08	6.752E-08	5.460E-08
W	9.591E-06	3.359E-06	1.811E-06	8.997E-07	3.485E-07	1.840E-07	1.144E-07	7.861E-08	5.778E-08	4.456E-08	3.562E-08
WNW	1.709E-05	5.823E-06	3.101E-06	1.541E-06	6.050E-07	3.223E-07	2.017E-07	1.394E-07	1.029E-07	7.968E-08	6.392E-08
NW	1.951E-05	6.571E-06	3.457E-06	1.701E-06	6.592E-07	3.482E-07	2.167E-07	1.490E-07	1.096E-07	8.463E-08	6.772E-08
NNW	3.377E-05	1.092E-05	5.675E-06	2.812E-06	1.144E-06	6.254E-07	3.993E-07	2.804E-07	2.099E-07	1.644E-07	1.333E-07
N	5.795E-05	1.836E-05	9.564E-06	4.760E-06	1.958E-06	1.078E-06	6.919E-07	4.880E-07	3.666E-07	2.881E-07	2.342E-07
NNE	3.983E-05	1.271E-05	6.669E-06	3.329E-06	1.363E-06	7.479E-07	4.790E-07	3.372E-07	2.529E-07	1.985E-07	1.611E-07
NE	2.824E-05	8.832E-06	4.545E-06	2.252E-06	9.357E-07	5.187E-07	3.348E-07	2.371E-07	1.788E-07	1.409E-07	1.148E-07
ENE	2.238E-05	6.950E-06	3.606E-06	1.797E-06	7.412E-07	4.086E-07	2.626E-07	1.853E-07	1.393E-07	1.096E-07	8.909E-08
E	2.755E-05	8.619E-06	4.502E-06	2.253E-06	9.322E-07	5.150E-07	3.314E-07	2.342E-07	1.762E-07	1.386E-07	1.128E-07
ESE	3.132E-05	9.597E-06	4.887E-06	2.418E-06	1.015E-06	5.659E-07	3.668E-07	2.607E-07	1.971E-07	1.557E-07	1.272E-07
SE	8.040E-05	2.469E-05	1.284E-05	6.432E-06	2.688E-06	1.495E-06	9.671E-07	6.860E-07	5.178E-07	4.085E-07	3.332E-07
SSE	7.472E-05	2.326E-05	1.217E-05	6.100E-06	2.525E-06	1.395E-06	8.981E-07	6.346E-07	4.775E-07	3.757E-07	3.057E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.971E-07	1.030E-07	6.752E-08	3.939E-08	2.699E-08	2.018E-08	1.593E-08	1.305E-08	1.099E-08	9.453E-09	8.262E-09
SSW	8.583E-08	4.485E-08	2.941E-08	1.716E-08	1.176E-08	8.794E-09	6.943E-09	5.691E-09	4.794E-09	4.122E-09	3.603E-09
SW	1.801E-08	8.993E-09	5.715E-09	3.202E-09	2.145E-09	1.576E-09	1.227E-09	9.939E-10	8.288E-10	7.066E-10	6.129E-10
WSW	4.535E-08	2.365E-08	1.550E-08	9.054E-09	6.223E-09	4.664E-09	3.691E-09	3.031E-09	2.558E-09	2.203E-09	1.929E-09
W	2.930E-08	1.472E-08	9.387E-09	5.269E-09	3.518E-09	2.577E-09	2.001E-09	1.617E-09	1.346E-09	1.145E-09	9.911E-10
WNW	5.272E-08	2.674E-08	1.717E-08	9.738E-09	6.550E-09	4.827E-09	3.767E-09	3.057E-09	2.554E-09	2.180E-09	1.893E-09
NW	5.576E-08	2.817E-08	1.806E-08	1.023E-08	6.891E-09	5.087E-09	3.975E-09	3.231E-09	2.702E-09	2.309E-09	2.008E-09
NNW	1.110E-07	5.834E-08	3.843E-08	2.257E-08	1.554E-08	1.166E-08	9.234E-09	7.589E-09	6.407E-09	5.521E-09	4.835E-09
N	1.954E-07	1.036E-07	6.862E-08	4.061E-08	2.811E-08	2.118E-08	1.683E-08	1.386E-08	1.173E-08	1.013E-08	8.882E-09
NNE	1.343E-07	7.093E-08	4.687E-08	2.763E-08	1.908E-08	1.434E-08	1.138E-08	9.360E-09	7.910E-09	6.821E-09	5.977E-09
NE	9.605E-08	5.135E-08	3.422E-08	2.041E-08	1.420E-08	1.074E-08	8.562E-09	7.073E-09	5.997E-09	5.188E-09	4.558E-09
ENE	7.437E-08	3.951E-08	2.621E-08	1.554E-08	1.076E-08	8.114E-09	6.449E-09	5.316E-09	4.499E-09	3.886E-09	3.409E-09
E	9.416E-08	5.003E-08	3.319E-08	1.967E-08	1.363E-08	1.027E-08	8.160E-09	6.724E-09	5.690E-09	4.913E-09	4.310E-09
ESE	1.065E-07	5.731E-08	3.835E-08	2.300E-08	1.606E-08	1.218E-08	9.729E-09	8.051E-09	6.837E-09	5.922E-09	5.209E-09
SE	2.788E-07	1.493E-07	9.957E-08	5.942E-08	4.136E-08	3.128E-08	2.493E-08	2.059E-08	1.746E-08	1.510E-08	1.326E-08
SSE	2.553E-07	1.357E-07	9.008E-08	5.342E-08	3.703E-08	2.792E-08	2.219E-08	1.829E-08	1.548E-08	1.337E-08	1.173E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	9.840E-06	2.314E-06	7.382E-07	3.796E-07	2.389E-07	1.081E-07	4.013E-08	2.030E-08	1.309E-08	9.469E-09
SSW	4.300E-06	1.006E-06	3.212E-07	1.652E-07	1.040E-07	4.710E-08	1.748E-08	8.845E-09	5.707E-09	4.129E-09
SW	1.152E-06	2.550E-07	7.445E-08	3.643E-08	2.215E-08	9.540E-09	3.290E-09	1.588E-09	9.976E-10	7.081E-10
WSW	2.394E-06	5.421E-07	1.712E-07	8.763E-08	5.500E-08	2.485E-08	9.229E-09	4.690E-09	3.039E-09	2.207E-09
W	1.750E-06	3.979E-07	1.186E-07	5.869E-08	3.593E-08	1.559E-08	5.406E-09	2.598E-09	1.624E-09	1.147E-09
WNW	3.013E-06	6.874E-07	2.089E-07	1.045E-07	6.444E-08	2.826E-08	9.973E-09	4.862E-09	3.068E-09	2.185E-09
NW	3.369E-06	7.526E-07	2.247E-07	1.114E-07	6.830E-08	2.981E-08	1.048E-08	5.123E-09	3.242E-09	2.314E-09
NNW	5.568E-06	1.284E-06	4.120E-07	2.127E-07	1.343E-07	6.119E-08	2.297E-08	1.172E-08	7.609E-09	5.530E-09
N	9.383E-06	2.189E-06	7.132E-07	3.714E-07	2.358E-07	1.084E-07	4.128E-08	2.129E-08	1.390E-08	1.014E-08
NNE	6.527E-06	1.526E-06	4.940E-07	2.562E-07	1.623E-07	7.432E-08	2.810E-08	1.442E-08	9.383E-09	6.831E-09
NE	4.478E-06	1.043E-06	3.448E-07	1.810E-07	1.156E-07	5.367E-08	2.072E-08	1.079E-08	7.089E-09	5.195E-09
ENE	3.545E-06	8.281E-07	2.706E-07	1.411E-07	8.970E-08	4.135E-08	1.579E-08	8.155E-09	5.329E-09	3.891E-09
E	4.417E-06	1.040E-06	3.415E-07	1.784E-07	1.135E-07	5.236E-08	1.999E-08	1.032E-08	6.740E-09	4.920E-09
ESE	4.837E-06	1.127E-06	3.775E-07	1.995E-07	1.280E-07	5.982E-08	2.333E-08	1.224E-08	8.068E-09	5.929E-09
SE	1.262E-05	2.990E-06	9.955E-07	5.242E-07	3.354E-07	1.560E-07	6.032E-08	3.143E-08	2.063E-08	1.512E-08
SSE	1.194E-05	2.817E-06	9.253E-07	4.836E-07	3.078E-07	1.420E-07	5.428E-08	2.806E-08	1.834E-08	1.339E-08

VENTS GROUND LEVEL RELEASES - APR-JUN 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	5.801E-05	1.889E-05	1.006E-05	5.045E-06	2.039E-06	1.107E-06	7.028E-07	4.908E-07	3.654E-07	2.848E-07	2.297E-07
SSW	2.552E-05	8.292E-06	4.388E-06	2.193E-06	8.869E-07	4.818E-07	3.058E-07	2.136E-07	1.590E-07	1.239E-07	9.995E-08
SW	6.571E-06	2.239E-06	1.182E-06	5.796E-07	2.208E-07	1.152E-07	7.097E-08	4.840E-08	3.535E-08	2.710E-08	2.155E-08
WSW	1.455E-05	4.714E-06	2.422E-06	1.188E-06	4.761E-07	2.573E-07	1.628E-07	1.134E-07	8.425E-08	6.557E-08	5.281E-08
W	9.582E-06	3.353E-06	1.806E-06	8.963E-07	3.465E-07	1.826E-07	1.133E-07	7.770E-08	5.699E-08	4.387E-08	3.500E-08
WNW	1.707E-05	5.811E-06	3.091E-06	1.535E-06	6.009E-07	3.193E-07	1.994E-07	1.374E-07	1.012E-07	7.816E-08	6.254E-08
NW	1.949E-05	6.559E-06	3.448E-06	1.695E-06	6.555E-07	3.456E-07	2.145E-07	1.472E-07	1.081E-07	8.325E-08	6.647E-08
NNW	3.371E-05	1.088E-05	5.648E-06	2.794E-06	1.133E-06	6.169E-07	3.924E-07	2.745E-07	2.047E-07	1.598E-07	1.290E-07
N	5.784E-05	1.829E-05	9.512E-06	4.726E-06	1.936E-06	1.062E-06	6.787E-07	4.768E-07	3.567E-07	2.792E-07	2.260E-07
NNE	3.976E-05	1.267E-05	6.637E-06	3.308E-06	1.350E-06	7.380E-07	4.709E-07	3.303E-07	2.468E-07	1.930E-07	1.561E-07
NE	2.818E-05	8.795E-06	4.517E-06	2.234E-06	9.243E-07	5.102E-07	3.278E-07	2.311E-07	1.735E-07	1.361E-07	1.105E-07
ENE	2.233E-05	6.923E-06	3.585E-06	1.784E-06	7.326E-07	4.022E-07	2.574E-07	1.809E-07	1.354E-07	1.060E-07	8.584E-08
E	2.750E-05	8.586E-06	4.477E-06	2.236E-06	9.214E-07	5.069E-07	3.248E-07	2.286E-07	1.712E-07	1.341E-07	1.087E-07
ESE	3.125E-05	9.557E-06	4.857E-06	2.399E-06	1.002E-06	5.564E-07	3.591E-07	2.541E-07	1.912E-07	1.504E-07	1.223E-07
SE	8.022E-05	2.458E-05	1.276E-05	6.380E-06	2.655E-06	1.471E-06	9.469E-07	6.688E-07	5.026E-07	3.948E-07	3.206E-07
SSE	7.456E-05	2.317E-05	1.210E-05	6.055E-06	2.496E-06	1.374E-06	8.804E-07	6.195E-07	4.642E-07	3.637E-07	2.947E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.902E-07	9.754E-08	6.278E-08	3.530E-08	2.334E-08	1.685E-08	1.285E-08	1.019E-08	8.305E-09	6.917E-09	5.860E-09
SSW	8.277E-08	4.243E-08	2.731E-08	1.534E-08	1.013E-08	7.307E-09	5.569E-09	4.410E-09	3.592E-09	2.989E-09	2.530E-09
SW	1.765E-08	8.727E-09	5.491E-09	3.016E-09	1.981E-09	1.428E-09	1.090E-09	8.668E-10	7.094E-10	5.936E-10	5.055E-10
WSW	4.370E-08	2.235E-08	1.436E-08	8.068E-09	5.338E-09	3.854E-09	2.941E-09	2.331E-09	1.900E-09	1.583E-09	1.341E-09
W	2.873E-08	1.429E-08	9.024E-09	4.965E-09	3.252E-09	2.336E-09	1.780E-09	1.411E-09	1.152E-09	9.621E-10	8.175E-10
WNW	5.145E-08	2.576E-08	1.633E-08	9.020E-09	5.913E-09	4.248E-09	3.234E-09	2.561E-09	2.089E-09	1.742E-09	1.478E-09
NW	5.461E-08	2.729E-08	1.729E-08	9.573E-09	6.310E-09	4.557E-09	3.487E-09	2.775E-09	2.274E-09	1.905E-09	1.624E-09
NNW	1.070E-07	5.517E-08	3.565E-08	2.015E-08	1.337E-08	9.670E-09	7.392E-09	5.869E-09	4.791E-09	3.996E-09	3.390E-09
N	1.878E-07	9.753E-08	6.331E-08	3.598E-08	2.395E-08	1.737E-08	1.330E-08	1.057E-08	8.635E-09	7.205E-09	6.114E-09
NNE	1.296E-07	6.721E-08	4.359E-08	2.478E-08	1.651E-08	1.199E-08	9.196E-09	7.323E-09	5.995E-09	5.013E-09	4.262E-09
NE	9.196E-08	4.808E-08	3.133E-08	1.789E-08	1.193E-08	8.662E-09	6.633E-09	5.271E-09	4.304E-09	3.589E-09	3.043E-09
ENE	7.135E-08	3.710E-08	2.410E-08	1.370E-08	9.110E-09	6.600E-09	5.048E-09	4.008E-09	3.271E-09	2.727E-09	2.312E-09
E	9.036E-08	4.701E-08	3.053E-08	1.736E-08	1.155E-08	8.367E-09	6.400E-09	5.081E-09	4.147E-09	3.457E-09	2.931E-09
ESE	1.020E-07	5.368E-08	3.514E-08	2.019E-08	1.353E-08	9.854E-09	7.569E-09	6.032E-09	4.939E-09	4.129E-09	3.509E-09
SE	2.671E-07	1.400E-07	9.135E-08	5.227E-08	3.492E-08	2.538E-08	1.946E-08	1.548E-08	1.266E-08	1.057E-08	8.973E-09
SSE	2.451E-07	1.276E-07	8.291E-08	4.718E-08	3.141E-08	2.278E-08	1.743E-08	1.385E-08	1.131E-08	9.434E-09	8.001E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	9.795E-06	2.293E-06	7.259E-07	3.705E-07	2.314E-07	1.027E-07	3.609E-08	1.698E-08	1.023E-08	6.937E-09
SSW	4.280E-06	9.972E-07	3.158E-07	1.612E-07	1.007E-07	4.467E-08	1.569E-08	7.366E-09	4.429E-09	2.997E-09
SW	1.149E-06	2.536E-07	7.374E-08	3.594E-08	2.175E-08	9.273E-09	3.106E-09	1.440E-09	8.708E-10	5.953E-10
WSW	2.383E-06	5.371E-07	1.682E-07	8.546E-08	5.322E-08	2.354E-08	8.253E-09	3.884E-09	2.341E-09	1.587E-09
W	1.745E-06	3.958E-07	1.175E-07	5.791E-08	3.531E-08	1.516E-08	5.105E-09	2.358E-09	1.418E-09	9.649E-10
WNW	3.004E-06	6.832E-07	2.066E-07	1.028E-07	6.306E-08	2.728E-08	9.263E-09	4.286E-09	2.574E-09	1.747E-09
NW	3.360E-06	7.488E-07	2.226E-07	1.098E-07	6.705E-08	2.892E-08	9.837E-09	4.596E-09	2.788E-09	1.910E-09
NNW	5.543E-06	1.273E-06	4.051E-07	2.075E-07	1.300E-07	5.801E-08	2.058E-08	9.744E-09	5.893E-09	4.007E-09
N	9.336E-06	2.167E-06	7.000E-07	3.615E-07	2.276E-07	1.024E-07	3.671E-08	1.750E-08	1.061E-08	7.224E-09
NNE	6.497E-06	1.513E-06	4.859E-07	2.502E-07	1.572E-07	7.059E-08	2.528E-08	1.208E-08	7.352E-09	5.026E-09
NE	4.453E-06	1.031E-06	3.378E-07	1.757E-07	1.112E-07	5.039E-08	1.823E-08	8.723E-09	5.292E-09	3.599E-09
ENE	3.527E-06	8.194E-07	2.654E-07	1.372E-07	8.645E-08	3.893E-08	1.397E-08	6.649E-09	4.024E-09	2.734E-09
E	4.394E-06	1.029E-06	3.349E-07	1.735E-07	1.094E-07	4.932E-08	1.770E-08	8.428E-09	5.102E-09	3.467E-09
ESE	4.809E-06	1.114E-06	3.697E-07	1.936E-07	1.231E-07	5.617E-08	2.055E-08	9.919E-09	6.055E-09	4.139E-09
SE	1.255E-05	2.956E-06	9.753E-07	5.090E-07	3.228E-07	1.466E-07	5.324E-08	2.556E-08	1.554E-08	1.060E-08
SSE	1.187E-05	2.788E-06	9.075E-07	4.703E-07	2.968E-07	1.338E-07	4.811E-08	2.294E-08	1.391E-08	9.459E-09

VENTS GROUND LEVEL RELEASES - APR-JUN 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	5.497E-05	1.729E-05	8.999E-06	4.437E-06	1.744E-06	9.260E-07	5.764E-07	3.957E-07	2.902E-07	2.231E-07	1.777E-07
SSW	2.418E-05	7.591E-06	3.924E-06	1.929E-06	7.587E-07	4.029E-07	2.508E-07	1.722E-07	1.263E-07	9.710E-08	7.734E-08
SW	6.223E-06	2.048E-06	1.056E-06	5.088E-07	1.883E-07	9.594E-08	5.790E-08	3.878E-08	2.786E-08	2.104E-08	1.651E-08
WSW	1.379E-05	4.315E-06	2.166E-06	1.045E-06	4.074E-07	2.152E-07	1.335E-07	9.146E-08	6.695E-08	5.140E-08	4.089E-08
W	9.075E-06	3.066E-06	1.613E-06	7.867E-07	2.955E-07	1.520E-07	9.241E-08	6.223E-08	4.491E-08	3.406E-08	2.680E-08
WNW	1.617E-05	5.315E-06	2.761E-06	1.347E-06	5.128E-07	2.662E-07	1.629E-07	1.103E-07	7.992E-08	6.083E-08	4.803E-08
NW	1.846E-05	5.998E-06	3.078E-06	1.488E-06	5.589E-07	2.877E-07	1.750E-07	1.180E-07	8.520E-08	6.466E-08	5.093E-08
NNW	3.195E-05	9.961E-06	5.051E-06	2.457E-06	9.691E-07	5.158E-07	3.218E-07	2.214E-07	1.626E-07	1.252E-07	9.985E-08
N	5.481E-05	1.675E-05	8.510E-06	4.158E-06	1.657E-06	8.886E-07	5.574E-07	3.850E-07	2.838E-07	2.192E-07	1.753E-07
NNE	3.768E-05	1.159E-05	5.935E-06	2.908E-06	1.154E-06	6.169E-07	3.861E-07	2.662E-07	1.960E-07	1.512E-07	1.207E-07
NE	2.671E-05	8.055E-06	4.043E-06	1.967E-06	7.919E-07	4.275E-07	2.696E-07	1.870E-07	1.383E-07	1.071E-07	8.587E-08
ENE	2.117E-05	6.340E-06	3.208E-06	1.570E-06	6.274E-07	3.368E-07	2.115E-07	1.462E-07	1.078E-07	8.331E-08	6.664E-08
E	2.606E-05	7.863E-06	4.006E-06	1.968E-06	7.891E-07	4.245E-07	2.669E-07	1.847E-07	1.363E-07	1.054E-07	8.437E-08
ESE	2.962E-05	8.754E-06	4.347E-06	2.112E-06	8.586E-07	4.663E-07	2.953E-07	2.056E-07	1.525E-07	1.184E-07	9.507E-08
SE	7.604E-05	2.252E-05	1.142E-05	5.617E-06	2.275E-06	1.232E-06	7.787E-07	5.410E-07	4.006E-07	3.106E-07	2.492E-07
SSE	7.067E-05	2.121E-05	1.083E-05	5.329E-06	2.137E-06	1.150E-06	7.234E-07	5.006E-07	3.696E-07	2.858E-07	2.287E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.454E-07	7.147E-08	4.442E-08	2.372E-08	1.510E-08	1.058E-08	7.870E-09	6.107E-09	4.886E-09	4.001E-09	3.338E-09
SSW	6.332E-08	3.112E-08	1.934E-08	1.033E-08	6.571E-09	4.602E-09	3.424E-09	2.656E-09	2.125E-09	1.740E-09	1.451E-09
SW	1.335E-08	6.286E-09	3.796E-09	1.957E-09	1.224E-09	8.476E-10	6.254E-10	4.823E-10	3.842E-10	3.136E-10	2.611E-10
WSW	3.345E-08	1.640E-08	1.019E-08	5.442E-09	3.472E-09	2.436E-09	1.816E-09	1.411E-09	1.130E-09	9.269E-10	7.741E-10
W	2.172E-08	1.029E-08	6.236E-09	3.221E-09	2.009E-09	1.386E-09	1.020E-09	7.849E-10	6.237E-10	5.081E-10	4.221E-10
WNW	3.903E-08	1.865E-08	1.137E-08	5.921E-09	3.711E-09	2.570E-09	1.897E-09	1.462E-09	1.164E-09	9.491E-10	7.891E-10
NW	4.132E-08	1.968E-08	1.198E-08	6.237E-09	3.921E-09	2.723E-09	2.015E-09	1.557E-09	1.242E-09	1.015E-09	8.459E-10
NNW	8.186E-08	4.047E-08	2.526E-08	1.357E-08	8.674E-09	6.095E-09	4.548E-09	3.536E-09	2.835E-09	2.325E-09	1.943E-09
N	1.440E-07	7.176E-08	4.503E-08	2.437E-08	1.565E-08	1.104E-08	8.257E-09	6.434E-09	5.166E-09	4.244E-09	3.550E-09
NNE	9.911E-08	4.923E-08	3.083E-08	1.664E-08	1.067E-08	7.516E-09	5.619E-09	4.377E-09	3.514E-09	2.887E-09	2.415E-09
NE	7.071E-08	3.552E-08	2.241E-08	1.221E-08	7.874E-09	5.570E-09	4.176E-09	3.260E-09	2.621E-09	2.155E-09	1.804E-09
ENE	5.478E-08	2.735E-08	1.718E-08	9.309E-09	5.981E-09	4.218E-09	3.155E-09	2.459E-09	1.974E-09	1.622E-09	1.356E-09
E	6.937E-08	3.464E-08	2.177E-08	1.179E-08	7.574E-09	5.341E-09	3.995E-09	3.113E-09	2.499E-09	2.052E-09	1.716E-09
ESE	7.842E-08	3.965E-08	2.512E-08	1.376E-08	8.911E-09	6.321E-09	4.751E-09	3.716E-09	2.993E-09	2.465E-09	2.067E-09
SE	2.053E-07	1.033E-07	6.524E-08	3.558E-08	2.296E-08	1.625E-08	1.219E-08	9.516E-09	7.654E-09	6.296E-09	5.273E-09
SSE	1.881E-07	9.399E-08	5.908E-08	3.202E-08	2.059E-08	1.452E-08	1.087E-08	8.472E-09	6.803E-09	5.589E-09	4.675E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	8.815E-06	1.979E-06	5.973E-07	2.948E-07	1.792E-07	7.589E-08	2.449E-08	1.070E-08	6.145E-09	4.018E-09
SSW	3.852E-06	8.607E-07	2.599E-07	1.283E-07	7.800E-08	3.304E-08	1.066E-08	4.656E-09	2.673E-09	1.747E-09
SW	1.033E-06	2.185E-07	6.039E-08	2.838E-08	1.668E-08	6.749E-09	2.040E-09	8.592E-10	4.858E-10	3.151E-10
WSW	2.145E-06	4.636E-07	1.385E-07	6.803E-08	4.125E-08	1.743E-08	5.621E-09	2.464E-09	1.420E-09	9.306E-10
W	1.568E-06	3.409E-07	9.623E-08	4.572E-08	2.707E-08	1.103E-08	3.352E-09	1.406E-09	7.907E-10	5.105E-10
WNW	2.700E-06	5.887E-07	1.694E-07	8.132E-08	4.849E-08	1.994E-08	6.150E-09	2.605E-09	1.473E-09	9.534E-10
NW	3.020E-06	6.448E-07	1.823E-07	8.674E-08	5.144E-08	2.107E-08	6.483E-09	2.759E-09	1.568E-09	1.020E-09
NNW	4.989E-06	1.098E-06	3.334E-07	1.651E-07	1.007E-07	4.291E-08	1.399E-08	6.164E-09	3.558E-09	2.335E-09
N	8.406E-06	1.872E-06	5.768E-07	2.881E-07	1.767E-07	7.594E-08	2.509E-08	1.116E-08	6.472E-09	4.260E-09
NNE	5.848E-06	1.305E-06	3.997E-07	1.990E-07	1.217E-07	5.214E-08	1.714E-08	7.598E-09	4.403E-09	2.898E-09
NE	4.012E-06	8.910E-07	2.787E-07	1.403E-07	8.655E-08	3.751E-08	1.255E-08	5.627E-09	3.278E-09	2.163E-09
ENE	3.176E-06	7.077E-07	2.188E-07	1.095E-07	6.719E-08	2.893E-08	9.580E-09	4.263E-09	2.473E-09	1.628E-09
E	3.957E-06	8.890E-07	2.761E-07	1.384E-07	8.505E-08	3.664E-08	1.213E-08	5.398E-09	3.131E-09	2.060E-09
ESE	4.333E-06	9.628E-07	3.050E-07	1.546E-07	9.581E-08	4.181E-08	1.413E-08	6.384E-09	3.736E-09	2.474E-09
SE	1.131E-05	2.554E-06	8.046E-07	4.064E-07	2.511E-07	1.090E-07	3.656E-08	1.641E-08	9.570E-09	6.320E-09
SSE	1.069E-05	2.408E-06	7.481E-07	3.751E-07	2.306E-07	9.938E-08	3.295E-08	1.468E-08	8.521E-09	5.610E-09

VENTS GROUND LEVEL RELEASES - APR-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	.25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
					DISTANCES IN MILES						
S	2.215E-07	7.492E-08	3.847E-08	1.829E-08	6.569E-09	3.258E-09	1.918E-09	1.256E-09	8.838E-10	6.550E-10	5.047E-10
SSW	9.085E-08	3.072E-08	1.577E-08	7.499E-09	2.694E-09	1.336E-09	7.865E-10	5.150E-10	3.624E-10	2.686E-10	2.070E-10
SW	4.612E-08	1.559E-08	8.007E-09	3.807E-09	1.367E-09	6.781E-10	3.993E-10	2.614E-10	1.840E-10	1.363E-10	1.051E-10
WSW	5.183E-08	1.753E-08	8.999E-09	4.278E-09	1.537E-09	7.621E-10	4.488E-10	2.938E-10	2.068E-10	1.532E-10	1.181E-10
W	6.329E-08	2.140E-08	1.099E-08	5.225E-09	1.877E-09	9.307E-10	5.480E-10	3.588E-10	2.525E-10	1.871E-10	1.442E-10
WNW	1.214E-07	4.104E-08	2.107E-08	1.002E-08	3.598E-09	1.785E-09	1.051E-09	6.880E-10	4.841E-10	3.588E-10	2.765E-10
NW	2.071E-07	7.002E-08	3.595E-08	1.709E-08	6.140E-09	3.045E-09	1.793E-09	1.174E-09	8.260E-10	6.122E-10	4.717E-10
NNW	1.790E-07	6.053E-08	3.108E-08	1.478E-08	5.308E-09	2.632E-09	1.550E-09	1.015E-09	7.141E-10	5.292E-10	4.078E-10
N	2.626E-07	8.880E-08	4.559E-08	2.168E-08	7.786E-09	3.861E-09	2.274E-09	1.489E-09	1.048E-09	7.763E-10	5.982E-10
NNE	2.071E-07	7.002E-08	3.595E-08	1.709E-08	6.140E-09	3.045E-09	1.793E-09	1.174E-09	8.260E-10	6.122E-10	4.717E-10
NE	9.550E-08	3.229E-08	1.658E-08	7.883E-09	2.832E-09	1.404E-09	8.268E-10	5.414E-10	3.810E-10	2.823E-10	2.176E-10
ENE	9.413E-08	3.183E-08	1.634E-08	7.770E-09	2.791E-09	1.384E-09	8.150E-10	5.336E-10	3.755E-10	2.783E-10	2.144E-10
E	8.794E-08	2.974E-08	1.527E-08	7.259E-09	2.607E-09	1.293E-09	7.613E-10	4.985E-10	3.508E-10	2.600E-10	2.003E-10
ESE	9.565E-08	3.235E-08	1.661E-08	7.896E-09	2.836E-09	1.406E-09	8.282E-10	5.423E-10	3.816E-10	2.828E-10	2.179E-10
SE	2.297E-07	7.766E-08	3.987E-08	1.896E-08	6.809E-09	3.377E-09	1.988E-09	1.302E-09	9.161E-10	6.789E-10	5.232E-10
SSE	2.624E-07	8.874E-08	4.556E-08	2.166E-08	7.781E-09	3.859E-09	2.272E-09	1.488E-09	1.047E-09	7.758E-10	5.978E-10

DIRECTION FROM SITE	5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
					DISTANCES IN MILES						
S	4.010E-10	1.781E-10	1.079E-10	5.454E-11	3.301E-11	2.213E-11	1.586E-11	1.191E-11	9.259E-12	7.396E-12	6.037E-12
SSW	1.644E-10	7.304E-11	4.425E-11	2.236E-11	1.354E-11	9.075E-12	6.503E-12	4.883E-12	3.797E-12	3.033E-12	2.475E-12
SW	8.346E-11	3.708E-11	2.246E-11	1.135E-11	6.871E-12	4.607E-12	3.301E-12	2.479E-12	1.927E-12	1.540E-12	1.257E-12
WSW	9.381E-11	4.167E-11	2.524E-11	1.276E-11	7.723E-12	5.178E-12	3.710E-12	2.786E-12	2.166E-12	1.730E-12	1.412E-12
W	1.146E-10	5.089E-11	3.083E-11	1.558E-11	9.431E-12	6.323E-12	4.531E-12	3.402E-12	2.645E-12	2.113E-12	1.725E-12
WNW	2.197E-10	9.758E-11	5.911E-11	2.988E-11	1.808E-11	1.212E-11	8.688E-12	6.523E-12	5.072E-12	4.052E-12	3.307E-12
NW	3.748E-10	1.665E-10	1.009E-10	5.098E-11	3.085E-11	2.069E-11	1.482E-11	1.113E-11	8.654E-12	6.913E-12	5.642E-12
NNW	3.240E-10	1.439E-10	8.719E-11	4.407E-11	2.667E-11	1.788E-11	1.281E-11	9.622E-12	7.481E-12	5.976E-12	4.878E-12
N	4.753E-10	2.111E-10	1.279E-10	6.464E-11	3.913E-11	2.623E-11	1.880E-11	1.411E-11	1.097E-11	8.766E-12	7.155E-12
NNE	3.748E-10	1.665E-10	1.009E-10	5.098E-11	3.085E-11	2.069E-11	1.482E-11	1.113E-11	8.654E-12	6.913E-12	5.642E-12
NE	1.728E-10	7.678E-11	4.651E-11	2.351E-11	1.423E-11	9.540E-12	6.836E-12	5.133E-12	3.991E-12	3.188E-12	2.602E-12
ENE	1.704E-10	7.568E-11	4.584E-11	2.317E-11	1.402E-11	9.403E-12	6.738E-12	5.059E-12	3.934E-12	3.142E-12	2.565E-12
E	1.592E-10	7.070E-11	4.283E-11	2.165E-11	1.310E-11	8.785E-12	6.295E-12	4.727E-12	3.675E-12	2.936E-12	2.396E-12
ESE	1.731E-10	7.691E-11	4.659E-11	2.355E-11	1.425E-11	9.556E-12	6.847E-12	5.141E-12	3.998E-12	3.193E-12	2.606E-12
SE	4.156E-10	1.846E-10	1.118E-10	5.653E-11	3.422E-11	2.294E-11	1.644E-11	1.234E-11	9.598E-12	7.667E-12	6.258E-12
SSE	4.750E-10	2.110E-10	1.278E-10	6.460E-11	3.910E-11	2.622E-11	1.878E-11	1.411E-11	1.097E-11	8.761E-12	7.151E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
					SEGMENT BOUNDARIES IN MILES					
S	3.760E-08	7.701E-09	2.011E-09	9.030E-10	5.108E-10	1.964E-10	5.683E-11	2.252E-11	1.203E-11	7.445E-12
SSW	1.542E-08	3.158E-09	8.244E-10	3.703E-10	2.095E-10	8.055E-11	2.330E-11	9.236E-12	4.932E-12	3.053E-12
SW	7.826E-09	1.603E-09	4.185E-10	1.880E-10	1.063E-10	4.089E-11	1.183E-11	4.688E-12	2.504E-12	1.550E-12
WSW	8.796E-09	1.802E-09	4.704E-10	2.113E-10	1.195E-10	4.596E-11	1.330E-11	5.269E-12	2.814E-12	1.742E-12
W	1.074E-08	2.200E-09	5.744E-10	2.580E-10	1.459E-10	5.612E-11	1.624E-11	6.435E-12	3.436E-12	2.127E-12
WNW	2.060E-08	4.219E-09	1.101E-09	4.946E-10	2.798E-10	1.076E-10	3.113E-11	1.234E-11	6.589E-12	4.078E-12
NW	3.514E-08	7.198E-09	1.879E-09	8.440E-10	4.774E-10	1.836E-10	5.312E-11	2.105E-11	1.124E-11	6.958E-12
NNW	3.038E-08	6.223E-09	1.624E-09	7.296E-10	4.127E-10	1.587E-10	4.592E-11	1.820E-11	9.719E-12	6.015E-12
N	4.456E-08	9.128E-09	2.383E-09	1.070E-09	6.055E-10	2.328E-10	6.736E-11	2.670E-11	1.426E-11	8.824E-12
NNE	3.514E-08	7.198E-09	1.879E-09	8.440E-10	4.774E-10	1.836E-10	5.312E-11	2.105E-11	1.124E-11	6.958E-12
NE	1.621E-08	3.320E-09	8.666E-10	3.892E-10	2.202E-10	8.468E-11	2.450E-11	9.709E-12	5.185E-12	3.209E-12
ENE	1.597E-08	3.272E-09	8.542E-10	3.836E-10	2.170E-10	8.346E-11	2.414E-11	9.570E-12	5.110E-12	3.163E-12
E	1.492E-08	3.057E-09	7.980E-10	3.584E-10	2.028E-10	7.797E-11	2.256E-11	8.940E-12	4.774E-12	2.955E-12
ESE	1.623E-08	3.325E-09	8.680E-10	3.899E-10	2.205E-10	8.481E-11	2.454E-11	9.725E-12	5.193E-12	3.214E-12
SE	3.897E-08	7.983E-09	2.084E-09	9.360E-10	5.295E-10	2.036E-10	5.891E-11	2.335E-11	1.247E-11	7.717E-12
SSE	4.453E-08	9.122E-09	2.381E-09	1.070E-09	6.051E-10	2.327E-10	6.731E-11	2.668E-11	1.425E-11	8.818E-12

VENTS GROUND LEVEL RELEASES - APR-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
		UNDEPLETED		UNDEPLETED		DEPLETED	
A	Site Boundary	S	.80	8.7E-06	8.7E-06	7.7E-06	3.3E-08
A	Site Boundary	SSW	.82	3.5E-06	3.5E-06	3.1E-06	1.2E-08
A	Site Boundary	SW	.97	6.2E-07	6.2E-07	5.4E-07	4.1E-09
A	Site Boundary	WSW	.93	1.4E-06	1.4E-06	1.3E-06	5.2E-09
A	Site Boundary	W	.91	1.1E-06	1.1E-06	9.9E-07	6.6E-09
A	Site Boundary	WNW	.94	1.8E-06	1.8E-06	1.6E-06	1.2E-08
A	Site Boundary	NW	.81	2.8E-06	2.8E-06	2.5E-06	2.9E-08
A	Site Boundary	NNW	.69	6.5E-06	6.5E-06	5.8E-06	3.6E-08
A	Site Boundary	N	.67	1.1E-05	1.1E-05	1.0E-05	5.4E-08
A	Site Boundary	NNE	.60	9.5E-06	9.5E-06	8.6E-06	5.2E-08
A	Site Boundary	NE	.62	6.1E-06	6.1E-06	5.5E-06	2.3E-08
A	Site Boundary	ENE	.59	5.3E-06	5.3E-06	4.8E-06	2.4E-08
A	Site Boundary	E	.53	7.9E-06	7.9E-06	7.2E-06	2.7E-08
A	Site Boundary	ESE	.54	8.5E-06	8.4E-06	7.7E-06	2.9E-08
A	Site Boundary	SE	.65	1.6E-05	1.6E-05	1.4E-05	5.1E-08
A	Site Boundary	SSE	.81	1.0E-05	1.0E-05	8.9E-06	3.7E-08
A	Nearest Res	SW	1.30	3.1E-07	3.1E-07	2.7E-07	2.0E-09
A	Nearest Res	WSW	1.80	3.3E-07	3.2E-07	2.7E-07	9.8E-10
A	Nearest Res	WNW	2.40	2.2E-07	2.2E-07	1.8E-07	1.2E-09
A	Nearest Res	NW	.90	2.2E-06	2.2E-06	1.9E-06	2.2E-08
A	Nearest Res	NNW	1.90	7.0E-07	6.9E-07	5.8E-07	3.0E-09
A	Nearest Res	NE	1.60	8.2E-07	8.1E-07	6.9E-07	2.4E-09
A	Nearest Res	ENE	1.70	5.7E-07	5.6E-07	4.8E-07	2.1E-09
A	Nearest Res	E	2.00	5.2E-07	5.1E-07	4.2E-07	1.3E-09
A	Nearest Res	SE	2.90	7.3E-07	7.1E-07	5.8E-07	1.4E-09
A	Nearest Cow	NNW	3.50	2.1E-07	2.0E-07	1.6E-07	7.1E-10
A	Nearest Garde	SW	2.20	9.4E-08	9.3E-08	7.7E-08	5.4E-10
A	Nearest Garde	WSW	2.40	1.8E-07	1.8E-07	1.5E-07	4.9E-10
A	Nearest Garde	WNW	2.60	1.9E-07	1.8E-07	1.5E-07	9.6E-10
A	Nearest Garde	NNW	2.70	3.4E-07	3.4E-07	2.7E-07	1.3E-09
A	Nearest Garde	ENE	1.70	5.7E-07	5.6E-07	4.8E-07	2.1E-09
A	Nearest Garde	E	2.00	5.2E-07	5.1E-07	4.2E-07	1.3E-09
A	Nearest Garde	ESE	2.20	4.7E-07	4.6E-07	3.8E-07	1.1E-09
A	Nearest Garde	SE	2.90	7.3E-07	7.1E-07	5.8E-07	1.4E-09

Atmospheric Diffusion Estimates

Ground Level Releases

January-June 2024

VENTS GROUND LEVEL RELEASES - JAN-JUN 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.132E-05	2.321E-05	1.220E-05	6.079E-06	2.476E-06	1.354E-06	8.646E-07	6.072E-07	4.546E-07	3.562E-07	2.887E-07
SSW	3.488E-05	1.145E-05	6.008E-06	2.986E-06	1.209E-06	6.585E-07	4.193E-07	2.937E-07	2.194E-07	1.716E-07	1.389E-07
SW	1.611E-05	5.432E-06	2.842E-06	1.399E-06	5.539E-07	2.970E-07	1.869E-07	1.298E-07	9.622E-08	7.478E-08	6.019E-08
WSW	2.059E-05	6.370E-06	3.215E-06	1.579E-06	6.551E-07	3.629E-07	2.341E-07	1.657E-07	1.249E-07	9.845E-08	8.022E-08
W	1.078E-05	3.616E-06	1.935E-06	9.652E-07	3.810E-07	2.039E-07	1.281E-07	8.881E-08	6.577E-08	5.106E-08	4.106E-08
WNW	1.709E-05	5.694E-06	3.003E-06	1.490E-06	5.906E-07	3.170E-07	1.996E-07	1.386E-07	1.028E-07	7.991E-08	6.433E-08
NW	2.556E-05	8.299E-06	4.303E-06	2.123E-06	8.560E-07	4.651E-07	2.957E-07	2.070E-07	1.546E-07	1.208E-07	9.779E-08
NNW	3.936E-05	1.229E-05	6.314E-06	3.130E-06	1.300E-06	7.204E-07	4.647E-07	3.290E-07	2.479E-07	1.953E-07	1.591E-07
N	7.593E-05	2.350E-05	1.210E-05	6.018E-06	2.511E-06	1.396E-06	9.023E-07	6.399E-07	4.829E-07	3.809E-07	3.106E-07
NNE	5.011E-05	1.559E-05	7.972E-06	3.943E-06	1.644E-06	9.137E-07	5.907E-07	4.189E-07	3.161E-07	2.494E-07	2.034E-07
NE	3.584E-05	1.105E-05	5.595E-06	2.757E-06	1.157E-06	6.452E-07	4.182E-07	2.973E-07	2.247E-07	1.776E-07	1.450E-07
ENE	2.594E-05	8.057E-06	4.121E-06	2.039E-06	8.482E-07	4.705E-07	3.038E-07	2.152E-07	1.623E-07	1.279E-07	1.043E-07
E	2.866E-05	8.885E-06	4.572E-06	2.272E-06	9.459E-07	5.249E-07	3.389E-07	2.401E-07	1.811E-07	1.427E-07	1.163E-07
ESE	3.499E-05	1.078E-05	5.462E-06	2.695E-06	1.131E-06	6.305E-07	4.087E-07	2.904E-07	2.195E-07	1.734E-07	1.416E-07
SE	7.217E-05	2.263E-05	1.171E-05	5.824E-06	2.415E-06	1.336E-06	8.608E-07	6.088E-07	4.584E-07	3.609E-07	2.939E-07
SSE	6.727E-05	2.128E-05	1.108E-05	5.518E-06	2.269E-06	1.249E-06	8.012E-07	5.648E-07	4.241E-07	3.332E-07	2.707E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.403E-07	1.262E-07	8.303E-08	4.869E-08	3.350E-08	2.512E-08	1.988E-08	1.633E-08	1.377E-08	1.186E-08	1.038E-08
SSW	1.155E-07	6.032E-08	3.956E-08	2.309E-08	1.584E-08	1.185E-08	9.358E-09	7.674E-09	6.467E-09	5.564E-09	4.866E-09
SW	4.980E-08	2.560E-08	1.660E-08	9.552E-09	6.494E-09	4.826E-09	3.793E-09	3.097E-09	2.600E-09	2.230E-09	1.945E-09
WSW	6.708E-08	3.585E-08	2.389E-08	1.426E-08	9.944E-09	7.531E-09	6.010E-09	4.970E-09	4.218E-09	3.652E-09	3.212E-09
W	3.395E-08	1.741E-08	1.127E-08	6.461E-09	4.377E-09	3.243E-09	2.542E-09	2.071E-09	1.735E-09	1.486E-09	1.293E-09
WNW	5.323E-08	2.735E-08	1.773E-08	1.019E-08	6.927E-09	5.145E-09	4.042E-09	3.299E-09	2.769E-09	2.374E-09	2.070E-09
NW	8.129E-08	4.253E-08	2.794E-08	1.635E-08	1.125E-08	8.435E-09	6.677E-09	5.485E-09	4.629E-09	3.988E-09	3.492E-09
NNW	1.330E-07	7.104E-08	4.729E-08	2.816E-08	1.958E-08	1.479E-08	1.178E-08	9.726E-09	8.243E-09	7.127E-09	6.260E-09
N	2.599E-07	1.392E-07	9.284E-08	5.543E-08	3.859E-08	2.919E-08	2.327E-08	1.923E-08	1.631E-08	1.411E-08	1.240E-08
NNE	1.702E-07	9.120E-08	6.086E-08	3.637E-08	2.534E-08	1.918E-08	1.530E-08	1.265E-08	1.073E-08	9.286E-09	8.162E-09
NE	1.215E-07	6.536E-08	4.373E-08	2.623E-08	1.832E-08	1.390E-08	1.110E-08	9.187E-09	7.803E-09	6.759E-09	5.947E-09
ENE	8.723E-08	4.667E-08	3.111E-08	1.856E-08	1.292E-08	9.773E-09	7.790E-09	6.436E-09	5.458E-09	4.722E-09	4.150E-09
E	9.730E-08	5.202E-08	3.466E-08	2.067E-08	1.438E-08	1.087E-08	8.662E-09	7.154E-09	6.065E-09	5.246E-09	4.609E-09
ESE	1.186E-07	6.379E-08	4.267E-08	2.558E-08	1.786E-08	1.354E-08	1.081E-08	8.947E-09	7.598E-09	6.580E-09	5.788E-09
SE	2.455E-07	1.307E-07	8.686E-08	5.159E-08	3.580E-08	2.701E-08	2.149E-08	1.773E-08	1.501E-08	1.297E-08	1.139E-08
SSE	2.258E-07	1.195E-07	7.907E-08	4.672E-08	3.231E-08	2.432E-08	1.931E-08	1.590E-08	1.344E-08	1.160E-08	1.017E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.193E-05	2.778E-06	8.921E-07	4.607E-07	2.908E-07	1.324E-07	4.957E-08	2.526E-08	1.637E-08	1.188E-08
SSW	5.874E-06	1.359E-06	4.329E-07	2.224E-07	1.399E-07	6.335E-08	2.353E-08	1.191E-08	7.695E-09	5.573E-09
SW	2.776E-06	6.276E-07	1.934E-07	9.764E-08	6.066E-08	2.698E-08	9.760E-09	4.858E-09	3.107E-09	2.234E-09
WSW	3.189E-06	7.305E-07	2.411E-07	1.265E-07	8.076E-08	3.748E-08	1.448E-08	7.566E-09	4.981E-09	3.657E-09
W	1.878E-06	4.321E-07	1.326E-07	6.675E-08	4.139E-08	1.836E-08	6.604E-09	3.265E-09	2.078E-09	1.488E-09
WNW	2.929E-06	6.688E-07	2.065E-07	1.043E-07	6.483E-08	2.882E-08	1.042E-08	5.179E-09	3.309E-09	2.378E-09
NW	4.222E-06	9.638E-07	3.054E-07	1.567E-07	9.851E-08	4.466E-08	1.666E-08	8.482E-09	5.500E-09	3.994E-09
NNW	6.228E-06	1.449E-06	4.786E-07	2.511E-07	1.602E-07	7.426E-08	2.860E-08	1.486E-08	9.748E-09	7.137E-09
N	1.193E-05	2.795E-06	9.290E-07	4.889E-07	3.127E-07	1.454E-07	5.626E-08	2.933E-08	1.927E-08	1.412E-08
NNE	7.874E-06	1.830E-06	6.081E-07	3.201E-07	2.047E-07	9.527E-08	3.691E-08	1.927E-08	1.267E-08	9.298E-09
NE	5.546E-06	1.285E-06	4.304E-07	2.275E-07	1.460E-07	6.822E-08	2.660E-08	1.396E-08	9.206E-09	6.768E-09
ENE	4.070E-06	9.450E-07	3.128E-07	1.643E-07	1.050E-07	4.876E-08	1.884E-08	9.819E-09	6.450E-09	4.728E-09
E	4.508E-06	1.053E-06	3.490E-07	1.833E-07	1.171E-07	5.437E-08	2.098E-08	1.092E-08	7.170E-09	5.253E-09
ESE	5.413E-06	1.256E-06	4.205E-07	2.222E-07	1.425E-07	6.659E-08	2.595E-08	1.360E-08	8.966E-09	6.588E-09
SE	1.152E-05	2.693E-06	8.868E-07	4.643E-07	2.958E-07	1.367E-07	5.241E-08	2.715E-08	1.777E-08	1.299E-08
SSE	1.087E-05	2.538E-06	8.259E-07	4.297E-07	2.726E-07	1.252E-07	4.750E-08	2.444E-08	1.594E-08	1.162E-08

VENTS GROUND LEVEL RELEASES - JAN-JUN 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.118E-05	2.312E-05	1.213E-05	6.035E-06	2.449E-06	1.333E-06	8.481E-07	5.932E-07	4.422E-07	3.451E-07	2.786E-07
SSW	3.481E-05	1.141E-05	5.975E-06	2.965E-06	1.196E-06	6.486E-07	4.113E-07	2.869E-07	2.135E-07	1.663E-07	1.340E-07
SW	1.608E-05	5.415E-06	2.829E-06	1.391E-06	5.487E-07	2.933E-07	1.840E-07	1.273E-07	9.404E-08	7.283E-08	5.842E-08
WSW	2.053E-05	6.338E-06	3.191E-06	1.563E-06	6.453E-07	3.555E-07	2.281E-07	1.606E-07	1.204E-07	9.436E-08	7.647E-08
W	1.076E-05	3.606E-06	1.927E-06	9.596E-07	3.776E-07	2.014E-07	1.262E-07	8.718E-08	6.435E-08	4.979E-08	3.991E-08
WNW	1.707E-05	5.677E-06	2.990E-06	1.481E-06	5.853E-07	3.131E-07	1.965E-07	1.360E-07	1.005E-07	7.785E-08	6.246E-08
NW	2.551E-05	8.269E-06	4.281E-06	2.108E-06	8.467E-07	4.582E-07	2.901E-07	2.022E-07	1.504E-07	1.171E-07	9.432E-08
NNW	3.927E-05	1.224E-05	6.274E-06	3.103E-06	1.283E-06	7.076E-07	4.543E-07	3.201E-07	2.400E-07	1.882E-07	1.526E-07
N	7.575E-05	2.339E-05	1.202E-05	5.965E-06	2.478E-06	1.370E-06	8.817E-07	6.222E-07	4.672E-07	3.668E-07	2.976E-07
NNE	4.999E-05	1.552E-05	7.918E-06	3.908E-06	1.622E-06	8.967E-07	5.767E-07	4.069E-07	3.056E-07	2.398E-07	1.946E-07
NE	3.575E-05	1.100E-05	5.553E-06	2.730E-06	1.139E-06	6.320E-07	4.075E-07	2.880E-07	2.166E-07	1.702E-07	1.382E-07
ENE	2.588E-05	8.020E-06	4.093E-06	2.021E-06	8.367E-07	4.619E-07	2.967E-07	2.092E-07	1.570E-07	1.231E-07	9.986E-08
E	2.859E-05	8.845E-06	4.542E-06	2.252E-06	9.332E-07	5.153E-07	3.311E-07	2.335E-07	1.752E-07	1.374E-07	1.114E-07
ESE	3.490E-05	1.073E-05	5.425E-06	2.671E-06	1.115E-06	6.187E-07	3.990E-07	2.821E-07	2.122E-07	1.668E-07	1.355E-07
SE	7.200E-05	2.253E-05	1.163E-05	5.775E-06	2.384E-06	1.313E-06	8.419E-07	5.926E-07	4.441E-07	3.480E-07	2.820E-07
SSE	6.713E-05	2.119E-05	1.101E-05	5.475E-06	2.242E-06	1.228E-06	7.844E-07	5.505E-07	4.115E-07	3.218E-07	2.603E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.309E-07	1.187E-07	7.654E-08	4.309E-08	2.849E-08	2.055E-08	1.567E-08	1.241E-08	1.011E-08	8.417E-09	7.129E-09
SSW	1.109E-07	5.673E-08	3.643E-08	2.039E-08	1.343E-08	9.652E-09	7.336E-09	5.795E-09	4.709E-09	3.911E-09	3.305E-09
SW	4.817E-08	2.433E-08	1.551E-08	8.622E-09	5.669E-09	4.078E-09	3.105E-09	2.459E-09	2.004E-09	1.670E-09	1.416E-09
WSW	6.359E-08	3.307E-08	2.144E-08	1.213E-08	8.031E-09	5.785E-09	4.397E-09	3.470E-09	2.814E-09	2.332E-09	1.965E-09
W	3.289E-08	1.660E-08	1.057E-08	5.867E-09	3.851E-09	2.767E-09	2.105E-09	1.665E-09	1.356E-09	1.128E-09	9.558E-10
WNW	5.150E-08	2.600E-08	1.656E-08	9.193E-09	6.037E-09	4.338E-09	3.299E-09	2.609E-09	2.124E-09	1.767E-09	1.497E-09
NW	7.807E-08	3.998E-08	2.570E-08	1.442E-08	9.520E-09	6.859E-09	5.223E-09	4.133E-09	3.364E-09	2.798E-09	2.368E-09
NNW	1.269E-07	6.614E-08	4.298E-08	2.440E-08	1.619E-08	1.170E-08	8.920E-09	7.061E-09	5.747E-09	4.779E-09	4.041E-09
N	2.478E-07	1.295E-07	8.431E-08	4.799E-08	3.191E-08	2.309E-08	1.763E-08	1.397E-08	1.138E-08	9.475E-09	8.020E-09
NNE	1.620E-07	8.462E-08	5.506E-08	3.131E-08	2.079E-08	1.502E-08	1.145E-08	9.064E-09	7.374E-09	6.128E-09	5.180E-09
NE	1.152E-07	6.028E-08	3.925E-08	2.232E-08	1.480E-08	1.068E-08	8.128E-09	6.420E-09	5.212E-09	4.323E-09	3.646E-09
ENE	8.311E-08	4.338E-08	2.822E-08	1.605E-08	1.066E-08	7.707E-09	5.881E-09	4.659E-09	3.794E-09	3.156E-09	2.670E-09
E	9.275E-08	4.839E-08	3.146E-08	1.788E-08	1.187E-08	8.582E-09	6.546E-09	5.183E-09	4.219E-09	3.508E-09	2.967E-09
ESE	1.129E-07	5.922E-08	3.864E-08	2.206E-08	1.469E-08	1.064E-08	8.130E-09	6.448E-09	5.256E-09	4.376E-09	3.706E-09
SE	2.345E-07	1.219E-07	7.911E-08	4.485E-08	2.975E-08	2.149E-08	1.638E-08	1.297E-08	1.056E-08	8.779E-09	7.426E-09
SSE	2.161E-07	1.118E-07	7.231E-08	4.085E-08	2.704E-08	1.951E-08	1.487E-08	1.176E-08	9.574E-09	7.960E-09	6.732E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.186E-05	2.750E-06	8.756E-07	4.484E-07	2.806E-07	1.249E-07	4.403E-08	2.072E-08	1.247E-08	8.442E-09
SSW	5.844E-06	1.346E-06	4.248E-07	2.165E-07	1.350E-07	5.975E-08	2.086E-08	9.732E-09	5.822E-09	3.923E-09
SW	2.765E-06	6.224E-07	1.904E-07	9.545E-08	5.889E-08	2.571E-08	8.840E-09	4.113E-09	2.470E-09	1.675E-09
WSW	3.167E-06	7.205E-07	2.351E-07	1.220E-07	7.700E-08	3.468E-08	1.238E-08	5.829E-09	3.485E-09	2.339E-09
W	1.870E-06	4.286E-07	1.306E-07	6.533E-08	4.024E-08	1.754E-08	6.016E-09	2.791E-09	1.673E-09	1.132E-09
WNW	2.917E-06	6.633E-07	2.034E-07	1.020E-07	6.296E-08	2.747E-08	9.428E-09	4.375E-09	2.621E-09	1.773E-09
NW	4.201E-06	9.543E-07	2.998E-07	1.525E-07	9.504E-08	4.210E-08	1.475E-08	6.914E-09	4.151E-09	2.806E-09
NNW	6.190E-06	1.432E-06	4.682E-07	2.431E-07	1.536E-07	6.935E-08	2.488E-08	1.178E-08	7.092E-09	4.793E-09
N	1.186E-05	2.761E-06	9.082E-07	4.732E-07	2.997E-07	1.357E-07	4.892E-08	2.326E-08	1.403E-08	9.502E-09
NNE	7.824E-06	1.808E-06	5.941E-07	3.095E-07	1.959E-07	8.868E-08	3.191E-08	1.513E-08	9.102E-09	6.146E-09
NE	5.508E-06	1.267E-06	4.196E-07	2.193E-07	1.392E-07	6.313E-08	2.274E-08	1.076E-08	6.448E-09	4.336E-09
ENE	4.045E-06	9.333E-07	3.058E-07	1.590E-07	1.006E-07	4.547E-08	1.636E-08	7.764E-09	4.679E-09	3.165E-09
E	4.480E-06	1.041E-06	3.412E-07	1.774E-07	1.122E-07	5.072E-08	1.823E-08	8.645E-09	5.205E-09	3.518E-09
ESE	5.379E-06	1.240E-06	4.109E-07	2.149E-07	1.364E-07	6.201E-08	2.247E-08	1.072E-08	6.475E-09	4.389E-09
SE	1.145E-05	2.662E-06	8.678E-07	4.500E-07	2.840E-07	1.279E-07	4.575E-08	2.165E-08	1.303E-08	8.805E-09
SSE	1.081E-05	2.510E-06	8.092E-07	4.171E-07	2.622E-07	1.174E-07	4.170E-08	1.966E-08	1.182E-08	7.983E-09

VENTS GROUND LEVEL RELEASES - JAN-JUN 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.746E-05	2.117E-05	1.085E-05	5.310E-06	2.096E-06	1.116E-06	6.965E-07	4.791E-07	3.519E-07	2.709E-07	2.161E-07
SSW	3.299E-05	1.044E-05	5.346E-06	2.609E-06	1.024E-06	5.430E-07	3.378E-07	2.318E-07	1.699E-07	1.306E-07	1.040E-07
SW	1.524E-05	4.956E-06	2.529E-06	1.223E-06	4.692E-07	2.451E-07	1.507E-07	1.025E-07	7.459E-08	5.697E-08	4.512E-08
WSW	1.947E-05	5.809E-06	2.859E-06	1.378E-06	5.540E-07	2.988E-07	1.882E-07	1.305E-07	9.645E-08	7.466E-08	5.983E-08
W	1.019E-05	3.300E-06	1.723E-06	8.435E-07	3.227E-07	1.682E-07	1.033E-07	7.017E-08	5.100E-08	3.891E-08	3.079E-08
WNW	1.617E-05	5.196E-06	2.673E-06	1.302E-06	5.003E-07	2.616E-07	1.610E-07	1.095E-07	7.971E-08	6.089E-08	4.823E-08
NW	2.418E-05	7.571E-06	3.829E-06	1.855E-06	7.247E-07	3.835E-07	2.382E-07	1.633E-07	1.197E-07	9.192E-08	7.317E-08
NNW	3.723E-05	1.121E-05	5.616E-06	2.733E-06	1.100E-06	5.935E-07	3.740E-07	2.593E-07	1.917E-07	1.484E-07	1.189E-07
N	7.181E-05	2.143E-05	1.076E-05	5.254E-06	2.125E-06	1.150E-06	7.261E-07	5.042E-07	3.733E-07	2.893E-07	2.320E-07
NNE	4.739E-05	1.422E-05	7.090E-06	3.443E-06	1.391E-06	7.526E-07	4.752E-07	3.300E-07	2.443E-07	1.893E-07	1.518E-07
NE	3.390E-05	1.008E-05	4.975E-06	2.406E-06	9.780E-07	5.311E-07	3.363E-07	2.340E-07	1.735E-07	1.347E-07	1.081E-07
ENE	2.454E-05	7.348E-06	3.665E-06	1.780E-06	7.176E-07	3.876E-07	2.444E-07	1.696E-07	1.254E-07	9.714E-08	7.787E-08
E	2.710E-05	8.103E-06	4.067E-06	1.984E-06	8.002E-07	4.323E-07	2.727E-07	1.892E-07	1.400E-07	1.084E-07	8.688E-08
ESE	3.309E-05	9.828E-06	4.858E-06	2.353E-06	9.563E-07	5.193E-07	3.288E-07	2.288E-07	1.696E-07	1.317E-07	1.057E-07
SE	6.826E-05	2.064E-05	1.041E-05	5.086E-06	2.043E-06	1.101E-06	6.929E-07	4.799E-07	3.545E-07	2.742E-07	2.196E-07
SSE	6.363E-05	1.941E-05	9.853E-06	4.820E-06	1.921E-06	1.029E-06	6.451E-07	4.453E-07	3.281E-07	2.532E-07	2.024E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.771E-07	8.740E-08	5.448E-08	2.920E-08	1.863E-08	1.307E-08	9.741E-09	7.564E-09	6.055E-09	4.961E-09	4.140E-09
SSW	8.509E-08	4.177E-08	2.595E-08	1.384E-08	8.801E-09	6.158E-09	4.578E-09	3.548E-09	2.836E-09	2.320E-09	1.933E-09
SW	3.677E-08	1.778E-08	1.094E-08	5.763E-09	3.641E-09	2.537E-09	1.881E-09	1.455E-09	1.161E-09	9.491E-10	7.906E-10
WSW	4.924E-08	2.469E-08	1.556E-08	8.457E-09	5.448E-09	3.847E-09	2.879E-09	2.243E-09	1.800E-09	1.478E-09	1.235E-09
W	2.508E-08	1.211E-08	7.433E-09	3.905E-09	2.461E-09	1.711E-09	1.266E-09	9.779E-10	7.795E-10	6.365E-10	5.296E-10
WNW	3.930E-08	1.900E-08	1.168E-08	6.148E-09	3.882E-09	2.703E-09	2.002E-09	1.548E-09	1.234E-09	1.008E-09	8.393E-10
NW	5.990E-08	2.945E-08	1.832E-08	9.796E-09	6.247E-09	4.381E-09	3.263E-09	2.533E-09	2.027E-09	1.660E-09	1.385E-09
NNW	9.784E-08	4.905E-08	3.090E-08	1.678E-08	1.080E-08	7.619E-09	5.700E-09	4.440E-09	3.563E-09	2.925E-09	2.445E-09
N	1.911E-07	9.609E-08	6.064E-08	3.303E-08	2.128E-08	1.504E-08	1.126E-08	8.782E-09	7.052E-09	5.793E-09	4.844E-09
NNE	1.251E-07	6.291E-08	3.971E-08	2.163E-08	1.394E-08	9.851E-09	7.377E-09	5.751E-09	4.617E-09	3.792E-09	3.170E-09
NE	8.918E-08	4.501E-08	2.847E-08	1.555E-08	1.004E-08	7.098E-09	5.318E-09	4.147E-09	3.330E-09	2.735E-09	2.286E-09
ENE	6.412E-08	3.221E-08	2.031E-08	1.106E-08	7.122E-09	5.031E-09	3.767E-09	2.937E-09	2.358E-09	1.937E-09	1.620E-09
E	7.154E-08	3.591E-08	2.264E-08	1.231E-08	7.928E-09	5.597E-09	4.190E-09	3.265E-09	2.621E-09	2.152E-09	1.799E-09
ESE	8.719E-08	4.401E-08	2.785E-08	1.522E-08	9.834E-09	6.960E-09	5.220E-09	4.075E-09	3.275E-09	2.693E-09	2.253E-09
SE	1.806E-07	9.031E-08	5.679E-08	3.078E-08	1.977E-08	1.394E-08	1.042E-08	8.115E-09	6.510E-09	5.342E-09	4.464E-09
SSE	1.662E-07	8.263E-08	5.176E-08	2.792E-08	1.788E-08	1.258E-08	9.392E-09	7.304E-09	5.853E-09	4.799E-09	4.007E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.068E-05	2.375E-06	7.215E-07	3.574E-07	2.179E-07	9.270E-08	3.012E-08	1.322E-08	7.611E-09	4.981E-09
SSW	5.262E-06	1.162E-06	3.501E-07	1.726E-07	1.048E-07	4.436E-08	1.429E-08	6.231E-09	3.571E-09	2.330E-09
SW	2.488E-06	5.371E-07	1.566E-07	7.586E-08	4.554E-08	1.896E-08	5.969E-09	2.569E-09	1.465E-09	9.532E-10
WSW	2.856E-06	6.237E-07	1.946E-07	9.787E-08	6.030E-08	2.609E-08	8.697E-09	3.887E-09	2.256E-09	1.483E-09
W	1.682E-06	3.698E-07	1.074E-07	5.187E-08	3.108E-08	1.291E-08	4.047E-09	1.733E-09	9.847E-10	6.393E-10
WNW	2.624E-06	5.723E-07	1.672E-07	8.105E-08	4.867E-08	2.026E-08	6.369E-09	2.737E-09	1.558E-09	1.013E-09
NW	3.783E-06	8.241E-07	2.470E-07	1.216E-07	7.381E-08	3.127E-08	1.011E-08	4.431E-09	2.549E-09	1.667E-09
NNW	5.578E-06	1.238E-06	3.866E-07	1.945E-07	1.198E-07	5.183E-08	1.726E-08	7.699E-09	4.466E-09	2.936E-09
N	1.069E-05	2.387E-06	7.503E-07	3.787E-07	2.338E-07	1.015E-07	3.394E-08	1.519E-08	8.832E-09	5.815E-09
NNE	7.053E-06	1.563E-06	4.911E-07	2.478E-07	1.530E-07	6.642E-08	2.223E-08	9.952E-09	5.783E-09	3.806E-09
NE	4.967E-06	1.097E-06	3.473E-07	1.760E-07	1.090E-07	4.747E-08	1.597E-08	7.170E-09	4.170E-09	2.745E-09
ENE	3.646E-06	8.071E-07	2.527E-07	1.273E-07	7.849E-08	3.401E-08	1.136E-08	5.083E-09	2.953E-09	1.944E-09
E	4.038E-06	8.997E-07	2.819E-07	1.420E-07	8.757E-08	3.793E-08	1.266E-08	5.656E-09	3.284E-09	2.160E-09
ESE	4.849E-06	1.072E-06	3.396E-07	1.721E-07	1.065E-07	4.642E-08	1.563E-08	7.031E-09	4.098E-09	2.703E-09
SE	1.032E-05	2.301E-06	7.165E-07	3.597E-07	2.213E-07	9.548E-08	3.167E-08	1.409E-08	8.163E-09	5.363E-09
SSE	9.739E-06	2.169E-06	6.676E-07	3.331E-07	2.041E-07	8.748E-08	2.876E-08	1.272E-08	7.348E-09	4.818E-09

VENTS GROUND LEVEL RELEASES - JAN-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.770E-07	9.368E-08	4.810E-08	2.287E-08	8.214E-09	4.073E-09	2.399E-09	1.571E-09	1.105E-09	8.190E-10	6.311E-10
SSW	1.379E-07	4.664E-08	2.395E-08	1.139E-08	4.090E-09	2.028E-09	1.194E-09	7.819E-10	5.502E-10	4.078E-10	3.142E-10
SW	7.466E-08	2.525E-08	1.296E-08	6.163E-09	2.214E-09	1.098E-09	6.464E-10	4.233E-10	2.978E-10	2.207E-10	1.701E-10
WSW	4.728E-08	1.599E-08	8.209E-09	3.903E-09	1.402E-09	6.952E-10	4.093E-10	2.680E-10	1.886E-10	1.398E-10	1.077E-10
W	5.366E-08	1.814E-08	9.316E-09	4.429E-09	1.591E-09	7.890E-10	4.646E-10	3.042E-10	2.140E-10	1.586E-10	1.222E-10
WNW	9.880E-08	3.341E-08	1.715E-08	8.155E-09	2.929E-09	1.453E-09	8.554E-10	5.601E-10	3.941E-10	2.921E-10	2.251E-10
NW	1.526E-07	5.162E-08	2.650E-08	1.260E-08	4.526E-09	2.244E-09	1.322E-09	8.653E-10	6.089E-10	4.512E-10	3.477E-10
NNW	1.502E-07	5.081E-08	2.609E-08	1.240E-08	4.455E-09	2.209E-09	1.301E-09	8.518E-10	5.994E-10	4.442E-10	3.423E-10
N	2.579E-07	8.720E-08	4.477E-08	2.129E-08	7.646E-09	3.792E-09	2.233E-09	1.462E-09	1.029E-09	7.623E-10	5.875E-10
NNE	1.824E-07	6.169E-08	3.168E-08	1.506E-08	5.409E-09	2.683E-09	1.580E-09	1.034E-09	7.277E-10	5.393E-10	4.156E-10
NE	9.707E-08	3.283E-08	1.685E-08	8.013E-09	2.878E-09	1.427E-09	8.405E-10	5.503E-10	3.872E-10	2.870E-10	2.212E-10
ENE	8.168E-08	2.762E-08	1.418E-08	6.742E-09	2.422E-09	1.201E-09	7.072E-10	4.631E-10	3.258E-10	2.415E-10	1.861E-10
E	8.517E-08	2.880E-08	1.479E-08	7.030E-09	2.525E-09	1.252E-09	7.374E-10	4.828E-10	3.397E-10	2.518E-10	1.940E-10
ESE	1.030E-07	3.482E-08	1.788E-08	8.501E-09	3.053E-09	1.514E-09	8.916E-10	5.838E-10	4.108E-10	3.045E-10	2.346E-10
SE	2.518E-07	8.515E-08	4.372E-08	2.078E-08	7.466E-09	3.702E-09	2.180E-09	1.427E-09	1.004E-09	7.444E-10	5.736E-10
SSE	2.648E-07	8.954E-08	4.598E-08	2.186E-08	7.851E-09	3.894E-09	2.293E-09	1.501E-09	1.056E-09	7.828E-10	6.033E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	5.014E-10	2.227E-10	1.349E-10	6.820E-11	4.128E-11	2.768E-11	1.983E-11	1.489E-11	1.158E-11	9.248E-12	7.549E-12
SSW	2.496E-10	1.109E-10	6.718E-11	3.395E-11	2.055E-11	1.378E-11	9.873E-12	7.414E-12	5.764E-12	4.605E-12	3.758E-12
SW	1.351E-10	6.003E-11	3.636E-11	1.838E-11	1.112E-11	7.459E-12	5.345E-12	4.013E-12	3.120E-12	2.493E-12	2.035E-12
WSW	8.557E-11	3.801E-11	2.303E-11	1.164E-11	7.044E-12	4.723E-12	3.384E-12	2.541E-12	1.976E-12	1.578E-12	1.288E-12
W	9.711E-11	4.314E-11	2.613E-11	1.321E-11	7.995E-12	5.360E-12	3.841E-12	2.884E-12	2.242E-12	1.791E-12	1.462E-12
WNW	1.788E-10	7.943E-11	4.812E-11	2.432E-11	1.472E-11	9.870E-12	7.072E-12	5.310E-12	4.129E-12	3.298E-12	2.692E-12
NW	2.763E-10	1.227E-10	7.434E-11	3.758E-11	2.274E-11	1.525E-11	1.093E-11	8.204E-12	6.379E-12	5.096E-12	4.159E-12
NNW	2.719E-10	1.208E-10	7.318E-11	3.699E-11	2.239E-11	1.501E-11	1.076E-11	8.076E-12	6.279E-12	5.016E-12	4.094E-12
N	4.667E-10	2.073E-10	1.256E-10	6.348E-11	3.842E-11	2.576E-11	1.846E-11	1.386E-11	1.078E-11	8.609E-12	7.027E-12
NNE	3.302E-10	1.467E-10	8.885E-11	4.491E-11	2.718E-11	1.822E-11	1.306E-11	9.806E-12	7.624E-12	6.090E-12	4.971E-12
NE	1.757E-10	7.805E-11	4.728E-11	2.390E-11	1.446E-11	9.698E-12	6.949E-12	5.218E-12	4.057E-12	3.241E-12	2.645E-12
ENE	1.478E-10	6.567E-11	3.978E-11	2.011E-11	1.217E-11	8.160E-12	5.847E-12	4.390E-12	3.414E-12	2.727E-12	2.226E-12
E	1.541E-10	6.847E-11	4.148E-11	2.097E-11	1.269E-11	8.508E-12	6.096E-12	4.578E-12	3.559E-12	2.843E-12	2.321E-12
ESE	1.864E-10	8.280E-11	5.016E-11	2.535E-11	1.534E-11	1.029E-11	7.372E-12	5.535E-12	4.304E-12	3.438E-12	2.806E-12
SE	4.557E-10	2.025E-10	1.226E-10	6.199E-11	3.752E-11	2.515E-11	1.802E-11	1.353E-11	1.052E-11	8.406E-12	6.861E-12
SSE	4.792E-10	2.129E-10	1.290E-10	6.519E-11	3.945E-11	2.645E-11	1.895E-11	1.423E-11	1.107E-11	8.840E-12	7.215E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.701E-08	9.630E-09	2.514E-09	1.129E-09	6.387E-10	2.456E-10	7.106E-11	2.816E-11	1.504E-11	9.309E-12
SSW	2.341E-08	4.795E-09	1.252E-09	5.622E-10	3.180E-10	1.223E-10	3.538E-11	1.402E-11	7.488E-12	4.635E-12
SW	1.267E-08	2.595E-09	6.776E-10	3.043E-10	1.722E-10	6.620E-11	1.915E-11	7.591E-12	4.054E-12	2.509E-12
WSW	8.024E-09	1.643E-09	4.290E-10	1.927E-10	1.090E-10	4.192E-11	1.213E-11	4.807E-12	2.567E-12	1.589E-12
W	9.106E-09	1.865E-09	4.869E-10	2.187E-10	1.237E-10	4.758E-11	1.376E-11	5.455E-12	2.913E-12	1.803E-12
WNW	1.677E-08	3.434E-09	8.966E-10	4.027E-10	2.278E-10	8.760E-11	2.534E-11	1.004E-11	5.364E-12	3.320E-12
NW	2.590E-08	5.306E-09	1.385E-09	6.221E-10	3.519E-10	1.353E-10	3.915E-11	1.552E-11	8.287E-12	5.129E-12
NNW	2.550E-08	5.223E-09	1.363E-09	6.124E-10	3.464E-10	1.332E-10	3.854E-11	1.527E-11	8.157E-12	5.049E-12
N	4.376E-08	8.964E-09	2.340E-09	1.051E-09	5.946E-10	2.286E-10	6.614E-11	2.622E-11	1.400E-11	8.665E-12
NNE	3.096E-08	6.342E-09	1.656E-09	7.435E-10	4.206E-10	1.618E-10	4.680E-11	1.855E-11	9.904E-12	6.130E-12
NE	1.647E-08	3.374E-09	8.809E-10	3.956E-10	2.238E-10	8.607E-11	2.490E-11	9.869E-12	5.270E-12	3.262E-12
ENE	1.386E-08	2.839E-09	7.413E-10	3.329E-10	1.883E-10	7.243E-11	2.095E-11	8.304E-12	4.435E-12	2.745E-12
E	1.445E-08	2.960E-09	7.729E-10	3.471E-10	1.964E-10	7.551E-11	2.185E-11	8.658E-12	4.624E-12	2.862E-12
ESE	1.748E-08	3.580E-09	9.346E-10	4.197E-10	2.374E-10	9.131E-11	2.642E-11	1.047E-11	5.591E-12	3.461E-12
SE	4.273E-08	8.753E-09	2.285E-09	1.026E-09	5.806E-10	2.233E-10	6.459E-11	2.560E-11	1.367E-11	8.461E-12
SSE	4.494E-08	9.205E-09	2.403E-09	1.079E-09	6.105E-10	2.348E-10	6.792E-11	2.692E-11	1.438E-11	8.898E-12

VENTS GROUND LEVEL RELEASES - JAN-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.0E-05	1.0E-05	9.3E-06	4.1E-08
A	Site Boundary	SSW	.82	4.8E-06	4.7E-06	4.2E-06	1.9E-08
A	Site Boundary	SW	.97	1.5E-06	1.5E-06	1.3E-06	6.6E-09
A	Site Boundary	WSW	.93	1.9E-06	1.9E-06	1.7E-06	4.8E-09
A	Site Boundary	W	.91	1.2E-06	1.2E-06	1.1E-06	5.6E-09
A	Site Boundary	WNW	.94	1.7E-06	1.7E-06	1.5E-06	9.6E-09
A	Site Boundary	NW	.81	3.5E-06	3.5E-06	3.1E-06	2.2E-08
A	Site Boundary	NNW	.69	7.3E-06	7.2E-06	6.5E-06	3.0E-08
A	Site Boundary	N	.67	1.4E-05	1.4E-05	1.3E-05	5.3E-08
A	Site Boundary	NNE	.60	1.2E-05	1.1E-05	1.0E-05	4.6E-08
A	Site Boundary	NE	.62	7.6E-06	7.5E-06	6.8E-06	2.3E-08
A	Site Boundary	ENE	.59	6.2E-06	6.1E-06	5.6E-06	2.1E-08
A	Site Boundary	E	.53	8.2E-06	8.1E-06	7.4E-06	2.7E-08
A	Site Boundary	ESE	.54	9.5E-06	9.5E-06	8.7E-06	3.1E-08
A	Site Boundary	SE	.65	1.5E-05	1.5E-05	1.3E-05	5.6E-08
A	Site Boundary	SSE	.81	9.1E-06	9.1E-06	8.1E-06	3.8E-08
A	Nearest Res	SW	1.30	7.6E-07	7.6E-07	6.5E-07	3.2E-09
A	Nearest Res	WSW	1.80	4.5E-07	4.4E-07	3.7E-07	9.0E-10
A	Nearest Res	WNW	2.40	2.2E-07	2.1E-07	1.8E-07	9.4E-10
A	Nearest Res	NW	.90	2.7E-06	2.7E-06	2.4E-06	1.7E-08
A	Nearest Res	NNW	1.90	8.0E-07	7.9E-07	6.6E-07	2.5E-09
A	Nearest Res	NE	1.60	1.0E-06	1.0E-06	8.5E-07	2.5E-09
A	Nearest Res	ENE	1.70	6.5E-07	6.4E-07	5.5E-07	1.8E-09
A	Nearest Res	E	2.00	5.3E-07	5.2E-07	4.3E-07	1.3E-09
A	Nearest Res	SE	2.90	6.5E-07	6.3E-07	5.1E-07	1.5E-09
A	Nearest Cow	NNW	3.50	2.5E-07	2.4E-07	1.9E-07	6.0E-10
A	Nearest Garde	SW	2.20	2.4E-07	2.4E-07	2.0E-07	8.7E-10
A	Nearest Garde	WSW	2.40	2.5E-07	2.5E-07	2.0E-07	4.5E-10
A	Nearest Garde	WNW	2.60	1.8E-07	1.8E-07	1.5E-07	7.8E-10
A	Nearest Garde	NNW	2.70	4.0E-07	3.9E-07	3.2E-07	1.1E-09
A	Nearest Garde	ENE	1.70	6.5E-07	6.4E-07	5.5E-07	1.8E-09
A	Nearest Garde	E	2.00	5.3E-07	5.2E-07	4.3E-07	1.3E-09
A	Nearest Garde	ESE	2.20	5.2E-07	5.1E-07	4.3E-07	1.2E-09
A	Nearest Garde	SE	2.90	6.5E-07	6.3E-07	5.1E-07	1.5E-09

Atmospheric Diffusion Estimates

Ground Level Releases

July-September 2024

VENTS GROUND LEVEL RELEASES - JUL-SEP 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.875E-05	2.233E-05	1.223E-05	6.234E-06	2.525E-06	1.375E-06	8.746E-07	6.124E-07	4.572E-07	3.573E-07	2.890E-07
SSW	2.460E-05	8.356E-06	4.469E-06	2.226E-06	8.728E-07	4.646E-07	2.907E-07	2.008E-07	1.482E-07	1.147E-07	9.204E-08
SW	1.376E-05	4.454E-06	2.322E-06	1.146E-06	4.506E-07	2.406E-07	1.509E-07	1.045E-07	7.735E-08	6.002E-08	4.824E-08
WSW	1.267E-05	4.438E-06	2.392E-06	1.189E-06	4.601E-07	2.426E-07	1.507E-07	1.034E-07	7.595E-08	5.852E-08	4.675E-08
W	1.342E-05	4.631E-06	2.496E-06	1.245E-06	4.835E-07	2.556E-07	1.590E-07	1.094E-07	8.041E-08	6.203E-08	4.960E-08
WNW	2.455E-05	8.215E-06	4.313E-06	2.129E-06	8.363E-07	4.461E-07	2.797E-07	1.935E-07	1.431E-07	1.109E-07	8.911E-08
NW	3.441E-05	1.164E-05	6.234E-06	3.103E-06	1.205E-06	6.375E-07	3.967E-07	2.729E-07	2.007E-07	1.549E-07	1.239E-07
NNW	4.315E-05	1.437E-05	7.723E-06	3.864E-06	1.534E-06	8.244E-07	5.197E-07	3.612E-07	2.681E-07	2.085E-07	1.680E-07
N	1.062E-04	3.334E-05	1.766E-05	8.887E-06	3.665E-06	2.021E-06	1.299E-06	9.166E-07	6.890E-07	5.417E-07	4.405E-07
NNE	6.974E-05	2.155E-05	1.135E-05	5.716E-06	2.377E-06	1.318E-06	8.503E-07	6.020E-07	4.537E-07	3.575E-07	2.912E-07
NE	6.289E-05	1.884E-05	9.608E-06	4.781E-06	2.017E-06	1.129E-06	7.333E-07	5.221E-07	3.953E-07	3.127E-07	2.556E-07
ENE	3.488E-05	1.037E-05	5.343E-06	2.674E-06	1.120E-06	6.243E-07	4.044E-07	2.872E-07	2.170E-07	1.714E-07	1.399E-07
E	5.639E-05	1.683E-05	8.653E-06	4.332E-06	1.835E-06	1.030E-06	6.702E-07	4.777E-07	3.620E-07	2.865E-07	2.344E-07
ESE	1.028E-04	3.023E-05	1.517E-05	7.510E-06	3.218E-06	1.819E-06	1.191E-06	8.527E-07	6.485E-07	5.150E-07	4.223E-07
SE	1.369E-04	4.129E-05	2.131E-05	1.067E-05	4.506E-06	2.524E-06	1.640E-06	1.168E-06	8.845E-07	6.997E-07	5.720E-07
SSE	1.111E-04	3.371E-05	1.743E-05	8.725E-06	3.674E-06	2.054E-06	1.333E-06	9.483E-07	7.174E-07	5.671E-07	4.633E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.401E-07	1.251E-07	8.187E-08	4.758E-08	3.251E-08	2.424E-08	1.909E-08	1.562E-08	1.313E-08	1.127E-08	9.833E-09
SSW	7.591E-08	3.854E-08	2.477E-08	1.406E-08	9.475E-09	6.991E-09	5.461E-09	4.436E-09	3.707E-09	3.167E-09	2.751E-09
SW	3.987E-08	2.042E-08	1.321E-08	7.595E-09	5.176E-09	3.854E-09	3.034E-09	2.481E-09	2.085E-09	1.791E-09	1.563E-09
WSW	3.842E-08	1.925E-08	1.225E-08	6.851E-09	4.564E-09	3.337E-09	2.587E-09	2.088E-09	1.735E-09	1.475E-09	1.275E-09
W	4.080E-08	2.051E-08	1.308E-08	7.341E-09	4.899E-09	3.587E-09	2.784E-09	2.249E-09	1.871E-09	1.591E-09	1.377E-09
WNW	7.362E-08	3.767E-08	2.435E-08	1.395E-08	9.450E-09	7.006E-09	5.495E-09	4.479E-09	3.755E-09	3.217E-09	2.802E-09
NW	1.019E-07	5.130E-08	3.276E-08	1.843E-08	1.234E-08	9.056E-09	7.044E-09	5.701E-09	4.751E-09	4.047E-09	3.507E-09
NNW	1.391E-07	7.163E-08	4.651E-08	2.678E-08	1.821E-08	1.353E-08	1.063E-08	8.673E-09	7.278E-09	6.238E-09	5.436E-09
N	3.677E-07	1.951E-07	1.293E-07	7.657E-08	5.300E-08	3.992E-08	3.170E-08	2.611E-08	2.208E-08	1.906E-08	1.671E-08
NNE	2.434E-07	1.299E-07	8.641E-08	5.139E-08	3.568E-08	2.693E-08	2.143E-08	1.767E-08	1.497E-08	1.293E-08	1.135E-08
NE	2.143E-07	1.157E-07	7.756E-08	4.664E-08	3.263E-08	2.478E-08	1.981E-08	1.640E-08	1.394E-08	1.208E-08	1.063E-08
ENE	1.172E-07	6.304E-08	4.217E-08	2.528E-08	1.765E-08	1.338E-08	1.069E-08	8.841E-09	7.506E-09	6.500E-09	5.717E-09
E	1.966E-07	1.062E-07	7.124E-08	4.285E-08	2.998E-08	2.276E-08	1.819E-08	1.506E-08	1.280E-08	1.109E-08	9.757E-09
ESE	3.551E-07	1.936E-07	1.307E-07	7.924E-08	5.575E-08	4.251E-08	3.409E-08	2.831E-08	2.411E-08	2.094E-08	1.846E-08
SE	4.795E-07	2.587E-07	1.733E-07	1.041E-07	7.276E-08	5.520E-08	4.409E-08	3.649E-08	3.099E-08	2.684E-08	2.361E-08
SSE	3.882E-07	2.090E-07	1.398E-07	8.384E-08	5.853E-08	4.436E-08	3.541E-08	2.929E-08	2.487E-08	2.153E-08	1.893E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.181E-05	2.838E-06	9.031E-07	4.635E-07	2.912E-07	1.315E-07	4.850E-08	2.439E-08	1.566E-08	1.129E-08
SSW	4.336E-06	9.921E-07	3.011E-07	1.505E-07	9.279E-08	4.072E-08	1.440E-08	7.041E-09	4.451E-09	3.173E-09
SW	2.273E-06	5.117E-07	1.563E-07	7.852E-08	4.863E-08	2.154E-08	7.768E-09	3.878E-09	2.488E-09	1.794E-09
WSW	2.312E-06	5.255E-07	1.563E-07	7.716E-08	4.715E-08	2.040E-08	7.034E-09	3.364E-09	2.096E-09	1.478E-09
W	2.414E-06	5.513E-07	1.649E-07	8.167E-08	5.002E-08	2.172E-08	7.531E-09	3.616E-09	2.258E-09	1.595E-09
WNW	4.209E-06	9.501E-07	2.896E-07	1.453E-07	8.984E-08	3.974E-08	1.426E-08	7.053E-09	4.493E-09	3.223E-09
NW	6.045E-06	1.375E-06	4.114E-07	2.039E-07	1.249E-07	5.431E-08	1.891E-08	9.126E-09	5.723E-09	4.056E-09
NNW	7.485E-06	1.736E-06	5.376E-07	2.720E-07	1.693E-07	7.546E-08	2.736E-08	1.362E-08	8.700E-09	6.249E-09
N	1.724E-05	4.094E-06	1.338E-06	6.979E-07	4.435E-07	2.042E-07	7.782E-08	4.012E-08	2.617E-08	1.908E-08
NNE	1.111E-05	2.648E-06	8.757E-07	4.594E-07	2.931E-07	1.358E-07	5.219E-08	2.706E-08	1.771E-08	1.295E-08
NE	9.513E-06	2.236E-06	7.542E-07	4.001E-07	2.572E-07	1.207E-07	4.728E-08	2.488E-08	1.644E-08	1.210E-08
ENE	5.274E-06	1.245E-06	4.162E-07	2.197E-07	1.408E-07	6.580E-08	2.564E-08	1.344E-08	8.860E-09	6.508E-09
E	8.550E-06	2.032E-06	6.891E-07	3.663E-07	2.358E-07	1.107E-07	4.344E-08	2.286E-08	1.509E-08	1.110E-08
ESE	1.511E-05	3.550E-06	1.223E-06	6.560E-07	4.249E-07	2.015E-07	8.022E-08	4.267E-08	2.836E-08	2.096E-08
SE	2.102E-05	4.995E-06	1.687E-06	8.951E-07	5.756E-07	2.698E-07	1.056E-07	5.544E-08	3.657E-08	2.688E-08
SSE	1.718E-05	4.076E-06	1.371E-06	7.261E-07	4.662E-07	2.181E-07	8.503E-08	4.456E-08	2.936E-08	2.156E-08

VENTS GROUND LEVEL RELEASES - JUL-SEP 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.860E-05	2.223E-05	1.215E-05	6.181E-06	2.493E-06	1.351E-06	8.556E-07	5.963E-07	4.431E-07	3.448E-07	2.776E-07
SSW	2.455E-05	8.327E-06	4.446E-06	2.211E-06	8.636E-07	4.580E-07	2.854E-07	1.964E-07	1.444E-07	1.114E-07	8.898E-08
SW	1.373E-05	4.436E-06	2.309E-06	1.137E-06	4.453E-07	2.367E-07	1.479E-07	1.020E-07	7.512E-08	5.803E-08	4.644E-08
WSW	1.265E-05	4.423E-06	2.379E-06	1.181E-06	4.553E-07	2.392E-07	1.480E-07	1.012E-07	7.407E-08	5.687E-08	4.526E-08
W	1.339E-05	4.617E-06	2.484E-06	1.237E-06	4.788E-07	2.523E-07	1.565E-07	1.072E-07	7.857E-08	6.041E-08	4.814E-08
WNW	2.450E-05	8.187E-06	4.291E-06	2.115E-06	8.277E-07	4.399E-07	2.747E-07	1.893E-07	1.394E-07	1.077E-07	8.616E-08
NW	3.437E-05	1.162E-05	6.212E-06	3.088E-06	1.197E-06	6.311E-07	3.917E-07	2.687E-07	1.971E-07	1.517E-07	1.210E-07
NNW	4.308E-05	1.433E-05	7.689E-06	3.841E-06	1.520E-06	8.141E-07	5.115E-07	3.543E-07	2.621E-07	2.032E-07	1.631E-07
N	1.059E-04	3.318E-05	1.754E-05	8.806E-06	3.614E-06	1.983E-06	1.268E-06	8.905E-07	6.660E-07	5.211E-07	4.216E-07
NNE	6.954E-05	2.144E-05	1.126E-05	5.657E-06	2.340E-06	1.290E-06	8.277E-07	5.828E-07	4.368E-07	3.422E-07	2.773E-07
NE	6.270E-05	1.872E-05	9.524E-06	4.725E-06	1.981E-06	1.102E-06	7.115E-07	5.035E-07	3.788E-07	2.978E-07	2.419E-07
ENE	3.478E-05	1.031E-05	5.297E-06	2.643E-06	1.101E-06	6.097E-07	3.926E-07	2.771E-07	2.081E-07	1.634E-07	1.326E-07
E	5.622E-05	1.673E-05	8.575E-06	4.280E-06	1.802E-06	1.005E-06	6.500E-07	4.604E-07	3.468E-07	2.728E-07	2.217E-07
ESE	1.024E-04	3.003E-05	1.502E-05	7.412E-06	3.155E-06	1.772E-06	1.152E-06	8.194E-07	6.191E-07	4.883E-07	3.978E-07
SE	1.365E-04	4.104E-05	2.112E-05	1.054E-05	4.426E-06	2.464E-06	1.591E-06	1.126E-06	8.476E-07	6.664E-07	5.414E-07
SSE	1.108E-04	3.351E-05	1.728E-05	8.624E-06	3.610E-06	2.006E-06	1.294E-06	9.149E-07	6.879E-07	5.405E-07	4.388E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.296E-07	1.169E-07	7.482E-08	4.161E-08	2.724E-08	1.949E-08	1.474E-08	1.160E-08	9.386E-09	7.766E-09	6.539E-09
SSW	7.311E-08	3.639E-08	2.294E-08	1.253E-08	8.129E-09	5.781E-09	4.356E-09	3.417E-09	2.760E-09	2.281E-09	1.919E-09
SW	3.821E-08	1.914E-08	1.211E-08	6.666E-09	4.355E-09	3.112E-09	2.354E-09	1.852E-09	1.499E-09	1.241E-09	1.046E-09
WSW	3.707E-08	1.824E-08	1.140E-08	6.156E-09	3.963E-09	2.802E-09	2.103E-09	1.644E-09	1.324E-09	1.091E-09	9.158E-10
W	3.947E-08	1.951E-08	1.224E-08	6.643E-09	4.292E-09	3.045E-09	2.292E-09	1.796E-09	1.451E-09	1.199E-09	1.008E-09
WNW	7.090E-08	3.556E-08	2.254E-08	1.241E-08	8.091E-09	5.777E-09	4.369E-09	3.437E-09	2.784E-09	2.306E-09	1.945E-09
NW	9.930E-08	4.930E-08	3.106E-08	1.702E-08	1.110E-08	7.946E-09	6.031E-09	4.767E-09	3.881E-09	3.232E-09	2.740E-09
NNW	1.346E-07	6.816E-08	4.352E-08	2.425E-08	1.597E-08	1.150E-08	8.767E-09	6.950E-09	5.670E-09	4.729E-09	4.013E-09
N	3.502E-07	1.813E-07	1.172E-07	6.614E-08	4.370E-08	3.146E-08	2.392E-08	1.889E-08	1.534E-08	1.273E-08	1.075E-08
NNE	2.305E-07	1.197E-07	7.747E-08	4.369E-08	2.881E-08	2.069E-08	1.569E-08	1.235E-08	9.999E-09	8.270E-09	6.959E-09
NE	2.016E-07	1.056E-07	6.868E-08	3.893E-08	2.573E-08	1.849E-08	1.402E-08	1.103E-08	8.920E-09	7.369E-09	6.192E-09
ENE	1.104E-07	5.761E-08	3.742E-08	2.117E-08	1.398E-08	1.005E-08	7.615E-09	5.991E-09	4.845E-09	4.003E-09	3.364E-09
E	1.849E-07	9.685E-08	6.304E-08	3.575E-08	2.362E-08	1.698E-08	1.287E-08	1.012E-08	8.183E-09	6.759E-09	5.678E-09
ESE	3.323E-07	1.753E-07	1.145E-07	6.518E-08	4.313E-08	3.100E-08	2.348E-08	1.845E-08	1.490E-08	1.229E-08	1.031E-08
SE	4.512E-07	2.360E-07	1.535E-07	8.691E-08	5.738E-08	4.120E-08	3.120E-08	2.453E-08	1.982E-08	1.636E-08	1.374E-08
SSE	3.655E-07	1.909E-07	1.240E-07	7.010E-08	4.625E-08	3.319E-08	2.513E-08	1.975E-08	1.595E-08	1.317E-08	1.105E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.174E-05	2.805E-06	8.839E-07	4.494E-07	2.797E-07	1.233E-07	4.260E-08	1.966E-08	1.165E-08	7.791E-09
SSW	4.315E-06	9.827E-07	2.958E-07	1.467E-07	8.974E-08	3.857E-08	1.289E-08	5.837E-09	3.435E-09	2.289E-09
SW	2.261E-06	5.063E-07	1.532E-07	7.628E-08	4.682E-08	2.025E-08	6.849E-09	3.140E-09	1.861E-09	1.245E-09
WSW	2.301E-06	5.205E-07	1.536E-07	7.528E-08	4.566E-08	1.938E-08	6.346E-09	2.832E-09	1.653E-09	1.095E-09
W	2.404E-06	5.466E-07	1.623E-07	7.984E-08	4.856E-08	2.071E-08	6.841E-09	3.076E-09	1.806E-09	1.203E-09
WNW	4.190E-06	9.413E-07	2.846E-07	1.416E-07	8.689E-08	3.763E-08	1.274E-08	5.831E-09	3.455E-09	2.314E-09
NW	6.025E-06	1.366E-06	4.063E-07	2.003E-07	1.221E-07	5.231E-08	1.751E-08	8.021E-09	4.791E-09	3.242E-09
NNW	7.454E-06	1.722E-06	5.293E-07	2.660E-07	1.644E-07	7.197E-08	2.485E-08	1.160E-08	6.981E-09	4.742E-09
N	1.713E-05	4.043E-06	1.308E-06	6.749E-07	4.246E-07	1.903E-07	6.752E-08	3.171E-08	1.898E-08	1.277E-08
NNE	1.103E-05	2.610E-06	8.531E-07	4.425E-07	2.792E-07	1.255E-07	4.458E-08	2.085E-08	1.241E-08	8.297E-09
NE	9.435E-06	2.200E-06	7.324E-07	3.836E-07	2.436E-07	1.105E-07	3.968E-08	1.863E-08	1.108E-08	7.392E-09
ENE	5.231E-06	1.225E-06	4.043E-07	2.108E-07	1.335E-07	6.036E-08	2.159E-08	1.012E-08	6.018E-09	4.016E-09
E	8.479E-06	1.999E-06	6.688E-07	3.511E-07	2.232E-07	1.014E-07	3.642E-08	1.710E-08	1.017E-08	6.781E-09
ESE	1.497E-05	3.487E-06	1.184E-06	6.265E-07	4.003E-07	1.831E-07	6.634E-08	3.123E-08	1.853E-08	1.233E-08
SE	2.085E-05	4.913E-06	1.638E-06	8.582E-07	5.450E-07	2.471E-07	8.858E-08	4.151E-08	2.464E-08	1.641E-08
SSE	1.704E-05	4.011E-06	1.332E-06	6.966E-07	4.418E-07	1.999E-07	7.147E-08	3.345E-08	1.984E-08	1.321E-08

VENTS GROUND LEVEL RELEASES - JUL-SEP 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.502E-05	2.036E-05	1.088E-05	5.444E-06	2.137E-06	1.133E-06	7.041E-07	4.827E-07	3.536E-07	2.715E-07	2.160E-07
SSW	2.327E-05	7.623E-06	3.977E-06	1.945E-06	7.390E-07	3.832E-07	2.342E-07	1.585E-07	1.148E-07	8.733E-08	6.892E-08
SW	1.301E-05	4.063E-06	2.066E-06	1.001E-06	3.814E-07	1.983E-07	1.216E-07	8.245E-08	5.986E-08	4.563E-08	3.608E-08
WSW	1.198E-05	4.049E-06	2.128E-06	1.039E-06	3.896E-07	2.001E-07	1.214E-07	8.165E-08	5.884E-08	4.456E-08	3.502E-08
W	1.269E-05	4.226E-06	2.221E-06	1.088E-06	4.095E-07	2.109E-07	1.282E-07	8.637E-08	6.233E-08	4.726E-08	3.718E-08
WNW	2.322E-05	7.494E-06	3.838E-06	1.860E-06	7.082E-07	3.679E-07	2.254E-07	1.528E-07	1.108E-07	8.444E-08	6.673E-08
NW	3.255E-05	1.063E-05	5.550E-06	2.713E-06	1.022E-06	5.263E-07	3.202E-07	2.158E-07	1.558E-07	1.182E-07	9.303E-08
NNW	4.082E-05	1.311E-05	6.874E-06	3.376E-06	1.299E-06	6.802E-07	4.191E-07	2.854E-07	2.079E-07	1.589E-07	1.259E-07
N	1.004E-04	3.040E-05	1.571E-05	7.759E-06	3.100E-06	1.664E-06	1.045E-06	7.221E-07	5.324E-07	4.113E-07	3.289E-07
NNE	6.595E-05	1.965E-05	1.009E-05	4.989E-06	2.010E-06	1.085E-06	6.835E-07	4.738E-07	3.502E-07	2.710E-07	2.171E-07
NE	5.947E-05	1.717E-05	8.541E-06	4.171E-06	1.704E-06	9.282E-07	5.889E-07	4.104E-07	3.047E-07	2.367E-07	1.902E-07
ENE	3.298E-05	9.453E-06	4.750E-06	2.333E-06	9.467E-07	5.135E-07	3.248E-07	2.258E-07	1.673E-07	1.298E-07	1.042E-07
E	5.332E-05	1.534E-05	7.692E-06	3.779E-06	1.551E-06	8.468E-07	5.381E-07	3.755E-07	2.790E-07	2.169E-07	1.744E-07
ESE	9.718E-05	2.755E-05	1.348E-05	6.549E-06	2.718E-06	1.495E-06	9.556E-07	6.697E-07	4.994E-07	3.894E-07	3.139E-07
SE	1.295E-04	3.764E-05	1.894E-05	9.308E-06	3.808E-06	2.075E-06	1.317E-06	9.183E-07	6.818E-07	5.297E-07	4.257E-07
SSE	1.051E-04	3.073E-05	1.549E-05	7.612E-06	3.105E-06	1.689E-06	1.071E-06	7.456E-07	5.531E-07	4.294E-07	3.449E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.767E-07	8.651E-08	5.358E-08	2.844E-08	1.801E-08	1.256E-08	9.304E-09	7.190E-09	5.730E-09	4.676E-09	3.888E-09
SSW	5.598E-08	2.672E-08	1.627E-08	8.453E-09	5.286E-09	3.653E-09	2.688E-09	2.066E-09	1.639E-09	1.333E-09	1.105E-09
SW	2.936E-08	1.413E-08	8.656E-09	4.545E-09	2.871E-09	1.999E-09	1.481E-09	1.144E-09	9.120E-10	7.445E-10	6.193E-10
WSW	2.835E-08	1.336E-08	8.060E-09	4.130E-09	2.557E-09	1.753E-09	1.283E-09	9.809E-10	7.752E-10	6.281E-10	5.190E-10
W	3.013E-08	1.425E-08	8.620E-09	4.433E-09	2.751E-09	1.890E-09	1.385E-09	1.061E-09	8.392E-10	6.808E-10	5.632E-10
WNW	5.429E-08	2.612E-08	1.600E-08	8.377E-09	5.268E-09	3.656E-09	2.700E-09	2.082E-09	1.657E-09	1.350E-09	1.122E-09
NW	7.542E-08	3.575E-08	2.167E-08	1.120E-08	6.982E-09	4.817E-09	3.543E-09	2.724E-09	2.163E-09	1.761E-09	1.461E-09
NNW	1.027E-07	4.978E-08	3.065E-08	1.617E-08	1.022E-08	7.125E-09	5.282E-09	4.086E-09	3.261E-09	2.666E-09	2.220E-09
N	2.703E-07	1.347E-07	8.445E-08	4.559E-08	2.921E-08	2.054E-08	1.533E-08	1.191E-08	9.540E-09	7.817E-09	6.522E-09
NNE	1.786E-07	8.943E-08	5.624E-08	3.046E-08	1.955E-08	1.376E-08	1.027E-08	7.983E-09	6.392E-09	5.237E-09	4.368E-09
NE	1.570E-07	7.942E-08	5.030E-08	2.750E-08	1.775E-08	1.255E-08	9.399E-09	7.324E-09	5.877E-09	4.822E-09	4.027E-09
ENE	8.587E-08	4.330E-08	2.737E-08	1.492E-08	9.618E-09	6.792E-09	5.082E-09	3.957E-09	3.174E-09	2.603E-09	2.173E-09
E	1.440E-07	7.290E-08	4.619E-08	2.526E-08	1.631E-08	1.153E-08	8.630E-09	6.724E-09	5.394E-09	4.425E-09	3.695E-09
ESE	2.597E-07	1.326E-07	8.449E-08	4.653E-08	3.017E-08	2.139E-08	1.605E-08	1.252E-08	1.006E-08	8.260E-09	6.902E-09
SE	3.513E-07	1.776E-07	1.124E-07	6.139E-08	3.959E-08	2.796E-08	2.092E-08	1.629E-08	1.306E-08	1.071E-08	8.941E-09
SSE	2.844E-07	1.435E-07	9.072E-08	4.946E-08	3.186E-08	2.249E-08	1.682E-08	1.309E-08	1.049E-08	8.601E-09	7.177E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.057E-05	2.425E-06	7.298E-07	3.592E-07	2.179E-07	9.192E-08	2.939E-08	1.271E-08	7.238E-09	4.696E-09
SSW	3.884E-06	8.488E-07	2.437E-07	1.168E-07	6.958E-08	2.858E-08	8.783E-09	3.702E-09	2.081E-09	1.339E-09
SW	2.036E-06	4.376E-07	1.264E-07	6.089E-08	3.642E-08	1.508E-08	4.714E-09	2.024E-09	1.152E-09	7.477E-10
WSW	2.071E-06	4.497E-07	1.265E-07	5.992E-08	3.538E-08	1.434E-08	4.304E-09	1.779E-09	9.887E-10	6.313E-10
W	2.163E-06	4.719E-07	1.335E-07	6.346E-08	3.755E-08	1.528E-08	4.616E-09	1.918E-09	1.069E-09	6.842E-10
WNW	3.771E-06	8.129E-07	2.344E-07	1.128E-07	6.737E-08	2.788E-08	8.689E-09	3.704E-09	2.097E-09	1.357E-09
NW	5.417E-06	1.177E-06	3.334E-07	1.586E-07	9.396E-08	3.831E-08	1.165E-08	4.885E-09	2.744E-09	1.769E-09
NNW	6.706E-06	1.486E-06	4.352E-07	2.114E-07	1.271E-07	5.304E-08	1.674E-08	7.214E-09	4.114E-09	2.677E-09
N	1.544E-05	3.497E-06	1.081E-06	5.404E-07	3.316E-07	1.425E-07	4.695E-08	2.077E-08	1.199E-08	7.848E-09
NNE	9.949E-06	2.261E-06	7.066E-07	3.554E-07	2.188E-07	9.450E-08	3.134E-08	1.391E-08	8.030E-09	5.257E-09
NE	8.517E-06	1.907E-06	6.080E-07	3.090E-07	1.917E-07	8.371E-08	2.824E-08	1.268E-08	7.365E-09	4.840E-09
ENE	4.721E-06	1.062E-06	3.355E-07	1.698E-07	1.050E-07	4.568E-08	1.533E-08	6.861E-09	3.980E-09	2.613E-09
E	7.653E-06	1.733E-06	5.554E-07	2.829E-07	1.757E-07	7.683E-08	2.593E-08	1.164E-08	6.762E-09	4.442E-09
ESE	1.353E-05	3.026E-06	9.851E-07	5.061E-07	3.162E-07	1.395E-07	4.769E-08	2.159E-08	1.259E-08	8.290E-09
SE	1.882E-05	4.260E-06	1.360E-06	6.914E-07	4.290E-07	1.872E-07	6.304E-08	2.825E-08	1.639E-08	1.075E-08
SSE	1.538E-05	3.477E-06	1.106E-06	5.610E-07	3.475E-07	1.514E-07	5.081E-08	2.272E-08	1.317E-08	8.634E-09

VENTS GROUND LEVEL RELEASES - JUL-SEP 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.046E-07	6.919E-08	3.552E-08	1.689E-08	6.067E-09	3.009E-09	1.771E-09	1.160E-09	8.162E-10	6.049E-10	4.661E-10
SSW	1.075E-07	3.636E-08	1.867E-08	8.875E-09	3.188E-09	1.581E-09	9.309E-10	6.096E-10	4.289E-10	3.179E-10	2.450E-10
SW	5.859E-08	1.981E-08	1.017E-08	4.836E-09	1.737E-09	8.615E-10	5.073E-10	3.322E-10	2.337E-10	1.732E-10	1.335E-10
WSW	4.902E-08	1.658E-08	8.512E-09	4.046E-09	1.454E-09	7.208E-10	4.244E-10	2.779E-10	1.956E-10	1.449E-10	1.117E-10
W	5.531E-08	1.870E-08	9.603E-09	4.565E-09	1.640E-09	8.132E-10	4.788E-10	3.135E-10	2.206E-10	1.635E-10	1.260E-10
WNW	1.127E-07	3.811E-08	1.957E-08	9.302E-09	3.341E-09	1.657E-09	9.757E-10	6.389E-10	4.495E-10	3.332E-10	2.567E-10
NW	2.697E-07	9.121E-08	4.683E-08	2.226E-08	7.997E-09	3.966E-09	2.335E-09	1.529E-09	1.076E-09	7.974E-10	6.145E-10
NNW	2.831E-07	9.572E-08	4.915E-08	2.336E-08	8.392E-09	4.162E-09	2.451E-09	1.605E-09	1.129E-09	8.368E-10	6.448E-10
N	3.156E-07	1.067E-07	5.479E-08	2.605E-08	9.357E-09	4.640E-09	2.732E-09	1.789E-09	1.259E-09	9.330E-10	7.190E-10
NNE	1.485E-07	5.021E-08	2.578E-08	1.226E-08	4.402E-09	2.183E-09	1.285E-09	8.417E-10	5.923E-10	4.389E-10	3.383E-10
NE	1.029E-07	3.481E-08	1.787E-08	8.498E-09	3.052E-09	1.514E-09	8.913E-10	5.836E-10	4.107E-10	3.044E-10	2.345E-10
ENE	6.066E-08	2.051E-08	1.053E-08	5.007E-09	1.798E-09	8.919E-10	5.252E-10	3.439E-10	2.420E-10	1.793E-10	1.382E-10
E	7.206E-08	2.437E-08	1.251E-08	5.948E-09	2.137E-09	1.060E-09	6.239E-10	4.085E-10	2.875E-10	2.130E-10	1.642E-10
ESE	1.153E-07	3.898E-08	2.001E-08	9.514E-09	3.417E-09	1.695E-09	9.979E-10	6.534E-10	4.598E-10	3.407E-10	2.626E-10
SE	1.967E-07	6.650E-08	3.415E-08	1.623E-08	5.831E-09	2.892E-09	1.703E-09	1.115E-09	7.845E-10	5.814E-10	4.480E-10
SSE	1.639E-07	5.542E-08	2.845E-08	1.353E-08	4.859E-09	2.410E-09	1.419E-09	9.291E-10	6.537E-10	4.845E-10	3.734E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	3.703E-10	1.645E-10	9.965E-11	5.037E-11	3.049E-11	2.044E-11	1.465E-11	1.100E-11	8.551E-12	6.831E-12	5.575E-12
SSW	1.946E-10	8.645E-11	5.237E-11	2.647E-11	1.602E-11	1.074E-11	7.697E-12	5.779E-12	4.494E-12	3.590E-12	2.930E-12
SW	1.060E-10	4.711E-11	2.854E-11	1.442E-11	8.730E-12	5.853E-12	4.194E-12	3.149E-12	2.449E-12	1.956E-12	1.597E-12
WSW	8.872E-11	3.941E-11	2.388E-11	1.207E-11	7.304E-12	4.897E-12	3.509E-12	2.635E-12	2.049E-12	1.637E-12	1.336E-12
W	1.001E-10	4.447E-11	2.694E-11	1.361E-11	8.240E-12	5.525E-12	3.959E-12	2.973E-12	2.311E-12	1.846E-12	1.507E-12
WNW	2.040E-10	9.061E-11	5.488E-11	2.774E-11	1.679E-11	1.126E-11	8.067E-12	6.057E-12	4.710E-12	3.762E-12	3.071E-12
NW	4.882E-10	2.169E-10	1.314E-10	6.640E-11	4.019E-11	2.694E-11	1.931E-11	1.450E-11	1.127E-11	9.004E-12	7.349E-12
NNW	5.123E-10	2.276E-10	1.379E-10	6.968E-11	4.217E-11	2.828E-11	2.026E-11	1.521E-11	1.183E-11	9.449E-12	7.713E-12
N	5.712E-10	2.537E-10	1.537E-10	7.769E-11	4.702E-11	3.153E-11	2.259E-11	1.696E-11	1.319E-11	1.054E-11	8.599E-12
NNE	2.687E-10	1.194E-10	7.231E-11	3.655E-11	2.212E-11	1.483E-11	1.063E-11	7.981E-12	6.205E-12	4.957E-12	4.046E-12
NE	1.863E-10	8.277E-11	5.014E-11	2.534E-11	1.534E-11	1.028E-11	7.369E-12	5.534E-12	4.303E-12	3.437E-12	2.805E-12
ENE	1.098E-10	4.877E-11	2.954E-11	1.493E-11	9.038E-12	6.060E-12	4.342E-12	3.260E-12	2.535E-12	2.025E-12	1.653E-12
E	1.304E-10	5.794E-11	3.510E-11	1.774E-11	1.074E-11	7.199E-12	5.159E-12	3.874E-12	3.012E-12	2.406E-12	1.964E-12
ESE	2.086E-10	9.267E-11	5.614E-11	2.837E-11	1.717E-11	1.151E-11	8.250E-12	6.195E-12	4.817E-12	3.848E-12	3.141E-12
SE	3.559E-10	1.581E-10	9.578E-11	4.841E-11	2.930E-11	1.965E-11	1.408E-11	1.057E-11	8.219E-12	6.565E-12	5.359E-12
SSE	2.966E-10	1.318E-10	7.982E-11	4.034E-11	2.442E-11	1.637E-11	1.173E-11	8.809E-12	6.849E-12	5.471E-12	4.466E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.472E-08	7.112E-09	1.857E-09	8.339E-10	4.718E-10	1.814E-10	5.248E-11	2.080E-11	1.111E-11	6.875E-12
SSW	1.825E-08	3.738E-09	9.757E-10	4.382E-10	2.479E-10	9.534E-11	2.758E-11	1.093E-11	5.837E-12	3.613E-12
SW	9.943E-09	2.037E-09	5.317E-10	2.388E-10	1.351E-10	5.195E-11	1.503E-11	5.957E-12	3.181E-12	1.969E-12
WSW	8.319E-09	1.704E-09	4.449E-10	1.998E-10	1.130E-10	4.347E-11	1.257E-11	4.984E-12	2.661E-12	1.647E-12
W	9.386E-09	1.923E-09	5.019E-10	2.254E-10	1.275E-10	4.904E-11	1.419E-11	5.623E-12	3.003E-12	1.858E-12
WNW	1.912E-08	3.917E-09	1.023E-09	4.593E-10	2.598E-10	9.992E-11	2.891E-11	1.146E-11	6.118E-12	3.787E-12
NW	4.577E-08	9.376E-09	2.448E-09	1.099E-09	6.219E-10	2.391E-10	6.918E-11	2.742E-11	1.464E-11	9.063E-12
NNW	4.804E-08	9.839E-09	2.569E-09	1.154E-09	6.526E-10	2.510E-10	7.261E-11	2.878E-11	1.537E-11	9.511E-12
N	5.356E-08	1.097E-08	2.864E-09	1.286E-09	7.276E-10	2.798E-10	8.095E-11	3.208E-11	1.713E-11	1.060E-11
NNE	2.520E-08	5.161E-09	1.347E-09	6.051E-10	3.423E-10	1.316E-10	3.809E-11	1.509E-11	8.061E-12	4.989E-12
NE	1.747E-08	3.579E-09	9.342E-10	4.196E-10	2.374E-10	9.128E-11	2.641E-11	1.047E-11	5.589E-12	3.459E-12
ENE	1.029E-08	2.109E-09	5.504E-10	2.472E-10	1.399E-10	5.378E-11	1.556E-11	6.167E-12	3.293E-12	2.038E-12
E	1.223E-08	2.505E-09	6.540E-10	2.937E-10	1.662E-10	6.390E-11	1.849E-11	7.326E-12	3.912E-12	2.422E-12
ESE	1.956E-08	4.007E-09	1.046E-09	4.698E-10	2.657E-10	1.022E-10	2.956E-11	1.172E-11	6.257E-12	3.873E-12
SE	3.337E-08	6.836E-09	1.785E-09	8.015E-10	4.534E-10	1.744E-10	5.045E-11	1.999E-11	1.068E-11	6.608E-12
SSE	2.781E-08	5.697E-09	1.487E-09	6.679E-10	3.779E-10	1.453E-10	4.204E-11	1.666E-11	8.897E-12	5.507E-12

VENTS GROUND LEVEL RELEASES - JUL-SEP 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.1E-05	1.0E-05	9.4E-06	3.0E-08
A	Site Boundary	SSW	.82	3.6E-06	3.5E-06	3.1E-06	1.5E-08
A	Site Boundary	SW	.97	1.2E-06	1.2E-06	1.1E-06	5.2E-09
A	Site Boundary	WSW	.93	1.4E-06	1.4E-06	1.3E-06	4.9E-09
A	Site Boundary	W	.91	1.6E-06	1.5E-06	1.4E-06	5.8E-09
A	Site Boundary	WNW	.94	2.5E-06	2.5E-06	2.2E-06	1.1E-08
A	Site Boundary	NW	.81	5.2E-06	5.1E-06	4.6E-06	3.8E-08
A	Site Boundary	NNW	.69	8.8E-06	8.8E-06	7.9E-06	5.7E-08
A	Site Boundary	N	.67	2.1E-05	2.1E-05	1.9E-05	6.5E-08
A	Site Boundary	NNE	.60	1.6E-05	1.6E-05	1.5E-05	3.7E-08
A	Site Boundary	NE	.62	1.3E-05	1.3E-05	1.2E-05	2.4E-08
A	Site Boundary	ENE	.59	7.9E-06	7.9E-06	7.1E-06	1.6E-08
A	Site Boundary	E	.53	1.5E-05	1.5E-05	1.4E-05	2.3E-08
A	Site Boundary	ESE	.54	2.7E-05	2.6E-05	2.4E-05	3.5E-08
A	Site Boundary	SE	.65	2.7E-05	2.6E-05	2.4E-05	4.3E-08
A	Site Boundary	SSE	.81	1.4E-05	1.4E-05	1.3E-05	2.3E-08
A	Nearest Res	SW	1.30	6.2E-07	6.2E-07	5.3E-07	2.5E-09
A	Nearest Res	WSW	1.80	3.1E-07	3.0E-07	2.5E-07	9.3E-10
A	Nearest Res	WNW	2.40	3.0E-07	3.0E-07	2.5E-07	1.1E-09
A	Nearest Res	NW	.90	4.0E-06	4.0E-06	3.5E-06	2.9E-08
A	Nearest Res	NNW	1.90	9.2E-07	9.1E-07	7.6E-07	4.7E-09
A	Nearest Res	NE	1.60	1.8E-06	1.7E-06	1.5E-06	2.6E-09
A	Nearest Res	ENE	1.70	8.7E-07	8.5E-07	7.2E-07	1.3E-09
A	Nearest Res	E	2.00	1.0E-06	1.0E-06	8.5E-07	1.1E-09
A	Nearest Res	SE	2.90	1.2E-06	1.2E-06	9.8E-07	1.2E-09
A	Nearest Cow	NNW	3.50	2.7E-07	2.6E-07	2.1E-07	1.1E-09
A	Nearest Garde	SW	2.20	2.0E-07	1.9E-07	1.6E-07	6.9E-10
A	Nearest Garde	WSW	2.40	1.6E-07	1.6E-07	1.3E-07	4.7E-10
A	Nearest Garde	WNW	2.60	2.6E-07	2.5E-07	2.1E-07	8.9E-10
A	Nearest Garde	NNW	2.70	4.5E-07	4.4E-07	3.6E-07	2.0E-09
A	Nearest Garde	ENE	1.70	8.7E-07	8.5E-07	7.2E-07	1.3E-09
A	Nearest Garde	E	2.00	1.0E-06	1.0E-06	8.5E-07	1.1E-09
A	Nearest Garde	ESE	2.20	1.5E-06	1.5E-06	1.2E-06	1.4E-09
A	Nearest Garde	SE	2.90	1.2E-06	1.2E-06	9.8E-07	1.2E-09

Atmospheric Diffusion Estimates

Ground Level Releases

October-December 2024

VENTS GROUND LEVEL RELEASES - OCT-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.732E-05	2.414E-05	1.285E-05	6.499E-06	2.686E-06	1.482E-06	9.525E-07	6.723E-07	5.053E-07	3.973E-07	3.230E-07
SSW	4.578E-05	1.463E-05	7.594E-06	3.770E-06	1.554E-06	8.562E-07	5.501E-07	3.882E-07	2.918E-07	2.294E-07	1.865E-07
SW	2.950E-05	9.896E-06	5.341E-06	2.687E-06	1.080E-06	5.848E-07	3.706E-07	2.587E-07	1.926E-07	1.502E-07	1.213E-07
WSW	1.944E-05	6.424E-06	3.457E-06	1.741E-06	6.988E-07	3.780E-07	2.394E-07	1.670E-07	1.243E-07	9.686E-08	7.817E-08
W	2.285E-05	7.482E-06	4.065E-06	2.062E-06	8.316E-07	4.513E-07	2.865E-07	2.002E-07	1.492E-07	1.164E-07	9.405E-08
WNW	2.137E-05	7.439E-06	4.012E-06	2.005E-06	7.920E-07	4.237E-07	2.660E-07	1.842E-07	1.363E-07	1.057E-07	8.492E-08
NW	4.853E-05	1.588E-05	8.570E-06	4.332E-06	1.764E-06	9.637E-07	6.149E-07	4.315E-07	3.228E-07	2.527E-07	2.047E-07
NNW	6.228E-05	1.966E-05	1.044E-05	5.268E-06	2.178E-06	1.202E-06	7.732E-07	5.460E-07	4.105E-07	3.228E-07	2.625E-07
N	1.365E-04	4.094E-05	2.072E-05	1.027E-05	4.379E-06	2.467E-06	1.611E-06	1.151E-06	8.739E-07	6.930E-07	5.677E-07
NNE	7.531E-05	2.283E-05	1.163E-05	5.775E-06	2.444E-06	1.371E-06	8.924E-07	6.361E-07	4.821E-07	3.817E-07	3.122E-07
NE	5.262E-05	1.585E-05	8.080E-06	4.020E-06	1.708E-06	9.598E-07	6.255E-07	4.464E-07	3.386E-07	2.682E-07	2.195E-07
ENE	3.296E-05	9.871E-06	4.929E-06	2.427E-06	1.037E-06	5.855E-07	3.828E-07	2.739E-07	2.081E-07	1.652E-07	1.354E-07
E	3.688E-05	1.115E-05	5.706E-06	2.845E-06	1.205E-06	6.764E-07	4.403E-07	3.139E-07	2.379E-07	1.883E-07	1.540E-07
ESE	5.685E-05	1.783E-05	9.236E-06	4.601E-06	1.919E-06	1.066E-06	6.887E-07	4.881E-07	3.682E-07	2.903E-07	2.366E-07
SE	6.639E-05	2.085E-05	1.078E-05	5.361E-06	2.234E-06	1.240E-06	8.006E-07	5.672E-07	4.277E-07	3.372E-07	2.748E-07
SSE	9.077E-05	2.815E-05	1.433E-05	7.081E-06	2.963E-06	1.650E-06	1.068E-06	7.580E-07	5.724E-07	4.519E-07	3.687E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.695E-07	1.428E-07	9.454E-08	5.585E-08	3.859E-08	2.902E-08	2.302E-08	1.895E-08	1.601E-08	1.381E-08	1.210E-08
SSW	1.557E-07	8.257E-08	5.472E-08	3.240E-08	2.243E-08	1.690E-08	1.343E-08	1.106E-08	9.360E-09	8.081E-09	7.088E-09
SW	1.006E-07	5.208E-08	3.392E-08	1.960E-08	1.334E-08	9.920E-09	7.797E-09	6.366E-09	5.344E-09	4.582E-09	3.994E-09
WSW	6.480E-08	3.351E-08	2.181E-08	1.260E-08	8.571E-09	6.372E-09	5.008E-09	4.088E-09	3.432E-09	2.943E-09	2.565E-09
W	7.804E-08	4.049E-08	2.641E-08	1.528E-08	1.041E-08	7.744E-09	6.088E-09	4.972E-09	4.175E-09	3.580E-09	3.121E-09
WNW	7.012E-08	3.568E-08	2.296E-08	1.305E-08	8.778E-09	6.469E-09	5.047E-09	4.096E-09	3.420E-09	2.919E-09	2.534E-09
NW	1.703E-07	8.910E-08	5.848E-08	3.414E-08	2.339E-08	1.748E-08	1.380E-08	1.130E-08	9.516E-09	8.180E-09	7.147E-09
NNW	2.191E-07	1.161E-07	7.692E-08	4.546E-08	3.141E-08	2.362E-08	1.874E-08	1.542E-08	1.303E-08	1.124E-08	9.850E-09
N	4.768E-07	2.589E-07	1.743E-07	1.053E-07	7.386E-08	5.619E-08	4.499E-08	3.731E-08	3.174E-08	2.753E-08	2.425E-08
NNE	2.619E-07	1.416E-07	9.501E-08	5.719E-08	4.003E-08	3.041E-08	2.431E-08	2.014E-08	1.712E-08	1.484E-08	1.306E-08
NE	1.842E-07	9.974E-08	6.701E-08	4.038E-08	2.828E-08	2.148E-08	1.718E-08	1.424E-08	1.210E-08	1.049E-08	9.233E-09
ENE	1.138E-07	6.192E-08	4.175E-08	2.528E-08	1.776E-08	1.353E-08	1.085E-08	9.004E-09	7.666E-09	6.654E-09	5.865E-09
E	1.292E-07	6.982E-08	4.684E-08	2.817E-08	1.970E-08	1.496E-08	1.195E-08	9.896E-09	8.408E-09	7.284E-09	6.410E-09
ESE	1.979E-07	1.058E-07	7.045E-08	4.196E-08	2.916E-08	2.203E-08	1.754E-08	1.447E-08	1.226E-08	1.060E-08	9.309E-09
SE	2.298E-07	1.227E-07	8.168E-08	4.863E-08	3.378E-08	2.551E-08	2.030E-08	1.676E-08	1.420E-08	1.227E-08	1.077E-08
SSE	3.087E-07	1.656E-07	1.106E-07	6.612E-08	4.608E-08	3.489E-08	2.783E-08	2.301E-08	1.953E-08	1.690E-08	1.486E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.254E-05	2.998E-06	9.816E-07	5.119E-07	3.252E-07	1.495E-07	5.678E-08	2.917E-08	1.899E-08	1.383E-08
SSW	7.458E-06	1.736E-06	5.670E-07	2.956E-07	1.878E-07	8.644E-08	3.293E-08	1.698E-08	1.109E-08	8.092E-09
SW	5.174E-06	1.217E-06	3.830E-07	1.954E-07	1.222E-07	5.479E-08	2.000E-08	9.984E-09	6.385E-09	4.590E-09
WSW	3.354E-06	7.878E-07	2.474E-07	1.260E-07	7.876E-08	3.527E-08	1.286E-08	6.413E-09	4.101E-09	2.948E-09
W	3.934E-06	9.359E-07	2.959E-07	1.513E-07	9.475E-08	4.258E-08	1.559E-08	7.792E-09	4.987E-09	3.586E-09
WNW	3.881E-06	8.979E-07	2.753E-07	1.383E-07	8.560E-08	3.768E-08	1.335E-08	6.516E-09	4.110E-09	2.925E-09
NW	8.311E-06	1.979E-06	6.345E-07	3.271E-07	2.062E-07	9.353E-08	3.477E-08	1.758E-08	1.134E-08	8.193E-09
NNW	1.019E-05	2.431E-06	7.968E-07	4.158E-07	2.643E-07	1.216E-07	4.620E-08	2.375E-08	1.546E-08	1.126E-08
N	2.057E-05	4.839E-06	1.655E-06	8.842E-07	5.712E-07	2.697E-07	1.066E-07	5.642E-08	3.738E-08	2.756E-08
NNE	1.152E-05	2.707E-06	9.175E-07	4.878E-07	3.141E-07	1.476E-07	5.797E-08	3.054E-08	2.018E-08	1.485E-08
NE	8.002E-06	1.889E-06	6.430E-07	3.426E-07	2.209E-07	1.040E-07	4.092E-08	2.157E-08	1.426E-08	1.050E-08
ENE	4.915E-06	1.145E-06	3.933E-07	2.106E-07	1.362E-07	6.448E-08	2.560E-08	1.359E-08	9.021E-09	6.662E-09
E	5.643E-06	1.335E-06	4.527E-07	2.407E-07	1.550E-07	7.281E-08	2.856E-08	1.502E-08	9.917E-09	7.293E-09
ESE	9.085E-06	2.136E-06	7.090E-07	3.728E-07	2.382E-07	1.106E-07	4.260E-08	2.213E-08	1.451E-08	1.062E-08
SE	1.061E-05	2.487E-06	8.243E-07	4.331E-07	2.766E-07	1.283E-07	4.937E-08	2.563E-08	1.680E-08	1.229E-08
SSE	1.418E-05	3.294E-06	1.099E-06	5.795E-07	3.711E-07	1.729E-07	6.709E-08	3.505E-08	2.306E-08	1.692E-08

VENTS GROUND LEVEL RELEASES - OCT-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.713E-05	2.403E-05	1.276E-05	6.442E-06	2.649E-06	1.455E-06	9.305E-07	6.536E-07	4.889E-07	3.825E-07	3.094E-07
SSW	4.566E-05	1.456E-05	7.542E-06	3.736E-06	1.532E-06	8.397E-07	5.366E-07	3.767E-07	2.816E-07	2.202E-07	1.781E-07
SW	2.944E-05	9.857E-06	5.310E-06	2.667E-06	1.067E-06	5.754E-07	3.631E-07	2.523E-07	1.871E-07	1.453E-07	1.168E-07
WSW	1.941E-05	6.400E-06	3.438E-06	1.728E-06	6.910E-07	3.723E-07	2.348E-07	1.631E-07	1.209E-07	9.384E-08	7.541E-08
W	2.280E-05	7.451E-06	4.040E-06	2.045E-06	8.210E-07	4.436E-07	2.803E-07	1.949E-07	1.446E-07	1.124E-07	9.035E-08
WNW	2.134E-05	7.418E-06	3.995E-06	1.994E-06	7.852E-07	4.187E-07	2.621E-07	1.809E-07	1.334E-07	1.032E-07	8.260E-08
NW	4.843E-05	1.581E-05	8.521E-06	4.299E-06	1.743E-06	9.482E-07	6.024E-07	4.209E-07	3.134E-07	2.443E-07	1.970E-07
NNW	6.212E-05	1.957E-05	1.037E-05	5.220E-06	2.148E-06	1.180E-06	7.549E-07	5.304E-07	3.968E-07	3.105E-07	2.512E-07
N	1.360E-04	4.069E-05	2.054E-05	1.016E-05	4.302E-06	2.409E-06	1.563E-06	1.110E-06	8.376E-07	6.600E-07	5.373E-07
NNE	7.507E-05	2.269E-05	1.153E-05	5.708E-06	2.401E-06	1.338E-06	8.656E-07	6.132E-07	4.617E-07	3.632E-07	2.952E-07
NE	5.244E-05	1.575E-05	8.005E-06	3.971E-06	1.676E-06	9.357E-07	6.058E-07	4.294E-07	3.236E-07	2.546E-07	2.070E-07
ENE	3.285E-05	9.805E-06	4.881E-06	2.395E-06	1.017E-06	5.701E-07	3.701E-07	2.630E-07	1.985E-07	1.564E-07	1.273E-07
E	3.676E-05	1.108E-05	5.657E-06	2.812E-06	1.185E-06	6.607E-07	4.274E-07	3.028E-07	2.281E-07	1.795E-07	1.459E-07
ESE	5.669E-05	1.774E-05	9.167E-06	4.556E-06	1.890E-06	1.044E-06	6.710E-07	4.730E-07	3.548E-07	2.782E-07	2.256E-07
SE	6.622E-05	2.075E-05	1.070E-05	5.310E-06	2.201E-06	1.215E-06	7.805E-07	5.500E-07	4.125E-07	3.234E-07	2.621E-07
SSE	9.050E-05	2.799E-05	1.421E-05	7.005E-06	2.914E-06	1.612E-06	1.037E-06	7.319E-07	5.493E-07	4.310E-07	3.495E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.569E-07	1.329E-07	8.586E-08	4.838E-08	3.193E-08	2.298E-08	1.747E-08	1.380E-08	1.121E-08	9.305E-09	7.859E-09
SSW	1.479E-07	7.633E-08	4.924E-08	2.764E-08	1.817E-08	1.302E-08	9.855E-09	7.748E-09	6.265E-09	5.177E-09	4.353E-09
SW	9.640E-08	4.880E-08	3.109E-08	1.719E-08	1.121E-08	7.988E-09	6.025E-09	4.726E-09	3.815E-09	3.149E-09	2.645E-09
WSW	6.226E-08	3.153E-08	2.010E-08	1.114E-08	7.284E-09	5.209E-09	3.942E-09	3.102E-09	2.513E-09	2.082E-09	1.755E-09
W	7.463E-08	3.783E-08	2.412E-08	1.334E-08	8.695E-09	6.196E-09	4.672E-09	3.664E-09	2.957E-09	2.440E-09	2.049E-09
WNW	6.798E-08	3.403E-08	2.154E-08	1.184E-08	7.712E-09	5.505E-09	4.163E-09	3.277E-09	2.657E-09	2.203E-09	1.859E-09
NW	1.632E-07	8.353E-08	5.363E-08	2.998E-08	1.969E-08	1.413E-08	1.072E-08	8.449E-09	6.855E-09	5.684E-09	4.797E-09
NNW	2.086E-07	1.078E-07	6.963E-08	3.917E-08	2.580E-08	1.853E-08	1.405E-08	1.108E-08	8.979E-09	7.439E-09	6.270E-09
N	4.485E-07	2.361E-07	1.541E-07	8.772E-08	5.809E-08	4.180E-08	3.173E-08	2.499E-08	2.023E-08	1.673E-08	1.408E-08
NNE	2.461E-07	1.289E-07	8.387E-08	4.749E-08	3.134E-08	2.249E-08	1.702E-08	1.337E-08	1.080E-08	8.911E-09	7.480E-09
NE	1.726E-07	9.044E-08	5.882E-08	3.326E-08	2.190E-08	1.568E-08	1.184E-08	9.280E-09	7.477E-09	6.156E-09	5.156E-09
ENE	1.063E-07	5.587E-08	3.640E-08	2.062E-08	1.358E-08	9.717E-09	7.331E-09	5.739E-09	4.619E-09	3.797E-09	3.176E-09
E	1.216E-07	6.372E-08	4.147E-08	2.350E-08	1.551E-08	1.114E-08	8.437E-09	6.633E-09	5.362E-09	4.428E-09	3.721E-09
ESE	1.876E-07	9.755E-08	6.323E-08	3.570E-08	2.355E-08	1.692E-08	1.283E-08	1.011E-08	8.185E-09	6.774E-09	5.704E-09
SE	2.180E-07	1.133E-07	7.341E-08	4.144E-08	2.734E-08	1.964E-08	1.490E-08	1.174E-08	9.514E-09	7.878E-09	6.638E-09
SSE	2.907E-07	1.512E-07	9.790E-08	5.510E-08	3.621E-08	2.589E-08	1.955E-08	1.532E-08	1.235E-08	1.017E-08	8.527E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.246E-05	2.961E-06	9.595E-07	4.954E-07	3.116E-07	1.395E-07	4.940E-08	2.316E-08	1.386E-08	9.334E-09
SSW	7.410E-06	1.714E-06	5.535E-07	2.854E-07	1.794E-07	8.019E-08	2.823E-08	1.313E-08	7.785E-09	5.194E-09
SW	5.146E-06	1.204E-06	3.754E-07	1.898E-07	1.177E-07	5.151E-08	1.762E-08	8.061E-09	4.750E-09	3.160E-09
WSW	3.337E-06	7.799E-07	2.428E-07	1.226E-07	7.600E-08	3.328E-08	1.142E-08	5.255E-09	3.118E-09	2.089E-09
W	3.911E-06	9.252E-07	2.897E-07	1.467E-07	9.105E-08	3.992E-08	1.367E-08	6.253E-09	3.683E-09	2.449E-09
WNW	3.866E-06	8.910E-07	2.714E-07	1.355E-07	8.328E-08	3.602E-08	1.216E-08	5.557E-09	3.294E-09	2.210E-09
NW	8.265E-06	1.958E-06	6.220E-07	3.178E-07	1.985E-07	8.794E-08	3.066E-08	1.425E-08	8.490E-09	5.703E-09
NNW	1.013E-05	2.400E-06	7.784E-07	4.021E-07	2.530E-07	1.132E-07	4.000E-08	1.868E-08	1.113E-08	7.462E-09
N	2.040E-05	4.761E-06	1.607E-06	8.477E-07	5.408E-07	2.469E-07	8.931E-08	4.211E-08	2.510E-08	1.679E-08
NNE	1.142E-05	2.664E-06	8.907E-07	4.675E-07	2.972E-07	1.349E-07	4.840E-08	2.266E-08	1.343E-08	8.940E-09
NE	7.933E-06	1.857E-06	6.232E-07	3.276E-07	2.084E-07	9.465E-08	3.389E-08	1.580E-08	9.325E-09	6.177E-09
ENE	4.871E-06	1.125E-06	3.806E-07	2.009E-07	1.282E-07	5.842E-08	2.100E-08	9.792E-09	5.767E-09	3.811E-09
E	5.598E-06	1.313E-06	4.398E-07	2.309E-07	1.468E-07	6.670E-08	2.395E-08	1.122E-08	6.664E-09	4.443E-09
ESE	9.022E-06	2.107E-06	6.913E-07	3.594E-07	2.271E-07	1.023E-07	3.642E-08	1.705E-08	1.015E-08	6.796E-09
SE	1.054E-05	2.454E-06	8.042E-07	4.179E-07	2.639E-07	1.188E-07	4.228E-08	1.980E-08	1.180E-08	7.903E-09
SSE	1.407E-05	3.244E-06	1.069E-06	5.564E-07	3.519E-07	1.585E-07	5.622E-08	2.611E-08	1.540E-08	1.021E-08

VENTS GROUND LEVEL RELEASES - OCT-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.312E-05	2.202E-05	1.143E-05	5.675E-06	2.272E-06	1.221E-06	7.664E-07	5.297E-07	3.906E-07	3.017E-07	2.412E-07
SSW	4.329E-05	1.334E-05	6.754E-06	3.292E-06	1.314E-06	7.051E-07	4.425E-07	3.057E-07	2.254E-07	1.741E-07	1.392E-07
SW	2.791E-05	9.027E-06	4.752E-06	2.347E-06	9.141E-07	4.820E-07	2.985E-07	2.040E-07	1.491E-07	1.142E-07	9.072E-08
WSW	1.839E-05	5.860E-06	3.076E-06	1.521E-06	5.916E-07	3.117E-07	1.928E-07	1.317E-07	9.620E-08	7.368E-08	5.850E-08
W	2.161E-05	6.824E-06	3.616E-06	1.800E-06	7.037E-07	3.719E-07	2.306E-07	1.578E-07	1.154E-07	8.847E-08	7.030E-08
WNW	2.021E-05	6.787E-06	3.571E-06	1.753E-06	6.710E-07	3.497E-07	2.146E-07	1.456E-07	1.057E-07	8.058E-08	6.370E-08
NW	4.590E-05	1.448E-05	7.625E-06	3.784E-06	1.493E-06	7.943E-07	4.952E-07	3.403E-07	2.498E-07	1.921E-07	1.531E-07
NNW	5.890E-05	1.793E-05	9.287E-06	4.599E-06	1.842E-06	9.903E-07	6.221E-07	4.301E-07	3.172E-07	2.451E-07	1.960E-07
N	1.290E-04	3.732E-05	1.842E-05	8.963E-06	3.700E-06	2.029E-06	1.294E-06	9.048E-07	6.737E-07	5.246E-07	4.225E-07
NNE	7.121E-05	2.081E-05	1.034E-05	5.038E-06	2.065E-06	1.128E-06	7.166E-07	5.000E-07	3.716E-07	2.889E-07	2.323E-07
NE	4.975E-05	1.445E-05	7.181E-06	3.507E-06	1.443E-06	7.890E-07	5.021E-07	3.507E-07	2.608E-07	2.029E-07	1.632E-07
ENE	3.116E-05	8.997E-06	4.380E-06	2.116E-06	8.759E-07	4.812E-07	3.071E-07	2.150E-07	1.602E-07	1.248E-07	1.006E-07
E	3.487E-05	1.016E-05	5.072E-06	2.482E-06	1.019E-06	5.564E-07	3.537E-07	2.468E-07	1.834E-07	1.426E-07	1.147E-07
ESE	5.376E-05	1.626E-05	8.213E-06	4.017E-06	1.623E-06	8.775E-07	5.537E-07	3.842E-07	2.843E-07	2.202E-07	1.765E-07
SE	6.279E-05	1.902E-05	9.584E-06	4.680E-06	1.889E-06	1.021E-06	6.438E-07	4.466E-07	3.303E-07	2.558E-07	2.050E-07
SSE	8.583E-05	2.567E-05	1.274E-05	6.179E-06	2.504E-06	1.357E-06	8.578E-07	5.961E-07	4.414E-07	3.422E-07	2.745E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.982E-07	9.859E-08	6.176E-08	3.328E-08	2.129E-08	1.495E-08	1.115E-08	8.657E-09	6.928E-09	5.674E-09	4.732E-09
SSW	1.143E-07	5.690E-08	3.565E-08	1.922E-08	1.230E-08	8.636E-09	6.435E-09	4.994E-09	3.994E-09	3.268E-09	2.723E-09
SW	7.408E-08	3.603E-08	2.222E-08	1.173E-08	7.397E-09	5.141E-09	3.800E-09	2.931E-09	2.332E-09	1.900E-09	1.577E-09
WSW	4.775E-08	2.321E-08	1.431E-08	7.553E-09	4.767E-09	3.316E-09	2.453E-09	1.894E-09	1.508E-09	1.230E-09	1.022E-09
W	5.743E-08	2.799E-08	1.728E-08	9.131E-09	5.762E-09	4.006E-09	2.961E-09	2.284E-09	1.817E-09	1.481E-09	1.229E-09
WNW	5.180E-08	2.481E-08	1.514E-08	7.885E-09	4.932E-09	3.408E-09	2.509E-09	1.929E-09	1.531E-09	1.246E-09	1.033E-09
NW	1.254E-07	6.165E-08	3.831E-08	2.043E-08	1.297E-08	9.064E-09	6.728E-09	5.207E-09	4.156E-09	3.395E-09	2.826E-09
NNW	1.610E-07	8.013E-08	5.020E-08	2.705E-08	1.729E-08	1.214E-08	9.040E-09	7.016E-09	5.611E-09	4.592E-09	3.827E-09
N	3.492E-07	1.777E-07	1.130E-07	6.202E-08	4.013E-08	2.841E-08	2.130E-08	1.661E-08	1.333E-08	1.095E-08	9.143E-09
NNE	1.918E-07	9.713E-08	6.155E-08	3.366E-08	2.173E-08	1.535E-08	1.149E-08	8.948E-09	7.174E-09	5.882E-09	4.909E-09
NE	1.348E-07	6.836E-08	4.335E-08	2.372E-08	1.530E-08	1.081E-08	8.084E-09	6.292E-09	5.042E-09	4.132E-09	3.446E-09
ENE	8.318E-08	4.238E-08	2.695E-08	1.480E-08	9.576E-09	6.775E-09	5.074E-09	3.953E-09	3.170E-09	2.598E-09	2.168E-09
E	9.466E-08	4.794E-08	3.037E-08	1.661E-08	1.071E-08	7.566E-09	5.661E-09	4.408E-09	3.534E-09	2.897E-09	2.418E-09
ESE	1.453E-07	7.284E-08	4.586E-08	2.487E-08	1.597E-08	1.125E-08	8.396E-09	6.528E-09	5.228E-09	4.283E-09	3.573E-09
SE	1.687E-07	8.452E-08	5.319E-08	2.884E-08	1.851E-08	1.303E-08	9.726E-09	7.561E-09	6.055E-09	4.960E-09	4.137E-09
SSE	2.262E-07	1.137E-07	7.169E-08	3.896E-08	2.503E-08	1.763E-08	1.316E-08	1.023E-08	8.187E-09	6.703E-09	5.586E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.122E-05	2.561E-06	7.929E-07	3.965E-07	2.432E-07	1.043E-07	3.428E-08	1.512E-08	8.710E-09	5.697E-09
SSW	6.679E-06	1.483E-06	4.578E-07	2.288E-07	1.403E-07	6.022E-08	1.979E-08	8.732E-09	5.025E-09	3.281E-09
SW	4.633E-06	1.041E-06	3.096E-07	1.515E-07	9.152E-08	3.835E-08	1.214E-08	5.206E-09	2.951E-09	1.908E-09
WSW	3.004E-06	6.737E-07	2.001E-07	9.778E-08	5.902E-08	2.471E-08	7.817E-09	3.358E-09	1.907E-09	1.235E-09
W	3.522E-06	7.999E-07	2.391E-07	1.172E-07	7.092E-08	2.977E-08	9.445E-09	4.056E-09	2.300E-09	1.487E-09
WNW	3.477E-06	7.685E-07	2.230E-07	1.075E-07	6.430E-08	2.651E-08	8.186E-09	3.455E-09	1.943E-09	1.252E-09
NW	7.442E-06	1.692E-06	5.130E-07	2.537E-07	1.544E-07	6.544E-08	2.109E-08	9.172E-09	5.241E-09	3.410E-09
NNW	9.124E-06	2.076E-06	6.435E-07	3.220E-07	1.976E-07	8.480E-08	2.785E-08	1.227E-08	7.059E-09	4.610E-09
N	1.842E-05	4.127E-06	1.334E-06	6.829E-07	4.256E-07	1.870E-07	6.361E-08	2.869E-08	1.670E-08	1.099E-08
NNE	1.031E-05	2.309E-06	7.396E-07	3.768E-07	2.340E-07	1.024E-07	3.456E-08	1.551E-08	8.998E-09	5.904E-09
NE	7.163E-06	1.611E-06	5.181E-07	2.644E-07	1.644E-07	7.200E-08	2.434E-08	1.092E-08	6.328E-09	4.147E-09
ENE	4.400E-06	9.761E-07	3.167E-07	1.624E-07	1.013E-07	4.459E-08	1.518E-08	6.842E-09	3.975E-09	2.608E-09
E	5.052E-06	1.138E-06	3.650E-07	1.860E-07	1.155E-07	5.052E-08	1.705E-08	7.642E-09	4.433E-09	2.908E-09
ESE	8.135E-06	1.823E-06	5.723E-07	2.884E-07	1.779E-07	7.695E-08	2.558E-08	1.137E-08	6.567E-09	4.300E-09
SE	9.501E-06	2.123E-06	6.654E-07	3.351E-07	2.066E-07	8.930E-08	2.966E-08	1.317E-08	7.606E-09	4.980E-09
SSE	1.270E-05	2.811E-06	8.863E-07	4.478E-07	2.767E-07	1.200E-07	4.004E-08	1.782E-08	1.029E-08	6.729E-09

VENTS GROUND LEVEL RELEASES - OCT-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.092E-07	7.074E-08	3.632E-08	1.727E-08	6.202E-09	3.076E-09	1.811E-09	1.186E-09	8.344E-10	6.184E-10	4.766E-10
SSW	1.271E-07	4.297E-08	2.206E-08	1.049E-08	3.767E-09	1.868E-09	1.100E-09	7.204E-10	5.069E-10	3.756E-10	2.895E-10
SW	8.987E-08	3.039E-08	1.560E-08	7.418E-09	2.664E-09	1.321E-09	7.781E-10	5.095E-10	3.585E-10	2.657E-10	2.047E-10
WSW	6.408E-08	2.167E-08	1.113E-08	5.289E-09	1.900E-09	9.422E-10	5.548E-10	3.633E-10	2.556E-10	1.894E-10	1.460E-10
W	6.128E-08	2.072E-08	1.064E-08	5.058E-09	1.817E-09	9.010E-10	5.305E-10	3.474E-10	2.444E-10	1.812E-10	1.396E-10
WNW	9.855E-08	3.333E-08	1.711E-08	8.135E-09	2.922E-09	1.449E-09	8.532E-10	5.587E-10	3.931E-10	2.913E-10	2.245E-10
NW	1.806E-07	6.108E-08	3.136E-08	1.491E-08	5.356E-09	2.656E-09	1.564E-09	1.024E-09	7.206E-10	5.340E-10	4.115E-10
NNW	1.799E-07	6.082E-08	3.123E-08	1.485E-08	5.333E-09	2.645E-09	1.557E-09	1.020E-09	7.175E-10	5.318E-10	4.098E-10
N	3.090E-07	1.045E-07	5.364E-08	2.550E-08	9.161E-09	4.543E-09	2.675E-09	1.752E-09	1.232E-09	9.134E-10	7.039E-10
NNE	1.641E-07	5.549E-08	2.849E-08	1.354E-08	4.865E-09	2.413E-09	1.421E-09	9.303E-10	6.546E-10	4.851E-10	3.738E-10
NE	8.148E-08	2.755E-08	1.415E-08	6.726E-09	2.416E-09	1.198E-09	7.054E-10	4.619E-10	3.250E-10	2.409E-10	1.856E-10
ENE	5.455E-08	1.845E-08	9.472E-09	4.503E-09	1.617E-09	8.021E-10	4.723E-10	3.093E-10	2.176E-10	1.613E-10	1.243E-10
E	7.461E-08	2.523E-08	1.295E-08	6.159E-09	2.212E-09	1.097E-09	6.460E-10	4.230E-10	2.976E-10	2.206E-10	1.700E-10
ESE	1.418E-07	4.794E-08	2.462E-08	1.170E-08	4.204E-09	2.085E-09	1.228E-09	8.038E-10	5.656E-10	4.191E-10	3.230E-10
SE	2.098E-07	7.096E-08	3.643E-08	1.732E-08	6.222E-09	3.086E-09	1.817E-09	1.190E-09	8.371E-10	6.204E-10	4.781E-10
SSE	2.702E-07	9.137E-08	4.692E-08	2.230E-08	8.012E-09	3.973E-09	2.339E-09	1.532E-09	1.078E-09	7.988E-10	6.156E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	3.786E-10	1.682E-10	1.019E-10	5.149E-11	3.117E-11	2.090E-11	1.497E-11	1.124E-11	8.742E-12	6.983E-12	5.700E-12
SSW	2.300E-10	1.022E-10	6.189E-11	3.128E-11	1.893E-11	1.269E-11	9.096E-12	6.830E-12	5.310E-12	4.242E-12	3.462E-12
SW	1.626E-10	7.225E-11	4.377E-11	2.212E-11	1.339E-11	8.977E-12	6.433E-12	4.830E-12	3.756E-12	3.000E-12	2.449E-12
WSW	1.160E-10	5.152E-11	3.121E-11	1.577E-11	9.547E-12	6.401E-12	4.587E-12	3.444E-12	2.678E-12	2.139E-12	1.746E-12
W	1.109E-10	4.927E-11	2.984E-11	1.508E-11	9.130E-12	6.121E-12	4.386E-12	3.294E-12	2.561E-12	2.046E-12	1.670E-12
WNW	1.784E-10	7.924E-11	4.800E-11	2.426E-11	1.468E-11	9.845E-12	7.054E-12	5.297E-12	4.119E-12	3.290E-12	2.685E-12
NW	3.269E-10	1.452E-10	8.797E-11	4.447E-11	2.691E-11	1.804E-11	1.293E-11	9.709E-12	7.549E-12	6.030E-12	4.922E-12
NNW	3.255E-10	1.446E-10	8.760E-11	4.428E-11	2.680E-11	1.797E-11	1.288E-11	9.668E-12	7.517E-12	6.005E-12	4.901E-12
N	5.592E-10	2.484E-10	1.505E-10	7.606E-11	4.603E-11	3.086E-11	2.212E-11	1.661E-11	1.291E-11	1.031E-11	8.419E-12
NNE	2.970E-10	1.319E-10	7.992E-11	4.040E-11	2.445E-11	1.639E-11	1.175E-11	8.820E-12	6.858E-12	5.478E-12	4.471E-12
NE	1.475E-10	6.551E-11	3.968E-11	2.006E-11	1.214E-11	8.140E-12	5.832E-12	4.380E-12	3.405E-12	2.720E-12	2.220E-12
ENE	9.873E-11	4.386E-11	2.657E-11	1.343E-11	8.128E-12	5.450E-12	3.905E-12	2.932E-12	2.280E-12	1.821E-12	1.486E-12
E	1.350E-10	5.999E-11	3.634E-11	1.837E-11	1.112E-11	7.453E-12	5.341E-12	4.010E-12	3.118E-12	2.491E-12	2.033E-12
ESE	2.566E-10	1.140E-10	6.905E-11	3.490E-11	2.112E-11	1.416E-11	1.015E-11	7.621E-12	5.925E-12	4.733E-12	3.863E-12
SE	3.798E-10	1.687E-10	1.022E-10	5.166E-11	3.127E-11	2.096E-11	1.502E-11	1.128E-11	8.770E-12	7.005E-12	5.718E-12
SSE	4.890E-10	2.173E-10	1.316E-10	6.652E-11	4.026E-11	2.699E-11	1.934E-11	1.452E-11	1.129E-11	9.021E-12	7.363E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.550E-08	7.271E-09	1.898E-09	8.526E-10	4.823E-10	1.855E-10	5.366E-11	2.127E-11	1.136E-11	7.029E-12
SSW	2.156E-08	4.417E-09	1.153E-09	5.179E-10	2.930E-10	1.127E-10	3.259E-11	1.292E-11	6.898E-12	4.270E-12
SW	1.525E-08	3.124E-09	8.155E-10	3.663E-10	2.072E-10	7.968E-11	2.305E-11	9.136E-12	4.879E-12	3.020E-12
WSW	1.087E-08	2.227E-09	5.815E-10	2.612E-10	1.477E-10	5.682E-11	1.644E-11	6.514E-12	3.479E-12	2.153E-12
W	1.040E-08	2.130E-09	5.561E-10	2.497E-10	1.413E-10	5.433E-11	1.572E-11	6.230E-12	3.327E-12	2.059E-12
WNW	1.672E-08	3.426E-09	8.943E-10	4.017E-10	2.272E-10	8.738E-11	2.528E-11	1.002E-11	5.350E-12	3.312E-12
NW	3.065E-08	6.279E-09	1.639E-09	7.362E-10	4.165E-10	1.602E-10	4.633E-11	1.836E-11	9.806E-12	6.070E-12
NNW	3.053E-08	6.253E-09	1.632E-09	7.331E-10	4.147E-10	1.595E-10	4.614E-11	1.829E-11	9.765E-12	6.044E-12
N	5.243E-08	1.074E-08	2.804E-09	1.259E-09	7.124E-10	2.739E-10	7.925E-11	3.141E-11	1.677E-11	1.038E-11
NNE	2.785E-08	5.704E-09	1.489E-09	6.688E-10	3.783E-10	1.455E-10	4.209E-11	1.668E-11	8.909E-12	5.514E-12
NE	1.383E-08	2.832E-09	7.394E-10	3.321E-10	1.879E-10	7.224E-11	2.090E-11	8.284E-12	4.423E-12	2.738E-12
ENE	9.258E-09	1.896E-09	4.950E-10	2.223E-10	1.258E-10	4.837E-11	1.399E-11	5.546E-12	2.962E-12	1.833E-12
E	1.266E-08	2.594E-09	6.771E-10	3.041E-10	1.720E-10	6.615E-11	1.914E-11	7.585E-12	4.051E-12	2.507E-12
ESE	2.406E-08	4.928E-09	1.287E-09	5.778E-10	3.269E-10	1.257E-10	3.637E-11	1.441E-11	7.697E-12	4.764E-12
SE	3.561E-08	7.294E-09	1.904E-09	8.552E-10	4.838E-10	1.861E-10	5.383E-11	2.133E-11	1.139E-11	7.051E-12
SSE	4.586E-08	9.393E-09	2.452E-09	1.101E-09	6.230E-10	2.396E-10	6.931E-11	2.747E-11	1.467E-11	9.080E-12

VENTS GROUND LEVEL RELEASES - OCT-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.1E-05	1.1E-05	9.8E-06	3.1E-08
A	Site Boundary	SSW	.82	6.0E-06	6.0E-06	5.3E-06	1.7E-08
A	Site Boundary	SW	.97	2.9E-06	2.8E-06	2.5E-06	7.9E-09
A	Site Boundary	WSW	.93	2.1E-06	2.1E-06	1.8E-06	6.5E-09
A	Site Boundary	W	.91	2.6E-06	2.5E-06	2.2E-06	6.4E-09
A	Site Boundary	WNW	.94	2.3E-06	2.3E-06	2.1E-06	9.6E-09
A	Site Boundary	NW	.81	7.1E-06	7.1E-06	6.3E-06	2.6E-08
A	Site Boundary	NNW	.69	1.2E-05	1.2E-05	1.1E-05	3.6E-08
A	Site Boundary	N	.67	2.5E-05	2.4E-05	2.2E-05	6.4E-08
A	Site Boundary	NNE	.60	1.7E-05	1.7E-05	1.5E-05	4.1E-08
A	Site Boundary	NE	.62	1.1E-05	1.1E-05	9.7E-06	1.9E-08
A	Site Boundary	ENE	.59	7.5E-06	7.4E-06	6.8E-06	1.4E-08
A	Site Boundary	E	.53	1.0E-05	1.0E-05	9.3E-06	2.3E-08
A	Site Boundary	ESE	.54	1.6E-05	1.6E-05	1.4E-05	4.3E-08
A	Site Boundary	SE	.65	1.4E-05	1.3E-05	1.2E-05	4.6E-08
A	Site Boundary	SSE	.81	1.2E-05	1.2E-05	1.0E-05	3.8E-08
A	Nearest Res	SW	1.30	1.5E-06	1.5E-06	1.3E-06	3.8E-09
A	Nearest Res	WSW	1.80	4.7E-07	4.7E-07	3.9E-07	1.2E-09
A	Nearest Res	WNW	2.40	2.9E-07	2.9E-07	2.3E-07	9.4E-10
A	Nearest Res	NW	.90	5.6E-06	5.5E-06	4.9E-06	2.0E-08
A	Nearest Res	NNW	1.90	1.3E-06	1.3E-06	1.1E-06	3.0E-09
A	Nearest Res	NE	1.60	1.5E-06	1.5E-06	1.3E-06	2.1E-09
A	Nearest Res	ENE	1.70	8.1E-07	7.9E-07	6.7E-07	1.2E-09
A	Nearest Res	E	2.00	6.8E-07	6.6E-07	5.6E-07	1.1E-09
A	Nearest Res	SE	2.90	6.0E-07	5.9E-07	4.8E-07	1.3E-09
A	Nearest Cow	NNW	3.50	4.1E-07	4.0E-07	3.2E-07	7.2E-10
A	Nearest Garde	SW	2.20	4.8E-07	4.7E-07	3.9E-07	1.1E-09
A	Nearest Garde	WSW	2.40	2.6E-07	2.6E-07	2.1E-07	6.1E-10
A	Nearest Garde	WNW	2.60	2.5E-07	2.4E-07	2.0E-07	7.8E-10
A	Nearest Garde	NNW	2.70	6.7E-07	6.5E-07	5.3E-07	1.3E-09
A	Nearest Garde	ENE	1.70	8.1E-07	7.9E-07	6.7E-07	1.2E-09
A	Nearest Garde	E	2.00	6.8E-07	6.6E-07	5.6E-07	1.1E-09
A	Nearest Garde	ESE	2.20	8.8E-07	8.6E-07	7.2E-07	1.7E-09
A	Nearest Garde	SE	2.90	6.0E-07	5.9E-07	4.8E-07	1.3E-09

Atmospheric Diffusion Estimates

Ground Level Releases

July-December 2024

B270

VENTS GROUND LEVEL RELEASES - JUL-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.235E-05	2.303E-05	1.244E-05	6.316E-06	2.584E-06	1.416E-06	9.055E-07	6.366E-07	4.769E-07	3.738E-07	3.032E-07
SSW	3.457E-05	1.132E-05	5.954E-06	2.961E-06	1.197E-06	6.507E-07	4.139E-07	2.897E-07	2.163E-07	1.691E-07	1.368E-07
SW	2.173E-05	7.223E-06	3.862E-06	1.932E-06	7.709E-07	4.156E-07	2.625E-07	1.828E-07	1.358E-07	1.058E-07	8.526E-08
WSW	1.586E-05	5.371E-06	2.894E-06	1.450E-06	5.730E-07	3.067E-07	1.927E-07	1.335E-07	9.885E-08	7.670E-08	6.165E-08
W	1.804E-05	6.036E-06	3.271E-06	1.649E-06	6.554E-07	3.521E-07	2.218E-07	1.541E-07	1.143E-07	8.879E-08	7.146E-08
WNW	2.309E-05	7.867E-06	4.183E-06	2.077E-06	8.185E-07	4.373E-07	2.744E-07	1.900E-07	1.406E-07	1.090E-07	8.757E-08
NW	4.109E-05	1.366E-05	7.356E-06	3.696E-06	1.475E-06	7.946E-07	5.018E-07	3.493E-07	2.595E-07	2.020E-07	1.628E-07
NNW	5.204E-05	1.682E-05	8.990E-06	4.520E-06	1.836E-06	1.002E-06	6.388E-07	4.481E-07	3.351E-07	2.623E-07	2.125E-07
N	1.194E-04	3.658E-05	1.892E-05	9.451E-06	3.965E-06	2.212E-06	1.433E-06	1.018E-06	7.697E-07	6.080E-07	4.964E-07
NNE	7.191E-05	2.201E-05	1.140E-05	5.702E-06	2.392E-06	1.334E-06	8.642E-07	6.140E-07	4.640E-07	3.665E-07	2.991E-07
NE	5.793E-05	1.739E-05	8.865E-06	4.410E-06	1.867E-06	1.047E-06	6.813E-07	4.856E-07	3.680E-07	2.913E-07	2.383E-07
ENE	3.368E-05	1.005E-05	5.101E-06	2.533E-06	1.071E-06	6.007E-07	3.909E-07	2.786E-07	2.111E-07	1.671E-07	1.367E-07
E	4.706E-05	1.411E-05	7.234E-06	3.614E-06	1.532E-06	8.600E-07	5.599E-07	3.992E-07	3.025E-07	2.395E-07	1.959E-07
ESE	8.204E-05	2.468E-05	1.252E-05	6.211E-06	2.636E-06	1.481E-06	9.652E-07	6.887E-07	5.223E-07	4.138E-07	3.387E-07
SE	1.035E-04	3.160E-05	1.629E-05	8.136E-06	3.424E-06	1.913E-06	1.241E-06	8.827E-07	6.676E-07	5.277E-07	4.310E-07
SSE	1.014E-04	3.105E-05	1.593E-05	7.930E-06	3.331E-06	1.859E-06	1.205E-06	8.565E-07	6.475E-07	5.116E-07	4.177E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.524E-07	1.326E-07	8.732E-08	5.118E-08	3.517E-08	2.634E-08	2.083E-08	1.709E-08	1.441E-08	1.240E-08	1.084E-08
SSW	1.137E-07	5.939E-08	3.895E-08	2.273E-08	1.560E-08	1.167E-08	9.221E-09	7.563E-09	6.374E-09	5.484E-09	4.796E-09
SW	7.063E-08	3.643E-08	2.368E-08	1.365E-08	9.291E-09	6.908E-09	5.430E-09	4.434E-09	3.723E-09	3.192E-09	2.784E-09
WSW	5.094E-08	2.601E-08	1.679E-08	9.578E-09	6.466E-09	4.778E-09	3.736E-09	3.038E-09	2.541E-09	2.172E-09	1.888E-09
W	5.911E-08	3.032E-08	1.962E-08	1.123E-08	7.597E-09	5.620E-09	4.400E-09	3.580E-09	2.996E-09	2.562E-09	2.229E-09
WNW	7.234E-08	3.693E-08	2.383E-08	1.360E-08	9.186E-09	6.792E-09	5.314E-09	4.323E-09	3.618E-09	3.094E-09	2.691E-09
NW	1.348E-07	6.948E-08	4.513E-08	2.598E-08	1.764E-08	1.310E-08	1.028E-08	8.386E-09	7.034E-09	6.026E-09	5.250E-09
NNW	1.767E-07	9.258E-08	6.083E-08	3.557E-08	2.442E-08	1.828E-08	1.444E-08	1.185E-08	9.985E-09	8.590E-09	7.511E-09
N	4.157E-07	2.234E-07	1.494E-07	8.943E-08	6.237E-08	4.724E-08	3.769E-08	3.117E-08	2.645E-08	2.289E-08	2.012E-08
NNE	2.505E-07	1.345E-07	8.991E-08	5.380E-08	3.751E-08	2.841E-08	2.266E-08	1.873E-08	1.589E-08	1.375E-08	1.209E-08
NE	1.999E-07	1.081E-07	7.253E-08	4.366E-08	3.057E-08	2.322E-08	1.857E-08	1.538E-08	1.307E-08	1.133E-08	9.972E-09
ENE	1.147E-07	6.203E-08	4.165E-08	2.509E-08	1.758E-08	1.336E-08	1.069E-08	8.855E-09	7.529E-09	6.527E-09	5.747E-09
E	1.644E-07	8.883E-08	5.961E-08	3.586E-08	2.509E-08	1.905E-08	1.523E-08	1.261E-08	1.071E-08	9.284E-09	8.170E-09
ESE	2.842E-07	1.539E-07	1.034E-07	6.237E-08	4.371E-08	3.323E-08	2.659E-08	2.203E-08	1.874E-08	1.625E-08	1.430E-08
SE	3.611E-07	1.943E-07	1.300E-07	7.788E-08	5.435E-08	4.118E-08	3.287E-08	2.718E-08	2.307E-08	1.997E-08	1.756E-08
SSE	3.499E-07	1.881E-07	1.257E-07	7.532E-08	5.254E-08	3.981E-08	3.177E-08	2.628E-08	2.230E-08	1.931E-08	1.698E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.207E-05	2.894E-06	9.340E-07	4.832E-07	3.053E-07	1.391E-07	5.209E-08	2.649E-08	1.713E-08	1.242E-08
SSW	5.817E-06	1.346E-06	4.274E-07	2.193E-07	1.378E-07	6.238E-08	2.316E-08	1.174E-08	7.584E-09	5.493E-09
SW	3.751E-06	8.710E-07	2.714E-07	1.378E-07	8.592E-08	3.836E-08	1.394E-08	6.952E-09	4.448E-09	3.198E-09
WSW	2.802E-06	6.495E-07	1.994E-07	1.003E-07	6.214E-08	2.745E-08	9.797E-09	4.811E-09	3.048E-09	2.176E-09
W	3.165E-06	7.413E-07	2.295E-07	1.159E-07	7.202E-08	3.196E-08	1.148E-08	5.659E-09	3.592E-09	2.567E-09
WNW	4.066E-06	9.288E-07	2.841E-07	1.427E-07	8.828E-08	3.897E-08	1.391E-08	6.839E-09	4.338E-09	3.100E-09
NW	7.131E-06	1.666E-06	5.189E-07	2.632E-07	1.640E-07	7.317E-08	2.653E-08	1.318E-08	8.412E-09	6.037E-09
NNW	8.744E-06	2.062E-06	6.593E-07	3.396E-07	2.140E-07	9.717E-08	3.623E-08	1.838E-08	1.188E-08	8.604E-09
N	1.864E-05	4.405E-06	1.475E-06	7.792E-07	4.996E-07	2.332E-07	9.072E-08	4.746E-08	3.123E-08	2.292E-08
NNE	1.123E-05	2.657E-06	8.893E-07	4.697E-07	3.011E-07	1.405E-07	5.458E-08	2.853E-08	1.877E-08	1.377E-08
NE	8.780E-06	2.068E-06	7.006E-07	3.724E-07	2.398E-07	1.127E-07	4.426E-08	2.332E-08	1.541E-08	1.134E-08
ENE	5.059E-06	1.187E-06	4.019E-07	2.136E-07	1.375E-07	6.467E-08	2.543E-08	1.341E-08	8.873E-09	6.535E-09
E	7.152E-06	1.696E-06	5.756E-07	3.062E-07	1.972E-07	9.263E-08	3.635E-08	1.913E-08	1.264E-08	9.295E-09
ESE	1.242E-05	2.917E-06	9.922E-07	5.285E-07	3.408E-07	1.605E-07	6.320E-08	3.336E-08	2.208E-08	1.626E-08
SE	1.607E-05	3.799E-06	1.277E-06	6.757E-07	4.337E-07	2.028E-07	7.900E-08	4.137E-08	2.724E-08	2.000E-08
SSE	1.574E-05	3.698E-06	1.240E-06	6.554E-07	4.204E-07	1.963E-07	7.640E-08	3.999E-08	2.633E-08	1.933E-08

VENTS GROUND LEVEL RELEASES - JUL-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.219E-05	2.293E-05	1.236E-05	6.262E-06	2.550E-06	1.391E-06	8.854E-07	6.196E-07	4.620E-07	3.605E-07	2.910E-07
SSW	3.449E-05	1.128E-05	5.918E-06	2.938E-06	1.182E-06	6.396E-07	4.049E-07	2.822E-07	2.097E-07	1.632E-07	1.314E-07
SW	2.168E-05	7.195E-06	3.839E-06	1.917E-06	7.616E-07	4.088E-07	2.571E-07	1.782E-07	1.319E-07	1.022E-07	8.204E-08
WSW	1.584E-05	5.353E-06	2.879E-06	1.440E-06	5.669E-07	3.023E-07	1.892E-07	1.306E-07	9.632E-08	7.445E-08	5.961E-08
W	1.801E-05	6.014E-06	3.253E-06	1.636E-06	6.478E-07	3.467E-07	2.175E-07	1.504E-07	1.111E-07	8.599E-08	6.892E-08
WNW	2.305E-05	7.843E-06	4.164E-06	2.064E-06	8.106E-07	4.316E-07	2.699E-07	1.862E-07	1.372E-07	1.060E-07	8.487E-08
NW	4.102E-05	1.362E-05	7.321E-06	3.672E-06	1.460E-06	7.839E-07	4.933E-07	3.421E-07	2.532E-07	1.964E-07	1.577E-07
NNW	5.193E-05	1.676E-05	8.939E-06	4.486E-06	1.815E-06	9.860E-07	6.261E-07	4.373E-07	3.256E-07	2.538E-07	2.047E-07
N	1.191E-04	3.639E-05	1.878E-05	9.354E-06	3.904E-06	2.165E-06	1.395E-06	9.860E-07	7.411E-07	5.821E-07	4.726E-07
NNE	7.170E-05	2.188E-05	1.131E-05	5.640E-06	2.352E-06	1.304E-06	8.400E-07	5.933E-07	4.457E-07	3.499E-07	2.840E-07
NE	5.775E-05	1.728E-05	8.785E-06	4.358E-06	1.833E-06	1.021E-06	6.604E-07	4.677E-07	3.522E-07	2.770E-07	2.251E-07
ENE	3.357E-05	9.984E-06	5.054E-06	2.502E-06	1.052E-06	5.859E-07	3.788E-07	2.682E-07	2.019E-07	1.588E-07	1.291E-07
E	4.691E-05	1.402E-05	7.169E-06	3.572E-06	1.505E-06	8.394E-07	5.430E-07	3.848E-07	2.898E-07	2.280E-07	1.854E-07
ESE	8.178E-05	2.453E-05	1.241E-05	6.136E-06	2.588E-06	1.445E-06	9.354E-07	6.632E-07	4.997E-07	3.934E-07	3.199E-07
SE	1.032E-04	3.142E-05	1.616E-05	8.045E-06	3.365E-06	1.869E-06	1.205E-06	8.521E-07	6.406E-07	5.033E-07	4.086E-07
SSE	1.011E-04	3.087E-05	1.580E-05	7.840E-06	3.273E-06	1.816E-06	1.170E-06	8.265E-07	6.209E-07	4.876E-07	3.957E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.411E-07	1.238E-07	7.965E-08	4.463E-08	2.936E-08	2.108E-08	1.600E-08	1.262E-08	1.024E-08	8.490E-09	7.164E-09
SSW	1.087E-07	5.541E-08	3.547E-08	1.975E-08	1.294E-08	9.257E-09	7.003E-09	5.507E-09	4.455E-09	3.685E-09	3.102E-09
SW	6.765E-08	3.412E-08	2.169E-08	1.196E-08	7.800E-09	5.561E-09	4.196E-09	3.293E-09	2.660E-09	2.197E-09	1.847E-09
WSW	4.907E-08	2.458E-08	1.556E-08	8.550E-09	5.563E-09	3.965E-09	2.994E-09	2.352E-09	1.903E-09	1.575E-09	1.326E-09
W	5.677E-08	2.852E-08	1.808E-08	9.938E-09	6.459E-09	4.597E-09	3.465E-09	2.718E-09	2.194E-09	1.812E-09	1.523E-09
WNW	6.985E-08	3.500E-08	2.217E-08	1.219E-08	7.944E-09	5.670E-09	4.286E-09	3.372E-09	2.731E-09	2.263E-09	1.908E-09
NW	1.301E-07	6.582E-08	4.196E-08	2.329E-08	1.526E-08	1.095E-08	8.309E-09	6.561E-09	5.332E-09	4.431E-09	3.747E-09
NNW	1.695E-07	8.691E-08	5.589E-08	3.134E-08	2.065E-08	1.486E-08	1.130E-08	8.932E-09	7.263E-09	6.037E-09	5.105E-09
N	3.936E-07	2.057E-07	1.338E-07	7.591E-08	5.026E-08	3.621E-08	2.752E-08	2.172E-08	1.762E-08	1.460E-08	1.231E-08
NNE	2.364E-07	1.233E-07	8.005E-08	4.526E-08	2.987E-08	2.145E-08	1.625E-08	1.279E-08	1.034E-08	8.549E-09	7.188E-09
NE	1.877E-07	9.829E-08	6.394E-08	3.620E-08	2.388E-08	1.713E-08	1.296E-08	1.018E-08	8.217E-09	6.776E-09	5.685E-09
ENE	1.076E-07	5.637E-08	3.668E-08	2.077E-08	1.370E-08	9.828E-09	7.435E-09	5.838E-09	4.711E-09	3.884E-09	3.258E-09
E	1.545E-07	8.097E-08	5.270E-08	2.986E-08	1.972E-08	1.416E-08	1.072E-08	8.430E-09	6.813E-09	5.625E-09	4.724E-09
ESE	2.668E-07	1.399E-07	9.111E-08	5.165E-08	3.409E-08	2.446E-08	1.851E-08	1.454E-08	1.174E-08	9.681E-09	8.122E-09
SE	3.403E-07	1.776E-07	1.153E-07	6.521E-08	4.300E-08	3.086E-08	2.336E-08	1.836E-08	1.484E-08	1.225E-08	1.029E-08
SSE	3.294E-07	1.717E-07	1.114E-07	6.283E-08	4.137E-08	2.964E-08	2.241E-08	1.759E-08	1.419E-08	1.170E-08	9.813E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.200E-05	2.860E-06	9.139E-07	4.683E-07	2.931E-07	1.303E-07	4.563E-08	2.126E-08	1.268E-08	8.517E-09
SSW	5.784E-06	1.331E-06	4.184E-07	2.127E-07	1.324E-07	5.838E-08	2.022E-08	9.337E-09	5.534E-09	3.697E-09
SW	3.730E-06	8.615E-07	2.660E-07	1.338E-07	8.269E-08	3.605E-08	1.227E-08	5.612E-09	3.310E-09	2.205E-09
WSW	2.789E-06	6.432E-07	1.959E-07	9.779E-08	6.010E-08	2.601E-08	8.781E-09	4.003E-09	2.365E-09	1.580E-09
W	3.148E-06	7.337E-07	2.251E-07	1.128E-07	6.948E-08	3.016E-08	1.020E-08	4.641E-09	2.732E-09	1.818E-09
WNW	4.048E-06	9.208E-07	2.795E-07	1.393E-07	8.558E-08	3.704E-08	1.252E-08	5.723E-09	3.389E-09	2.270E-09
NW	7.099E-06	1.651E-06	5.103E-07	2.569E-07	1.589E-07	6.950E-08	2.387E-08	1.104E-08	6.592E-09	4.445E-09
NNW	8.697E-06	2.040E-06	6.465E-07	3.301E-07	2.062E-07	9.148E-08	3.204E-08	1.498E-08	8.973E-09	6.055E-09
N	1.850E-05	4.342E-06	1.437E-06	7.505E-07	4.758E-07	2.155E-07	7.737E-08	3.648E-08	2.181E-08	1.465E-08
NNE	1.114E-05	2.617E-06	8.650E-07	4.514E-07	2.859E-07	1.292E-07	4.615E-08	2.162E-08	1.285E-08	8.577E-09
NE	8.706E-06	2.033E-06	6.796E-07	3.566E-07	2.266E-07	1.029E-07	3.689E-08	1.727E-08	1.023E-08	6.799E-09
ENE	5.016E-06	1.167E-06	3.898E-07	2.045E-07	1.299E-07	5.900E-08	2.116E-08	9.904E-09	5.865E-09	3.897E-09
E	7.093E-06	1.668E-06	5.588E-07	2.934E-07	1.866E-07	8.475E-08	3.043E-08	1.427E-08	8.470E-09	5.643E-09
ESE	1.231E-05	2.868E-06	9.624E-07	5.059E-07	3.220E-07	1.464E-07	5.261E-08	2.465E-08	1.461E-08	9.713E-09
SE	1.594E-05	3.740E-06	1.241E-06	6.487E-07	4.113E-07	1.861E-07	6.648E-08	3.110E-08	1.845E-08	1.229E-08
SSE	1.561E-05	3.640E-06	1.205E-06	6.289E-07	3.983E-07	1.799E-07	6.408E-08	2.987E-08	1.767E-08	1.174E-08

VENTS GROUND LEVEL RELEASES - JUL-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.843E-05	2.100E-05	1.106E-05	5.515E-06	2.186E-06	1.167E-06	7.288E-07	5.017E-07	3.687E-07	2.840E-07	2.265E-07
SSW	3.270E-05	1.033E-05	5.297E-06	2.586E-06	1.013E-06	5.362E-07	3.332E-07	2.284E-07	1.673E-07	1.285E-07	1.023E-07
SW	2.055E-05	6.589E-06	3.436E-06	1.687E-06	6.525E-07	3.425E-07	2.114E-07	1.441E-07	1.051E-07	8.040E-08	6.376E-08
WSW	1.501E-05	4.900E-06	2.575E-06	1.266E-06	4.851E-07	2.529E-07	1.553E-07	1.054E-07	7.656E-08	5.838E-08	4.617E-08
W	1.706E-05	5.507E-06	2.911E-06	1.440E-06	5.548E-07	2.903E-07	1.787E-07	1.216E-07	8.845E-08	6.754E-08	5.347E-08
WNW	2.184E-05	7.178E-06	3.723E-06	1.815E-06	6.932E-07	3.608E-07	2.212E-07	1.501E-07	1.089E-07	8.302E-08	6.562E-08
NW	3.887E-05	1.246E-05	6.547E-06	3.229E-06	1.249E-06	6.555E-07	4.045E-07	2.758E-07	2.011E-07	1.538E-07	1.220E-07
NNW	4.922E-05	1.535E-05	7.998E-06	3.948E-06	1.554E-06	8.258E-07	5.145E-07	3.534E-07	2.593E-07	1.995E-07	1.589E-07
N	1.130E-04	3.336E-05	1.683E-05	8.249E-06	3.353E-06	1.820E-06	1.152E-06	8.015E-07	5.941E-07	4.610E-07	3.700E-07
NNE	6.800E-05	2.007E-05	1.014E-05	4.975E-06	2.022E-06	1.097E-06	6.944E-07	4.829E-07	3.579E-07	2.776E-07	2.228E-07
NE	5.478E-05	1.585E-05	7.880E-06	3.848E-06	1.577E-06	8.609E-07	5.470E-07	3.816E-07	2.836E-07	2.204E-07	1.773E-07
ENE	3.184E-05	9.159E-06	4.534E-06	2.210E-06	9.052E-07	4.939E-07	3.138E-07	2.189E-07	1.626E-07	1.264E-07	1.017E-07
E	4.450E-05	1.286E-05	6.430E-06	3.153E-06	1.295E-06	7.072E-07	4.496E-07	3.138E-07	2.332E-07	1.813E-07	1.458E-07
ESE	7.758E-05	2.250E-05	1.113E-05	5.418E-06	2.227E-06	1.218E-06	7.749E-07	5.412E-07	4.025E-07	3.131E-07	2.519E-07
SE	9.791E-05	2.881E-05	1.449E-05	7.099E-06	2.894E-06	1.574E-06	9.971E-07	6.941E-07	5.148E-07	3.996E-07	3.209E-07
SSE	9.586E-05	2.831E-05	1.417E-05	6.919E-06	2.815E-06	1.529E-06	9.680E-07	6.734E-07	4.992E-07	3.873E-07	3.110E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.857E-07	9.167E-08	5.711E-08	3.056E-08	1.946E-08	1.362E-08	1.013E-08	7.848E-09	6.270E-09	5.127E-09	4.270E-09
SSW	8.367E-08	4.104E-08	2.546E-08	1.356E-08	8.612E-09	6.018E-09	4.467E-09	3.457E-09	2.759E-09	2.253E-09	1.875E-09
SW	5.200E-08	2.520E-08	1.551E-08	8.166E-09	5.150E-09	3.580E-09	2.647E-09	2.042E-09	1.625E-09	1.324E-09	1.100E-09
WSW	3.756E-08	1.804E-08	1.103E-08	5.761E-09	3.611E-09	2.499E-09	1.842E-09	1.418E-09	1.126E-09	9.165E-10	7.604E-10
W	4.356E-08	2.100E-08	1.287E-08	6.738E-09	4.227E-09	2.927E-09	2.158E-09	1.660E-09	1.319E-09	1.073E-09	8.897E-10
WNW	5.338E-08	2.563E-08	1.568E-08	8.188E-09	5.136E-09	3.557E-09	2.623E-09	2.020E-09	1.605E-09	1.307E-09	1.085E-09
NW	9.947E-08	4.822E-08	2.968E-08	1.564E-08	9.865E-09	6.861E-09	5.077E-09	3.920E-09	3.123E-09	2.549E-09	2.119E-09
NNW	1.302E-07	6.408E-08	3.987E-08	2.130E-08	1.356E-08	9.494E-09	7.059E-09	5.473E-09	4.374E-09	3.579E-09	2.982E-09
N	3.051E-07	1.538E-07	9.718E-08	5.297E-08	3.414E-08	2.410E-08	1.804E-08	1.405E-08	1.127E-08	9.245E-09	7.720E-09
NNE	1.837E-07	9.249E-08	5.840E-08	3.179E-08	2.046E-08	1.443E-08	1.079E-08	8.396E-09	6.728E-09	5.515E-09	4.602E-09
NE	1.463E-07	7.413E-08	4.698E-08	2.570E-08	1.658E-08	1.172E-08	8.772E-09	6.831E-09	5.478E-09	4.492E-09	3.749E-09
ENE	8.393E-08	4.254E-08	2.697E-08	1.476E-08	9.530E-09	6.737E-09	5.044E-09	3.929E-09	3.151E-09	2.584E-09	2.157E-09
E	1.204E-07	6.097E-08	3.864E-08	2.113E-08	1.364E-08	9.636E-09	7.212E-09	5.617E-09	4.505E-09	3.694E-09	3.084E-09
ESE	2.081E-07	1.056E-07	6.698E-08	3.669E-08	2.370E-08	1.676E-08	1.255E-08	9.778E-09	7.843E-09	6.432E-09	5.370E-09
SE	2.646E-07	1.335E-07	8.434E-08	4.596E-08	2.959E-08	2.088E-08	1.561E-08	1.215E-08	9.733E-09	7.977E-09	6.655E-09
SSE	2.563E-07	1.291E-07	8.155E-08	4.440E-08	2.857E-08	2.015E-08	1.505E-08	1.171E-08	9.379E-09	7.683E-09	6.407E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.081E-05	2.473E-06	7.547E-07	3.745E-07	2.284E-07	9.721E-08	3.153E-08	1.378E-08	7.898E-09	5.148E-09
SSW	5.210E-06	1.151E-06	3.454E-07	1.700E-07	1.032E-07	4.359E-08	1.401E-08	6.089E-09	3.480E-09	2.263E-09
SW	3.359E-06	7.446E-07	2.194E-07	1.068E-07	6.433E-08	2.685E-08	8.457E-09	3.625E-09	2.056E-09	1.330E-09
WSW	2.510E-06	5.556E-07	1.614E-07	7.788E-08	4.660E-08	1.927E-08	5.977E-09	2.533E-09	1.428E-09	9.208E-10
W	2.834E-06	6.340E-07	1.856E-07	8.994E-08	5.397E-08	2.240E-08	6.985E-09	2.966E-09	1.672E-09	1.078E-09
WNW	3.643E-06	7.948E-07	2.300E-07	1.108E-07	6.624E-08	2.737E-08	8.496E-09	3.605E-09	2.034E-09	1.313E-09
NW	6.387E-06	1.425E-06	4.199E-07	2.044E-07	1.231E-07	5.137E-08	1.619E-08	6.948E-09	3.947E-09	2.560E-09
NNW	7.831E-06	1.763E-06	5.331E-07	2.634E-07	1.603E-07	6.801E-08	2.199E-08	9.604E-09	5.507E-09	3.593E-09
N	1.669E-05	3.760E-06	1.190E-06	6.026E-07	3.729E-07	1.622E-07	5.442E-08	2.435E-08	1.413E-08	9.280E-09
NNE	1.005E-05	2.267E-06	7.173E-07	3.631E-07	2.246E-07	9.760E-08	3.267E-08	1.458E-08	8.445E-09	5.536E-09
NE	7.860E-06	1.763E-06	5.646E-07	2.875E-07	1.786E-07	7.811E-08	2.638E-08	1.184E-08	6.870E-09	4.509E-09
ENE	4.529E-06	1.012E-06	3.239E-07	1.649E-07	1.024E-07	4.482E-08	1.515E-08	6.805E-09	3.951E-09	2.594E-09
E	6.402E-06	1.447E-06	4.640E-07	2.364E-07	1.469E-07	6.425E-08	2.169E-08	9.733E-09	5.649E-09	3.708E-09
ESE	1.112E-05	2.488E-06	7.996E-07	4.081E-07	2.538E-07	1.112E-07	3.765E-08	1.693E-08	9.833E-09	6.457E-09
SE	1.439E-05	3.241E-06	1.030E-06	5.222E-07	3.234E-07	1.408E-07	4.721E-08	2.109E-08	1.222E-08	8.008E-09
SSE	1.409E-05	3.155E-06	9.997E-07	5.064E-07	3.134E-07	1.363E-07	4.562E-08	2.036E-08	1.178E-08	7.713E-09

VENTS GROUND LEVEL RELEASES - JUL-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	.25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
	DISTANCES IN MILES										
S	2.067E-07	6.991E-08	3.589E-08	1.706E-08	6.129E-09	3.040E-09	1.790E-09	1.172E-09	8.247E-10	6.111E-10	4.710E-10
SSW	1.172E-07	3.963E-08	2.035E-08	9.674E-09	3.475E-09	1.723E-09	1.015E-09	6.644E-10	4.675E-10	3.465E-10	2.670E-10
SW	7.432E-08	2.513E-08	1.290E-08	6.135E-09	2.204E-09	1.093E-09	6.434E-10	4.213E-10	2.965E-10	2.197E-10	1.693E-10
WSW	5.649E-08	1.910E-08	9.809E-09	4.663E-09	1.675E-09	8.307E-10	4.891E-10	3.203E-10	2.254E-10	1.670E-10	1.287E-10
W	5.829E-08	1.971E-08	1.012E-08	4.811E-09	1.728E-09	8.571E-10	5.047E-10	3.305E-10	2.325E-10	1.723E-10	1.328E-10
WNW	1.057E-07	3.573E-08	1.834E-08	8.721E-09	3.133E-09	1.554E-09	9.148E-10	5.990E-10	4.215E-10	3.123E-10	2.407E-10
NW	2.251E-07	7.612E-08	3.909E-08	1.858E-08	6.675E-09	3.310E-09	1.949E-09	1.276E-09	8.980E-10	6.655E-10	5.129E-10
NNW	2.313E-07	7.822E-08	4.016E-08	1.909E-08	6.859E-09	3.401E-09	2.003E-09	1.311E-09	9.228E-10	6.839E-10	5.270E-10
N	3.119E-07	1.055E-07	5.415E-08	2.574E-08	9.247E-09	4.586E-09	2.700E-09	1.768E-09	1.244E-09	9.220E-10	7.105E-10
NNE	1.561E-07	5.280E-08	2.711E-08	1.289E-08	4.630E-09	2.296E-09	1.352E-09	8.852E-10	6.229E-10	4.616E-10	3.557E-10
NE	9.223E-08	3.119E-08	1.601E-08	7.613E-09	2.735E-09	1.356E-09	7.985E-10	5.229E-10	3.679E-10	2.727E-10	2.101E-10
ENE	5.754E-08	1.946E-08	9.991E-09	4.750E-09	1.706E-09	8.461E-10	4.982E-10	3.262E-10	2.296E-10	1.701E-10	1.311E-10
E	7.340E-08	2.482E-08	1.274E-08	6.059E-09	2.176E-09	1.079E-09	6.355E-10	4.161E-10	2.928E-10	2.170E-10	1.672E-10
ESE	1.290E-07	4.363E-08	2.240E-08	1.065E-08	3.825E-09	1.897E-09	1.117E-09	7.314E-10	5.146E-10	3.814E-10	2.939E-10
SE	2.036E-07	6.885E-08	3.535E-08	1.681E-08	6.036E-09	2.994E-09	1.763E-09	1.154E-09	8.121E-10	6.019E-10	4.638E-10
SSE	2.171E-07	7.342E-08	3.770E-08	1.792E-08	6.438E-09	3.193E-09	1.880E-09	1.231E-09	8.662E-10	6.419E-10	4.947E-10

DIRECTION FROM SITE	5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
	DISTANCES IN MILES										
S	3.741E-10	1.662E-10	1.007E-10	5.089E-11	3.080E-11	2.065E-11	1.480E-11	1.111E-11	8.640E-12	6.901E-12	5.633E-12
SSW	2.121E-10	9.423E-11	5.708E-11	2.885E-11	1.746E-11	1.171E-11	8.389E-12	6.300E-12	4.898E-12	3.913E-12	3.194E-12
SW	1.345E-10	5.975E-11	3.620E-11	1.830E-11	1.107E-11	7.424E-12	5.320E-12	3.995E-12	3.106E-12	2.481E-12	2.025E-12
WSW	1.022E-10	4.542E-11	2.751E-11	1.391E-11	8.417E-12	5.644E-12	4.044E-12	3.037E-12	2.361E-12	1.886E-12	1.539E-12
W	1.055E-10	4.687E-11	2.839E-11	1.435E-11	8.685E-12	5.823E-12	4.173E-12	3.133E-12	2.436E-12	1.946E-12	1.588E-12
WNW	1.912E-10	8.495E-11	5.146E-11	2.601E-11	1.574E-11	1.055E-11	7.563E-12	5.679E-12	4.416E-12	3.527E-12	2.879E-12
NW	4.074E-10	1.810E-10	1.096E-10	5.542E-11	3.354E-11	2.249E-11	1.611E-11	1.210E-11	9.408E-12	7.515E-12	6.134E-12
NNW	4.187E-10	1.860E-10	1.127E-10	5.695E-11	3.447E-11	2.311E-11	1.656E-11	1.243E-11	9.668E-12	7.722E-12	6.303E-12
N	5.644E-10	2.507E-10	1.519E-10	7.677E-11	4.647E-11	3.116E-11	2.232E-11	1.676E-11	1.303E-11	1.041E-11	8.498E-12
NNE	2.826E-10	1.255E-10	7.605E-11	3.844E-11	2.327E-11	1.560E-11	1.118E-11	8.393E-12	6.526E-12	5.213E-12	4.255E-12
NE	1.669E-10	7.415E-11	4.492E-11	2.270E-11	1.374E-11	9.214E-12	6.602E-12	4.957E-12	3.854E-12	3.079E-12	2.513E-12
ENE	1.041E-10	4.627E-11	2.803E-11	1.417E-11	8.574E-12	5.749E-12	4.119E-12	3.093E-12	2.405E-12	1.921E-12	1.568E-12
E	1.328E-10	5.902E-11	3.575E-11	1.807E-11	1.094E-11	7.333E-12	5.254E-12	3.945E-12	3.068E-12	2.450E-12	2.000E-12
ESE	2.335E-10	1.037E-10	6.283E-11	3.176E-11	1.922E-11	1.289E-11	9.235E-12	6.934E-12	5.392E-12	4.307E-12	3.515E-12
SE	3.685E-10	1.637E-10	9.916E-11	5.012E-11	3.033E-11	2.034E-11	1.457E-11	1.094E-11	8.508E-12	6.797E-12	5.548E-12
SSE	3.930E-10	1.746E-10	1.058E-10	5.345E-11	3.235E-11	2.169E-11	1.554E-11	1.167E-11	9.074E-12	7.249E-12	5.917E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
	SEGMENT BOUNDARIES IN MILES									
S	3.508E-08	7.186E-09	1.876E-09	8.425E-10	4.766E-10	1.833E-10	5.303E-11	2.102E-11	1.122E-11	6.947E-12
SSW	1.989E-08	4.074E-09	1.064E-09	4.777E-10	2.702E-10	1.039E-10	3.006E-11	1.192E-11	6.363E-12	3.938E-12
SW	1.261E-08	2.583E-09	6.744E-10	3.029E-10	1.714E-10	6.590E-11	1.906E-11	7.556E-12	4.035E-12	2.497E-12
WSW	9.587E-09	1.964E-09	5.127E-10	2.303E-10	1.303E-10	5.009E-11	1.449E-11	5.743E-12	3.067E-12	1.898E-12
W	9.892E-09	2.026E-09	5.290E-10	2.376E-10	1.344E-10	5.168E-11	1.495E-11	5.926E-12	3.165E-12	1.959E-12
WNW	1.793E-08	3.673E-09	9.588E-10	4.306E-10	2.436E-10	9.368E-11	2.710E-11	1.074E-11	5.736E-12	3.550E-12
NW	3.820E-08	7.825E-09	2.043E-09	9.175E-10	5.190E-10	1.996E-10	5.774E-11	2.289E-11	1.222E-11	7.565E-12
NNW	3.926E-08	8.041E-09	2.099E-09	9.428E-10	5.334E-10	2.051E-10	5.934E-11	2.352E-11	1.256E-11	7.773E-12
N	5.293E-08	1.084E-08	2.830E-09	1.271E-09	7.191E-10	2.765E-10	8.000E-11	3.171E-11	1.693E-11	1.048E-11
NNE	2.650E-08	5.428E-09	1.417E-09	6.364E-10	3.600E-10	1.384E-10	4.005E-11	1.587E-11	8.477E-12	5.247E-12
NE	1.565E-08	3.206E-09	8.370E-10	3.759E-10	2.127E-10	8.178E-11	2.366E-11	9.376E-12	5.007E-12	3.099E-12
ENE	9.766E-09	2.000E-09	5.222E-10	2.345E-10	1.327E-10	5.102E-11	1.476E-11	5.850E-12	3.124E-12	1.934E-12
E	1.246E-08	2.552E-09	6.661E-10	2.992E-10	1.692E-10	6.508E-11	1.883E-11	7.462E-12	3.985E-12	2.467E-12
ESE	2.189E-08	4.485E-09	1.171E-09	5.258E-10	2.975E-10	1.144E-10	3.309E-11	1.312E-11	7.004E-12	4.335E-12
SE	3.455E-08	7.077E-09	1.848E-09	8.298E-10	4.694E-10	1.805E-10	5.222E-11	2.070E-11	1.105E-11	6.841E-12
SSE	3.685E-08	7.548E-09	1.970E-09	8.850E-10	5.006E-10	1.925E-10	5.570E-11	2.207E-11	1.179E-11	7.296E-12

VENTS GROUND LEVEL RELEASES - JUL-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.1E-05	1.1E-05	9.5E-06	3.1E-08
A	Site Boundary	SSW	.82	4.7E-06	4.7E-06	4.2E-06	1.6E-08
A	Site Boundary	SW	.97	2.1E-06	2.0E-06	1.8E-06	6.5E-09
A	Site Boundary	WSW	.93	1.7E-06	1.7E-06	1.5E-06	5.7E-09
A	Site Boundary	W	.91	2.0E-06	2.0E-06	1.8E-06	6.1E-09
A	Site Boundary	WNW	.94	2.4E-06	2.4E-06	2.1E-06	1.0E-08
A	Site Boundary	NW	.81	6.1E-06	6.1E-06	5.4E-06	3.2E-08
A	Site Boundary	NNW	.69	1.0E-05	1.0E-05	9.2E-06	4.7E-08
A	Site Boundary	N	.67	2.2E-05	2.2E-05	2.0E-05	6.5E-08
A	Site Boundary	NNE	.60	1.6E-05	1.6E-05	1.5E-05	3.9E-08
A	Site Boundary	NE	.62	1.2E-05	1.2E-05	1.1E-05	2.2E-08
A	Site Boundary	ENE	.59	7.7E-06	7.6E-06	6.9E-06	1.5E-08
A	Site Boundary	E	.53	1.3E-05	1.3E-05	1.2E-05	2.3E-08
A	Site Boundary	ESE	.54	2.2E-05	2.2E-05	2.0E-05	3.9E-08
A	Site Boundary	SE	.65	2.0E-05	2.0E-05	1.8E-05	4.5E-08
A	Site Boundary	SSE	.81	1.3E-05	1.3E-05	1.2E-05	3.1E-08
A	Nearest Res	SW	1.30	1.1E-06	1.0E-06	9.1E-07	3.1E-09
A	Nearest Res	WSW	1.80	3.8E-07	3.8E-07	3.2E-07	1.1E-09
A	Nearest Res	WNW	2.40	3.0E-07	2.9E-07	2.4E-07	1.0E-09
A	Nearest Res	NW	.90	4.8E-06	4.7E-06	4.2E-06	2.4E-08
A	Nearest Res	NNW	1.90	1.1E-06	1.1E-06	9.2E-07	3.9E-09
A	Nearest Res	NE	1.60	1.6E-06	1.6E-06	1.4E-06	2.3E-09
A	Nearest Res	ENE	1.70	8.3E-07	8.1E-07	6.9E-07	1.3E-09
A	Nearest Res	E	2.00	8.6E-07	8.4E-07	7.1E-07	1.1E-09
A	Nearest Res	SE	2.90	9.4E-07	9.1E-07	7.4E-07	1.2E-09
A	Nearest Cow	NNW	3.50	3.4E-07	3.3E-07	2.6E-07	9.2E-10
A	Nearest Garde	SW	2.20	3.4E-07	3.3E-07	2.8E-07	8.7E-10
A	Nearest Garde	WSW	2.40	2.1E-07	2.1E-07	1.7E-07	5.4E-10
A	Nearest Garde	WNW	2.60	2.5E-07	2.5E-07	2.0E-07	8.4E-10
A	Nearest Garde	NNW	2.70	5.5E-07	5.4E-07	4.4E-07	1.7E-09
A	Nearest Garde	ENE	1.70	8.3E-07	8.1E-07	6.9E-07	1.3E-09
A	Nearest Garde	E	2.00	8.6E-07	8.4E-07	7.1E-07	1.1E-09
A	Nearest Garde	ESE	2.20	1.2E-06	1.2E-06	1.0E-06	1.5E-09
A	Nearest Garde	SE	2.90	9.4E-07	9.1E-07	7.4E-07	1.2E-09

Atmospheric Diffusion Estimates

Ground Level Releases

January-December 2024

VENTS GROUND LEVEL RELEASES - JAN-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.222E-05	2.322E-05	1.237E-05	6.221E-06	2.541E-06	1.391E-06	8.893E-07	6.250E-07	4.681E-07	3.669E-07	2.975E-07
SSW	3.499E-05	1.146E-05	6.020E-06	2.993E-06	1.211E-06	6.592E-07	4.196E-07	2.939E-07	2.195E-07	1.717E-07	1.389E-07
SW	1.899E-05	6.348E-06	3.360E-06	1.669E-06	6.634E-07	3.567E-07	2.249E-07	1.564E-07	1.161E-07	9.032E-08	7.276E-08
WSW	1.864E-05	5.996E-06	3.117E-06	1.545E-06	6.267E-07	3.418E-07	2.179E-07	1.529E-07	1.143E-07	8.949E-08	7.250E-08
W	1.461E-05	4.889E-06	2.635E-06	1.322E-06	5.238E-07	2.810E-07	1.768E-07	1.227E-07	9.092E-08	7.062E-08	5.681E-08
WNW	2.036E-05	6.868E-06	3.639E-06	1.806E-06	7.136E-07	3.820E-07	2.401E-07	1.664E-07	1.233E-07	9.568E-08	7.693E-08
NW	3.362E-05	1.108E-05	5.879E-06	2.933E-06	1.175E-06	6.352E-07	4.022E-07	2.805E-07	2.088E-07	1.628E-07	1.314E-07
NNW	4.639E-05	1.477E-05	7.763E-06	3.881E-06	1.591E-06	8.739E-07	5.600E-07	3.943E-07	2.959E-07	2.323E-07	1.886E-07
N	9.833E-05	3.023E-05	1.561E-05	7.786E-06	3.260E-06	1.816E-06	1.176E-06	8.346E-07	6.304E-07	4.977E-07	4.062E-07
NNE	6.131E-05	1.889E-05	9.731E-06	4.844E-06	2.028E-06	1.129E-06	7.309E-07	5.189E-07	3.920E-07	3.094E-07	2.525E-07
NE	4.701E-05	1.425E-05	7.244E-06	3.590E-06	1.515E-06	8.478E-07	5.509E-07	3.923E-07	2.970E-07	2.350E-07	1.921E-07
ENE	2.996E-05	9.088E-06	4.628E-06	2.294E-06	9.633E-07	5.376E-07	3.486E-07	2.478E-07	1.874E-07	1.481E-07	1.209E-07
E	3.800E-05	1.153E-05	5.924E-06	2.954E-06	1.243E-06	6.949E-07	4.510E-07	3.208E-07	2.426E-07	1.918E-07	1.567E-07
ESE	5.838E-05	1.769E-05	8.975E-06	4.445E-06	1.879E-06	1.054E-06	6.853E-07	4.884E-07	3.700E-07	2.929E-07	2.395E-07
SE	8.831E-05	2.724E-05	1.407E-05	7.017E-06	2.935E-06	1.633E-06	1.057E-06	7.498E-07	5.661E-07	4.467E-07	3.644E-07
SSE	8.471E-05	2.627E-05	1.357E-05	6.757E-06	2.814E-06	1.561E-06	1.008E-06	7.140E-07	5.384E-07	4.244E-07	3.458E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.477E-07	1.302E-07	8.570E-08	5.026E-08	3.457E-08	2.591E-08	2.050E-08	1.683E-08	1.420E-08	1.222E-08	1.069E-08
SSW	1.155E-07	6.033E-08	3.957E-08	2.310E-08	1.585E-08	1.186E-08	9.372E-09	7.687E-09	6.479E-09	5.575E-09	4.876E-09
SW	6.024E-08	3.102E-08	2.015E-08	1.161E-08	7.896E-09	5.871E-09	4.615E-09	3.769E-09	3.165E-09	2.714E-09	2.367E-09
WSW	6.031E-08	3.163E-08	2.081E-08	1.220E-08	8.402E-09	6.304E-09	4.993E-09	4.103E-09	3.464E-09	2.985E-09	2.614E-09
W	4.699E-08	2.410E-08	1.560E-08	8.935E-09	6.047E-09	4.476E-09	3.506E-09	2.854E-09	2.390E-09	2.045E-09	1.779E-09
WNW	6.360E-08	3.256E-08	2.105E-08	1.205E-08	8.164E-09	6.049E-09	4.742E-09	3.863E-09	3.237E-09	2.772E-09	2.413E-09
NW	1.090E-07	5.651E-08	3.686E-08	2.136E-08	1.458E-08	1.087E-08	8.559E-09	7.001E-09	5.887E-09	5.055E-09	4.413E-09
NNW	1.572E-07	8.306E-08	5.489E-08	3.236E-08	2.234E-08	1.679E-08	1.332E-08	1.096E-08	9.258E-09	7.984E-09	6.995E-09
N	3.400E-07	1.825E-07	1.219E-07	7.290E-08	5.081E-08	3.847E-08	3.068E-08	2.536E-08	2.152E-08	1.862E-08	1.637E-08
NNE	2.114E-07	1.134E-07	7.577E-08	4.532E-08	3.159E-08	2.392E-08	1.908E-08	1.577E-08	1.338E-08	1.158E-08	1.018E-08
NE	1.610E-07	8.691E-08	5.827E-08	3.503E-08	2.451E-08	1.861E-08	1.487E-08	1.232E-08	1.047E-08	9.069E-09	7.982E-09
ENE	1.013E-07	5.455E-08	3.652E-08	2.192E-08	1.531E-08	1.161E-08	9.278E-09	7.679E-09	6.522E-09	5.650E-09	4.970E-09
E	1.313E-07	7.067E-08	4.730E-08	2.836E-08	1.980E-08	1.501E-08	1.199E-08	9.916E-09	8.419E-09	7.290E-09	6.411E-09
ESE	2.009E-07	1.086E-07	7.286E-08	4.385E-08	3.069E-08	2.331E-08	1.864E-08	1.544E-08	1.313E-08	1.138E-08	1.001E-08
SE	3.050E-07	1.634E-07	1.090E-07	6.510E-08	4.533E-08	3.429E-08	2.733E-08	2.258E-08	1.915E-08	1.657E-08	1.456E-08
SSE	2.892E-07	1.545E-07	1.029E-07	6.130E-08	4.262E-08	3.221E-08	2.566E-08	2.118E-08	1.796E-08	1.553E-08	1.364E-08

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.205E-05	2.848E-06	9.174E-07	4.744E-07	2.996E-07	1.365E-07	5.116E-08	2.606E-08	1.688E-08	1.224E-08
SSW	5.885E-06	1.362E-06	4.332E-07	2.225E-07	1.399E-07	6.336E-08	2.354E-08	1.193E-08	7.708E-09	5.584E-09
SW	3.273E-06	7.506E-07	2.327E-07	1.178E-07	7.333E-08	3.268E-08	1.185E-08	5.909E-09	3.780E-09	2.719E-09
WSW	3.058E-06	7.041E-07	2.249E-07	1.159E-07	7.302E-08	3.320E-08	1.243E-08	6.339E-09	4.114E-09	2.990E-09
W	2.552E-06	5.933E-07	1.829E-07	9.226E-08	5.727E-08	2.541E-08	9.132E-09	4.507E-09	2.864E-09	2.049E-09
WNW	3.542E-06	8.091E-07	2.485E-07	1.251E-07	7.755E-08	3.434E-08	1.232E-08	6.090E-09	3.876E-09	2.777E-09
NW	5.725E-06	1.326E-06	4.157E-07	2.118E-07	1.324E-07	5.944E-08	2.179E-08	1.093E-08	7.022E-09	5.064E-09
NNW	7.595E-06	1.781E-06	5.774E-07	2.998E-07	1.899E-07	8.702E-08	3.291E-08	1.688E-08	1.098E-08	7.995E-09
N	1.538E-05	3.624E-06	1.210E-06	6.382E-07	4.088E-07	1.906E-07	7.397E-08	3.865E-08	2.542E-08	1.864E-08
NNE	9.594E-06	2.254E-06	7.523E-07	3.968E-07	2.542E-07	1.185E-07	4.599E-08	2.403E-08	1.581E-08	1.160E-08
NE	7.178E-06	1.679E-06	5.666E-07	3.006E-07	1.933E-07	9.065E-08	3.552E-08	1.869E-08	1.234E-08	9.080E-09
ENE	4.582E-06	1.070E-06	3.587E-07	1.897E-07	1.217E-07	5.693E-08	2.223E-08	1.167E-08	7.695E-09	5.656E-09
E	5.851E-06	1.380E-06	4.639E-07	2.456E-07	1.577E-07	7.375E-08	2.876E-08	1.508E-08	9.937E-09	7.299E-09
ESE	8.899E-06	2.082E-06	7.047E-07	3.745E-07	2.410E-07	1.132E-07	4.445E-08	2.341E-08	1.547E-08	1.139E-08
SE	1.386E-05	3.264E-06	1.088E-06	5.731E-07	3.668E-07	1.707E-07	6.607E-08	3.445E-08	2.263E-08	1.659E-08
SSE	1.336E-05	3.133E-06	1.038E-06	5.451E-07	3.481E-07	1.615E-07	6.224E-08	3.237E-08	2.123E-08	1.555E-08

VENTS GROUND LEVEL RELEASES - JAN-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.206E-05	2.312E-05	1.229E-05	6.171E-06	2.510E-06	1.368E-06	8.707E-07	6.092E-07	4.543E-07	3.545E-07	2.862E-07
SSW	3.492E-05	1.142E-05	5.985E-06	2.970E-06	1.197E-06	6.485E-07	4.109E-07	2.865E-07	2.130E-07	1.658E-07	1.336E-07
SW	1.895E-05	6.326E-06	3.342E-06	1.657E-06	6.562E-07	3.515E-07	2.208E-07	1.529E-07	1.130E-07	8.759E-08	7.028E-08
WSW	1.860E-05	5.969E-06	3.096E-06	1.531E-06	6.183E-07	3.356E-07	2.129E-07	1.486E-07	1.106E-07	8.613E-08	6.943E-08
W	1.459E-05	4.872E-06	2.621E-06	1.313E-06	5.183E-07	2.769E-07	1.736E-07	1.200E-07	8.860E-08	6.855E-08	5.494E-08
WNW	2.033E-05	6.846E-06	3.622E-06	1.795E-06	7.068E-07	3.770E-07	2.361E-07	1.631E-07	1.203E-07	9.307E-08	7.457E-08
NW	3.356E-05	1.104E-05	5.850E-06	2.914E-06	1.163E-06	6.264E-07	3.951E-07	2.745E-07	2.035E-07	1.581E-07	1.271E-07
NNW	4.629E-05	1.471E-05	7.716E-06	3.849E-06	1.571E-06	8.591E-07	5.480E-07	3.841E-07	2.869E-07	2.242E-07	1.812E-07
N	9.807E-05	3.008E-05	1.550E-05	7.711E-06	3.212E-06	1.779E-06	1.146E-06	8.093E-07	6.081E-07	4.775E-07	3.876E-07
NNE	6.115E-05	1.879E-05	9.657E-06	4.795E-06	1.996E-06	1.106E-06	7.117E-07	5.025E-07	3.774E-07	2.963E-07	2.405E-07
NE	4.687E-05	1.417E-05	7.183E-06	3.550E-06	1.489E-06	8.284E-07	5.351E-07	3.787E-07	2.850E-07	2.241E-07	1.821E-07
ENE	2.988E-05	9.038E-06	4.591E-06	2.270E-06	9.476E-07	5.258E-07	3.389E-07	2.395E-07	1.801E-07	1.415E-07	1.149E-07
E	3.789E-05	1.147E-05	5.876E-06	2.923E-06	1.223E-06	6.798E-07	4.386E-07	3.102E-07	2.333E-07	1.834E-07	1.489E-07
ESE	5.821E-05	1.759E-05	8.900E-06	4.396E-06	1.848E-06	1.030E-06	6.659E-07	4.718E-07	3.553E-07	2.796E-07	2.273E-07
SE	8.807E-05	2.710E-05	1.396E-05	6.947E-06	2.890E-06	1.599E-06	1.029E-06	7.262E-07	5.453E-07	4.279E-07	3.471E-07
SSE	8.448E-05	2.614E-05	1.347E-05	6.690E-06	2.771E-06	1.529E-06	9.818E-07	6.917E-07	5.186E-07	4.066E-07	3.295E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	2.372E-07	1.219E-07	7.850E-08	4.407E-08	2.906E-08	2.091E-08	1.590E-08	1.256E-08	1.021E-08	8.480E-09	7.166E-09
SSW	1.105E-07	5.645E-08	3.619E-08	2.019E-08	1.326E-08	9.503E-09	7.202E-09	5.674E-09	4.599E-09	3.810E-09	3.212E-09
SW	5.795E-08	2.925E-08	1.861E-08	1.030E-08	6.743E-09	4.827E-09	3.657E-09	2.882E-09	2.337E-09	1.938E-09	1.635E-09
WSW	5.747E-08	2.940E-08	1.886E-08	1.053E-08	6.909E-09	4.948E-09	3.745E-09	2.946E-09	2.384E-09	1.972E-09	1.659E-09
W	4.526E-08	2.277E-08	1.446E-08	7.974E-09	5.201E-09	3.714E-09	2.809E-09	2.210E-09	1.790E-09	1.482E-09	1.249E-09
WNW	6.141E-08	3.086E-08	1.959E-08	1.081E-08	7.064E-09	5.053E-09	3.828E-09	3.017E-09	2.448E-09	2.031E-09	1.715E-09
NW	1.050E-07	5.337E-08	3.413E-08	1.902E-08	1.250E-08	8.981E-09	6.825E-09	5.392E-09	4.385E-09	3.644E-09	3.083E-09
NNW	1.503E-07	7.760E-08	5.011E-08	2.823E-08	1.865E-08	1.343E-08	1.022E-08	8.081E-09	6.570E-09	5.459E-09	4.614E-09
N	3.228E-07	1.687E-07	1.098E-07	6.235E-08	4.134E-08	2.983E-08	2.272E-08	1.796E-08	1.459E-08	1.211E-08	1.023E-08
NNE	2.002E-07	1.045E-07	6.789E-08	3.847E-08	2.545E-08	1.832E-08	1.392E-08	1.098E-08	8.902E-09	7.373E-09	6.213E-09
NE	1.518E-07	7.949E-08	5.174E-08	2.935E-08	1.941E-08	1.395E-08	1.058E-08	8.331E-09	6.741E-09	5.572E-09	4.685E-09
ENE	9.569E-08	5.005E-08	3.256E-08	1.847E-08	1.222E-08	8.796E-09	6.679E-09	5.264E-09	4.265E-09	3.530E-09	2.972E-09
E	1.241E-07	6.491E-08	4.223E-08	2.396E-08	1.586E-08	1.142E-08	8.670E-09	6.836E-09	5.540E-09	4.586E-09	3.863E-09
ESE	1.895E-07	9.942E-08	6.480E-08	3.683E-08	2.440E-08	1.757E-08	1.334E-08	1.052E-08	8.520E-09	7.052E-09	5.936E-09
SE	2.889E-07	1.506E-07	9.774E-08	5.531E-08	3.656E-08	2.630E-08	1.997E-08	1.574E-08	1.276E-08	1.056E-08	8.896E-09
SSE	2.740E-07	1.424E-07	9.225E-08	5.207E-08	3.435E-08	2.468E-08	1.872E-08	1.474E-08	1.193E-08	9.871E-09	8.307E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.198E-05	2.816E-06	8.988E-07	4.605E-07	2.883E-07	1.282E-07	4.505E-08	2.108E-08	1.262E-08	8.506E-09
SSW	5.852E-06	1.347E-06	4.245E-07	2.160E-07	1.346E-07	5.946E-08	2.066E-08	9.583E-09	5.701E-09	3.823E-09
SW	3.256E-06	7.432E-07	2.285E-07	1.147E-07	7.084E-08	3.090E-08	1.057E-08	4.870E-09	2.896E-09	1.944E-09
WSW	3.039E-06	6.955E-07	2.199E-07	1.121E-07	6.995E-08	3.095E-08	1.077E-08	4.990E-09	2.960E-09	1.978E-09
W	2.540E-06	5.876E-07	1.797E-07	8.993E-08	5.539E-08	2.407E-08	8.183E-09	3.749E-09	2.221E-09	1.487E-09
WNW	3.527E-06	8.021E-07	2.445E-07	1.222E-07	7.518E-08	3.264E-08	1.110E-08	5.099E-09	3.032E-09	2.037E-09
NW	5.699E-06	1.314E-06	4.085E-07	2.065E-07	1.281E-07	5.630E-08	1.948E-08	9.057E-09	5.418E-09	3.656E-09
NNW	7.552E-06	1.761E-06	5.654E-07	2.908E-07	1.825E-07	8.155E-08	2.883E-08	1.354E-08	8.117E-09	5.475E-09
N	1.528E-05	3.575E-06	1.180E-06	6.158E-07	3.902E-07	1.767E-07	6.355E-08	3.006E-08	1.803E-08	1.215E-08
NNE	9.525E-06	2.222E-06	7.330E-07	3.823E-07	2.421E-07	1.095E-07	3.922E-08	1.846E-08	1.103E-08	7.396E-09
NE	7.121E-06	1.653E-06	5.508E-07	2.886E-07	1.833E-07	8.322E-08	2.991E-08	1.406E-08	8.369E-09	5.590E-09
ENE	4.547E-06	1.054E-06	3.490E-07	1.824E-07	1.156E-07	5.242E-08	1.882E-08	8.863E-09	5.288E-09	3.541E-09
E	5.807E-06	1.359E-06	4.516E-07	2.363E-07	1.499E-07	6.798E-08	2.442E-08	1.150E-08	6.866E-09	4.601E-09
ESE	8.830E-06	2.050E-06	6.853E-07	3.597E-07	2.288E-07	1.041E-07	3.752E-08	1.770E-08	1.056E-08	7.074E-09
SE	1.376E-05	3.218E-06	1.060E-06	5.523E-07	3.495E-07	1.578E-07	5.641E-08	2.650E-08	1.581E-08	1.060E-08
SSE	1.327E-05	3.090E-06	1.012E-06	5.254E-07	3.318E-07	1.493E-07	5.312E-08	2.487E-08	1.481E-08	9.902E-09

VENTS GROUND LEVEL RELEASES - JAN-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.831E-05	2.118E-05	1.100E-05	5.433E-06	2.150E-06	1.147E-06	7.160E-07	4.928E-07	3.621E-07	2.789E-07	2.225E-07
SSW	3.310E-05	1.046E-05	5.356E-06	2.615E-06	1.025E-06	5.433E-07	3.378E-07	2.317E-07	1.698E-07	1.305E-07	1.039E-07
SW	1.796E-05	5.791E-06	2.990E-06	1.458E-06	5.617E-07	2.941E-07	1.812E-07	1.234E-07	8.991E-08	6.873E-08	5.447E-08
WSW	1.763E-05	5.468E-06	2.772E-06	1.349E-06	5.302E-07	2.816E-07	1.754E-07	1.204E-07	8.835E-08	6.795E-08	5.414E-08
W	1.382E-05	4.460E-06	2.344E-06	1.155E-06	4.435E-07	2.317E-07	1.425E-07	9.684E-08	7.042E-08	5.375E-08	4.255E-08
WNW	1.926E-05	6.266E-06	3.239E-06	1.578E-06	6.044E-07	3.152E-07	1.935E-07	1.314E-07	9.552E-08	7.287E-08	5.765E-08
NW	3.181E-05	1.011E-05	5.232E-06	2.563E-06	9.951E-07	5.239E-07	3.241E-07	2.215E-07	1.618E-07	1.239E-07	9.842E-08
NNW	4.388E-05	1.347E-05	6.906E-06	3.389E-06	1.346E-06	7.201E-07	4.508E-07	3.109E-07	2.288E-07	1.765E-07	1.410E-07
N	9.299E-05	2.757E-05	1.389E-05	6.797E-06	2.757E-06	1.495E-06	9.453E-07	6.572E-07	4.869E-07	3.776E-07	3.030E-07
NNE	5.798E-05	1.722E-05	8.653E-06	4.228E-06	1.714E-06	9.293E-07	5.876E-07	4.084E-07	3.026E-07	2.346E-07	1.883E-07
NE	4.445E-05	1.299E-05	6.440E-06	3.133E-06	1.280E-06	6.974E-07	4.426E-07	3.085E-07	2.290E-07	1.779E-07	1.430E-07
ENE	2.833E-05	8.286E-06	4.115E-06	2.002E-06	8.143E-07	4.423E-07	2.801E-07	1.949E-07	1.446E-07	1.122E-07	9.009E-08
E	3.593E-05	1.052E-05	5.267E-06	2.578E-06	1.051E-06	5.718E-07	3.624E-07	2.524E-07	1.872E-07	1.453E-07	1.167E-07
ESE	5.521E-05	1.613E-05	7.979E-06	3.878E-06	1.588E-06	8.667E-07	5.506E-07	3.841E-07	2.854E-07	2.219E-07	1.784E-07
SE	8.351E-05	2.484E-05	1.251E-05	6.125E-06	2.482E-06	1.344E-06	8.496E-07	5.902E-07	4.370E-07	3.387E-07	2.717E-07
SSE	8.011E-05	2.396E-05	1.207E-05	5.898E-06	2.379E-06	1.285E-06	8.104E-07	5.621E-07	4.156E-07	3.218E-07	2.579E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	1.824E-07	9.004E-08	5.612E-08	3.006E-08	1.916E-08	1.343E-08	9.996E-09	7.754E-09	6.200E-09	5.075E-09	4.231E-09
SSW	8.500E-08	4.172E-08	2.590E-08	1.380E-08	8.773E-09	6.134E-09	4.556E-09	3.529E-09	2.818E-09	2.303E-09	1.917E-09
SW	4.441E-08	2.150E-08	1.323E-08	6.968E-09	4.399E-09	3.061E-09	2.266E-09	1.750E-09	1.395E-09	1.138E-09	9.467E-10
WSW	4.434E-08	2.183E-08	1.359E-08	7.264E-09	4.628E-09	3.241E-09	2.410E-09	1.868E-09	1.493E-09	1.221E-09	1.017E-09
W	3.465E-08	1.671E-08	1.025E-08	5.373E-09	3.377E-09	2.342E-09	1.728E-09	1.332E-09	1.059E-09	8.628E-10	7.164E-10
WNW	4.693E-08	2.260E-08	1.385E-08	7.258E-09	4.565E-09	3.169E-09	2.341E-09	1.805E-09	1.437E-09	1.171E-09	9.731E-10
NW	8.039E-08	3.918E-08	2.422E-08	1.283E-08	8.130E-09	5.673E-09	4.208E-09	3.256E-09	2.599E-09	2.124E-09	1.768E-09
NNW	1.157E-07	5.741E-08	3.591E-08	1.932E-08	1.236E-08	8.680E-09	6.471E-09	5.026E-09	4.024E-09	3.296E-09	2.750E-09
N	2.497E-07	1.258E-07	7.942E-08	4.328E-08	2.789E-08	1.970E-08	1.474E-08	1.149E-08	9.219E-09	7.567E-09	6.323E-09
NNE	1.551E-07	7.809E-08	4.930E-08	2.685E-08	1.729E-08	1.221E-08	9.131E-09	7.111E-09	5.703E-09	4.678E-09	3.906E-09
NE	1.180E-07	5.971E-08	3.782E-08	2.068E-08	1.335E-08	9.436E-09	7.066E-09	5.506E-09	4.418E-09	3.625E-09	3.027E-09
ENE	7.430E-08	3.751E-08	2.373E-08	1.296E-08	8.359E-09	5.907E-09	4.423E-09	3.446E-09	2.765E-09	2.269E-09	1.896E-09
E	9.629E-08	4.861E-08	3.074E-08	1.678E-08	1.082E-08	7.644E-09	5.722E-09	4.458E-09	3.576E-09	2.934E-09	2.451E-09
ESE	1.473E-07	7.462E-08	4.731E-08	2.590E-08	1.673E-08	1.184E-08	8.870E-09	6.916E-09	5.552E-09	4.558E-09	3.808E-09
SE	2.238E-07	1.125E-07	7.095E-08	3.858E-08	2.482E-08	1.750E-08	1.309E-08	1.018E-08	8.165E-09	6.695E-09	5.589E-09
SSE	2.123E-07	1.064E-07	6.696E-08	3.632E-08	2.333E-08	1.644E-08	1.228E-08	9.549E-09	7.650E-09	6.269E-09	5.230E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
	SEGMENT BOUNDARIES IN MILES FROM THE SITE									
S	1.079E-05	2.434E-06	7.416E-07	3.678E-07	2.243E-07	9.548E-08	3.101E-08	1.359E-08	7.803E-09	5.096E-09
SSW	5.271E-06	1.164E-06	3.502E-07	1.725E-07	1.048E-07	4.431E-08	1.426E-08	6.207E-09	3.551E-09	2.313E-09
SW	2.932E-06	6.419E-07	1.882E-07	9.142E-08	5.497E-08	2.291E-08	7.217E-09	3.100E-09	1.762E-09	1.143E-09
WSW	2.739E-06	6.016E-07	1.817E-07	8.975E-08	5.460E-08	2.317E-08	7.497E-09	3.279E-09	1.880E-09	1.226E-09
W	2.286E-06	5.075E-07	1.480E-07	7.162E-08	4.294E-08	1.783E-08	5.570E-09	2.372E-09	1.341E-09	8.667E-10
WNW	3.174E-06	6.923E-07	2.011E-07	9.715E-08	5.819E-08	2.412E-08	7.526E-09	3.210E-09	1.818E-09	1.176E-09
NW	5.129E-06	1.134E-06	3.363E-07	1.644E-07	9.930E-08	4.169E-08	1.327E-08	5.742E-09	3.278E-09	2.133E-09
NNW	6.802E-06	1.522E-06	4.667E-07	2.323E-07	1.421E-07	6.081E-08	1.991E-08	8.776E-09	5.057E-09	3.309E-09
N	1.378E-05	3.094E-06	9.766E-07	4.939E-07	3.054E-07	1.327E-07	4.447E-08	1.990E-08	1.155E-08	7.596E-09
NNE	8.590E-06	1.924E-06	6.071E-07	3.069E-07	1.897E-07	8.242E-08	2.759E-08	1.233E-08	7.152E-09	4.696E-09
NE	6.427E-06	1.433E-06	4.569E-07	2.323E-07	1.441E-07	6.294E-08	2.123E-08	9.531E-09	5.537E-09	3.638E-09
ENE	4.103E-06	9.130E-07	2.893E-07	1.466E-07	9.079E-08	3.956E-08	1.331E-08	5.967E-09	3.466E-09	2.278E-09
E	5.238E-06	1.177E-06	3.742E-07	1.899E-07	1.176E-07	5.126E-08	1.723E-08	7.722E-09	4.483E-09	2.945E-09
ESE	7.968E-06	1.777E-06	5.683E-07	2.894E-07	1.797E-07	7.862E-08	2.658E-08	1.196E-08	6.955E-09	4.575E-09
SE	1.241E-05	2.786E-06	8.778E-07	4.433E-07	2.738E-07	1.188E-07	3.966E-08	1.769E-08	1.024E-08	6.721E-09
SSE	1.197E-05	2.675E-06	8.377E-07	4.217E-07	2.599E-07	1.124E-07	3.736E-08	1.661E-08	9.605E-09	6.293E-09

VENTS GROUND LEVEL RELEASES - JAN-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.408E-07	8.142E-08	4.180E-08	1.987E-08	7.139E-09	3.540E-09	2.085E-09	1.365E-09	9.604E-10	7.118E-10	5.485E-10
SSW	1.273E-07	4.304E-08	2.210E-08	1.051E-08	3.774E-09	1.872E-09	1.102E-09	7.216E-10	5.078E-10	3.763E-10	2.900E-10
SW	7.451E-08	2.520E-08	1.294E-08	6.150E-09	2.209E-09	1.096E-09	6.451E-10	4.224E-10	2.972E-10	2.203E-10	1.698E-10
WSW	5.216E-08	1.764E-08	9.057E-09	4.306E-09	1.547E-09	7.670E-10	4.516E-10	2.957E-10	2.081E-10	1.542E-10	1.188E-10
W	5.615E-08	1.899E-08	9.749E-09	4.635E-09	1.665E-09	8.257E-10	4.862E-10	3.183E-10	2.240E-10	1.660E-10	1.279E-10
WNW	1.024E-07	3.463E-08	1.778E-08	8.452E-09	3.036E-09	1.506E-09	8.865E-10	5.805E-10	4.085E-10	3.027E-10	2.333E-10
NW	1.900E-07	6.424E-08	3.298E-08	1.568E-08	5.633E-09	2.793E-09	1.645E-09	1.077E-09	7.578E-10	5.616E-10	4.328E-10
NNW	1.921E-07	6.497E-08	3.336E-08	1.586E-08	5.696E-09	2.825E-09	1.663E-09	1.089E-09	7.664E-10	5.680E-10	4.377E-10
N	2.857E-07	9.660E-08	4.960E-08	2.358E-08	8.470E-09	4.201E-09	2.473E-09	1.620E-09	1.140E-09	8.446E-10	6.508E-10
NNE	1.688E-07	5.709E-08	2.931E-08	1.394E-08	5.006E-09	2.482E-09	1.462E-09	9.571E-10	6.734E-10	4.991E-10	3.846E-10
NE	9.453E-08	3.196E-08	1.641E-08	7.802E-09	2.803E-09	1.390E-09	8.184E-10	5.359E-10	3.771E-10	2.794E-10	2.153E-10
ENE	6.930E-08	2.343E-08	1.203E-08	5.720E-09	2.055E-09	1.019E-09	6.000E-10	3.929E-10	2.765E-10	2.049E-10	1.579E-10
E	7.908E-08	2.674E-08	1.373E-08	6.527E-09	2.345E-09	1.163E-09	6.847E-10	4.483E-10	3.155E-10	2.338E-10	1.802E-10
ESE	1.162E-07	3.929E-08	2.018E-08	9.592E-09	3.445E-09	1.709E-09	1.006E-09	6.588E-10	4.635E-10	3.435E-10	2.647E-10
SE	2.269E-07	7.672E-08	3.939E-08	1.873E-08	6.727E-09	3.336E-09	1.964E-09	1.286E-09	9.051E-10	6.708E-10	5.169E-10
SSE	2.402E-07	8.122E-08	4.170E-08	1.983E-08	7.122E-09	3.532E-09	2.080E-09	1.362E-09	9.582E-10	7.101E-10	5.472E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	4.358E-10	1.936E-10	1.173E-10	5.927E-11	3.587E-11	2.405E-11	1.723E-11	1.294E-11	1.006E-11	8.038E-12	6.561E-12
SSW	2.304E-10	1.023E-10	6.199E-11	3.133E-11	1.897E-11	1.272E-11	9.111E-12	6.842E-12	5.320E-12	4.249E-12	3.468E-12
SW	1.349E-10	5.991E-11	3.629E-11	1.834E-11	1.110E-11	7.444E-12	5.334E-12	4.005E-12	3.114E-12	2.487E-12	2.030E-12
WSW	9.441E-11	4.194E-11	2.541E-11	1.284E-11	7.772E-12	5.211E-12	3.734E-12	2.804E-12	2.180E-12	1.741E-12	1.421E-12
W	1.016E-10	4.515E-11	2.735E-11	1.382E-11	8.367E-12	5.610E-12	4.020E-12	3.018E-12	2.347E-12	1.875E-12	1.530E-12
WNW	1.853E-10	8.233E-11	4.987E-11	2.521E-11	1.526E-11	1.023E-11	7.330E-12	5.504E-12	4.279E-12	3.418E-12	2.790E-12
NW	3.438E-10	1.527E-10	9.252E-11	4.676E-11	2.830E-11	1.898E-11	1.360E-11	1.021E-11	7.939E-12	6.342E-12	5.176E-12
NNW	3.477E-10	1.545E-10	9.357E-11	4.729E-11	2.862E-11	1.919E-11	1.375E-11	1.033E-11	8.029E-12	6.414E-12	5.235E-12
N	5.170E-10	2.297E-10	1.391E-10	7.033E-11	4.257E-11	2.854E-11	2.045E-11	1.536E-11	1.194E-11	9.537E-12	7.784E-12
NNE	3.055E-10	1.357E-10	8.222E-11	4.156E-11	2.515E-11	1.686E-11	1.208E-11	9.074E-12	7.055E-12	5.636E-12	4.600E-12
NE	1.711E-10	7.600E-11	4.604E-11	2.327E-11	1.408E-11	9.443E-12	6.766E-12	5.081E-12	3.950E-12	3.156E-12	2.576E-12
ENE	1.254E-10	5.572E-11	3.375E-11	1.706E-11	1.033E-11	6.923E-12	4.961E-12	3.725E-12	2.896E-12	2.314E-12	1.888E-12
E	1.431E-10	6.358E-11	3.851E-11	1.947E-11	1.178E-11	7.900E-12	5.661E-12	4.251E-12	3.305E-12	2.640E-12	2.155E-12
ESE	2.103E-10	9.343E-11	5.659E-11	2.861E-11	1.731E-11	1.161E-11	8.318E-12	6.246E-12	4.856E-12	3.879E-12	3.166E-12
SE	4.106E-10	1.824E-10	1.105E-10	5.585E-11	3.381E-11	2.267E-11	1.624E-11	1.220E-11	9.482E-12	7.574E-12	6.182E-12
SSE	4.347E-10	1.931E-10	1.170E-10	5.913E-11	3.579E-11	2.399E-11	1.719E-11	1.291E-11	1.004E-11	8.019E-12	6.545E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.086E-08	8.369E-09	2.185E-09	9.813E-10	5.551E-10	2.135E-10	6.176E-11	2.448E-11	1.307E-11	8.090E-12
SSW	2.160E-08	4.425E-09	1.155E-09	5.188E-10	2.935E-10	1.129E-10	3.265E-11	1.294E-11	6.910E-12	4.277E-12
SW	1.265E-08	2.590E-09	6.762E-10	3.037E-10	1.718E-10	6.607E-11	1.911E-11	7.575E-12	4.045E-12	2.504E-12
WSW	8.852E-09	1.813E-09	4.734E-10	2.126E-10	1.203E-10	4.625E-11	1.338E-11	5.303E-12	2.832E-12	1.753E-12
W	9.529E-09	1.952E-09	5.096E-10	2.289E-10	1.295E-10	4.979E-11	1.440E-11	5.709E-12	3.049E-12	1.887E-12
WNW	1.738E-08	3.559E-09	9.292E-10	4.173E-10	2.361E-10	9.079E-11	2.626E-11	1.041E-11	5.559E-12	3.441E-12
NW	3.224E-08	6.604E-09	1.724E-09	7.742E-10	4.380E-10	1.684E-10	4.873E-11	1.931E-11	1.031E-11	6.383E-12
NNW	3.260E-08	6.678E-09	1.743E-09	7.830E-10	4.430E-10	1.703E-10	4.928E-11	1.953E-11	1.043E-11	6.456E-12
N	4.848E-08	9.931E-09	2.592E-09	1.164E-09	6.587E-10	2.533E-10	7.328E-11	2.904E-11	1.551E-11	9.600E-12
NNE	2.865E-08	5.868E-09	1.532E-09	6.881E-10	3.892E-10	1.497E-10	4.330E-11	1.716E-11	9.165E-12	5.673E-12
NE	1.604E-08	3.286E-09	8.578E-10	3.853E-10	2.179E-10	8.381E-11	2.425E-11	9.610E-12	5.132E-12	3.176E-12
ENE	1.176E-08	2.409E-09	6.289E-10	2.825E-10	1.598E-10	6.145E-11	1.778E-11	7.046E-12	3.762E-12	2.329E-12
E	1.342E-08	2.749E-09	7.176E-10	3.223E-10	1.823E-10	7.012E-11	2.028E-11	8.040E-12	4.293E-12	2.657E-12
ESE	1.972E-08	4.039E-09	1.054E-09	4.736E-10	2.679E-10	1.030E-10	2.981E-11	1.181E-11	6.308E-12	3.905E-12
SE	3.850E-08	7.887E-09	2.059E-09	9.247E-10	5.231E-10	2.012E-10	5.820E-11	2.307E-11	1.232E-11	7.624E-12
SSE	4.076E-08	8.349E-09	2.180E-09	9.789E-10	5.538E-10	2.130E-10	6.161E-11	2.442E-11	1.304E-11	8.071E-12

VENTS GROUND LEVEL RELEASES - JAN-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	1.1E-05	1.1E-05	9.4E-06	3.6E-08
A	Site Boundary	SSW	.82	4.8E-06	4.8E-06	4.2E-06	1.7E-08
A	Site Boundary	SW	.97	1.8E-06	1.8E-06	1.6E-06	6.6E-09
A	Site Boundary	WSW	.93	1.9E-06	1.8E-06	1.6E-06	5.3E-09
A	Site Boundary	W	.91	1.6E-06	1.6E-06	1.4E-06	5.9E-09
A	Site Boundary	WNW	.94	2.1E-06	2.1E-06	1.9E-06	1.0E-08
A	Site Boundary	NW	.81	4.9E-06	4.8E-06	4.3E-06	2.7E-08
A	Site Boundary	NNW	.69	8.9E-06	8.8E-06	7.9E-06	3.9E-08
A	Site Boundary	N	.67	1.8E-05	1.8E-05	1.6E-05	5.9E-08
A	Site Boundary	NNE	.60	1.4E-05	1.4E-05	1.3E-05	4.2E-08
A	Site Boundary	NE	.62	9.7E-06	9.7E-06	8.8E-06	2.2E-08
A	Site Boundary	ENE	.59	6.9E-06	6.9E-06	6.3E-06	1.8E-08
A	Site Boundary	E	.53	1.1E-05	1.1E-05	9.6E-06	2.5E-08
A	Site Boundary	ESE	.54	1.6E-05	1.6E-05	1.4E-05	3.5E-08
A	Site Boundary	SE	.65	1.8E-05	1.8E-05	1.6E-05	5.0E-08
A	Site Boundary	SSE	.81	1.1E-05	1.1E-05	9.9E-06	3.4E-08
A	Nearest Res	SW	1.30	9.1E-07	9.0E-07	7.8E-07	3.2E-09
A	Nearest Res	WSW	1.80	4.3E-07	4.2E-07	3.5E-07	9.9E-10
A	Nearest Res	WNW	2.40	2.6E-07	2.6E-07	2.1E-07	9.8E-10
A	Nearest Res	NW	.90	3.8E-06	3.8E-06	3.3E-06	2.1E-08
A	Nearest Res	NNW	1.90	9.7E-07	9.6E-07	8.0E-07	3.2E-09
A	Nearest Res	NE	1.60	1.3E-06	1.3E-06	1.1E-06	2.4E-09
A	Nearest Res	ENE	1.70	7.5E-07	7.3E-07	6.2E-07	1.5E-09
A	Nearest Res	E	2.00	7.0E-07	6.8E-07	5.7E-07	1.2E-09
A	Nearest Res	SE	2.90	8.0E-07	7.7E-07	6.3E-07	1.4E-09
A	Nearest Cow	NNW	3.50	3.0E-07	2.9E-07	2.3E-07	7.7E-10
A	Nearest Garde	SW	2.20	2.9E-07	2.9E-07	2.4E-07	8.7E-10
A	Nearest Garde	WSW	2.40	2.4E-07	2.3E-07	1.9E-07	5.0E-10
A	Nearest Garde	WNW	2.60	2.2E-07	2.2E-07	1.8E-07	8.1E-10
A	Nearest Garde	NNW	2.70	4.8E-07	4.7E-07	3.9E-07	1.4E-09
A	Nearest Garde	ENE	1.70	7.5E-07	7.3E-07	6.2E-07	1.5E-09
A	Nearest Garde	E	2.00	7.0E-07	6.8E-07	5.7E-07	1.2E-09
A	Nearest Garde	ESE	2.20	8.8E-07	8.5E-07	7.1E-07	1.4E-09
A	Nearest Garde	SE	2.90	8.0E-07	7.7E-07	6.3E-07	1.4E-09

Atmospheric Diffusion Estimates

Elevated Releases

January-March 2024

ERP ELEVATED STACK RELEASES - JAN-MAR 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.472E-11	4.368E-09	3.578E-08	6.538E-08	8.212E-08	7.466E-08	6.350E-08	5.354E-08	4.549E-08	5.380E-08	6.001E-08
SSW	6.256E-09	3.067E-08	4.578E-08	4.991E-08	4.916E-08	4.236E-08	3.541E-08	3.876E-08	3.972E-08	3.456E-08	3.049E-08
SW	1.520E-09	1.272E-08	4.978E-08	1.026E-07	1.602E-07	1.075E-07	7.685E-08	5.791E-08	4.547E-08	3.688E-08	3.070E-08
WSW	5.137E-16	6.360E-10	3.376E-08	1.047E-07	2.015E-07	1.297E-07	9.074E-08	6.760E-08	5.273E-08	4.259E-08	3.535E-08
W	2.165E-13	2.618E-08	1.410E-07	1.969E-07	1.935E-07	1.217E-07	8.407E-08	6.210E-08	4.816E-08	3.873E-08	3.205E-08
WNW	7.932E-11	8.985E-09	9.528E-08	1.883E-07	2.670E-07	1.659E-07	1.141E-07	8.884E-08	7.221E-08	5.778E-08	4.761E-08
NW	1.187E-10	7.878E-09	6.650E-08	1.633E-07	2.565E-07	1.524E-07	1.021E-07	7.593E-08	5.943E-08	4.720E-08	3.865E-08
NNW	5.126E-11	3.147E-09	2.026E-08	4.774E-08	8.513E-08	8.703E-08	8.116E-08	7.309E-08	6.637E-08	5.246E-08	4.279E-08
N	7.602E-11	4.766E-09	1.845E-08	2.971E-08	3.746E-08	3.616E-08	3.217E-08	2.754E-08	2.371E-08	2.063E-08	1.814E-08
NNE	1.799E-10	1.033E-08	2.840E-08	3.893E-08	4.404E-08	3.986E-08	3.422E-08	2.918E-08	2.504E-08	2.172E-08	1.906E-08
NE	2.163E-11	1.445E-09	9.154E-09	1.820E-08	2.654E-08	2.618E-08	2.336E-08	2.030E-08	1.760E-08	1.534E-08	1.349E-08
ENE	4.508E-16	4.508E-10	8.200E-09	1.746E-08	2.517E-08	2.455E-08	2.180E-08	1.893E-08	1.643E-08	1.435E-08	1.265E-08
E	2.163E-11	1.571E-09	1.035E-08	1.908E-08	2.489E-08	2.310E-08	1.988E-08	1.689E-08	1.442E-08	1.244E-08	1.086E-08
ESE	4.562E-16	5.528E-10	1.031E-08	2.183E-08	3.047E-08	2.885E-08	2.503E-08	2.134E-08	1.825E-08	1.575E-08	1.375E-08
SE	2.936E-15	2.262E-09	3.499E-08	6.671E-08	8.320E-08	7.437E-08	6.236E-08	5.198E-08	4.374E-08	3.729E-08	3.222E-08
SSE	2.283E-10	1.453E-08	5.387E-08	8.240E-08	9.555E-08	8.500E-08	7.154E-08	5.992E-08	5.064E-08	4.333E-08	3.757E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	5.393E-08	3.849E-08	2.530E-08	1.473E-08	1.060E-08	8.164E-09	6.387E-09	5.196E-09	4.402E-09	3.796E-09	3.299E-09
SSW	2.809E-08	2.238E-08	1.461E-08	8.451E-09	6.115E-09	4.621E-09	3.612E-09	2.936E-09	2.457E-09	2.100E-09	1.826E-09
SW	2.786E-08	2.140E-08	1.414E-08	8.295E-09	6.061E-09	4.721E-09	3.853E-09	3.136E-09	2.626E-09	2.247E-09	1.955E-09
WSW	3.136E-08	2.107E-08	1.526E-08	9.646E-09	6.523E-09	4.827E-09	3.779E-09	3.074E-09	2.573E-09	2.200E-09	1.914E-09
W	2.711E-08	1.495E-08	1.093E-08	7.485E-09	5.782E-09	4.315E-09	3.380E-09	2.752E-09	2.306E-09	1.973E-09	1.718E-09
WNW	4.075E-08	2.363E-08	1.648E-08	1.039E-08	7.240E-09	5.472E-09	4.374E-09	3.600E-09	3.026E-09	2.592E-09	2.258E-09
NW	3.288E-08	1.867E-08	1.296E-08	8.054E-09	5.454E-09	4.040E-09	3.237E-09	2.648E-09	2.217E-09	1.896E-09	1.650E-09
NNW	3.657E-08	2.085E-08	1.356E-08	7.809E-09	5.296E-09	3.926E-09	3.107E-09	2.550E-09	2.167E-09	1.860E-09	1.617E-09
N	1.616E-08	1.050E-08	9.146E-09	8.895E-09	9.286E-09	8.649E-09	6.927E-09	5.706E-09	4.808E-09	4.137E-09	3.618E-09
NNE	2.097E-08	3.508E-08	2.299E-08	1.340E-08	9.171E-09	6.850E-09	5.405E-09	4.428E-09	3.728E-09	3.204E-09	2.800E-09
NE	1.461E-08	2.431E-08	1.595E-08	9.302E-09	6.371E-09	4.761E-09	3.820E-09	3.165E-09	2.695E-09	2.315E-09	2.021E-09
ENE	1.354E-08	2.802E-08	1.910E-08	1.167E-08	8.219E-09	6.266E-09	5.438E-09	4.734E-09	4.005E-09	3.457E-09	3.032E-09
E	1.134E-08	1.812E-08	1.217E-08	7.293E-09	5.076E-09	3.834E-09	3.051E-09	2.516E-09	2.241E-09	2.007E-09	1.756E-09
ESE	1.405E-08	2.005E-08	1.371E-08	8.404E-09	5.928E-09	4.521E-09	3.623E-09	3.005E-09	2.555E-09	2.216E-09	1.950E-09
SE	2.818E-08	1.701E-08	1.290E-08	9.153E-09	6.740E-09	5.374E-09	4.504E-09	3.897E-09	3.275E-09	2.811E-09	2.452E-09
SSE	3.944E-08	4.977E-08	3.225E-08	1.850E-08	1.253E-08	9.284E-09	7.276E-09	5.928E-09	4.967E-09	4.253E-09	3.702E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.195E-08	7.508E-08	6.249E-08	5.095E-08	5.592E-08	3.606E-08	1.524E-08	8.102E-09	5.234E-09	3.791E-09
SSW	4.426E-08	4.631E-08	3.860E-08	3.748E-08	3.080E-08	2.020E-08	8.782E-09	4.616E-09	2.947E-09	2.104E-09
SW	6.500E-08	1.240E-07	7.745E-08	4.575E-08	3.148E-08	1.961E-08	8.601E-09	4.731E-09	3.147E-09	2.251E-09
WSW	5.792E-08	1.480E-07	9.186E-08	5.311E-08	3.601E-08	2.077E-08	9.506E-09	4.860E-09	3.085E-09	2.205E-09
W	1.404E-07	1.624E-07	8.532E-08	4.855E-08	3.220E-08	1.587E-08	7.495E-09	4.332E-09	2.761E-09	1.977E-09
WNW	1.174E-07	2.046E-07	1.178E-07	7.146E-08	4.808E-08	2.426E-08	1.034E-08	5.504E-09	3.603E-09	2.597E-09
NW	9.649E-08	1.895E-07	1.051E-07	5.948E-08	3.905E-08	1.929E-08	7.989E-09	4.096E-09	2.652E-09	1.900E-09
NNW	2.867E-08	7.767E-08	7.950E-08	6.299E-08	4.335E-08	2.111E-08	7.971E-09	3.964E-09	2.563E-09	1.861E-09
N	2.041E-08	3.516E-08	3.138E-08	2.363E-08	1.815E-08	1.116E-08	9.124E-09	8.130E-09	5.713E-09	4.143E-09
NNE	2.907E-08	4.105E-08	3.371E-08	2.496E-08	2.056E-08	2.657E-08	1.365E-08	6.891E-09	4.440E-09	3.210E-09
NE	1.146E-08	2.453E-08	2.289E-08	1.751E-08	1.445E-08	1.844E-08	9.476E-09	4.814E-09	3.173E-09	2.319E-09
ENE	1.059E-08	2.318E-08	2.139E-08	1.635E-08	1.348E-08	2.084E-08	1.179E-08	6.456E-09	4.657E-09	3.462E-09
E	1.228E-08	2.280E-08	1.954E-08	1.437E-08	1.151E-08	1.397E-08	7.391E-09	3.852E-09	2.564E-09	1.983E-09
ESE	1.326E-08	2.783E-08	2.457E-08	1.818E-08	1.446E-08	1.590E-08	8.484E-09	4.537E-09	3.010E-09	2.218E-09
SE	4.182E-08	7.561E-08	6.141E-08	4.364E-08	3.223E-08	1.767E-08	8.914E-09	5.390E-09	3.834E-09	2.815E-09
SSE	5.780E-08	8.794E-08	7.048E-08	5.051E-08	3.997E-08	3.969E-08	1.890E-08	9.347E-09	5.947E-09	4.261E-09

ERP ELEVATED STACK RELEASES - JAN-MAR 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.471E-11	4.365E-09	3.574E-08	6.529E-08	8.193E-08	7.442E-08	6.324E-08	5.327E-08	4.521E-08	5.340E-08	5.947E-08
SSW	6.255E-09	3.065E-08	4.573E-08	4.984E-08	4.905E-08	4.223E-08	3.527E-08	3.856E-08	3.947E-08	3.430E-08	3.023E-08
SW	1.520E-09	1.271E-08	4.972E-08	1.024E-07	1.597E-07	1.070E-07	7.641E-08	5.751E-08	4.510E-08	3.654E-08	3.037E-08
WSW	5.135E-16	6.355E-10	3.371E-08	1.044E-07	2.007E-07	1.290E-07	9.014E-08	6.705E-08	5.222E-08	4.212E-08	3.491E-08
W	2.164E-13	2.616E-08	1.408E-07	1.965E-07	1.928E-07	1.211E-07	8.353E-08	6.161E-08	4.771E-08	3.832E-08	3.166E-08
WNW	7.930E-11	8.980E-09	9.519E-08	1.880E-07	2.663E-07	1.653E-07	1.136E-07	8.833E-08	7.172E-08	5.733E-08	4.719E-08
NW	1.187E-10	7.874E-09	6.643E-08	1.630E-07	2.557E-07	1.518E-07	1.016E-07	7.545E-08	5.899E-08	4.680E-08	3.829E-08
NNW	5.125E-11	3.146E-09	2.023E-08	4.763E-08	8.482E-08	8.662E-08	8.069E-08	7.261E-08	6.589E-08	5.203E-08	4.240E-08
N	7.601E-11	4.764E-09	1.843E-08	2.967E-08	3.738E-08	3.604E-08	3.205E-08	2.741E-08	2.358E-08	2.049E-08	1.801E-08
NNE	1.799E-10	1.033E-08	2.838E-08	3.889E-08	4.396E-08	3.976E-08	3.410E-08	2.905E-08	2.491E-08	2.159E-08	1.893E-08
NE	2.162E-11	1.444E-09	9.142E-09	1.816E-08	2.643E-08	2.604E-08	2.319E-08	2.013E-08	1.742E-08	1.517E-08	1.332E-08
ENE	4.507E-16	4.504E-10	8.189E-09	1.742E-08	2.508E-08	2.443E-08	2.166E-08	1.879E-08	1.628E-08	1.420E-08	1.250E-08
E	2.162E-11	1.570E-09	1.034E-08	1.905E-08	2.481E-08	2.299E-08	1.976E-08	1.676E-08	1.429E-08	1.231E-08	1.073E-08
ESE	4.561E-16	5.524E-10	1.030E-08	2.178E-08	3.037E-08	2.872E-08	2.488E-08	2.119E-08	1.810E-08	1.560E-08	1.360E-08
SE	2.935E-15	2.261E-09	3.496E-08	6.663E-08	8.303E-08	7.416E-08	6.213E-08	5.174E-08	4.350E-08	3.706E-08	3.199E-08
SSE	2.282E-10	1.452E-08	5.382E-08	8.230E-08	9.537E-08	8.478E-08	7.131E-08	5.968E-08	5.040E-08	4.310E-08	3.734E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	5.337E-08	3.778E-08	2.466E-08	1.416E-08	1.002E-08	7.599E-09	5.857E-09	4.694E-09	3.914E-09	3.323E-09	2.845E-09
SSW	2.781E-08	2.202E-08	1.430E-08	8.179E-09	5.852E-09	4.374E-09	3.381E-09	2.718E-09	2.249E-09	1.901E-09	1.635E-09
SW	2.753E-08	2.098E-08	1.376E-08	7.960E-09	5.725E-09	4.389E-09	3.523E-09	2.825E-09	2.331E-09	1.965E-09	1.684E-09
WSW	3.092E-08	2.061E-08	1.481E-08	9.210E-09	6.133E-09	4.468E-09	3.445E-09	2.759E-09	2.274E-09	1.915E-09	1.641E-09
W	2.675E-08	1.465E-08	1.064E-08	7.176E-09	5.461E-09	4.016E-09	3.101E-09	2.490E-09	2.057E-09	1.736E-09	1.490E-09
WNW	4.034E-08	2.327E-08	1.613E-08	1.005E-08	6.920E-09	5.169E-09	4.082E-09	3.321E-09	2.759E-09	2.336E-09	2.011E-09
NW	3.254E-08	1.839E-08	1.270E-08	7.818E-09	5.244E-09	3.848E-09	3.055E-09	2.476E-09	2.054E-09	1.741E-09	1.501E-09
NNW	3.620E-08	2.055E-08	1.330E-08	7.591E-09	5.103E-09	3.751E-09	2.943E-09	2.395E-09	2.019E-09	1.719E-09	1.482E-09
N	1.603E-08	1.037E-08	8.992E-09	8.653E-09	8.932E-09	8.227E-09	6.522E-09	5.319E-09	4.438E-09	3.781E-09	3.274E-09
NNE	2.081E-08	3.453E-08	2.251E-08	1.297E-08	8.786E-09	6.492E-09	5.067E-09	4.106E-09	3.420E-09	2.908E-09	2.514E-09
NE	1.441E-08	2.384E-08	1.554E-08	8.952E-09	6.054E-09	4.468E-09	3.540E-09	2.897E-09	2.436E-09	2.067E-09	1.782E-09
ENE	1.336E-08	2.748E-08	1.860E-08	1.121E-08	7.794E-09	5.863E-09	5.018E-09	4.307E-09	3.596E-09	3.063E-09	2.652E-09
E	1.119E-08	1.770E-08	1.179E-08	6.953E-09	4.761E-09	3.539E-09	2.771E-09	2.249E-09	1.969E-09	1.734E-09	1.493E-09
ESE	1.388E-08	1.966E-08	1.336E-08	8.073E-09	5.617E-09	4.225E-09	3.340E-09	2.733E-09	2.293E-09	1.961E-09	1.704E-09
SE	2.796E-08	1.681E-08	1.269E-08	8.926E-09	6.516E-09	5.151E-09	4.279E-09	3.671E-09	3.059E-09	2.602E-09	2.251E-09
SSE	3.918E-08	4.913E-08	3.170E-08	1.802E-08	1.209E-08	8.878E-09	6.895E-09	5.566E-09	4.621E-09	3.920E-09	3.382E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.190E-08	7.489E-08	6.223E-08	5.063E-08	5.541E-08	3.541E-08	1.465E-08	7.549E-09	4.729E-09	3.321E-09
SSW	4.421E-08	4.620E-08	3.844E-08	3.724E-08	3.054E-08	1.988E-08	8.505E-09	4.371E-09	2.729E-09	1.906E-09
SW	6.489E-08	1.236E-07	7.702E-08	4.538E-08	3.115E-08	1.923E-08	8.256E-09	4.399E-09	2.836E-09	1.969E-09
WSW	5.780E-08	1.474E-07	9.126E-08	5.261E-08	3.557E-08	2.032E-08	9.086E-09	4.503E-09	2.770E-09	1.920E-09
W	1.401E-07	1.618E-07	8.478E-08	4.810E-08	3.182E-08	1.555E-08	7.183E-09	4.035E-09	2.500E-09	1.740E-09
WNW	1.173E-07	2.040E-07	1.173E-07	7.098E-08	4.766E-08	2.389E-08	1.001E-08	5.201E-09	3.324E-09	2.341E-09
NW	9.634E-08	1.889E-07	1.045E-07	5.905E-08	3.868E-08	1.901E-08	7.759E-09	3.903E-09	2.480E-09	1.745E-09
NNW	2.861E-08	7.736E-08	7.904E-08	6.253E-08	4.296E-08	2.081E-08	7.755E-09	3.788E-09	2.408E-09	1.720E-09
N	2.039E-08	3.507E-08	3.126E-08	2.350E-08	1.801E-08	1.102E-08	8.852E-09	7.733E-09	5.327E-09	3.788E-09
NNE	2.904E-08	4.097E-08	3.359E-08	2.483E-08	2.041E-08	2.614E-08	1.323E-08	6.533E-09	4.119E-09	2.914E-09
NE	1.144E-08	2.442E-08	2.273E-08	1.734E-08	1.427E-08	1.806E-08	9.129E-09	4.520E-09	2.905E-09	2.071E-09
ENE	1.057E-08	2.309E-08	2.125E-08	1.620E-08	1.332E-08	2.040E-08	1.134E-08	6.040E-09	4.239E-09	3.069E-09
E	1.226E-08	2.272E-08	1.942E-08	1.424E-08	1.137E-08	1.363E-08	7.054E-09	3.557E-09	2.291E-09	1.714E-09
ESE	1.324E-08	2.773E-08	2.443E-08	1.803E-08	1.430E-08	1.557E-08	8.155E-09	4.242E-09	2.739E-09	1.964E-09
SE	4.177E-08	7.544E-08	6.118E-08	4.340E-08	3.200E-08	1.746E-08	8.692E-09	5.166E-09	3.611E-09	2.607E-09
SSE	5.775E-08	8.776E-08	7.025E-08	5.027E-08	3.972E-08	3.917E-08	1.843E-08	8.942E-09	5.586E-09	3.928E-09

ERP ELEVATED STACK RELEASES - JAN-MAR 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.472E-11	4.346E-09	3.568E-08	6.527E-08	8.131E-08	7.331E-08	6.189E-08	5.184E-08	4.377E-08	5.174E-08	5.775E-08
SSW	6.256E-09	3.040E-08	4.505E-08	4.922E-08	4.835E-08	4.142E-08	3.441E-08	3.757E-08	3.843E-08	3.331E-08	2.930E-08
SW	1.520E-09	1.261E-08	4.936E-08	1.021E-07	1.582E-07	1.052E-07	7.463E-08	5.587E-08	4.364E-08	3.522E-08	2.918E-08
WSW	5.137E-16	6.359E-10	3.375E-08	1.045E-07	1.992E-07	1.272E-07	8.847E-08	6.556E-08	5.092E-08	4.097E-08	3.389E-08
W	2.165E-13	2.618E-08	1.403E-07	1.949E-07	1.902E-07	1.188E-07	8.164E-08	6.003E-08	4.638E-08	3.718E-08	3.067E-08
WNW	7.931E-11	8.958E-09	9.502E-08	1.866E-07	2.633E-07	1.625E-07	1.113E-07	8.643E-08	7.012E-08	5.589E-08	4.585E-08
NW	1.187E-10	7.815E-09	6.616E-08	1.623E-07	2.525E-07	1.486E-07	9.882E-08	7.307E-08	5.695E-08	4.499E-08	3.663E-08
NNW	5.126E-11	3.122E-09	2.015E-08	4.760E-08	8.435E-08	8.569E-08	7.959E-08	7.151E-08	6.485E-08	5.102E-08	4.139E-08
N	7.602E-11	4.730E-09	1.831E-08	2.957E-08	3.707E-08	3.554E-08	3.145E-08	2.678E-08	2.295E-08	1.989E-08	1.743E-08
NNE	1.799E-10	1.025E-08	2.808E-08	3.861E-08	4.348E-08	3.912E-08	3.340E-08	2.833E-08	2.421E-08	2.092E-08	1.829E-08
NE	2.162E-11	1.435E-09	9.117E-09	1.815E-08	2.627E-08	2.573E-08	2.279E-08	1.969E-08	1.697E-08	1.472E-08	1.289E-08
ENE	4.507E-16	4.507E-10	8.197E-09	1.745E-08	2.493E-08	2.413E-08	2.129E-08	1.837E-08	1.586E-08	1.379E-08	1.210E-08
E	2.162E-11	1.561E-09	1.031E-08	1.904E-08	2.463E-08	2.266E-08	1.935E-08	1.632E-08	1.384E-08	1.187E-08	1.031E-08
ESE	4.562E-16	5.527E-10	1.031E-08	2.181E-08	3.018E-08	2.833E-08	2.439E-08	2.065E-08	1.755E-08	1.506E-08	1.308E-08
SE	2.935E-15	2.262E-09	3.498E-08	6.669E-08	8.242E-08	7.302E-08	6.072E-08	5.024E-08	4.199E-08	3.558E-08	3.057E-08
SSE	2.283E-10	1.442E-08	5.345E-08	8.196E-08	9.445E-08	8.339E-08	6.970E-08	5.800E-08	4.874E-08	4.148E-08	3.579E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	5.177E-08	3.635E-08	2.311E-08	1.257E-08	8.370E-09	6.039E-09	4.471E-09	3.459E-09	2.806E-09	2.340E-09	1.972E-09
SSW	2.694E-08	2.119E-08	1.338E-08	7.222E-09	4.854E-09	3.516E-09	2.648E-09	2.082E-09	1.688E-09	1.402E-09	1.186E-09
SW	2.643E-08	2.008E-08	1.284E-08	7.038E-09	4.764E-09	3.478E-09	2.721E-09	2.137E-09	1.730E-09	1.435E-09	1.213E-09
WSW	3.001E-08	1.977E-08	1.387E-08	8.292E-09	5.351E-09	3.803E-09	2.872E-09	2.260E-09	1.834E-09	1.525E-09	1.291E-09
W	2.587E-08	1.410E-08	1.019E-08	6.581E-09	4.770E-09	3.420E-09	2.584E-09	2.037E-09	1.656E-09	1.378E-09	1.168E-09
WNW	3.905E-08	2.196E-08	1.480E-08	8.674E-09	5.556E-09	3.944E-09	3.017E-09	2.395E-09	1.947E-09	1.617E-09	1.368E-09
NW	3.100E-08	1.708E-08	1.149E-08	6.700E-09	4.276E-09	3.012E-09	2.321E-09	1.837E-09	1.491E-09	1.239E-09	1.050E-09
NNW	3.519E-08	1.944E-08	1.221E-08	6.542E-09	4.088E-09	2.828E-09	2.111E-09	1.659E-09	1.362E-09	1.133E-09	9.569E-10
N	1.548E-08	9.949E-09	8.661E-09	8.488E-09	8.701E-09	7.709E-09	5.987E-09	4.795E-09	3.938E-09	3.308E-09	2.828E-09
NNE	2.016E-08	3.383E-08	2.140E-08	1.169E-08	7.503E-09	5.308E-09	3.993E-09	3.133E-09	2.536E-09	2.102E-09	1.775E-09
NE	1.395E-08	2.333E-08	1.478E-08	8.083E-09	5.182E-09	3.661E-09	2.810E-09	2.249E-09	1.856E-09	1.548E-09	1.315E-09
ENE	1.295E-08	2.714E-08	1.787E-08	1.014E-08	6.561E-09	4.653E-09	3.787E-09	3.134E-09	2.549E-09	2.122E-09	1.798E-09
E	1.075E-08	1.736E-08	1.127E-08	6.292E-09	4.035E-09	2.843E-09	2.127E-09	1.659E-09	1.402E-09	1.198E-09	1.007E-09
ESE	1.334E-08	1.923E-08	1.273E-08	7.283E-09	4.743E-09	3.379E-09	2.549E-09	2.002E-09	1.619E-09	1.340E-09	1.129E-09
SE	2.660E-08	1.574E-08	1.181E-08	8.300E-09	6.063E-09	4.813E-09	4.025E-09	3.469E-09	2.853E-09	2.401E-09	2.055E-09
SSE	3.756E-08	4.742E-08	2.968E-08	1.600E-08	1.019E-08	7.170E-09	5.369E-09	4.197E-09	3.387E-09	2.800E-09	2.359E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	SEGMENT BOUNDARIES IN MILES FROM THE SITE 4-5	5-10	10-20	20-30	30-40	40-50
S	4.187E-08	7.419E-08	6.092E-08	4.911E-08	5.376E-08	3.389E-08	1.304E-08	6.033E-09	3.499E-09	2.342E-09
SSW	4.365E-08	4.546E-08	3.755E-08	3.623E-08	2.961E-08	1.899E-08	7.537E-09	3.526E-09	2.094E-09	1.407E-09
SW	6.463E-08	1.222E-07	7.528E-08	4.393E-08	2.995E-08	1.827E-08	7.316E-09	3.518E-09	2.149E-09	1.440E-09
WSW	5.784E-08	1.462E-07	8.964E-08	5.131E-08	3.455E-08	1.942E-08	8.224E-09	3.843E-09	2.273E-09	1.530E-09
W	1.392E-07	1.595E-07	8.292E-08	4.677E-08	3.082E-08	1.498E-08	6.579E-09	3.446E-09	2.048E-09	1.383E-09
WNW	1.166E-07	2.015E-07	1.150E-07	6.936E-08	4.631E-08	2.258E-08	8.650E-09	4.003E-09	2.402E-09	1.623E-09
NW	9.590E-08	1.863E-07	1.018E-07	5.700E-08	3.702E-08	1.769E-08	6.686E-09	3.073E-09	1.844E-09	1.244E-09
NNW	2.857E-08	7.678E-08	7.798E-08	6.148E-08	4.195E-08	1.972E-08	6.711E-09	2.877E-09	1.675E-09	1.135E-09
N	2.030E-08	3.472E-08	3.067E-08	2.288E-08	1.744E-08	1.061E-08	8.621E-09	7.285E-09	4.809E-09	3.317E-09
NNE	2.880E-08	4.046E-08	3.290E-08	2.413E-08	1.976E-08	2.527E-08	1.199E-08	5.367E-09	3.151E-09	2.110E-09
NE	1.143E-08	2.423E-08	2.233E-08	1.689E-08	1.383E-08	1.745E-08	8.282E-09	3.726E-09	2.260E-09	1.553E-09
ENE	1.059E-08	2.291E-08	2.088E-08	1.579E-08	1.292E-08	1.987E-08	1.027E-08	4.816E-09	3.098E-09	2.129E-09
E	1.225E-08	2.251E-08	1.902E-08	1.380E-08	1.094E-08	1.319E-08	6.395E-09	2.874E-09	1.695E-09	1.188E-09
ESE	1.325E-08	2.750E-08	2.395E-08	1.749E-08	1.377E-08	1.504E-08	7.365E-09	3.411E-09	2.012E-09	1.344E-09
SE	4.180E-08	7.475E-08	5.981E-08	4.190E-08	3.058E-08	1.641E-08	8.086E-09	4.831E-09	3.393E-09	2.407E-09
SSE	5.745E-08	8.676E-08	6.867E-08	4.862E-08	3.813E-08	3.734E-08	1.646E-08	7.256E-09	4.223E-09	2.810E-09

ERP ELEVATED STACK RELEASES - JAN-MAR 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	.25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
	DISTANCES IN MILES										
S	4.511E-10	1.330E-09	2.557E-09	2.585E-09	1.597E-09	1.068E-09	7.529E-10	5.527E-10	4.184E-10	3.558E-10	3.137E-10
SSW	2.435E-09	2.226E-09	2.254E-09	1.765E-09	9.471E-10	6.038E-10	4.163E-10	3.021E-10	2.818E-10	2.130E-10	1.667E-10
SW	1.373E-09	1.359E-09	1.513E-09	1.251E-09	1.240E-09	6.765E-10	4.202E-10	2.859E-10	2.069E-10	1.566E-10	1.226E-10
WSW	5.505E-11	3.303E-10	7.033E-10	1.513E-09	9.025E-10	4.909E-10	3.037E-10	2.059E-10	1.487E-10	1.123E-10	8.788E-11
W	4.834E-11	2.472E-09	2.417E-09	1.664E-09	7.991E-10	4.319E-10	2.663E-10	1.804E-10	1.303E-10	9.871E-11	7.754E-11
WNW	3.397E-10	6.617E-10	4.050E-09	2.799E-09	1.789E-09	8.965E-10	5.325E-10	3.571E-10	2.668E-10	2.098E-10	1.749E-10
NW	1.122E-09	1.229E-09	1.513E-09	2.993E-09	1.938E-09	9.645E-10	5.683E-10	3.751E-10	2.687E-10	2.052E-10	1.652E-10
NNW	5.665E-10	6.468E-10	8.249E-10	7.278E-10	7.548E-10	4.147E-10	2.678E-10	2.261E-10	1.711E-10	1.395E-10	1.207E-10
N	8.659E-10	1.067E-09	1.443E-09	1.305E-09	7.633E-10	5.014E-10	3.508E-10	2.564E-10	1.938E-10	1.502E-10	1.190E-10
NNE	1.916E-09	1.861E-09	2.030E-09	1.659E-09	9.155E-10	5.895E-10	4.085E-10	2.972E-10	2.240E-10	1.735E-10	1.374E-10
NE	3.021E-10	4.362E-10	6.526E-10	6.126E-10	3.654E-10	2.415E-10	1.695E-10	1.241E-10	9.383E-11	7.278E-11	5.763E-11
ENE	4.297E-11	2.578E-10	5.489E-10	5.686E-10	3.551E-10	2.381E-10	1.682E-10	1.236E-10	9.358E-11	7.263E-11	5.752E-11
E	3.101E-10	4.845E-10	7.555E-10	7.192E-10	4.320E-10	2.862E-10	2.010E-10	1.473E-10	1.114E-10	8.640E-11	6.842E-11
ESE	4.968E-11	2.981E-10	6.347E-10	6.574E-10	4.106E-10	2.753E-10	1.945E-10	1.429E-10	1.082E-10	8.398E-11	6.651E-11
SE	2.095E-10	1.257E-09	2.676E-09	2.772E-09	1.731E-09	1.161E-09	8.200E-10	6.023E-10	4.562E-10	3.541E-10	2.804E-10
SSE	2.575E-09	3.064E-09	4.038E-09	3.613E-09	2.101E-09	1.378E-09	9.629E-10	7.037E-10	5.316E-10	4.121E-10	3.264E-10

DIRECTION FROM SITE	5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
	DISTANCES IN MILES										
S	2.522E-10	1.728E-10	1.168E-10	6.698E-11	4.210E-11	3.170E-11	2.259E-11	1.686E-11	1.317E-11	1.045E-11	8.532E-12
SSW	1.344E-10	9.653E-11	6.629E-11	3.865E-11	2.539E-11	1.733E-11	1.242E-11	9.327E-12	7.277E-12	5.813E-12	4.745E-12
SW	9.988E-11	7.770E-11	5.433E-11	3.212E-11	2.044E-11	1.390E-11	1.006E-11	7.555E-12	5.874E-12	4.692E-12	3.830E-12
WSW	7.218E-11	6.336E-11	4.558E-11	2.777E-11	1.680E-11	1.127E-11	8.234E-12	6.183E-12	4.807E-12	3.840E-12	3.134E-12
W	6.272E-11	2.892E-11	4.266E-11	2.807E-11	1.655E-11	1.126E-11	8.069E-12	6.059E-12	4.711E-12	3.763E-12	3.072E-12
WNW	1.556E-10	9.937E-11	7.281E-11	4.461E-11	2.821E-11	1.854E-11	1.281E-11	9.620E-12	7.480E-12	5.975E-12	4.877E-12
NW	1.397E-10	7.861E-11	5.418E-11	3.461E-11	2.111E-11	1.413E-11	1.008E-11	7.573E-12	5.937E-12	4.743E-12	3.871E-12
NNW	1.093E-10	7.572E-11	5.734E-11	3.603E-11	2.315E-11	1.533E-11	9.938E-12	6.920E-12	5.543E-12	4.429E-12	3.617E-12
N	9.587E-11	4.546E-11	2.775E-11	1.464E-11	5.357E-11	3.008E-11	2.156E-11	1.619E-11	1.259E-11	1.006E-11	8.210E-12
NNE	1.108E-10	1.875E-10	1.162E-10	6.032E-11	3.680E-11	2.463E-11	1.758E-11	1.315E-11	1.019E-11	8.118E-12	6.609E-12
NE	4.643E-11	8.828E-11	5.573E-11	2.957E-11	1.816E-11	1.213E-11	8.522E-12	6.338E-12	4.931E-12	4.039E-12	3.297E-12
ENE	4.633E-11	7.990E-11	6.151E-11	3.907E-11	2.514E-11	1.660E-11	1.160E-11	7.401E-12	5.747E-12	4.586E-12	3.741E-12
E	5.512E-11	6.066E-11	4.371E-11	2.643E-11	1.684E-11	1.117E-11	7.862E-12	5.778E-12	4.417E-12	3.639E-12	2.962E-12
ESE	5.356E-11	7.663E-11	5.759E-11	3.595E-11	2.304E-11	1.523E-11	1.066E-11	7.789E-12	5.917E-12	4.633E-12	3.717E-12
SE	2.258E-10	1.069E-10	6.516E-11	3.423E-11	2.081E-11	1.426E-11	1.060E-11	1.851E-11	1.425E-11	1.131E-11	9.207E-12
SSE	2.630E-10	3.235E-10	2.000E-10	1.036E-10	6.316E-11	4.227E-11	3.020E-11	2.260E-11	1.752E-11	1.396E-11	1.137E-11

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
	SEGMENT BOUNDARIES IN MILES								
S 2.297E-09	1.581E-09	7.567E-10	4.329E-10	3.034E-10	1.656E-10	6.700E-11	3.083E-11	1.709E-11	1.055E-11
SSW 2.030E-09	9.762E-10	4.206E-10	2.614E-10	1.685E-10	9.151E-11	3.890E-11	1.752E-11	9.430E-12	5.851E-12
SW 1.362E-09	9.921E-10	4.348E-10	2.103E-10	1.242E-10	7.224E-11	3.186E-11	1.411E-11	7.631E-12	4.723E-12
WSW 9.803E-10	8.552E-10	3.145E-10	1.512E-10	8.932E-11	5.742E-11	2.685E-11	1.153E-11	6.245E-12	3.865E-12
W 2.095E-09	8.282E-10	2.761E-10	1.326E-10	7.832E-11	4.254E-11	2.619E-11	1.140E-11	6.120E-12	3.788E-12
WNW 2.741E-09	1.617E-09	5.594E-10	2.709E-10	1.781E-10	1.001E-10	4.359E-11	1.883E-11	9.716E-12	6.014E-12
NW 2.108E-09	1.740E-09	5.967E-10	2.749E-10	1.676E-10	8.133E-11	3.296E-11	1.437E-11	7.667E-12	4.774E-12
NNW 7.422E-10	5.976E-10	2.903E-10	1.748E-10	1.220E-10	7.501E-11	3.504E-11	1.526E-11	7.257E-12	4.458E-12
N 1.298E-09	7.673E-10	3.532E-10	1.951E-10	1.197E-10	4.879E-11	3.486E-11	3.294E-11	1.635E-11	1.012E-11
NNE 1.827E-09	9.358E-10	4.122E-10	2.257E-10	1.382E-10	1.388E-10	6.229E-11	2.506E-11	1.329E-11	8.173E-12
NE 5.867E-10	3.653E-10	1.705E-10	9.446E-11	5.797E-11	6.451E-11	3.031E-11	1.230E-11	6.426E-12	4.029E-12
ENE 4.930E-10	3.506E-10	1.690E-10	9.417E-11	5.785E-11	6.426E-11	3.786E-11	1.688E-11	7.971E-12	4.617E-12
E 6.792E-10	4.310E-10	2.022E-10	1.121E-10	6.882E-11	5.190E-11	2.601E-11	1.136E-11	5.855E-12	3.619E-12
ESE 5.700E-10	4.053E-10	1.954E-10	1.089E-10	6.689E-11	6.304E-11	3.502E-11	1.549E-11	7.897E-12	4.674E-12
SE 2.403E-09	1.709E-09	8.238E-10	4.591E-10	2.820E-10	1.148E-10	3.514E-11	1.454E-11	1.463E-11	1.140E-11
SSE 3.632E-09	2.116E-09	9.698E-10	5.352E-10	3.283E-10	2.552E-10	1.070E-10	4.301E-11	2.283E-11	1.406E-11

ERP ELEVATED STACK RELEASES - JAN-MAR 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	4.3E-08	4.3E-08	4.3E-08	2.7E-09
A	Site Boundary	SSW	.82	4.7E-08	4.7E-08	4.7E-08	2.1E-09
A	Site Boundary	SW	.97	9.8E-08	9.7E-08	9.7E-08	1.3E-09
A	Site Boundary	WSW	.93	8.3E-08	8.3E-08	8.3E-08	1.2E-09
A	Site Boundary	W	.91	1.8E-07	1.8E-07	1.8E-07	1.8E-09
A	Site Boundary	WNW	.94	1.7E-07	1.7E-07	1.7E-07	3.1E-09
A	Site Boundary	NW	.81	9.1E-08	9.0E-08	9.0E-08	1.5E-09
A	Site Boundary	NNW	.69	1.3E-08	1.3E-08	1.3E-08	7.7E-10
A	Site Boundary	N	.67	1.3E-08	1.3E-08	1.3E-08	1.3E-09
A	Site Boundary	NNE	.60	1.7E-08	1.6E-08	1.6E-08	1.9E-09
A	Site Boundary	NE	.62	4.1E-09	4.1E-09	4.1E-09	5.4E-10
A	Site Boundary	ENE	.59	1.9E-09	1.9E-09	1.9E-09	3.6E-10
A	Site Boundary	E	.53	2.0E-09	2.0E-09	2.0E-09	5.1E-10
A	Site Boundary	ESE	.54	1.1E-09	1.1E-09	1.1E-09	3.5E-10
A	Site Boundary	SE	.65	1.7E-08	1.7E-08	1.7E-08	2.1E-09
A	Site Boundary	SSE	.81	6.3E-08	6.3E-08	6.2E-08	4.0E-09
A	Nearest Res	SW	1.30	1.5E-07	1.5E-07	1.5E-07	1.7E-09
A	Nearest Res	WSW	1.80	1.5E-07	1.5E-07	1.5E-07	6.1E-10
A	Nearest Res	WNW	2.40	1.2E-07	1.2E-07	1.2E-07	5.8E-10
A	Nearest Res	NW	.90	1.3E-07	1.3E-07	1.2E-07	3.3E-09
A	Nearest Res	NNW	1.90	8.8E-08	8.7E-08	8.6E-08	4.6E-10
A	Nearest Res	NE	1.60	2.7E-08	2.7E-08	2.7E-08	3.3E-10
A	Nearest Res	ENE	1.70	2.5E-08	2.5E-08	2.5E-08	3.0E-10
A	Nearest Res	E	2.00	2.3E-08	2.3E-08	2.3E-08	2.9E-10
A	Nearest Res	SE	2.90	5.4E-08	5.4E-08	5.2E-08	6.4E-10
A	Nearest Cow	NNW	3.50	6.6E-08	6.6E-08	6.5E-08	1.7E-10
A	Nearest Garde	SW	2.20	9.3E-08	9.3E-08	9.1E-08	5.5E-10
A	Nearest Garde	WSW	2.40	9.7E-08	9.6E-08	9.5E-08	3.3E-10
A	Nearest Garde	WNW	2.60	1.1E-07	1.1E-07	1.1E-07	4.9E-10
A	Nearest Garde	NNW	2.70	7.8E-08	7.7E-08	7.6E-08	2.6E-10
A	Nearest Garde	ENE	1.70	2.5E-08	2.5E-08	2.5E-08	3.0E-10
A	Nearest Garde	E	2.00	2.3E-08	2.3E-08	2.3E-08	2.9E-10
A	Nearest Garde	ESE	2.20	2.7E-08	2.7E-08	2.7E-08	2.4E-10
A	Nearest Garde	SE	2.90	5.4E-08	5.4E-08	5.2E-08	6.4E-10
A	MAXIMUM CHI/Q	S	1.50	8.2E-08	8.2E-08	8.1E-08	1.6E-09
A	MAXIMUM CHI/Q	SSW	1.00	5.0E-08	5.0E-08	4.9E-08	1.8E-09
A	MAXIMUM CHI/Q	SW	1.50	1.6E-07	1.6E-07	1.6E-07	1.2E-09
A	MAXIMUM CHI/Q	WSW	1.50	2.0E-07	2.0E-07	2.0E-07	9.0E-10
A	MAXIMUM CHI/Q	W	1.00	2.0E-07	2.0E-07	1.9E-07	1.7E-09
A	MAXIMUM CHI/Q	WNW	1.50	2.7E-07	2.7E-07	2.6E-07	1.8E-09
A	MAXIMUM CHI/Q	NW	1.50	2.6E-07	2.6E-07	2.5E-07	1.9E-09
A	MAXIMUM CHI/Q	NNW	2.00	8.7E-08	8.7E-08	8.6E-08	4.1E-10
A	MAXIMUM CHI/Q	N	1.50	3.7E-08	3.7E-08	3.7E-08	7.6E-10
A	MAXIMUM CHI/Q	NNE	1.50	4.4E-08	4.4E-08	4.3E-08	9.2E-10
A	MAXIMUM CHI/Q	NE	1.50	2.7E-08	2.6E-08	2.6E-08	3.7E-10
A	MAXIMUM CHI/Q	ENE	7.50	2.8E-08	2.7E-08	2.7E-08	8.0E-11
A	MAXIMUM CHI/Q	E	1.50	2.5E-08	2.5E-08	2.5E-08	4.3E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.0E-08	3.0E-08	3.0E-08	4.1E-10
A	MAXIMUM CHI/Q	SE	1.50	8.3E-08	8.3E-08	8.2E-08	1.7E-09
A	MAXIMUM CHI/Q	SSE	1.50	9.6E-08	9.5E-08	9.4E-08	2.1E-09

Atmospheric Diffusion Estimates

Elevated Releases

April-June 2024

ERP ELEVATED STACK RELEASES - APR-JUN 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.231E-09	1.354E-08	3.363E-08	4.654E-08	5.268E-08	4.724E-08	4.022E-08	3.406E-08	2.909E-08	3.552E-08	4.079E-08
SSW	9.829E-11	1.012E-08	2.916E-08	4.031E-08	4.541E-08	4.062E-08	3.456E-08	3.903E-08	4.237E-08	3.816E-08	3.482E-08
SW	5.216E-09	2.349E-08	4.872E-08	7.912E-08	1.271E-07	8.891E-08	6.581E-08	5.104E-08	4.103E-08	3.393E-08	2.870E-08
WSW	3.293E-09	1.344E-08	3.583E-08	8.147E-08	1.537E-07	1.023E-07	7.335E-08	5.554E-08	4.383E-08	3.570E-08	2.981E-08
W	1.607E-13	1.993E-08	1.075E-07	1.526E-07	1.675E-07	1.105E-07	7.894E-08	5.973E-08	4.716E-08	3.846E-08	3.217E-08
WNW	2.842E-10	1.706E-08	1.184E-07	2.187E-07	2.832E-07	1.730E-07	1.175E-07	8.971E-08	7.148E-08	5.672E-08	4.640E-08
NW	4.884E-11	4.801E-09	1.272E-07	3.464E-07	5.843E-07	3.491E-07	2.344E-07	1.739E-07	1.356E-07	1.075E-07	8.794E-08
NNW	1.769E-15	1.466E-09	4.138E-08	9.909E-08	1.560E-07	1.492E-07	1.337E-07	1.180E-07	1.066E-07	8.428E-08	6.875E-08
N	2.140E-15	1.537E-09	2.342E-08	4.501E-08	5.838E-08	5.564E-08	4.885E-08	4.134E-08	3.522E-08	3.035E-08	2.646E-08
NNE	3.029E-09	1.776E-08	3.540E-08	4.628E-08	5.158E-08	4.643E-08	3.975E-08	3.385E-08	2.904E-08	2.519E-08	2.211E-08
NE	9.293E-16	7.247E-10	1.099E-08	2.107E-08	2.742E-08	2.555E-08	2.211E-08	1.888E-08	1.619E-08	1.401E-08	1.226E-08
ENE	8.811E-16	7.653E-10	1.216E-08	2.328E-08	2.890E-08	2.567E-08	2.143E-08	1.780E-08	1.495E-08	1.273E-08	1.100E-08
E	7.723E-16	7.457E-10	1.246E-08	2.456E-08	3.146E-08	2.838E-08	2.387E-08	1.990E-08	1.673E-08	1.424E-08	1.228E-08
ESE	6.822E-16	7.329E-10	1.241E-08	2.445E-08	3.117E-08	2.804E-08	2.356E-08	1.965E-08	1.653E-08	1.409E-08	1.217E-08
SE	1.582E-15	1.294E-09	1.984E-08	3.756E-08	4.678E-08	4.207E-08	3.555E-08	2.986E-08	2.531E-08	2.173E-08	1.890E-08
SSE	2.402E-09	3.270E-08	7.161E-08	8.871E-08	9.195E-08	7.942E-08	6.612E-08	5.516E-08	4.658E-08	3.990E-08	3.466E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.673E-08	2.471E-08	1.607E-08	9.216E-09	6.413E-09	4.817E-09	3.749E-09	3.036E-09	2.545E-09	2.176E-09	1.885E-09
SSW	3.336E-08	2.846E-08	1.866E-08	1.084E-08	7.788E-09	5.875E-09	4.595E-09	3.737E-09	3.129E-09	2.675E-09	2.326E-09
SW	2.689E-08	2.064E-08	1.360E-08	7.938E-09	5.619E-09	4.269E-09	3.409E-09	2.771E-09	2.315E-09	1.977E-09	1.717E-09
WSW	2.660E-08	1.730E-08	1.205E-08	7.266E-09	4.877E-09	3.587E-09	2.797E-09	2.265E-09	1.888E-09	1.609E-09	1.395E-09
W	2.745E-08	1.554E-08	1.144E-08	7.612E-09	5.655E-09	4.214E-09	3.297E-09	2.683E-09	2.245E-09	1.920E-09	1.670E-09
WNW	3.930E-08	2.181E-08	1.474E-08	8.869E-09	6.056E-09	4.507E-09	3.551E-09	2.894E-09	2.418E-09	2.061E-09	1.788E-09
NW	7.452E-08	4.146E-08	2.823E-08	1.708E-08	1.151E-08	8.488E-09	6.736E-09	5.494E-09	4.588E-09	3.914E-09	3.397E-09
NNW	5.883E-08	3.386E-08	2.206E-08	1.274E-08	8.652E-09	6.422E-09	5.096E-09	4.192E-09	3.578E-09	3.082E-09	2.681E-09
N	2.337E-08	1.460E-08	1.169E-08	8.649E-09	6.760E-09	5.332E-09	4.158E-09	3.363E-09	2.799E-09	2.381E-09	2.062E-09
NNE	2.443E-08	3.086E-08	1.990E-08	1.134E-08	7.638E-09	5.635E-09	4.401E-09	3.574E-09	2.987E-09	2.550E-09	2.215E-09
NE	1.323E-08	1.692E-08	1.099E-08	6.318E-09	4.283E-09	3.176E-09	2.521E-09	2.072E-09	1.753E-09	1.500E-09	1.305E-09
ENE	1.122E-08	1.359E-08	8.913E-09	5.180E-09	3.532E-09	2.628E-09	2.156E-09	1.806E-09	1.512E-09	1.293E-09	1.125E-09
E	1.234E-08	1.341E-08	8.759E-09	5.061E-09	3.438E-09	2.550E-09	2.000E-09	1.630E-09	1.414E-09	1.240E-09	1.078E-09
ESE	1.215E-08	1.110E-08	7.172E-09	4.070E-09	2.725E-09	1.998E-09	1.551E-09	1.253E-09	1.042E-09	8.858E-10	7.662E-10
SE	1.663E-08	1.029E-08	8.059E-09	5.905E-09	4.347E-09	3.428E-09	2.824E-09	2.395E-09	2.007E-09	1.718E-09	1.495E-09
SSE	3.715E-08	4.433E-08	2.852E-08	1.620E-08	1.089E-08	8.028E-09	6.263E-09	5.083E-09	4.244E-09	3.622E-09	3.144E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.490E-08	4.890E-08	3.963E-08	3.296E-08	3.773E-08	2.354E-08	9.493E-09	4.816E-09	3.053E-09	2.178E-09
SSW	2.988E-08	4.215E-08	3.796E-08	3.981E-08	3.527E-08	2.519E-08	1.122E-08	5.873E-09	3.750E-09	2.680E-09
SW	5.663E-08	9.945E-08	6.606E-08	4.118E-08	2.958E-08	1.890E-08	8.167E-09	4.285E-09	2.779E-09	1.981E-09
WSW	5.114E-08	1.148E-07	7.395E-08	4.408E-08	3.037E-08	1.703E-08	7.267E-09	3.615E-09	2.274E-09	1.612E-09
W	1.081E-07	1.389E-07	7.968E-08	4.744E-08	3.229E-08	1.637E-08	7.592E-09	4.232E-09	2.692E-09	1.924E-09
WNW	1.405E-07	2.199E-07	1.212E-07	7.107E-08	4.683E-08	2.255E-08	8.923E-09	4.538E-09	2.900E-09	2.066E-09
NW	1.974E-07	4.269E-07	2.408E-07	1.358E-07	8.878E-08	4.293E-08	1.708E-08	8.592E-09	5.504E-09	3.922E-09
NNW	5.816E-08	1.403E-07	1.315E-07	1.014E-07	6.968E-08	3.416E-08	1.299E-08	6.486E-09	4.216E-09	3.080E-09
N	2.815E-08	5.419E-08	4.765E-08	3.511E-08	2.647E-08	1.525E-08	8.485E-09	5.243E-09	3.375E-09	2.387E-09
NNE	3.632E-08	4.812E-08	3.917E-08	2.895E-08	2.388E-08	2.456E-08	1.159E-08	5.676E-09	3.587E-09	2.555E-09
NE	1.319E-08	2.518E-08	2.173E-08	1.613E-08	1.314E-08	1.347E-08	6.451E-09	3.209E-09	2.079E-09	1.503E-09
ENE	1.457E-08	2.622E-08	2.111E-08	1.492E-08	1.159E-08	1.098E-08	5.277E-09	2.680E-09	1.794E-09	1.295E-09
E	1.523E-08	2.856E-08	2.348E-08	1.669E-08	1.288E-08	1.111E-08	5.161E-09	2.567E-09	1.654E-09	1.232E-09
ESE	1.517E-08	2.829E-08	2.319E-08	1.649E-08	1.273E-08	9.587E-09	4.161E-09	2.013E-09	1.258E-09	8.878E-10
SE	2.359E-08	4.264E-08	3.501E-08	2.525E-08	1.890E-08	1.071E-08	5.691E-09	3.431E-09	2.370E-09	1.721E-09
SSE	7.056E-08	8.566E-08	6.528E-08	4.649E-08	3.714E-08	3.571E-08	1.658E-08	8.086E-09	5.100E-09	3.629E-09

ERP ELEVATED STACK RELEASES - APR-JUN 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.231E-09	1.354E-08	3.360E-08	4.648E-08	5.255E-08	4.706E-08	4.002E-08	3.385E-08	2.887E-08	3.518E-08	4.032E-08
SSW	9.825E-11	1.011E-08	2.912E-08	4.023E-08	4.528E-08	4.046E-08	3.438E-08	3.876E-08	4.199E-08	3.774E-08	3.436E-08
SW	5.214E-09	2.347E-08	4.862E-08	7.892E-08	1.266E-07	8.839E-08	6.531E-08	5.055E-08	4.055E-08	3.346E-08	2.824E-08
WSW	3.292E-09	1.343E-08	3.576E-08	8.123E-08	1.528E-07	1.015E-07	7.255E-08	5.479E-08	4.311E-08	3.502E-08	2.916E-08
W	1.606E-13	1.992E-08	1.073E-07	1.523E-07	1.669E-07	1.099E-07	7.829E-08	5.911E-08	4.656E-08	3.789E-08	3.162E-08
WNW	2.841E-10	1.705E-08	1.183E-07	2.184E-07	2.824E-07	1.723E-07	1.169E-07	8.907E-08	7.086E-08	5.615E-08	4.586E-08
NW	4.883E-11	4.799E-09	1.271E-07	3.459E-07	5.823E-07	3.474E-07	2.329E-07	1.725E-07	1.343E-07	1.063E-07	8.679E-08
NNW	1.768E-15	1.465E-09	4.134E-08	9.896E-08	1.557E-07	1.487E-07	1.331E-07	1.174E-07	1.060E-07	8.366E-08	6.818E-08
N	2.140E-15	1.536E-09	2.340E-08	4.496E-08	5.827E-08	5.550E-08	4.870E-08	4.118E-08	3.506E-08	3.019E-08	2.630E-08
NNE	3.029E-09	1.776E-08	3.538E-08	4.623E-08	5.148E-08	4.630E-08	3.960E-08	3.368E-08	2.887E-08	2.502E-08	2.194E-08
NE	9.291E-16	7.243E-10	1.098E-08	2.105E-08	2.738E-08	2.549E-08	2.205E-08	1.882E-08	1.613E-08	1.395E-08	1.220E-08
ENE	8.809E-16	7.648E-10	1.215E-08	2.325E-08	2.884E-08	2.560E-08	2.135E-08	1.773E-08	1.488E-08	1.266E-08	1.093E-08
E	7.721E-16	7.453E-10	1.244E-08	2.452E-08	3.139E-08	2.829E-08	2.377E-08	1.980E-08	1.663E-08	1.414E-08	1.219E-08
ESE	6.821E-16	7.324E-10	1.240E-08	2.442E-08	3.110E-08	2.796E-08	2.347E-08	1.956E-08	1.644E-08	1.401E-08	1.209E-08
SE	1.582E-15	1.294E-09	1.983E-08	3.751E-08	4.670E-08	4.197E-08	3.543E-08	2.974E-08	2.519E-08	2.160E-08	1.877E-08
SSE	2.402E-09	3.269E-08	7.155E-08	8.861E-08	9.178E-08	7.922E-08	6.591E-08	5.495E-08	4.637E-08	3.969E-08	3.446E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.626E-08	2.422E-08	1.564E-08	8.854E-09	6.082E-09	4.512E-09	3.469E-09	2.775E-09	2.299E-09	1.943E-09	1.664E-09
SSW	3.284E-08	2.765E-08	1.795E-08	1.023E-08	7.206E-09	5.334E-09	4.098E-09	3.277E-09	2.698E-09	2.270E-09	1.943E-09
SW	2.639E-08	1.996E-08	1.300E-08	7.409E-09	5.122E-09	3.803E-09	2.968E-09	2.363E-09	1.936E-09	1.622E-09	1.383E-09
WSW	2.594E-08	1.659E-08	1.137E-08	6.642E-09	4.332E-09	3.099E-09	2.351E-09	1.856E-09	1.508E-09	1.254E-09	1.062E-09
W	2.692E-08	1.506E-08	1.094E-08	7.103E-09	5.148E-09	3.750E-09	2.874E-09	2.292E-09	1.881E-09	1.579E-09	1.349E-09
WNW	3.878E-08	2.136E-08	1.432E-08	8.484E-09	5.710E-09	4.189E-09	3.255E-09	2.617E-09	2.158E-09	1.817E-09	1.557E-09
NW	7.342E-08	4.049E-08	2.733E-08	1.626E-08	1.078E-08	7.830E-09	6.119E-09	4.916E-09	4.047E-09	3.405E-09	2.916E-09
NNW	5.828E-08	3.336E-08	2.163E-08	1.236E-08	8.311E-09	6.108E-09	4.797E-09	3.906E-09	3.299E-09	2.812E-09	2.422E-09
N	2.321E-08	1.444E-08	1.152E-08	8.457E-09	6.561E-09	5.138E-09	3.978E-09	3.195E-09	2.640E-09	2.231E-09	1.918E-09
NNE	2.421E-08	3.042E-08	1.953E-08	1.102E-08	7.363E-09	5.385E-09	4.170E-09	3.359E-09	2.784E-09	2.358E-09	2.032E-09
NE	1.316E-08	1.671E-08	1.080E-08	6.148E-09	4.128E-09	3.031E-09	2.381E-09	1.937E-09	1.621E-09	1.373E-09	1.182E-09
ENE	1.114E-08	1.343E-08	8.779E-09	5.063E-09	3.426E-09	2.529E-09	2.059E-09	1.711E-09	1.421E-09	1.206E-09	1.041E-09
E	1.224E-08	1.324E-08	8.612E-09	4.934E-09	3.323E-09	2.445E-09	1.902E-09	1.537E-09	1.322E-09	1.150E-09	9.911E-10
ESE	1.205E-08	1.098E-08	7.068E-09	3.982E-09	2.647E-09	1.927E-09	1.486E-09	1.192E-09	9.839E-10	8.305E-10	7.134E-10
SE	1.650E-08	1.016E-08	7.898E-09	5.694E-09	4.130E-09	3.208E-09	2.604E-09	2.178E-09	1.803E-09	1.524E-09	1.311E-09
SSE	3.689E-08	4.369E-08	2.797E-08	1.573E-08	1.048E-08	7.650E-09	5.915E-09	4.757E-09	3.938E-09	3.332E-09	2.868E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.486E-08	4.876E-08	3.943E-08	3.270E-08	3.729E-08	2.308E-08	9.130E-09	4.513E-09	2.792E-09	1.945E-09
SSW	2.983E-08	4.202E-08	3.775E-08	3.945E-08	3.480E-08	2.449E-08	1.060E-08	5.339E-09	3.291E-09	2.275E-09
SW	5.650E-08	9.901E-08	6.556E-08	4.071E-08	2.910E-08	1.829E-08	7.634E-09	3.821E-09	2.373E-09	1.627E-09
WSW	5.101E-08	1.141E-07	7.316E-08	4.337E-08	2.970E-08	1.635E-08	6.666E-09	3.129E-09	1.865E-09	1.258E-09
W	1.079E-07	1.383E-07	7.904E-08	4.684E-08	3.173E-08	1.587E-08	7.087E-09	3.772E-09	2.302E-09	1.583E-09
WNW	1.403E-07	2.193E-07	1.205E-07	7.046E-08	4.629E-08	2.210E-08	8.547E-09	4.221E-09	2.624E-09	1.822E-09
NW	1.972E-07	4.254E-07	2.393E-07	1.345E-07	8.762E-08	4.196E-08	1.628E-08	7.932E-09	4.929E-09	3.414E-09
NNW	5.809E-08	1.400E-07	1.310E-07	1.007E-07	6.910E-08	3.368E-08	1.262E-08	6.171E-09	3.929E-09	2.812E-09
N	2.813E-08	5.409E-08	4.750E-08	3.495E-08	2.631E-08	1.509E-08	8.295E-09	5.053E-09	3.207E-09	2.236E-09
NNE	3.629E-08	4.801E-08	3.902E-08	2.878E-08	2.369E-08	2.420E-08	1.129E-08	5.427E-09	3.372E-09	2.364E-09
NE	1.318E-08	2.513E-08	2.168E-08	1.607E-08	1.308E-08	1.329E-08	6.283E-09	3.064E-09	1.943E-09	1.376E-09
ENE	1.455E-08	2.616E-08	2.104E-08	1.485E-08	1.152E-08	1.085E-08	5.161E-09	2.580E-09	1.700E-09	1.209E-09
E	1.521E-08	2.848E-08	2.338E-08	1.659E-08	1.279E-08	1.096E-08	5.035E-09	2.462E-09	1.559E-09	1.142E-09
ESE	1.515E-08	2.822E-08	2.310E-08	1.641E-08	1.265E-08	9.480E-09	4.074E-09	1.942E-09	1.197E-09	8.326E-10
SE	2.357E-08	4.255E-08	3.490E-08	2.512E-08	1.877E-08	1.056E-08	5.489E-09	3.212E-09	2.157E-09	1.528E-09
SSE	7.049E-08	8.549E-08	6.507E-08	4.627E-08	3.691E-08	3.519E-08	1.612E-08	7.711E-09	4.776E-09	3.340E-09

ERP ELEVATED STACK RELEASES - APR-JUN 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	1.231E-09	1.343E-08	3.325E-08	4.616E-08	5.199E-08	4.630E-08	3.916E-08	3.297E-08	2.801E-08	3.423E-08	3.937E-08
SSW	9.828E-11	1.003E-08	2.880E-08	3.991E-08	4.476E-08	3.977E-08	3.360E-08	3.785E-08	4.105E-08	3.685E-08	3.355E-08
SW	5.215E-09	2.327E-08	4.799E-08	7.835E-08	1.254E-07	8.719E-08	6.421E-08	4.958E-08	3.972E-08	3.274E-08	2.761E-08
WSW	3.293E-09	1.332E-08	3.547E-08	8.104E-08	1.517E-07	1.002E-07	7.131E-08	5.369E-08	4.217E-08	3.420E-08	2.845E-08
W	1.606E-13	1.993E-08	1.069E-07	1.510E-07	1.650E-07	1.084E-07	7.712E-08	5.818E-08	4.582E-08	3.728E-08	3.111E-08
WNW	2.842E-10	1.697E-08	1.179E-07	2.167E-07	2.788E-07	1.690E-07	1.141E-07	8.680E-08	6.895E-08	5.445E-08	4.431E-08
NW	4.884E-11	4.778E-09	1.271E-07	3.446E-07	5.759E-07	3.411E-07	2.274E-07	1.679E-07	1.304E-07	1.029E-07	8.369E-08
NNW	1.769E-15	1.466E-09	4.136E-08	9.905E-08	1.545E-07	1.466E-07	1.308E-07	1.151E-07	1.039E-07	8.173E-08	6.631E-08
N	2.140E-15	1.536E-09	2.341E-08	4.500E-08	5.787E-08	5.475E-08	4.777E-08	4.020E-08	3.409E-08	2.925E-08	2.539E-08
NNE	3.029E-09	1.761E-08	3.498E-08	4.588E-08	5.092E-08	4.555E-08	3.877E-08	3.284E-08	2.805E-08	2.423E-08	2.119E-08
NE	9.293E-16	7.246E-10	1.099E-08	2.106E-08	2.719E-08	2.515E-08	2.164E-08	1.838E-08	1.568E-08	1.352E-08	1.178E-08
ENE	8.810E-16	7.652E-10	1.216E-08	2.327E-08	2.862E-08	2.520E-08	2.086E-08	1.720E-08	1.435E-08	1.214E-08	1.043E-08
E	7.723E-16	7.456E-10	1.245E-08	2.454E-08	3.116E-08	2.786E-08	2.323E-08	1.922E-08	1.604E-08	1.357E-08	1.163E-08
ESE	6.822E-16	7.327E-10	1.241E-08	2.444E-08	3.088E-08	2.753E-08	2.294E-08	1.899E-08	1.587E-08	1.344E-08	1.155E-08
SE	1.582E-15	1.294E-09	1.984E-08	3.754E-08	4.635E-08	4.134E-08	3.466E-08	2.892E-08	2.437E-08	2.081E-08	1.801E-08
SSE	2.402E-09	3.242E-08	7.065E-08	8.774E-08	9.057E-08	7.773E-08	6.430E-08	5.332E-08	4.479E-08	3.818E-08	3.302E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.538E-08	2.337E-08	1.468E-08	7.860E-09	5.062E-09	3.567E-09	2.638E-09	2.040E-09	1.646E-09	1.362E-09	1.145E-09
SSW	3.213E-08	2.702E-08	1.710E-08	9.234E-09	6.128E-09	4.409E-09	3.314E-09	2.599E-09	2.104E-09	1.743E-09	1.471E-09
SW	2.585E-08	1.957E-08	1.244E-08	6.735E-09	4.379E-09	3.098E-09	2.362E-09	1.846E-09	1.488E-09	1.229E-09	1.034E-09
WSW	2.533E-08	1.612E-08	1.084E-08	6.137E-09	3.913E-09	2.753E-09	2.061E-09	1.607E-09	1.293E-09	1.066E-09	8.960E-10
W	2.650E-08	1.487E-08	1.079E-08	6.729E-09	4.649E-09	3.315E-09	2.496E-09	1.959E-09	1.587E-09	1.316E-09	1.111E-09
WNW	3.733E-08	2.009E-08	1.312E-08	7.349E-09	4.628E-09	3.244E-09	2.444E-09	1.917E-09	1.548E-09	1.278E-09	1.076E-09
NW	7.053E-08	3.803E-08	2.503E-08	1.413E-08	8.891E-09	6.186E-09	4.692E-09	3.686E-09	2.976E-09	2.460E-09	2.072E-09
NNW	5.643E-08	3.148E-08	1.981E-08	1.064E-08	6.663E-09	4.615E-09	3.450E-09	2.704E-09	2.224E-09	1.854E-09	1.565E-09
N	2.235E-08	1.378E-08	1.098E-08	8.090E-09	6.169E-09	4.646E-09	3.512E-09	2.763E-09	2.241E-09	1.863E-09	1.577E-09
NNE	2.345E-08	2.956E-08	1.841E-08	9.879E-09	6.308E-09	4.447E-09	3.338E-09	2.616E-09	2.116E-09	1.753E-09	1.481E-09
NE	1.273E-08	1.623E-08	1.017E-08	5.499E-09	3.519E-09	2.484E-09	1.890E-09	1.502E-09	1.232E-09	1.025E-09	8.686E-10
ENE	1.061E-08	1.292E-08	8.203E-09	4.465E-09	2.827E-09	1.976E-09	1.532E-09	1.228E-09	9.959E-10	8.271E-10	6.998E-10
E	1.166E-08	1.266E-08	8.010E-09	4.342E-09	2.747E-09	1.918E-09	1.426E-09	1.107E-09	9.174E-10	7.723E-10	6.492E-10
ESE	1.149E-08	1.044E-08	6.533E-09	3.486E-09	2.183E-09	1.513E-09	1.117E-09	8.629E-10	6.885E-10	5.633E-10	4.701E-10
SE	1.578E-08	9.609E-09	7.464E-09	5.424E-09	3.956E-09	3.097E-09	2.535E-09	2.130E-09	1.744E-09	1.462E-09	1.246E-09
SSE	3.542E-08	4.219E-08	2.621E-08	1.402E-08	8.932E-09	6.285E-09	4.710E-09	3.685E-09	2.977E-09	2.463E-09	2.078E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.458E-08	4.816E-08	3.858E-08	3.180E-08	3.637E-08	2.218E-08	8.133E-09	3.594E-09	2.061E-09	1.366E-09
SSW	2.957E-08	4.146E-08	3.694E-08	3.853E-08	3.400E-08	2.375E-08	9.602E-09	4.429E-09	2.615E-09	1.749E-09
SW	5.599E-08	9.798E-08	6.449E-08	3.988E-08	2.848E-08	1.779E-08	6.955E-09	3.145E-09	1.857E-09	1.233E-09
WSW	5.080E-08	1.131E-07	7.196E-08	4.242E-08	2.900E-08	1.582E-08	6.194E-09	2.785E-09	1.617E-09	1.071E-09
W	1.072E-07	1.367E-07	7.787E-08	4.610E-08	3.123E-08	1.564E-08	6.708E-09	3.343E-09	1.971E-09	1.320E-09
WNW	1.394E-07	2.162E-07	1.178E-07	6.853E-08	4.473E-08	2.082E-08	7.422E-09	3.293E-09	1.927E-09	1.283E-09
NW	1.966E-07	4.201E-07	2.339E-07	1.307E-07	8.451E-08	3.948E-08	1.423E-08	6.310E-09	3.703E-09	2.469E-09
NNW	5.814E-08	1.387E-07	1.287E-07	9.867E-08	6.722E-08	3.184E-08	1.091E-08	4.695E-09	2.734E-09	1.856E-09
N	2.815E-08	5.363E-08	4.661E-08	3.399E-08	2.541E-08	1.444E-08	7.878E-09	4.598E-09	2.778E-09	1.869E-09
NNE	3.596E-08	4.741E-08	3.821E-08	2.796E-08	2.293E-08	2.325E-08	1.019E-08	4.500E-09	2.632E-09	1.760E-09
NE	1.319E-08	2.492E-08	2.127E-08	1.563E-08	1.265E-08	1.276E-08	5.657E-09	2.523E-09	1.510E-09	1.029E-09
ENE	1.457E-08	2.591E-08	2.055E-08	1.432E-08	1.100E-08	1.031E-08	4.568E-09	2.026E-09	1.227E-09	8.300E-10
E	1.523E-08	2.822E-08	2.286E-08	1.601E-08	1.222E-08	1.037E-08	4.448E-09	1.942E-09	1.126E-09	7.697E-10
ESE	1.516E-08	2.796E-08	2.258E-08	1.584E-08	1.209E-08	8.937E-09	3.584E-09	1.533E-09	8.692E-10	5.659E-10
SE	2.359E-08	4.217E-08	3.415E-08	2.432E-08	1.802E-08	1.003E-08	5.225E-09	3.101E-09	2.099E-09	1.466E-09
SSE	6.975E-08	8.423E-08	6.349E-08	4.471E-08	3.544E-08	3.358E-08	1.447E-08	6.361E-09	3.708E-09	2.473E-09

ERP ELEVATED STACK RELEASES - APR-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	1.897E-09	1.883E-09	2.103E-09	1.741E-09	9.686E-10	6.254E-10	4.340E-10	3.159E-10	2.382E-10	1.972E-10	1.763E-10
SSW	8.368E-10	9.489E-10	1.203E-09	1.059E-09	6.106E-10	3.991E-10	2.786E-10	2.034E-10	1.920E-10	1.452E-10	1.136E-10
SW	1.580E-09	1.334E-09	1.206E-09	8.741E-10	7.328E-10	3.983E-10	2.473E-10	1.682E-10	1.218E-10	9.224E-11	7.228E-11
WSW	8.050E-10	7.582E-10	7.974E-10	1.013E-09	6.329E-10	3.421E-10	2.111E-10	1.430E-10	1.032E-10	7.797E-11	6.101E-11
W	3.576E-11	1.910E-09	1.855E-09	1.230E-09	5.952E-10	3.212E-10	1.982E-10	1.345E-10	9.764E-11	7.447E-11	5.902E-11
WNW	1.114E-09	1.252E-09	4.489E-09	3.222E-09	1.964E-09	9.896E-10	5.894E-10	3.939E-10	2.955E-10	2.300E-10	1.895E-10
NW	7.243E-10	1.631E-09	2.928E-09	7.441E-09	4.906E-09	2.435E-09	1.430E-09	9.387E-10	6.682E-10	5.064E-10	4.045E-10
NNW	1.311E-10	7.866E-10	1.675E-09	1.735E-09	2.151E-09	1.172E-09	7.276E-10	6.005E-10	4.349E-10	3.366E-10	2.757E-10
N	1.470E-10	8.819E-10	1.878E-09	1.945E-09	1.215E-09	8.146E-10	5.754E-10	4.227E-10	3.201E-10	2.485E-10	1.968E-10
NNE	2.927E-09	2.634E-09	2.614E-09	2.020E-09	1.075E-09	6.830E-10	4.701E-10	3.409E-10	2.565E-10	1.986E-10	1.572E-10
NE	6.489E-11	3.893E-10	8.290E-10	8.587E-10	5.363E-10	3.596E-10	2.540E-10	1.866E-10	1.413E-10	1.097E-10	8.687E-11
ENE	6.754E-11	4.052E-10	8.628E-10	8.937E-10	5.582E-10	3.743E-10	2.644E-10	1.942E-10	1.471E-10	1.142E-10	9.041E-11
E	6.622E-11	3.973E-10	8.459E-10	8.762E-10	5.473E-10	3.670E-10	2.592E-10	1.904E-10	1.442E-10	1.119E-10	8.864E-11
ESE	6.224E-11	3.734E-10	7.951E-10	8.236E-10	5.144E-10	3.449E-10	2.436E-10	1.790E-10	1.356E-10	1.052E-10	8.332E-11
SE	1.139E-10	6.833E-10	1.455E-09	1.507E-09	9.413E-10	6.312E-10	4.458E-10	3.275E-10	2.480E-10	1.925E-10	1.525E-10
SSE	4.819E-09	4.486E-09	4.649E-09	3.691E-09	2.000E-09	1.279E-09	8.834E-10	6.416E-10	4.832E-10	3.742E-10	2.963E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.418E-10	1.083E-10	7.540E-11	4.444E-11	2.822E-11	1.944E-11	1.386E-11	1.035E-11	8.255E-12	6.545E-12	5.342E-12
SSW	9.167E-11	8.266E-11	5.957E-11	3.607E-11	2.105E-11	1.488E-11	1.066E-11	8.005E-12	6.249E-12	4.991E-12	4.074E-12
SW	5.919E-11	6.176E-11	4.576E-11	2.835E-11	1.825E-11	1.111E-11	7.926E-12	5.952E-12	4.628E-12	3.697E-12	3.017E-12
WSW	4.983E-11	3.998E-11	2.833E-11	1.697E-11	1.027E-11	6.883E-12	5.209E-12	3.911E-12	3.041E-12	2.429E-12	1.983E-12
W	4.825E-11	2.334E-11	4.027E-11	2.691E-11	1.521E-11	1.023E-11	7.329E-12	5.503E-12	4.279E-12	3.418E-12	2.790E-12
WNW	1.649E-10	1.008E-10	7.257E-11	4.384E-11	2.738E-11	1.831E-11	1.306E-11	9.801E-12	7.619E-12	6.086E-12	4.968E-12
NW	3.396E-10	1.869E-10	1.272E-10	8.311E-11	5.076E-11	3.395E-11	2.410E-11	1.808E-11	1.406E-11	1.123E-11	9.168E-12
NNW	2.374E-10	1.422E-10	1.011E-10	6.051E-11	3.840E-11	2.546E-11	1.854E-11	1.389E-11	1.072E-11	8.561E-12	6.988E-12
N	1.585E-10	7.504E-11	4.573E-11	2.400E-11	5.469E-11	3.469E-11	2.480E-11	1.862E-11	1.448E-11	1.157E-11	9.440E-12
NNE	1.268E-10	1.996E-10	1.225E-10	6.297E-11	3.831E-11	2.565E-11	1.835E-11	1.374E-11	1.067E-11	8.510E-12	6.938E-12
NE	6.996E-11	1.176E-10	7.207E-11	3.691E-11	2.243E-11	1.502E-11	1.066E-11	7.977E-12	6.202E-12	4.954E-12	4.044E-12
ENE	7.282E-11	6.433E-11	4.411E-11	2.559E-11	1.612E-11	1.071E-11	7.565E-12	6.098E-12	4.746E-12	3.795E-12	3.100E-12
E	7.139E-11	6.273E-11	4.295E-11	2.488E-11	1.567E-11	1.041E-11	7.357E-12	5.436E-12	4.176E-12	3.764E-12	3.068E-12
ESE	6.711E-11	6.132E-11	4.239E-11	2.476E-11	1.563E-11	1.038E-11	7.323E-12	5.404E-12	4.145E-12	3.277E-12	2.653E-12
SE	1.228E-10	5.814E-11	3.543E-11	1.862E-11	1.132E-11	7.783E-12	5.825E-12	1.175E-11	9.023E-12	7.142E-12	5.797E-12
SSE	2.389E-10	3.195E-10	1.959E-10	1.005E-10	6.112E-11	4.093E-11	2.928E-11	2.194E-11	1.703E-11	1.359E-11	1.108E-11

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	1.893E-09	9.878E-10	4.378E-10	2.448E-10	1.697E-10	1.011E-10	4.411E-11	1.955E-11	1.056E-11	6.606E-12
SSW	1.083E-09	6.163E-10	2.806E-10	1.774E-10	1.148E-10	7.440E-11	3.462E-11	1.484E-11	8.094E-12	5.024E-12
SW	1.087E-09	6.156E-10	2.560E-10	1.238E-10	7.335E-11	5.408E-11	2.773E-11	1.174E-11	6.011E-12	3.721E-12
WSW	8.844E-10	5.880E-10	2.188E-10	1.049E-10	6.189E-11	3.699E-11	1.652E-11	7.116E-12	3.951E-12	2.445E-12
W	1.590E-09	6.145E-10	2.055E-10	9.935E-11	5.961E-11	3.640E-11	2.468E-11	1.040E-11	5.558E-12	3.440E-12
WNW	3.207E-09	1.811E-09	6.179E-10	2.987E-10	1.924E-10	1.025E-10	4.291E-11	1.863E-11	9.901E-12	6.126E-12
NW	4.646E-09	4.371E-09	1.501E-09	6.838E-10	4.107E-10	1.943E-10	7.853E-11	3.449E-11	1.827E-11	1.131E-11
NNW	1.504E-09	1.623E-09	7.951E-10	4.448E-10	2.795E-10	1.451E-10	5.971E-11	2.614E-11	1.401E-11	8.618E-12
N	1.686E-09	1.199E-09	5.781E-10	3.221E-10	1.979E-10	8.056E-11	4.247E-11	3.607E-11	1.881E-11	1.164E-11
NNE	2.355E-09	1.111E-09	4.752E-10	2.585E-10	1.582E-10	1.492E-10	6.525E-11	2.611E-11	1.389E-11	8.567E-12
NE	7.445E-10	5.294E-10	2.552E-10	1.422E-10	8.737E-11	8.679E-11	3.829E-11	1.525E-11	8.069E-12	4.987E-12
ENE	7.748E-10	5.510E-10	2.656E-10	1.480E-10	9.094E-11	5.723E-11	2.550E-11	1.089E-11	6.002E-12	3.819E-12
E	7.597E-10	5.402E-10	2.604E-10	1.451E-10	8.915E-11	5.586E-11	2.480E-11	1.059E-11	5.505E-12	3.628E-12
ESE	7.141E-10	5.078E-10	2.448E-10	1.364E-10	8.380E-11	5.419E-11	2.462E-11	1.056E-11	5.473E-12	3.303E-12
SE	1.307E-09	9.292E-10	4.479E-10	2.496E-10	1.533E-10	6.241E-11	1.911E-11	7.944E-12	9.019E-12	7.201E-12
SSE	4.187E-09	2.055E-09	8.922E-10	4.869E-10	2.981E-10	2.467E-10	1.042E-10	4.165E-11	2.217E-11	1.368E-11

ERP ELEVATED STACK RELEASES - APR-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	3.7E-08	3.7E-08	3.6E-08	2.1E-09
A	Site Boundary	SSW	.82	3.3E-08	3.3E-08	3.3E-08	1.2E-09
A	Site Boundary	SW	.97	7.6E-08	7.6E-08	7.5E-08	9.1E-10
A	Site Boundary	WSW	.93	6.7E-08	6.7E-08	6.6E-08	8.5E-10
A	Site Boundary	W	.91	1.4E-07	1.4E-07	1.4E-07	1.4E-09
A	Site Boundary	WNW	.94	2.0E-07	2.0E-07	2.0E-07	3.6E-09
A	Site Boundary	NW	.81	1.8E-07	1.8E-07	1.8E-07	3.0E-09
A	Site Boundary	NNW	.69	2.5E-08	2.5E-08	2.5E-08	1.4E-09
A	Site Boundary	N	.67	1.4E-08	1.4E-08	1.4E-08	1.6E-09
A	Site Boundary	NNE	.60	2.3E-08	2.3E-08	2.3E-08	2.6E-09
A	Site Boundary	NE	.62	4.3E-09	4.3E-09	4.3E-09	6.1E-10
A	Site Boundary	ENE	.59	3.1E-09	3.1E-09	3.1E-09	5.6E-10
A	Site Boundary	E	.53	1.2E-09	1.2E-09	1.2E-09	4.4E-10
A	Site Boundary	ESE	.54	1.5E-09	1.5E-09	1.5E-09	4.3E-10
A	Site Boundary	SE	.65	9.9E-09	9.8E-09	9.9E-09	1.1E-09
A	Site Boundary	SSE	.81	7.7E-08	7.7E-08	7.6E-08	4.5E-09
A	Nearest Res	SW	1.30	1.1E-07	1.1E-07	1.1E-07	9.8E-10
A	Nearest Res	WSW	1.80	1.2E-07	1.2E-07	1.2E-07	4.3E-10
A	Nearest Res	WNW	2.40	1.3E-07	1.3E-07	1.2E-07	6.5E-10
A	Nearest Res	NW	.90	2.6E-07	2.6E-07	2.6E-07	8.2E-09
A	Nearest Res	NNW	1.90	1.5E-07	1.5E-07	1.5E-07	1.3E-09
A	Nearest Res	NE	1.60	2.7E-08	2.7E-08	2.7E-08	4.9E-10
A	Nearest Res	ENE	1.70	2.8E-08	2.8E-08	2.8E-08	4.7E-10
A	Nearest Res	E	2.00	2.8E-08	2.8E-08	2.8E-08	3.7E-10
A	Nearest Res	SE	2.90	3.1E-08	3.1E-08	3.0E-08	3.5E-10
A	Nearest Cow	NNW	3.50	1.1E-07	1.1E-07	1.0E-07	4.3E-10
A	Nearest Garde	SW	2.20	7.8E-08	7.8E-08	7.7E-08	3.2E-10
A	Nearest Garde	WSW	2.40	7.8E-08	7.7E-08	7.6E-08	2.3E-10
A	Nearest Garde	WNW	2.60	1.1E-07	1.1E-07	1.1E-07	5.4E-10
A	Nearest Garde	NNW	2.70	1.3E-07	1.3E-07	1.2E-07	7.0E-10
A	Nearest Garde	ENE	1.70	2.8E-08	2.8E-08	2.8E-08	4.7E-10
A	Nearest Garde	E	2.00	2.8E-08	2.8E-08	2.8E-08	3.7E-10
A	Nearest Garde	ESE	2.20	2.6E-08	2.6E-08	2.6E-08	3.0E-10
A	Nearest Garde	SE	2.90	3.1E-08	3.1E-08	3.0E-08	3.5E-10
A	MAXIMUM CHI/Q	S	1.50	5.3E-08	5.3E-08	5.2E-08	9.7E-10
A	MAXIMUM CHI/Q	SSW	1.50	4.5E-08	4.5E-08	4.5E-08	6.1E-10
A	MAXIMUM CHI/Q	SW	1.50	1.3E-07	1.3E-07	1.3E-07	7.3E-10
A	MAXIMUM CHI/Q	WSW	1.50	1.5E-07	1.5E-07	1.5E-07	6.3E-10
A	MAXIMUM CHI/Q	W	1.50	1.7E-07	1.7E-07	1.7E-07	6.0E-10
A	MAXIMUM CHI/Q	WNW	1.50	2.8E-07	2.8E-07	2.8E-07	2.0E-09
A	MAXIMUM CHI/Q	NW	1.50	5.8E-07	5.8E-07	5.8E-07	4.9E-09
A	MAXIMUM CHI/Q	NNW	1.50	1.6E-07	1.6E-07	1.5E-07	2.2E-09
A	MAXIMUM CHI/Q	N	1.50	5.8E-08	5.8E-08	5.8E-08	1.2E-09
A	MAXIMUM CHI/Q	NNE	1.50	5.2E-08	5.1E-08	5.1E-08	1.1E-09
A	MAXIMUM CHI/Q	NE	1.50	2.7E-08	2.7E-08	2.7E-08	5.4E-10
A	MAXIMUM CHI/Q	ENE	1.50	2.9E-08	2.9E-08	2.9E-08	5.6E-10
A	MAXIMUM CHI/Q	E	1.50	3.1E-08	3.1E-08	3.1E-08	5.5E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.1E-08	3.1E-08	3.1E-08	5.1E-10
A	MAXIMUM CHI/Q	SE	1.50	4.7E-08	4.7E-08	4.6E-08	9.4E-10
A	MAXIMUM CHI/Q	SSE	1.50	9.2E-08	9.2E-08	9.1E-08	2.0E-09

Atmospheric Diffusion Estimates

Elevated Releases

January-June 2024

ERP ELEVATED STACK RELEASES - JAN-JUN 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.372E-10	8.987E-09	3.469E-08	5.589E-08	6.728E-08	6.082E-08	5.174E-08	4.369E-08	3.719E-08	4.456E-08	5.037E-08
SSW	3.156E-09	2.032E-08	3.741E-08	4.507E-08	4.727E-08	4.148E-08	3.496E-08	3.886E-08	4.100E-08	3.631E-08	3.260E-08
SW	3.381E-09	1.814E-08	4.924E-08	9.075E-08	1.434E-07	9.791E-08	7.103E-08	5.419E-08	4.299E-08	3.516E-08	2.947E-08
WSW	1.658E-09	7.081E-09	3.480E-08	9.301E-08	1.774E-07	1.159E-07	8.197E-08	6.150E-08	4.822E-08	3.909E-08	3.253E-08
W	1.884E-13	2.304E-08	1.242E-07	1.748E-07	1.804E-07	1.159E-07	8.123E-08	6.064E-08	4.740E-08	3.836E-08	3.189E-08
WNW	1.825E-10	1.305E-08	1.069E-07	2.037E-07	2.753E-07	1.695E-07	1.158E-07	8.919E-08	7.173E-08	5.714E-08	4.690E-08
NW	8.355E-11	6.329E-09	9.708E-08	2.553E-07	4.191E-07	2.496E-07	1.672E-07	1.240E-07	9.671E-08	7.669E-08	6.271E-08
NNW	2.545E-11	2.300E-09	3.089E-08	7.359E-08	1.208E-07	1.182E-07	1.075E-07	9.559E-08	8.655E-08	6.841E-08	5.580E-08
N	3.775E-11	3.140E-09	2.095E-08	3.741E-08	4.798E-08	4.594E-08	4.053E-08	3.445E-08	2.948E-08	2.550E-08	2.231E-08
NNE	1.614E-09	1.407E-08	3.192E-08	4.263E-08	4.783E-08	4.315E-08	3.698E-08	3.150E-08	2.703E-08	2.344E-08	2.058E-08
NE	1.074E-11	1.082E-09	1.008E-08	1.965E-08	2.699E-08	2.588E-08	2.275E-08	1.961E-08	1.691E-08	1.470E-08	1.289E-08
ENE	6.674E-16	6.091E-10	1.019E-08	2.039E-08	2.706E-08	2.515E-08	2.166E-08	1.842E-08	1.574E-08	1.359E-08	1.187E-08
E	1.074E-11	1.156E-09	1.141E-08	2.184E-08	2.822E-08	2.580E-08	2.194E-08	1.846E-08	1.564E-08	1.341E-08	1.164E-08
ESE	5.700E-16	6.435E-10	1.137E-08	2.315E-08	3.083E-08	2.846E-08	2.432E-08	2.052E-08	1.742E-08	1.495E-08	1.300E-08
SE	2.254E-15	1.775E-09	2.736E-08	5.203E-08	6.487E-08	5.812E-08	4.887E-08	4.085E-08	3.447E-08	2.946E-08	2.552E-08
SSE	1.323E-09	2.368E-08	6.280E-08	8.557E-08	9.374E-08	8.219E-08	6.881E-08	5.752E-08	4.859E-08	4.160E-08	3.610E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.535E-08	3.171E-08	2.077E-08	1.203E-08	8.547E-09	6.526E-09	5.097E-09	4.139E-09	3.494E-09	3.004E-09	2.608E-09
SSW	3.067E-08	2.535E-08	1.659E-08	9.619E-09	6.930E-09	5.232E-09	4.090E-09	3.326E-09	2.784E-09	2.379E-09	2.069E-09
SW	2.712E-08	2.070E-08	1.364E-08	7.976E-09	5.733E-09	4.410E-09	3.559E-09	2.895E-09	2.421E-09	2.069E-09	1.799E-09
WSW	2.893E-08	1.914E-08	1.361E-08	8.425E-09	5.678E-09	4.190E-09	3.275E-09	2.659E-09	2.222E-09	1.897E-09	1.648E-09
W	2.708E-08	1.510E-08	1.105E-08	7.439E-09	5.627E-09	4.193E-09	3.282E-09	2.671E-09	2.236E-09	1.913E-09	1.664E-09
WNW	3.992E-08	2.264E-08	1.554E-08	9.576E-09	6.609E-09	4.959E-09	3.937E-09	3.226E-09	2.704E-09	2.311E-09	2.009E-09
NW	5.318E-08	2.972E-08	2.034E-08	1.240E-08	8.363E-09	6.176E-09	4.915E-09	4.011E-09	3.352E-09	2.861E-09	2.485E-09
NNW	4.773E-08	2.737E-08	1.782E-08	1.028E-08	6.978E-09	5.177E-09	4.104E-09	3.373E-09	2.874E-09	2.472E-09	2.150E-09
N	1.978E-08	1.258E-08	1.048E-08	8.883E-09	8.139E-09	7.095E-09	5.626E-09	4.604E-09	3.862E-09	3.309E-09	2.884E-09
NNE	2.271E-08	3.320E-08	2.160E-08	1.246E-08	8.468E-09	6.291E-09	4.941E-09	4.033E-09	3.384E-09	2.901E-09	2.528E-09
NE	1.395E-08	2.064E-08	1.348E-08	7.817E-09	5.332E-09	3.972E-09	3.173E-09	2.620E-09	2.226E-09	1.909E-09	1.664E-09
ENE	1.243E-08	2.085E-08	1.403E-08	8.435E-09	5.882E-09	4.452E-09	3.799E-09	3.271E-09	2.759E-09	2.375E-09	2.079E-09
E	1.194E-08	1.609E-08	1.069E-08	6.313E-09	4.351E-09	3.264E-09	2.583E-09	2.120E-09	1.868E-09	1.659E-09	1.448E-09
ESE	1.315E-08	1.580E-08	1.060E-08	6.337E-09	4.397E-09	3.313E-09	2.630E-09	2.165E-09	1.829E-09	1.577E-09	1.381E-09
SE	2.236E-08	1.363E-08	1.045E-08	7.492E-09	5.511E-09	4.372E-09	3.637E-09	3.122E-09	2.621E-09	2.246E-09	1.957E-09
SSE	3.827E-08	4.685E-08	3.025E-08	1.727E-08	1.166E-08	8.612E-09	6.735E-09	5.477E-09	4.582E-09	3.916E-09	3.405E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.840E-08	6.188E-08	5.094E-08	4.185E-08	4.679E-08	2.988E-08	1.242E-08	6.493E-09	4.167E-09	3.002E-09
SSW	3.702E-08	4.421E-08	3.826E-08	3.860E-08	3.298E-08	2.264E-08	9.973E-09	5.228E-09	3.338E-09	2.384E-09
SW	6.078E-08	1.115E-07	7.146E-08	4.321E-08	3.029E-08	1.899E-08	8.239E-09	4.422E-09	2.904E-09	2.074E-09
WSW	5.451E-08	1.313E-07	8.283E-08	4.854E-08	3.314E-08	1.886E-08	8.357E-09	4.221E-09	2.668E-09	1.901E-09
W	1.242E-07	1.505E-07	8.224E-08	4.774E-08	3.202E-08	1.596E-08	7.436E-09	4.211E-09	2.680E-09	1.917E-09
WNW	1.291E-07	2.124E-07	1.195E-07	7.116E-08	4.735E-08	2.332E-08	9.583E-09	4.990E-09	3.230E-09	2.315E-09
NW	1.472E-07	3.074E-07	1.719E-07	9.688E-08	6.332E-08	3.077E-08	1.237E-08	6.255E-09	4.018E-09	2.867E-09
NNW	4.351E-08	1.092E-07	1.056E-07	8.222E-08	5.655E-08	2.765E-08	1.049E-08	5.228E-09	3.392E-09	2.472E-09
N	2.431E-08	4.472E-08	3.954E-08	2.938E-08	2.232E-08	1.325E-08	8.907E-09	6.786E-09	4.613E-09	3.316E-09
NNE	3.272E-08	4.459E-08	3.643E-08	2.694E-08	2.222E-08	2.571E-08	1.272E-08	6.332E-09	4.045E-09	2.906E-09
NE	1.233E-08	2.487E-08	2.233E-08	1.684E-08	1.382E-08	1.597E-08	7.971E-09	4.015E-09	2.628E-09	1.912E-09
ENE	1.260E-08	2.473E-08	2.129E-08	1.568E-08	1.259E-08	1.595E-08	8.544E-09	4.572E-09	3.227E-09	2.379E-09
E	1.377E-08	2.573E-08	2.158E-08	1.560E-08	1.228E-08	1.277E-08	6.413E-09	3.281E-09	2.156E-09	1.643E-09
ESE	1.422E-08	2.807E-08	2.390E-08	1.737E-08	1.363E-08	1.290E-08	6.423E-09	3.329E-09	2.170E-09	1.579E-09
SE	3.264E-08	5.902E-08	4.813E-08	3.438E-08	2.552E-08	1.416E-08	7.269E-09	4.382E-09	3.078E-09	2.250E-09
SSE	6.423E-08	8.679E-08	6.786E-08	4.848E-08	3.853E-08	3.756E-08	1.766E-08	8.673E-09	5.495E-09	3.924E-09

ERP ELEVATED STACK RELEASES - JAN-JUN 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.371E-10	8.983E-09	3.466E-08	5.582E-08	6.712E-08	6.062E-08	5.151E-08	4.345E-08	3.695E-08	4.419E-08	4.986E-08
SSW	3.155E-09	2.031E-08	3.737E-08	4.500E-08	4.715E-08	4.133E-08	3.480E-08	3.863E-08	4.069E-08	3.598E-08	3.225E-08
SW	3.380E-09	1.813E-08	4.917E-08	9.055E-08	1.428E-07	9.742E-08	7.058E-08	5.376E-08	4.259E-08	3.478E-08	2.911E-08
WSW	1.657E-09	7.076E-09	3.474E-08	9.277E-08	1.766E-07	1.151E-07	8.127E-08	6.085E-08	4.761E-08	3.852E-08	3.199E-08
W	1.883E-13	2.302E-08	1.240E-07	1.744E-07	1.797E-07	1.153E-07	8.065E-08	6.010E-08	4.690E-08	3.789E-08	3.144E-08
WNW	1.824E-10	1.305E-08	1.068E-07	2.034E-07	2.746E-07	1.688E-07	1.152E-07	8.863E-08	7.118E-08	5.663E-08	4.643E-08
NW	8.354E-11	6.326E-09	9.699E-08	2.550E-07	4.179E-07	2.485E-07	1.663E-07	1.232E-07	9.591E-08	7.596E-08	6.203E-08
NNW	2.545E-11	2.299E-09	3.086E-08	7.347E-08	1.204E-07	1.178E-07	1.070E-07	9.505E-08	8.598E-08	6.789E-08	5.532E-08
N	3.774E-11	3.139E-09	2.093E-08	3.737E-08	4.788E-08	4.581E-08	4.039E-08	3.431E-08	2.934E-08	2.536E-08	2.217E-08
NNE	1.614E-09	1.407E-08	3.190E-08	4.259E-08	4.774E-08	4.303E-08	3.684E-08	3.136E-08	2.688E-08	2.329E-08	2.043E-08
NE	1.074E-11	1.082E-09	1.007E-08	1.961E-08	2.692E-08	2.578E-08	2.264E-08	1.949E-08	1.680E-08	1.458E-08	1.278E-08
ENE	6.673E-16	6.087E-10	1.018E-08	2.036E-08	2.699E-08	2.506E-08	2.155E-08	1.830E-08	1.562E-08	1.347E-08	1.175E-08
E	1.074E-11	1.155E-09	1.140E-08	2.180E-08	2.814E-08	2.569E-08	2.182E-08	1.834E-08	1.552E-08	1.329E-08	1.152E-08
ESE	5.698E-16	6.430E-10	1.136E-08	2.311E-08	3.075E-08	2.835E-08	2.420E-08	2.040E-08	1.730E-08	1.483E-08	1.288E-08
SE	2.254E-15	1.774E-09	2.734E-08	5.197E-08	6.474E-08	5.796E-08	4.869E-08	4.067E-08	3.429E-08	2.928E-08	2.534E-08
SSE	1.322E-09	2.367E-08	6.275E-08	8.548E-08	9.357E-08	8.198E-08	6.859E-08	5.729E-08	4.837E-08	4.138E-08	3.588E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.482E-08	3.108E-08	2.021E-08	1.154E-08	8.073E-09	6.070E-09	4.672E-09	3.740E-09	3.111E-09	2.636E-09	2.256E-09
SSW	3.028E-08	2.478E-08	1.609E-08	9.187E-09	6.517E-09	4.846E-09	3.734E-09	2.994E-09	2.471E-09	2.084E-09	1.788E-09
SW	2.673E-08	2.020E-08	1.320E-08	7.587E-09	5.358E-09	4.050E-09	3.211E-09	2.569E-09	2.114E-09	1.779E-09	1.523E-09
WSW	2.838E-08	1.856E-08	1.305E-08	7.902E-09	5.217E-09	3.772E-09	2.890E-09	2.301E-09	1.886E-09	1.581E-09	1.348E-09
W	2.665E-08	1.473E-08	1.069E-08	7.064E-09	5.248E-09	3.844E-09	2.961E-09	2.371E-09	1.954E-09	1.646E-09	1.411E-09
WNW	3.947E-08	2.224E-08	1.517E-08	9.228E-09	6.290E-09	4.661E-09	3.656E-09	2.959E-09	2.450E-09	2.070E-09	1.779E-09
NW	5.254E-08	2.917E-08	1.983E-08	1.193E-08	7.948E-09	5.798E-09	4.558E-09	3.676E-09	3.036E-09	2.563E-09	2.201E-09
NNW	4.727E-08	2.697E-08	1.748E-08	9.984E-09	6.714E-09	4.934E-09	3.874E-09	3.154E-09	2.662E-09	2.268E-09	1.955E-09
N	1.964E-08	1.244E-08	1.031E-08	8.631E-09	7.813E-09	6.733E-09	5.285E-09	4.281E-09	3.556E-09	3.018E-09	2.605E-09
NNE	2.251E-08	3.266E-08	2.113E-08	1.206E-08	8.111E-09	5.962E-09	4.635E-09	3.744E-09	3.110E-09	2.640E-09	2.278E-09
NE	1.381E-08	2.029E-08	1.318E-08	7.553E-09	5.092E-09	3.749E-09	2.960E-09	2.416E-09	2.027E-09	1.718E-09	1.481E-09
ENE	1.230E-08	2.048E-08	1.370E-08	8.139E-09	5.609E-09	4.194E-09	3.534E-09	3.005E-09	2.504E-09	2.131E-09	1.843E-09
E	1.180E-08	1.574E-08	1.037E-08	6.034E-09	4.097E-09	3.028E-09	2.361E-09	1.911E-09	1.659E-09	1.452E-09	1.250E-09
ESE	1.302E-08	1.550E-08	1.033E-08	6.091E-09	4.171E-09	3.101E-09	2.430E-09	1.974E-09	1.647E-09	1.402E-09	1.213E-09
SE	2.219E-08	1.346E-08	1.027E-08	7.281E-09	5.300E-09	4.161E-09	3.426E-09	2.911E-09	2.421E-09	2.055E-09	1.774E-09
SSE	3.801E-08	4.624E-08	2.972E-08	1.682E-08	1.125E-08	8.239E-09	6.387E-09	5.148E-09	4.269E-09	3.618E-09	3.119E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.836E-08	6.172E-08	5.071E-08	4.157E-08	4.632E-08	2.930E-08	1.192E-08	6.045E-09	3.767E-09	2.636E-09
SSW	3.697E-08	4.408E-08	3.807E-08	3.830E-08	3.262E-08	2.214E-08	9.535E-09	4.847E-09	3.006E-09	2.089E-09
SW	6.066E-08	1.110E-07	7.101E-08	4.281E-08	2.991E-08	1.854E-08	7.844E-09	4.063E-09	2.579E-09	1.783E-09
WSW	5.438E-08	1.307E-07	8.213E-08	4.793E-08	3.259E-08	1.829E-08	7.853E-09	3.804E-09	2.311E-09	1.585E-09
W	1.240E-07	1.499E-07	8.166E-08	4.724E-08	3.158E-08	1.558E-08	7.062E-09	3.865E-09	2.381E-09	1.650E-09
WNW	1.289E-07	2.118E-07	1.189E-07	7.062E-08	4.688E-08	2.293E-08	9.242E-09	4.693E-09	2.964E-09	2.075E-09
NW	1.470E-07	3.064E-07	1.710E-07	9.610E-08	6.264E-08	3.021E-08	1.192E-08	5.875E-09	3.684E-09	2.569E-09
NNW	4.345E-08	1.088E-07	1.051E-07	8.168E-08	5.606E-08	2.727E-08	1.020E-08	4.985E-09	3.173E-09	2.269E-09
N	2.428E-08	4.463E-08	3.941E-08	2.924E-08	2.218E-08	1.309E-08	8.640E-09	6.442E-09	4.292E-09	3.025E-09
NNE	3.269E-08	4.450E-08	3.630E-08	2.679E-08	2.205E-08	2.528E-08	1.232E-08	6.004E-09	3.757E-09	2.645E-09
NE	1.231E-08	2.479E-08	2.222E-08	1.672E-08	1.370E-08	1.569E-08	7.709E-09	3.792E-09	2.423E-09	1.722E-09
ENE	1.258E-08	2.466E-08	2.119E-08	1.557E-08	1.247E-08	1.565E-08	8.251E-09	4.307E-09	2.965E-09	2.135E-09
E	1.375E-08	2.565E-08	2.146E-08	1.548E-08	1.215E-08	1.248E-08	6.137E-09	3.047E-09	1.944E-09	1.438E-09
ESE	1.420E-08	2.799E-08	2.378E-08	1.724E-08	1.351E-08	1.265E-08	6.180E-09	3.118E-09	1.980E-09	1.404E-09
SE	3.261E-08	5.889E-08	4.795E-08	3.420E-08	2.534E-08	1.398E-08	7.064E-09	4.171E-09	2.872E-09	2.059E-09
SSE	6.417E-08	8.662E-08	6.764E-08	4.825E-08	3.830E-08	3.707E-08	1.721E-08	8.301E-09	5.167E-09	3.626E-09

ERP ELEVATED STACK RELEASES - JAN-JUN 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	6.372E-10	8.919E-09	3.446E-08	5.565E-08	6.653E-08	5.968E-08	5.040E-08	4.229E-08	3.580E-08	4.288E-08	4.854E-08
SSW	3.156E-09	2.015E-08	3.687E-08	4.454E-08	4.654E-08	4.058E-08	3.399E-08	3.768E-08	3.969E-08	3.503E-08	3.138E-08
SW	3.381E-09	1.798E-08	4.867E-08	9.013E-08	1.415E-07	9.590E-08	6.913E-08	5.246E-08	4.142E-08	3.374E-08	2.818E-08
WSW	1.658E-09	7.020E-09	3.461E-08	9.271E-08	1.754E-07	1.136E-07	7.982E-08	5.956E-08	4.648E-08	3.753E-08	3.112E-08
W	1.884E-13	2.303E-08	1.235E-07	1.730E-07	1.775E-07	1.134E-07	7.911E-08	5.884E-08	4.585E-08	3.700E-08	3.068E-08
WNW	1.825E-10	1.299E-08	1.066E-07	2.019E-07	2.713E-07	1.658E-07	1.127E-07	8.653E-08	6.941E-08	5.506E-08	4.498E-08
NW	8.355E-11	6.286E-09	9.684E-08	2.539E-07	4.130E-07	2.437E-07	1.621E-07	1.196E-07	9.290E-08	7.328E-08	5.959E-08
NNW	2.545E-11	2.288E-09	3.083E-08	7.350E-08	1.196E-07	1.163E-07	1.052E-07	9.337E-08	8.443E-08	6.641E-08	5.388E-08
N	3.775E-11	3.122E-09	2.088E-08	3.734E-08	4.753E-08	4.519E-08	3.963E-08	3.350E-08	2.853E-08	2.458E-08	2.143E-08
NNE	1.614E-09	1.395E-08	3.155E-08	4.227E-08	4.721E-08	4.234E-08	3.608E-08	3.058E-08	2.612E-08	2.256E-08	1.973E-08
NE	1.074E-11	1.077E-09	1.006E-08	1.962E-08	2.674E-08	2.545E-08	2.223E-08	1.905E-08	1.635E-08	1.414E-08	1.236E-08
ENE	6.674E-16	6.090E-10	1.019E-08	2.038E-08	2.681E-08	2.471E-08	2.112E-08	1.783E-08	1.515E-08	1.301E-08	1.131E-08
E	1.074E-11	1.151E-09	1.139E-08	2.181E-08	2.794E-08	2.532E-08	2.135E-08	1.784E-08	1.501E-08	1.279E-08	1.104E-08
ESE	5.700E-16	6.433E-10	1.137E-08	2.314E-08	3.054E-08	2.795E-08	2.369E-08	1.984E-08	1.674E-08	1.428E-08	1.235E-08
SE	2.254E-15	1.775E-09	2.736E-08	5.202E-08	6.426E-08	5.708E-08	4.761E-08	3.951E-08	3.313E-08	2.815E-08	2.425E-08
SSE	1.323E-09	2.348E-08	6.211E-08	8.487E-08	9.250E-08	8.054E-08	6.698E-08	5.564E-08	4.674E-08	3.981E-08	3.439E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.359E-08	2.996E-08	1.897E-08	1.026E-08	6.745E-09	4.825E-09	3.570E-09	2.761E-09	2.235E-09	1.858E-09	1.564E-09
SSW	2.948E-08	2.404E-08	1.520E-08	8.206E-09	5.476E-09	3.952E-09	2.973E-09	2.334E-09	1.892E-09	1.569E-09	1.326E-09
SW	2.590E-08	1.951E-08	1.243E-08	6.773E-09	4.496E-09	3.234E-09	2.500E-09	1.959E-09	1.584E-09	1.311E-09	1.106E-09
WSW	2.762E-08	1.789E-08	1.231E-08	7.189E-09	4.615E-09	3.266E-09	2.457E-09	1.926E-09	1.558E-09	1.291E-09	1.090E-09
W	2.599E-08	1.435E-08	1.037E-08	6.561E-09	4.639E-09	3.317E-09	2.502E-09	1.969E-09	1.598E-09	1.328E-09	1.124E-09
WNW	3.809E-08	2.094E-08	1.390E-08	7.969E-09	5.064E-09	3.575E-09	2.715E-09	2.145E-09	1.738E-09	1.440E-09	1.216E-09
NW	5.026E-08	2.723E-08	1.803E-08	1.028E-08	6.503E-09	4.545E-09	3.467E-09	2.731E-09	2.210E-09	1.830E-09	1.545E-09
NNW	4.583E-08	2.548E-08	1.602E-08	8.598E-09	5.380E-09	3.725E-09	2.783E-09	2.183E-09	1.794E-09	1.495E-09	1.262E-09
N	1.893E-08	1.189E-08	9.879E-09	8.387E-09	7.535E-09	6.258E-09	4.808E-09	3.825E-09	3.126E-09	2.614E-09	2.227E-09
NNE	2.181E-08	3.191E-08	2.004E-08	1.086E-08	6.950E-09	4.908E-09	3.687E-09	2.891E-09	2.339E-09	1.938E-09	1.636E-09
NE	1.337E-08	1.980E-08	1.249E-08	6.796E-09	4.353E-09	3.074E-09	2.351E-09	1.876E-09	1.544E-09	1.287E-09	1.092E-09
ENE	1.184E-08	2.006E-08	1.306E-08	7.312E-09	4.698E-09	3.316E-09	2.660E-09	2.181E-09	1.772E-09	1.474E-09	1.248E-09
E	1.130E-08	1.532E-08	9.839E-09	5.425E-09	3.457E-09	2.426E-09	1.809E-09	1.408E-09	1.179E-09	1.001E-09	8.404E-10
ESE	1.247E-08	1.505E-08	9.781E-09	5.474E-09	3.525E-09	2.492E-09	1.869E-09	1.461E-09	1.177E-09	9.711E-10	8.159E-10
SE	2.115E-08	1.265E-08	9.609E-09	6.829E-09	4.981E-09	3.930E-09	3.258E-09	2.780E-09	2.283E-09	1.918E-09	1.639E-09
SSE	3.646E-08	4.461E-08	2.782E-08	1.494E-08	9.521E-09	6.700E-09	5.019E-09	3.926E-09	3.170E-09	2.622E-09	2.211E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.820E-08	6.107E-08	4.963E-08	4.035E-08	4.503E-08	2.810E-08	1.063E-08	4.835E-09	2.792E-09	1.861E-09
SSW	3.656E-08	4.344E-08	3.722E-08	3.734E-08	3.176E-08	2.132E-08	8.546E-09	3.967E-09	2.348E-09	1.574E-09
SW	6.028E-08	1.098E-07	6.960E-08	4.165E-08	2.898E-08	1.779E-08	7.019E-09	3.277E-09	1.971E-09	1.316E-09
WSW	5.430E-08	1.295E-07	8.072E-08	4.681E-08	3.173E-08	1.758E-08	7.184E-09	3.302E-09	1.938E-09	1.295E-09
W	1.232E-07	1.480E-07	8.014E-08	4.619E-08	3.081E-08	1.517E-08	6.553E-09	3.344E-09	1.980E-09	1.333E-09
WNW	1.281E-07	2.090E-07	1.164E-07	6.884E-08	4.541E-08	2.162E-08	7.995E-09	3.628E-09	2.153E-09	1.445E-09
NW	1.465E-07	3.024E-07	1.669E-07	9.306E-08	6.019E-08	2.826E-08	1.033E-08	4.636E-09	2.743E-09	1.837E-09
NNW	4.345E-08	1.079E-07	1.034E-07	8.012E-08	5.461E-08	2.580E-08	8.817E-09	3.789E-09	2.207E-09	1.497E-09
N	2.425E-08	4.422E-08	3.866E-08	2.845E-08	2.144E-08	1.256E-08	8.340E-09	6.018E-09	3.839E-09	2.622E-09
NNE	3.240E-08	4.395E-08	3.555E-08	2.604E-08	2.134E-08	2.439E-08	1.116E-08	4.964E-09	2.908E-09	1.945E-09
NE	1.231E-08	2.459E-08	2.182E-08	1.628E-08	1.326E-08	1.512E-08	6.975E-09	3.126E-09	1.885E-09	1.291E-09
ENE	1.259E-08	2.445E-08	2.076E-08	1.510E-08	1.201E-08	1.512E-08	7.427E-09	3.422E-09	2.162E-09	1.478E-09
E	1.375E-08	2.541E-08	2.100E-08	1.497E-08	1.165E-08	1.199E-08	5.531E-09	2.454E-09	1.435E-09	9.942E-10
ESE	1.422E-08	2.774E-08	2.329E-08	1.669E-08	1.297E-08	1.213E-08	5.565E-09	2.518E-09	1.470E-09	9.747E-10
SE	3.263E-08	5.835E-08	4.690E-08	3.306E-08	2.426E-08	1.319E-08	6.626E-09	3.941E-09	2.727E-09	1.923E-09
SSE	6.364E-08	8.549E-08	6.606E-08	4.665E-08	3.676E-08	3.534E-08	1.539E-08	6.780E-09	3.950E-09	2.632E-09

ERP ELEVATED STACK RELEASES - JAN-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	1.179E-09	1.609E-09	2.328E-09	2.160E-09	1.281E-09	8.450E-10	5.923E-10	4.335E-10	3.277E-10	2.759E-10	2.445E-10
SSW	1.630E-09	1.583E-09	1.725E-09	1.409E-09	7.777E-10	5.007E-10	3.470E-10	2.524E-10	2.366E-10	1.789E-10	1.400E-10
SW	1.477E-09	1.346E-09	1.358E-09	1.061E-09	9.848E-10	5.365E-10	3.332E-10	2.266E-10	1.640E-10	1.242E-10	9.726E-11
WSW	4.326E-10	5.457E-10	7.507E-10	1.261E-09	7.668E-10	4.160E-10	2.571E-10	1.742E-10	1.258E-10	9.504E-11	7.436E-11
W	4.201E-11	2.189E-09	2.134E-09	1.446E-09	6.965E-10	3.762E-10	2.320E-10	1.573E-10	1.139E-10	8.651E-11	6.822E-11
WNW	7.293E-10	9.589E-10	4.271E-09	3.012E-09	1.877E-09	9.434E-10	5.611E-10	3.756E-10	2.813E-10	2.200E-10	1.823E-10
NW	9.219E-10	1.431E-09	2.225E-09	5.233E-09	3.432E-09	1.705E-09	1.002E-09	6.588E-10	4.698E-10	3.568E-10	2.857E-10
NNW	3.473E-10	7.172E-10	1.253E-09	1.235E-09	1.458E-09	7.957E-10	4.993E-10	4.146E-10	3.039E-10	2.387E-10	1.987E-10
N	5.040E-10	9.737E-10	1.662E-09	1.627E-09	9.907E-10	6.591E-10	4.639E-10	3.401E-10	2.574E-10	1.997E-10	1.581E-10
NNE	2.425E-09	2.250E-09	2.324E-09	1.841E-09	9.957E-10	6.366E-10	4.395E-10	3.192E-10	2.404E-10	1.861E-10	1.474E-10
NE	1.827E-10	4.126E-10	7.414E-10	7.365E-10	4.515E-10	3.010E-10	2.120E-10	1.556E-10	1.177E-10	9.136E-11	7.235E-11
ENE	5.534E-11	3.320E-10	7.069E-10	7.323E-10	4.574E-10	3.067E-10	2.166E-10	1.591E-10	1.205E-10	9.354E-11	7.408E-11
E	1.873E-10	4.406E-10	8.010E-10	7.983E-10	4.900E-10	3.269E-10	2.303E-10	1.690E-10	1.279E-10	9.925E-11	7.860E-11
ESE	5.601E-11	3.360E-10	7.155E-10	7.411E-10	4.629E-10	3.104E-10	2.192E-10	1.610E-10	1.220E-10	9.467E-11	7.497E-11
SE	1.614E-10	9.680E-10	2.061E-09	2.135E-09	1.334E-09	8.942E-10	6.316E-10	4.640E-10	3.514E-10	2.727E-10	2.160E-10
SSE	3.705E-09	3.780E-09	4.346E-09	3.652E-09	2.050E-09	1.328E-09	9.229E-10	6.724E-10	5.072E-10	3.930E-10	3.112E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.966E-10	1.403E-10	9.600E-11	5.564E-11	3.512E-11	2.553E-11	1.820E-11	1.358E-11	1.070E-11	8.487E-12	6.927E-12
SSW	1.129E-10	8.953E-11	6.290E-11	3.734E-11	2.320E-11	1.609E-11	1.153E-11	8.660E-12	6.758E-12	5.398E-12	4.406E-12
SW	7.939E-11	6.962E-11	4.997E-11	3.019E-11	1.932E-11	1.248E-11	8.979E-12	6.743E-12	5.243E-12	4.188E-12	3.418E-12
WSW	6.093E-11	5.158E-11	3.689E-11	2.233E-11	1.351E-11	9.059E-12	6.710E-12	5.039E-12	3.918E-12	3.130E-12	2.554E-12
W	5.543E-11	2.611E-11	4.146E-11	2.746E-11	1.586E-11	1.073E-11	7.692E-12	5.776E-12	4.491E-12	3.587E-12	2.928E-12
WNW	1.603E-10	1.001E-10	7.268E-11	4.422E-11	2.779E-11	1.842E-11	1.293E-11	9.711E-12	7.549E-12	6.030E-12	4.922E-12
NW	2.403E-10	1.331E-10	9.089E-11	5.898E-11	3.601E-11	2.409E-11	1.713E-11	1.286E-11	1.002E-11	8.006E-12	6.534E-12
NNW	1.738E-10	1.092E-10	7.939E-11	4.835E-11	3.083E-11	2.043E-11	1.427E-11	1.043E-11	8.148E-12	6.509E-12	5.314E-12
N	1.274E-10	6.035E-11	3.680E-11	1.936E-11	5.413E-11	3.242E-11	2.320E-11	1.742E-11	1.355E-11	1.082E-11	8.833E-12
NNE	1.189E-10	1.936E-10	1.194E-10	6.167E-11	3.757E-11	2.515E-11	1.797E-11	1.345E-11	1.043E-11	8.317E-12	6.776E-12
NE	5.828E-11	1.031E-10	6.396E-11	3.327E-11	2.031E-11	1.359E-11	9.602E-12	7.165E-12	5.572E-12	4.501E-12	3.674E-12
ENE	5.966E-11	7.208E-11	5.276E-11	3.229E-11	2.061E-11	1.364E-11	9.573E-12	6.748E-12	5.245E-12	4.189E-12	3.420E-12
E	6.331E-11	6.176E-11	4.338E-11	2.569E-11	1.627E-11	1.081E-11	7.618E-12	5.613E-12	4.301E-12	3.706E-12	3.019E-12
ESE	6.038E-11	6.892E-11	4.994E-11	3.032E-11	1.931E-11	1.279E-11	8.982E-12	6.588E-12	5.025E-12	3.951E-12	3.182E-12
SE	1.740E-10	8.236E-11	5.019E-11	2.637E-11	1.603E-11	1.100E-11	8.197E-12	1.511E-11	1.162E-11	9.212E-12	7.490E-12
SSE	2.509E-10	3.214E-10	1.979E-10	1.020E-10	6.212E-11	4.159E-11	2.973E-11	2.226E-11	1.727E-11	1.377E-11	1.122E-11

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.094E-09	1.282E-09	5.962E-10	3.382E-10	2.361E-10	1.331E-10	5.549E-11	2.515E-11	1.380E-11	8.564E-12
SSW	1.553E-09	7.950E-10	3.501E-10	2.191E-10	1.415E-10	8.288E-11	3.673E-11	1.616E-11	8.756E-12	5.434E-12
SW	1.224E-09	8.025E-10	3.448E-10	1.667E-10	9.862E-11	6.306E-11	2.975E-11	1.290E-11	6.810E-12	4.215E-12
WSW	9.320E-10	7.207E-10	2.663E-10	1.279E-10	7.551E-11	4.713E-11	2.165E-11	9.307E-12	5.089E-12	3.150E-12
W	1.840E-09	7.206E-10	2.406E-10	1.159E-10	6.890E-11	3.945E-11	2.542E-11	1.089E-11	5.834E-12	3.611E-12
WNW	2.976E-09	1.714E-09	5.889E-10	2.849E-10	1.853E-10	1.013E-10	4.324E-11	1.872E-11	9.808E-12	6.070E-12
NW	3.385E-09	3.065E-09	1.052E-09	4.808E-10	2.900E-10	1.382E-10	5.586E-11	2.448E-11	1.300E-11	8.058E-12
NNW	1.126E-09	1.114E-09	5.445E-10	3.107E-10	2.013E-10	1.103E-10	4.746E-11	2.074E-11	1.066E-11	6.552E-12
N	1.494E-09	9.848E-10	4.664E-10	2.591E-10	1.591E-10	6.478E-11	3.869E-11	3.452E-11	1.760E-11	1.089E-11
NNE	2.093E-09	1.024E-09	4.439E-10	2.422E-10	1.483E-10	1.440E-10	6.379E-11	2.559E-11	1.359E-11	8.374E-12
NE	6.661E-10	4.479E-10	2.132E-10	1.185E-10	7.277E-11	7.574E-11	3.433E-11	1.379E-11	7.254E-12	4.512E-12
ENE	6.349E-10	4.515E-10	2.176E-10	1.213E-10	7.451E-11	6.074E-11	3.165E-11	1.387E-11	6.982E-12	4.217E-12
E	7.197E-10	4.860E-10	2.315E-10	1.287E-10	7.906E-11	5.394E-11	2.544E-11	1.099E-11	5.686E-12	3.628E-12
ESE	6.425E-10	4.569E-10	2.203E-10	1.227E-10	7.541E-11	5.859E-11	2.979E-11	1.301E-11	6.677E-12	3.985E-12
SE	1.851E-09	1.316E-09	6.346E-10	3.536E-10	2.172E-10	8.842E-11	2.707E-11	1.122E-11	1.180E-11	9.288E-12
SSE	3.912E-09	2.085E-09	9.307E-10	5.109E-10	3.131E-10	2.509E-10	1.056E-10	4.232E-11	2.249E-11	1.386E-11

ERP ELEVATED STACK RELEASES - JAN-JUN 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	4.0E-08	4.0E-08	4.0E-08	2.4E-09
A	Site Boundary	SSW	.82	4.0E-08	4.0E-08	4.0E-08	1.7E-09
A	Site Boundary	SW	.97	8.7E-08	8.6E-08	8.6E-08	1.1E-09
A	Site Boundary	WSW	.93	7.5E-08	7.5E-08	7.4E-08	1.0E-09
A	Site Boundary	W	.91	1.6E-07	1.6E-07	1.6E-07	1.6E-09
A	Site Boundary	WNW	.94	1.8E-07	1.8E-07	1.8E-07	3.4E-09
A	Site Boundary	NW	.81	1.4E-07	1.4E-07	1.4E-07	2.3E-09
A	Site Boundary	NNW	.69	1.9E-08	1.9E-08	1.9E-08	1.1E-09
A	Site Boundary	N	.67	1.4E-08	1.4E-08	1.4E-08	1.4E-09
A	Site Boundary	NNE	.60	2.0E-08	2.0E-08	2.0E-08	2.2E-09
A	Site Boundary	NE	.62	4.2E-09	4.2E-09	4.2E-09	5.7E-10
A	Site Boundary	ENE	.59	2.5E-09	2.5E-09	2.5E-09	4.6E-10
A	Site Boundary	E	.53	1.6E-09	1.6E-09	1.6E-09	4.7E-10
A	Site Boundary	ESE	.54	1.3E-09	1.3E-09	1.3E-09	3.9E-10
A	Site Boundary	SE	.65	1.4E-08	1.4E-08	1.4E-08	1.6E-09
A	Site Boundary	SSE	.81	7.0E-08	7.0E-08	6.9E-08	4.2E-09
A	Nearest Res	SW	1.30	1.3E-07	1.3E-07	1.3E-07	1.3E-09
A	Nearest Res	WSW	1.80	1.4E-07	1.4E-07	1.3E-07	5.2E-10
A	Nearest Res	WNW	2.40	1.2E-07	1.2E-07	1.2E-07	6.2E-10
A	Nearest Res	NW	.90	1.9E-07	1.9E-07	1.9E-07	5.8E-09
A	Nearest Res	NNW	1.90	1.2E-07	1.2E-07	1.2E-07	8.9E-10
A	Nearest Res	NE	1.60	2.7E-08	2.7E-08	2.7E-08	4.1E-10
A	Nearest Res	ENE	1.70	2.7E-08	2.7E-08	2.6E-08	3.9E-10
A	Nearest Res	E	2.00	2.6E-08	2.6E-08	2.5E-08	3.3E-10
A	Nearest Res	SE	2.90	4.2E-08	4.2E-08	4.1E-08	4.9E-10
A	Nearest Cow	NNW	3.50	8.7E-08	8.6E-08	8.4E-08	3.0E-10
A	Nearest Garde	SW	2.20	8.6E-08	8.5E-08	8.4E-08	4.4E-10
A	Nearest Garde	WSW	2.40	8.7E-08	8.7E-08	8.5E-08	2.8E-10
A	Nearest Garde	WNW	2.60	1.1E-07	1.1E-07	1.1E-07	5.1E-10
A	Nearest Garde	NNW	2.70	1.0E-07	1.0E-07	1.0E-07	4.8E-10
A	Nearest Garde	ENE	1.70	2.7E-08	2.7E-08	2.6E-08	3.9E-10
A	Nearest Garde	E	2.00	2.6E-08	2.6E-08	2.5E-08	3.3E-10
A	Nearest Garde	ESE	2.20	2.7E-08	2.7E-08	2.6E-08	2.7E-10
A	Nearest Garde	SE	2.90	4.2E-08	4.2E-08	4.1E-08	4.9E-10
A	MAXIMUM CHI/Q	S	1.50	6.7E-08	6.7E-08	6.7E-08	1.3E-09
A	MAXIMUM CHI/Q	SSW	1.50	4.7E-08	4.7E-08	4.7E-08	7.8E-10
A	MAXIMUM CHI/Q	SW	1.50	1.4E-07	1.4E-07	1.4E-07	9.8E-10
A	MAXIMUM CHI/Q	WSW	1.50	1.8E-07	1.8E-07	1.8E-07	7.7E-10
A	MAXIMUM CHI/Q	W	1.50	1.8E-07	1.8E-07	1.8E-07	7.0E-10
A	MAXIMUM CHI/Q	WNW	1.50	2.8E-07	2.7E-07	2.7E-07	1.9E-09
A	MAXIMUM CHI/Q	NW	1.50	4.2E-07	4.2E-07	4.1E-07	3.4E-09
A	MAXIMUM CHI/Q	NNW	1.50	1.2E-07	1.2E-07	1.2E-07	1.5E-09
A	MAXIMUM CHI/Q	N	1.50	4.8E-08	4.8E-08	4.8E-08	9.9E-10
A	MAXIMUM CHI/Q	NNE	1.50	4.8E-08	4.8E-08	4.7E-08	1.0E-09
A	MAXIMUM CHI/Q	NE	1.50	2.7E-08	2.7E-08	2.7E-08	4.5E-10
A	MAXIMUM CHI/Q	ENE	1.50	2.7E-08	2.7E-08	2.7E-08	4.6E-10
A	MAXIMUM CHI/Q	E	1.50	2.8E-08	2.8E-08	2.8E-08	4.9E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.1E-08	3.1E-08	3.1E-08	4.6E-10
A	MAXIMUM CHI/Q	SE	1.50	6.5E-08	6.5E-08	6.4E-08	1.3E-09
A	MAXIMUM CHI/Q	SSE	1.50	9.4E-08	9.4E-08	9.2E-08	2.1E-09

Atmospheric Diffusion Estimates

Elevated Releases

July-September 2024

B300

ERP ELEVATED STACK RELEASES - JUL-SEP 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.305E-09	5.205E-08	8.078E-08	8.409E-08	8.001E-08	6.839E-08	5.697E-08	4.763E-08	4.030E-08	4.793E-08	5.437E-08
SSW	7.524E-09	3.524E-08	4.276E-08	4.025E-08	3.794E-08	3.363E-08	2.909E-08	3.515E-08	4.178E-08	3.935E-08	3.745E-08
SW	3.323E-10	2.694E-08	6.655E-08	9.218E-08	1.460E-07	1.057E-07	8.041E-08	6.368E-08	5.206E-08	4.366E-08	3.738E-08
WSW	2.658E-09	1.944E-08	5.253E-08	1.045E-07	1.896E-07	1.239E-07	8.771E-08	6.587E-08	5.169E-08	4.194E-08	3.493E-08
W	2.744E-10	3.007E-08	1.414E-07	2.138E-07	2.536E-07	1.704E-07	1.227E-07	9.317E-08	7.369E-08	6.015E-08	5.032E-08
WNW	4.600E-10	3.388E-08	2.677E-07	5.660E-07	8.727E-07	5.528E-07	3.834E-07	2.984E-07	2.411E-07	1.926E-07	1.584E-07
NW	2.640E-15	3.018E-09	1.802E-07	5.429E-07	9.793E-07	5.850E-07	3.920E-07	2.899E-07	2.252E-07	1.782E-07	1.455E-07
NNW	1.273E-10	9.020E-09	7.882E-08	1.762E-07	2.841E-07	2.818E-07	2.617E-07	2.346E-07	2.110E-07	1.666E-07	1.359E-07
N	1.132E-09	8.202E-09	2.403E-08	3.684E-08	4.438E-08	4.173E-08	3.659E-08	3.106E-08	2.661E-08	2.307E-08	2.025E-08
NNE	5.730E-16	7.722E-10	1.478E-08	3.170E-08	4.473E-08	4.262E-08	3.722E-08	3.198E-08	2.759E-08	2.403E-08	2.117E-08
NE	1.640E-16	4.657E-10	1.010E-08	2.220E-08	3.143E-08	2.974E-08	2.577E-08	2.197E-08	1.880E-08	1.625E-08	1.421E-08
ENE	1.031E-16	2.648E-10	6.349E-09	1.511E-08	2.340E-08	2.320E-08	2.071E-08	1.804E-08	1.571E-08	1.378E-08	1.221E-08
E	1.638E-16	3.758E-10	8.094E-09	1.810E-08	2.649E-08	2.565E-08	2.258E-08	1.945E-08	1.676E-08	1.456E-08	1.277E-08
ESE	3.568E-16	4.714E-10	9.325E-09	2.051E-08	2.976E-08	2.867E-08	2.511E-08	2.156E-08	1.853E-08	1.607E-08	1.408E-08
SE	5.408E-16	6.206E-10	1.114E-08	2.315E-08	3.145E-08	2.918E-08	2.495E-08	2.106E-08	1.788E-08	1.536E-08	1.335E-08
SSE	2.133E-09	8.659E-09	2.060E-08	3.186E-08	3.946E-08	3.651E-08	3.152E-08	2.690E-08	2.307E-08	1.998E-08	1.751E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.910E-08	3.547E-08	2.333E-08	1.361E-08	9.807E-09	7.565E-09	5.929E-09	4.830E-09	4.095E-09	3.534E-09	3.074E-09
SSW	3.786E-08	4.092E-08	2.738E-08	1.634E-08	1.230E-08	9.493E-09	7.486E-09	6.131E-09	5.171E-09	4.444E-09	3.882E-09
SW	3.611E-08	3.235E-08	2.170E-08	1.297E-08	9.550E-09	7.458E-09	6.090E-09	4.979E-09	4.182E-09	3.588E-09	3.130E-09
WSW	3.114E-08	2.081E-08	1.485E-08	9.204E-09	6.216E-09	4.595E-09	3.594E-09	2.922E-09	2.445E-09	2.090E-09	1.817E-09
W	4.294E-08	2.426E-08	1.774E-08	1.169E-08	8.604E-09	6.393E-09	4.998E-09	4.063E-09	3.398E-09	2.903E-09	2.524E-09
WNW	1.349E-07	7.625E-08	5.207E-08	3.179E-08	2.185E-08	1.634E-08	1.294E-08	1.059E-08	8.877E-09	7.577E-09	6.580E-09
NW	1.230E-07	6.767E-08	4.570E-08	2.736E-08	1.838E-08	1.353E-08	1.070E-08	8.714E-09	7.269E-09	6.195E-09	5.371E-09
NNW	1.159E-07	6.572E-08	4.276E-08	2.462E-08	1.670E-08	1.238E-08	9.787E-09	8.027E-09	6.821E-09	5.864E-09	5.097E-09
N	1.802E-08	1.169E-08	1.013E-08	9.188E-09	8.817E-09	7.982E-09	6.385E-09	5.262E-09	4.424E-09	3.798E-09	3.315E-09
NNE	2.371E-08	3.721E-08	2.417E-08	1.390E-08	9.422E-09	6.983E-09	5.474E-09	4.459E-09	3.736E-09	3.198E-09	2.783E-09
NE	1.537E-08	2.485E-08	1.621E-08	9.385E-09	6.392E-09	4.757E-09	3.790E-09	3.122E-09	2.643E-09	2.265E-09	1.974E-09
ENE	1.341E-08	2.184E-08	1.449E-08	8.531E-09	5.863E-09	4.386E-09	3.603E-09	3.022E-09	2.535E-09	2.172E-09	1.892E-09
E	1.346E-08	1.812E-08	1.195E-08	6.998E-09	4.793E-09	3.578E-09	2.820E-09	2.307E-09	2.008E-09	1.766E-09	1.538E-09
ESE	1.450E-08	1.609E-08	1.058E-08	6.147E-09	4.178E-09	3.098E-09	2.427E-09	1.975E-09	1.653E-09	1.412E-09	1.228E-09
SE	1.175E-08	7.267E-09	5.742E-09	4.510E-09	3.522E-09	2.958E-09	2.593E-09	2.333E-09	1.980E-09	1.714E-09	1.507E-09
SSE	1.913E-08	3.376E-08	2.223E-08	1.304E-08	8.958E-09	6.710E-09	5.306E-09	4.354E-09	3.672E-09	3.161E-09	2.765E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	7.586E-08	7.575E-08	5.628E-08	4.530E-08	5.051E-08	3.310E-08	1.408E-08	7.508E-09	4.864E-09	3.530E-09
SSW	3.997E-08	3.654E-08	3.272E-08	3.896E-08	3.816E-08	3.422E-08	1.700E-08	9.439E-09	6.152E-09	4.451E-09
SW	6.914E-08	1.162E-07	8.047E-08	5.218E-08	3.877E-08	2.845E-08	1.339E-08	7.468E-09	4.993E-09	3.595E-09
WSW	6.827E-08	1.415E-07	8.863E-08	5.203E-08	3.560E-08	2.046E-08	9.131E-09	4.627E-09	2.932E-09	2.094E-09
W	1.488E-07	2.078E-07	1.236E-07	7.410E-08	5.050E-08	2.552E-08	1.166E-08	6.424E-09	4.076E-09	2.909E-09
WNW	3.483E-07	6.624E-07	3.946E-07	2.390E-07	1.598E-07	7.853E-08	3.188E-08	1.645E-08	1.061E-08	7.593E-09
NW	3.021E-07	7.071E-07	4.026E-07	2.258E-07	1.469E-07	7.020E-08	2.744E-08	1.369E-08	8.731E-09	6.208E-09
NNW	1.066E-07	2.591E-07	2.562E-07	2.008E-07	1.376E-07	6.667E-08	2.513E-08	1.249E-08	8.070E-09	5.863E-09
N	2.620E-08	4.153E-08	3.575E-08	2.653E-08	2.026E-08	1.240E-08	9.234E-09	7.566E-09	5.263E-09	3.804E-09
NNE	1.919E-08	4.090E-08	3.657E-08	2.749E-08	2.296E-08	2.841E-08	1.419E-08	7.030E-09	4.474E-09	3.204E-09
NE	1.334E-08	2.863E-08	2.531E-08	1.874E-08	1.525E-08	1.891E-08	9.572E-09	4.806E-09	3.130E-09	2.269E-09
ENE	8.891E-09	2.147E-08	2.030E-08	1.564E-08	1.312E-08	1.670E-08	8.668E-09	4.467E-09	3.002E-09	2.176E-09
E	1.083E-08	2.425E-08	2.214E-08	1.669E-08	1.356E-08	1.434E-08	7.119E-09	3.598E-09	2.340E-09	1.753E-09
ESE	1.233E-08	2.722E-08	2.464E-08	1.846E-08	1.482E-08	1.329E-08	6.258E-09	3.118E-09	1.981E-09	1.415E-09
SE	1.414E-08	2.860E-08	2.452E-08	1.783E-08	1.335E-08	7.585E-09	4.345E-09	2.963E-09	2.273E-09	1.716E-09
SSE	2.295E-08	3.646E-08	3.100E-08	2.299E-08	1.884E-08	2.539E-08	1.327E-08	6.748E-09	4.366E-09	3.166E-09

ERP ELEVATED STACK RELEASES - JUL-SEP 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.304E-09	5.202E-08	8.070E-08	8.397E-08	7.980E-08	6.814E-08	5.670E-08	4.735E-08	4.002E-08	4.755E-08	5.386E-08
SSW	7.522E-09	3.522E-08	4.272E-08	4.019E-08	3.782E-08	3.347E-08	2.891E-08	3.486E-08	4.137E-08	3.889E-08	3.695E-08
SW	3.322E-10	2.692E-08	6.646E-08	9.195E-08	1.453E-07	1.051E-07	7.973E-08	6.302E-08	5.143E-08	4.305E-08	3.678E-08
WSW	2.656E-09	1.942E-08	5.244E-08	1.042E-07	1.887E-07	1.231E-07	8.703E-08	6.526E-08	5.113E-08	4.141E-08	3.444E-08
W	2.742E-10	3.004E-08	1.411E-07	2.131E-07	2.523E-07	1.692E-07	1.215E-07	9.212E-08	7.272E-08	5.923E-08	4.945E-08
WNW	4.598E-10	3.385E-08	2.672E-07	5.645E-07	8.688E-07	5.495E-07	3.804E-07	2.956E-07	2.384E-07	1.901E-07	1.560E-07
NW	2.639E-15	3.016E-09	1.800E-07	5.420E-07	9.767E-07	5.828E-07	3.901E-07	2.882E-07	2.236E-07	1.768E-07	1.441E-07
NNW	1.273E-10	9.016E-09	7.875E-08	1.759E-07	2.834E-07	2.810E-07	2.607E-07	2.334E-07	2.096E-07	1.654E-07	1.347E-07
N	1.131E-09	8.199E-09	2.401E-08	3.679E-08	4.428E-08	4.161E-08	3.645E-08	3.092E-08	2.647E-08	2.293E-08	2.011E-08
NNE	5.729E-16	7.716E-10	1.476E-08	3.163E-08	4.455E-08	4.238E-08	3.696E-08	3.170E-08	2.730E-08	2.374E-08	2.088E-08
NE	1.639E-16	4.652E-10	1.008E-08	2.215E-08	3.130E-08	2.958E-08	2.559E-08	2.178E-08	1.861E-08	1.606E-08	1.403E-08
ENE	1.031E-16	2.644E-10	6.335E-09	1.506E-08	2.328E-08	2.304E-08	2.052E-08	1.784E-08	1.551E-08	1.358E-08	1.201E-08
E	1.637E-16	3.754E-10	8.079E-09	1.805E-08	2.637E-08	2.550E-08	2.241E-08	1.927E-08	1.658E-08	1.438E-08	1.260E-08
ESE	3.567E-16	4.710E-10	9.310E-09	2.046E-08	2.963E-08	2.849E-08	2.492E-08	2.136E-08	1.833E-08	1.586E-08	1.388E-08
SE	5.406E-16	6.202E-10	1.112E-08	2.310E-08	3.134E-08	2.904E-08	2.479E-08	2.089E-08	1.772E-08	1.520E-08	1.320E-08
SSE	2.133E-09	8.655E-09	2.058E-08	3.181E-08	3.936E-08	3.638E-08	3.138E-08	2.675E-08	2.292E-08	1.984E-08	1.737E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.859E-08	3.479E-08	2.272E-08	1.306E-08	9.253E-09	7.013E-09	5.415E-09	4.346E-09	3.627E-09	3.081E-09	2.642E-09
SSW	3.729E-08	3.985E-08	2.642E-08	1.548E-08	1.142E-08	8.636E-09	6.690E-09	5.384E-09	4.460E-09	3.769E-09	3.239E-09
SW	3.546E-08	3.141E-08	2.086E-08	1.221E-08	8.812E-09	6.742E-09	5.390E-09	4.322E-09	3.563E-09	3.001E-09	2.571E-09
WSW	3.065E-08	2.032E-08	1.439E-08	8.781E-09	5.841E-09	4.252E-09	3.277E-09	2.625E-09	2.164E-09	1.823E-09	1.562E-09
W	4.211E-08	2.355E-08	1.705E-08	1.101E-08	7.943E-09	5.788E-09	4.439E-09	3.541E-09	2.907E-09	2.439E-09	2.082E-09
WNW	1.326E-07	7.428E-08	5.024E-08	3.007E-08	2.028E-08	1.488E-08	1.156E-08	9.283E-09	7.635E-09	6.401E-09	5.461E-09
NW	1.217E-07	6.656E-08	4.467E-08	2.639E-08	1.752E-08	1.274E-08	9.949E-09	8.001E-09	6.594E-09	5.555E-09	4.762E-09
NNW	1.148E-07	6.467E-08	4.184E-08	2.382E-08	1.597E-08	1.171E-08	9.154E-09	7.423E-09	6.233E-09	5.298E-09	4.556E-09
N	1.788E-08	1.155E-08	9.958E-09	8.866E-09	8.273E-09	7.268E-09	5.699E-09	4.607E-09	3.805E-09	3.211E-09	2.756E-09
NNE	2.335E-08	3.636E-08	2.345E-08	1.328E-08	8.874E-09	6.483E-09	5.011E-09	4.026E-09	3.328E-09	2.810E-09	2.414E-09
NE	1.515E-08	2.441E-08	1.583E-08	9.060E-09	6.102E-09	4.490E-09	3.538E-09	2.884E-09	2.415E-09	2.047E-09	1.765E-09
ENE	1.317E-08	2.126E-08	1.398E-08	8.091E-09	5.468E-09	4.024E-09	3.254E-09	2.687E-09	2.220E-09	1.874E-09	1.608E-09
E	1.326E-08	1.779E-08	1.167E-08	6.756E-09	4.577E-09	3.379E-09	2.635E-09	2.133E-09	1.839E-09	1.602E-09	1.381E-09
ESE	1.427E-08	1.567E-08	1.022E-08	5.832E-09	3.896E-09	2.840E-09	2.188E-09	1.751E-09	1.442E-09	1.212E-09	1.037E-09
SE	1.159E-08	7.124E-09	5.591E-09	4.324E-09	3.325E-09	2.745E-09	2.365E-09	2.089E-09	1.746E-09	1.489E-09	1.289E-09
SSE	1.896E-08	3.287E-08	2.144E-08	1.233E-08	8.315E-09	6.113E-09	4.745E-09	3.825E-09	3.168E-09	2.680E-09	2.305E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	7.578E-08	7.554E-08	5.601E-08	4.498E-08	5.004E-08	3.249E-08	1.351E-08	6.971E-09	4.377E-09	3.080E-09
SSW	3.993E-08	3.641E-08	3.251E-08	3.857E-08	3.765E-08	3.331E-08	1.610E-08	8.599E-09	5.405E-09	3.777E-09
SW	6.900E-08	1.156E-07	7.980E-08	5.155E-08	3.815E-08	2.762E-08	1.262E-08	6.753E-09	4.338E-09	3.008E-09
WSW	6.811E-08	1.408E-07	8.795E-08	5.146E-08	3.510E-08	1.998E-08	8.720E-09	4.286E-09	2.636E-09	1.827E-09
W	1.484E-07	2.066E-07	1.225E-07	7.312E-08	4.963E-08	2.479E-08	1.099E-08	5.823E-09	3.556E-09	2.446E-09
WNW	3.475E-07	6.593E-07	3.916E-07	2.363E-07	1.575E-07	7.656E-08	3.020E-08	1.499E-08	9.306E-09	6.419E-09
NW	3.016E-07	7.051E-07	4.007E-07	2.242E-07	1.455E-07	6.908E-08	2.651E-08	1.290E-08	8.022E-09	5.569E-09
NNW	1.064E-07	2.585E-07	2.552E-07	1.995E-07	1.364E-07	6.566E-08	2.434E-08	1.182E-08	7.464E-09	5.300E-09
N	2.617E-08	4.143E-08	3.562E-08	2.639E-08	2.012E-08	1.225E-08	8.845E-09	6.908E-09	4.613E-09	3.219E-09
NNE	1.915E-08	4.072E-08	3.630E-08	2.720E-08	2.264E-08	2.773E-08	1.358E-08	6.532E-09	4.041E-09	2.817E-09
NE	1.331E-08	2.850E-08	2.513E-08	1.855E-08	1.505E-08	1.854E-08	9.251E-09	4.539E-09	2.892E-09	2.052E-09
ENE	8.865E-09	2.135E-08	2.012E-08	1.544E-08	1.291E-08	1.623E-08	8.234E-09	4.101E-09	2.671E-09	1.878E-09
E	1.080E-08	2.414E-08	2.198E-08	1.651E-08	1.337E-08	1.406E-08	6.880E-09	3.401E-09	2.165E-09	1.590E-09
ESE	1.230E-08	2.709E-08	2.445E-08	1.825E-08	1.461E-08	1.294E-08	5.947E-09	2.861E-09	1.758E-09	1.215E-09
SE	1.411E-08	2.849E-08	2.436E-08	1.766E-08	1.319E-08	7.435E-09	4.161E-09	2.748E-09	2.037E-09	1.491E-09
SSE	2.292E-08	3.636E-08	3.086E-08	2.284E-08	1.869E-08	2.470E-08	1.257E-08	6.153E-09	3.838E-09	2.686E-09

ERP ELEVATED STACK RELEASES - JUL-SEP 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	7.305E-09	5.158E-08	7.935E-08	8.270E-08	7.850E-08	6.673E-08	5.527E-08	4.594E-08	3.867E-08	4.605E-08	5.234E-08
SSW	7.524E-09	3.492E-08	4.193E-08	3.949E-08	3.719E-08	3.284E-08	2.828E-08	3.418E-08	4.071E-08	3.830E-08	3.643E-08
SW	3.323E-10	2.670E-08	6.534E-08	9.084E-08	1.440E-07	1.038E-07	7.859E-08	6.204E-08	5.059E-08	4.232E-08	3.616E-08
WSW	2.657E-09	1.926E-08	5.188E-08	1.037E-07	1.873E-07	1.215E-07	8.554E-08	6.394E-08	4.998E-08	4.041E-08	3.356E-08
W	2.743E-10	2.982E-08	1.404E-07	2.117E-07	2.500E-07	1.672E-07	1.199E-07	9.078E-08	7.162E-08	5.832E-08	4.868E-08
WNW	4.599E-10	3.367E-08	2.668E-07	5.621E-07	8.615E-07	5.424E-07	3.743E-07	2.904E-07	2.340E-07	1.861E-07	1.523E-07
NW	2.639E-15	3.017E-09	1.802E-07	5.407E-07	9.668E-07	5.726E-07	3.811E-07	2.805E-07	2.170E-07	1.709E-07	1.387E-07
NNW	1.273E-10	8.959E-09	7.855E-08	1.758E-07	2.814E-07	2.773E-07	2.567E-07	2.296E-07	2.062E-07	1.621E-07	1.315E-07
N	1.132E-09	8.136E-09	2.383E-08	3.664E-08	4.388E-08	4.099E-08	3.572E-08	3.016E-08	2.571E-08	2.220E-08	1.942E-08
NNE	5.730E-16	7.720E-10	1.478E-08	3.168E-08	4.429E-08	4.182E-08	3.623E-08	3.090E-08	2.648E-08	2.294E-08	2.010E-08
NE	1.640E-16	4.655E-10	1.009E-08	2.219E-08	3.112E-08	2.918E-08	2.507E-08	2.121E-08	1.803E-08	1.549E-08	1.347E-08
ENE	1.031E-16	2.647E-10	6.345E-09	1.510E-08	2.317E-08	2.276E-08	2.015E-08	1.742E-08	1.507E-08	1.315E-08	1.159E-08
E	1.638E-16	3.757E-10	8.090E-09	1.809E-08	2.623E-08	2.518E-08	2.198E-08	1.880E-08	1.610E-08	1.390E-08	1.214E-08
ESE	3.568E-16	4.713E-10	9.321E-09	2.050E-08	2.946E-08	2.813E-08	2.444E-08	2.082E-08	1.777E-08	1.532E-08	1.334E-08
SE	5.407E-16	6.205E-10	1.113E-08	2.314E-08	3.114E-08	2.862E-08	2.425E-08	2.030E-08	1.711E-08	1.460E-08	1.261E-08
SSE	2.133E-09	8.587E-09	2.042E-08	3.170E-08	3.903E-08	3.584E-08	3.074E-08	2.607E-08	2.224E-08	1.918E-08	1.673E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.719E-08	3.352E-08	2.131E-08	1.160E-08	7.724E-09	5.578E-09	4.157E-09	3.236E-09	2.634E-09	2.197E-09	1.853E-09
SSW	3.687E-08	3.936E-08	2.540E-08	1.403E-08	9.706E-09	7.145E-09	5.417E-09	4.280E-09	3.490E-09	2.907E-09	2.466E-09
SW	3.495E-08	3.099E-08	2.006E-08	1.111E-08	7.500E-09	5.439E-09	4.243E-09	3.340E-09	2.709E-09	2.249E-09	1.902E-09
WSW	2.987E-08	1.957E-08	1.352E-08	7.908E-09	5.095E-09	3.617E-09	2.728E-09	2.146E-09	1.741E-09	1.446E-09	1.224E-09
W	4.146E-08	2.323E-08	1.684E-08	1.040E-08	7.131E-09	5.081E-09	3.827E-09	3.007E-09	2.436E-09	2.021E-09	1.709E-09
WNW	1.290E-07	7.061E-08	4.656E-08	2.639E-08	1.665E-08	1.160E-08	8.734E-09	6.874E-09	5.557E-09	4.587E-09	3.858E-09
NW	1.166E-07	6.214E-08	4.058E-08	2.272E-08	1.437E-08	1.005E-08	7.620E-09	5.990E-09	4.838E-09	4.001E-09	3.373E-09
NNW	1.116E-07	6.127E-08	3.847E-08	2.059E-08	1.284E-08	8.870E-09	6.599E-09	5.159E-09	4.221E-09	3.511E-09	2.960E-09
N	1.722E-08	1.104E-08	9.569E-09	8.700E-09	8.173E-09	7.002E-09	5.405E-09	4.316E-09	3.525E-09	2.945E-09	2.506E-09
NNE	2.254E-08	3.556E-08	2.230E-08	1.202E-08	7.630E-09	5.350E-09	3.995E-09	3.115E-09	2.507E-09	2.068E-09	1.739E-09
NE	1.456E-08	2.375E-08	1.498E-08	8.134E-09	5.190E-09	3.654E-09	2.792E-09	2.223E-09	1.825E-09	1.519E-09	1.289E-09
ENE	1.274E-08	2.093E-08	1.341E-08	7.350E-09	4.652E-09	3.245E-09	2.506E-09	1.998E-09	1.612E-09	1.333E-09	1.122E-09
E	1.277E-08	1.730E-08	1.104E-08	6.036E-09	3.825E-09	2.673E-09	1.988E-09	1.543E-09	1.279E-09	1.077E-09	9.058E-10
ESE	1.372E-08	1.523E-08	9.700E-09	5.275E-09	3.334E-09	2.322E-09	1.722E-09	1.332E-09	1.064E-09	8.712E-10	7.269E-10
SE	1.103E-08	6.682E-09	5.232E-09	4.096E-09	3.184E-09	2.668E-09	2.335E-09	2.094E-09	1.746E-09	1.487E-09	1.286E-09
SSE	1.830E-08	3.240E-08	2.058E-08	1.126E-08	7.198E-09	5.068E-09	3.795E-09	2.964E-09	2.388E-09	1.970E-09	1.657E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	7.467E-08	7.420E-08	5.459E-08	4.356E-08	4.857E-08	3.113E-08	1.204E-08	5.582E-09	3.270E-09	2.199E-09
SSW	3.929E-08	3.577E-08	3.185E-08	3.793E-08	3.715E-08	3.260E-08	1.464E-08	7.137E-09	4.304E-09	2.916E-09
SW	6.809E-08	1.143E-07	7.868E-08	5.071E-08	3.753E-08	2.701E-08	1.150E-08	5.510E-09	3.357E-09	2.257E-09
WSW	6.768E-08	1.395E-07	8.649E-08	5.032E-08	3.422E-08	1.917E-08	7.905E-09	3.656E-09	2.158E-09	1.451E-09
W	1.475E-07	2.047E-07	1.209E-07	7.203E-08	4.886E-08	2.444E-08	1.038E-08	5.126E-09	3.024E-09	2.029E-09
WNW	3.462E-07	6.531E-07	3.856E-07	2.319E-07	1.537E-07	7.290E-08	2.654E-08	1.180E-08	6.904E-09	4.604E-09
NW	3.010E-07	6.969E-07	3.919E-07	2.176E-07	1.400E-07	6.465E-08	2.298E-08	1.023E-08	6.017E-09	4.016E-09
NNW	1.063E-07	2.561E-07	2.514E-07	1.961E-07	1.332E-07	6.231E-08	2.112E-08	9.022E-09	5.213E-09	3.517E-09
N	2.604E-08	4.099E-08	3.490E-08	2.564E-08	1.943E-08	1.176E-08	8.659E-09	6.676E-09	4.326E-09	2.954E-09
NNE	1.918E-08	4.039E-08	3.559E-08	2.640E-08	2.185E-08	2.678E-08	1.235E-08	5.416E-09	3.135E-09	2.076E-09
NE	1.333E-08	2.827E-08	2.462E-08	1.797E-08	1.447E-08	1.781E-08	8.347E-09	3.719E-09	2.234E-09	1.524E-09
ENE	8.884E-09	2.119E-08	1.975E-08	1.501E-08	1.248E-08	1.577E-08	7.499E-09	3.325E-09	1.996E-09	1.338E-09
E	1.082E-08	2.395E-08	2.156E-08	1.603E-08	1.290E-08	1.351E-08	6.165E-09	2.706E-09	1.570E-09	1.074E-09
ESE	1.232E-08	2.688E-08	2.397E-08	1.771E-08	1.407E-08	1.244E-08	5.396E-09	2.352E-09	1.341E-09	8.750E-10
SE	1.413E-08	2.824E-08	2.384E-08	1.706E-08	1.262E-08	7.004E-09	3.943E-09	2.672E-09	2.030E-09	1.489E-09
SSE	2.281E-08	3.598E-08	3.023E-08	2.217E-08	1.804E-08	2.401E-08	1.153E-08	5.127E-09	2.982E-09	1.978E-09

ERP ELEVATED STACK RELEASES - JUL-SEP 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	5.706E-09	4.687E-09	4.051E-09	2.836E-09	1.402E-09	8.651E-10	5.868E-10	4.222E-10	3.164E-10	2.482E-10	2.297E-10
SSW	3.093E-09	2.443E-09	1.968E-09	1.296E-09	6.079E-10	3.669E-10	2.459E-10	1.758E-10	1.569E-10	1.187E-10	9.304E-11
SW	2.575E-09	2.016E-09	1.598E-09	1.037E-09	7.085E-10	3.849E-10	2.396E-10	1.634E-10	1.185E-10	8.982E-11	7.044E-11
WSW	1.055E-09	9.558E-10	9.573E-10	1.057E-09	7.132E-10	3.850E-10	2.375E-10	1.608E-10	1.160E-10	8.770E-11	6.863E-11
W	2.883E-10	1.811E-09	1.681E-09	1.236E-09	5.736E-10	3.113E-10	1.924E-10	1.304E-10	9.413E-11	7.114E-11	5.566E-11
WNW	1.407E-09	1.727E-09	4.092E-09	4.778E-09	2.619E-09	1.375E-09	8.372E-10	5.710E-10	4.701E-10	3.699E-10	3.081E-10
NW	2.451E-10	1.470E-09	3.131E-09	8.411E-09	5.630E-09	2.804E-09	1.658E-09	1.101E-09	7.975E-10	6.186E-10	5.076E-10
NNW	1.471E-09	2.113E-09	3.151E-09	2.955E-09	3.386E-09	1.843E-09	1.147E-09	9.585E-10	7.062E-10	5.584E-10	4.682E-10
N	1.103E-09	1.247E-09	1.577E-09	1.386E-09	7.984E-10	5.218E-10	3.641E-10	2.659E-10	2.008E-10	1.556E-10	1.232E-10
NNE	6.946E-11	4.167E-10	8.873E-10	9.191E-10	5.741E-10	3.849E-10	2.719E-10	1.997E-10	1.513E-10	1.174E-10	9.298E-11
NE	4.063E-11	2.437E-10	5.190E-10	5.376E-10	3.358E-10	2.251E-10	1.590E-10	1.168E-10	8.848E-11	6.867E-11	5.438E-11
ENE	2.752E-11	1.651E-10	3.516E-10	3.642E-10	2.275E-10	1.525E-10	1.077E-10	7.914E-11	5.994E-11	4.652E-11	3.684E-11
E	3.407E-11	2.044E-10	4.353E-10	4.509E-10	2.816E-10	1.888E-10	1.334E-10	9.798E-11	7.421E-11	5.760E-11	4.561E-11
ESE	4.456E-11	2.673E-10	5.692E-10	5.896E-10	3.683E-10	2.469E-10	1.744E-10	1.281E-10	9.704E-11	7.532E-11	5.965E-11
SE	5.504E-11	3.302E-10	7.031E-10	7.283E-10	4.549E-10	3.050E-10	2.155E-10	1.583E-10	1.199E-10	9.304E-11	7.368E-11
SSE	8.320E-10	9.626E-10	1.241E-09	1.100E-09	6.367E-10	4.167E-10	2.910E-10	2.126E-10	1.606E-10	1.245E-10	9.857E-11

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.849E-10	1.490E-10	1.054E-10	6.305E-11	4.040E-11	2.660E-11	1.899E-11	1.420E-11	1.120E-11	8.914E-12	7.277E-12
SSW	7.583E-11	9.442E-11	7.187E-11	4.547E-11	2.518E-11	1.683E-11	1.206E-11	9.061E-12	7.117E-12	5.685E-12	4.641E-12
SW	5.827E-11	6.824E-11	5.152E-11	3.241E-11	2.101E-11	1.327E-11	8.711E-12	6.541E-12	5.086E-12	4.063E-12	3.316E-12
WSW	5.520E-11	5.269E-11	3.845E-11	2.305E-11	1.395E-11	9.354E-12	6.859E-12	5.151E-12	4.005E-12	3.199E-12	2.611E-12
W	4.475E-11	2.005E-11	3.802E-11	2.880E-11	1.571E-11	1.079E-11	7.733E-12	5.806E-12	4.515E-12	3.606E-12	2.944E-12
WNW	2.783E-10	1.785E-10	1.309E-10	8.037E-11	5.137E-11	3.366E-11	2.265E-11	1.701E-11	1.344E-11	1.073E-11	8.762E-12
NW	4.380E-10	2.641E-10	1.884E-10	1.158E-10	7.058E-11	4.724E-11	3.423E-11	2.570E-11	2.008E-11	1.604E-11	1.309E-11
NNW	4.124E-10	2.647E-10	1.943E-10	1.193E-10	7.623E-11	5.053E-11	3.482E-11	2.543E-11	1.977E-11	1.579E-11	1.289E-11
N	9.933E-11	4.712E-11	2.878E-11	1.519E-11	4.378E-11	2.590E-11	1.856E-11	1.392E-11	1.083E-11	8.649E-12	7.060E-12
NNE	7.488E-11	1.250E-10	7.899E-11	4.196E-11	2.578E-11	1.722E-11	1.227E-11	9.153E-12	7.079E-12	5.631E-12	4.580E-12
NE	4.380E-11	6.728E-11	4.330E-11	2.351E-11	1.454E-11	9.703E-12	7.264E-12	5.394E-12	4.195E-12	3.410E-12	2.783E-12
ENE	2.967E-11	4.698E-11	3.577E-11	2.255E-11	1.449E-11	9.574E-12	6.705E-12	4.081E-12	3.172E-12	2.534E-12	2.070E-12
E	3.674E-11	4.675E-11	3.451E-11	2.125E-11	1.358E-11	8.990E-12	6.303E-12	4.613E-12	3.515E-12	2.629E-12	2.136E-12
ESE	4.804E-11	4.983E-11	3.541E-11	2.116E-11	1.344E-11	8.911E-12	6.272E-12	4.612E-12	3.526E-12	2.779E-12	2.243E-12
SE	5.934E-11	2.810E-11	1.712E-11	8.982E-12	5.485E-12	3.778E-12	2.842E-12	5.380E-12	4.163E-12	3.324E-12	2.726E-12
SSE	7.944E-11	1.297E-10	8.178E-11	4.332E-11	2.659E-11	1.777E-11	1.266E-11	9.443E-12	7.302E-12	5.807E-12	4.721E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.653E-09	1.482E-09	5.952E-10	3.207E-10	2.186E-10	1.376E-10	6.239E-11	2.724E-11	1.443E-11	8.985E-12
SSW	1.775E-09	6.538E-10	2.501E-10	1.478E-10	9.428E-11	8.027E-11	4.232E-11	1.715E-11	9.178E-12	5.723E-12
SW	1.442E-09	6.377E-10	2.478E-10	1.204E-10	7.168E-11	5.859E-11	3.159E-11	1.351E-11	6.607E-12	4.089E-12
WSW	1.001E-09	6.438E-10	2.462E-10	1.180E-10	6.931E-11	4.692E-11	2.243E-11	9.581E-12	5.202E-12	3.220E-12
W	1.512E-09	6.041E-10	1.993E-10	9.574E-11	5.620E-11	3.352E-11	2.503E-11	1.088E-11	5.865E-12	3.630E-12
WNW	3.871E-09	2.546E-09	8.742E-10	4.607E-10	3.154E-10	1.795E-10	7.871E-11	3.398E-11	1.726E-11	1.080E-11
NW	5.109E-09	4.992E-09	1.741E-09	8.159E-10	5.147E-10	2.691E-10	1.118E-10	4.826E-11	2.600E-11	1.614E-11
NNW	2.833E-09	2.604E-09	1.257E-09	7.220E-10	4.743E-10	2.662E-10	1.168E-10	5.110E-11	2.596E-11	1.590E-11
N	1.419E-09	8.060E-10	3.669E-10	2.022E-10	1.240E-10	5.057E-11	3.092E-11	2.773E-11	1.407E-11	8.706E-12
NNE	7.968E-10	5.667E-10	2.732E-10	1.522E-10	9.352E-11	9.342E-11	4.300E-11	1.753E-11	9.253E-12	5.671E-12
NE	4.661E-10	3.314E-10	1.598E-10	8.903E-11	5.470E-11	5.140E-11	2.392E-11	1.002E-11	5.472E-12	3.411E-12
ENE	3.157E-10	2.245E-10	1.082E-10	6.031E-11	3.705E-11	3.815E-11	2.190E-11	9.737E-12	4.484E-12	2.551E-12
E	3.909E-10	2.780E-10	1.340E-10	7.467E-11	4.588E-11	3.909E-11	2.079E-11	9.141E-12	4.678E-12	2.709E-12
ESE	5.112E-10	3.635E-10	1.752E-10	9.765E-11	5.999E-11	4.302E-11	2.089E-11	9.062E-12	4.673E-12	2.802E-12
SE	6.315E-10	4.491E-10	2.165E-10	1.206E-10	7.411E-11	3.016E-11	9.237E-12	3.859E-12	4.192E-12	3.351E-12
SSE	1.117E-09	6.419E-10	2.932E-10	1.617E-10	9.916E-11	9.722E-11	4.443E-11	1.808E-11	9.546E-12	5.848E-12

ERP ELEVATED STACK RELEASES - JUL-SEP 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	8.2E-08	8.2E-08	8.0E-08	3.8E-09
A	Site Boundary	SSW	.82	4.2E-08	4.2E-08	4.1E-08	1.7E-09
A	Site Boundary	SW	.97	8.9E-08	8.9E-08	8.8E-08	1.1E-09
A	Site Boundary	WSW	.93	8.8E-08	8.8E-08	8.7E-08	8.7E-10
A	Site Boundary	W	.91	1.9E-07	1.9E-07	1.9E-07	1.3E-09
A	Site Boundary	WNW	.94	5.0E-07	5.0E-07	4.9E-07	5.3E-09
A	Site Boundary	NW	.81	2.7E-07	2.7E-07	2.7E-07	3.3E-09
A	Site Boundary	NNW	.69	5.2E-08	5.2E-08	5.1E-08	2.9E-09
A	Site Boundary	N	.67	1.8E-08	1.8E-08	1.8E-08	1.5E-09
A	Site Boundary	NNE	.60	3.9E-09	3.9E-09	3.9E-09	6.0E-10
A	Site Boundary	NE	.62	3.5E-09	3.5E-09	3.5E-09	3.8E-10
A	Site Boundary	ENE	.59	1.3E-09	1.3E-09	1.3E-09	2.3E-10
A	Site Boundary	E	.53	6.3E-10	6.3E-10	6.3E-10	2.3E-10
A	Site Boundary	ESE	.54	9.7E-10	9.7E-10	9.7E-10	3.1E-10
A	Site Boundary	SE	.65	5.2E-09	5.2E-09	5.2E-09	5.5E-10
A	Site Boundary	SSE	.81	2.4E-08	2.4E-08	2.4E-08	1.2E-09
A	Nearest Res	SW	1.30	1.3E-07	1.3E-07	1.2E-07	9.5E-10
A	Nearest Res	WSW	1.80	1.5E-07	1.4E-07	1.4E-07	4.8E-10
A	Nearest Res	WNW	2.40	4.1E-07	4.1E-07	4.0E-07	9.2E-10
A	Nearest Res	NW	.90	4.0E-07	4.0E-07	4.0E-07	8.7E-09
A	Nearest Res	NNW	1.90	2.8E-07	2.8E-07	2.8E-07	2.1E-09
A	Nearest Res	NE	1.60	3.2E-08	3.1E-08	3.1E-08	3.1E-10
A	Nearest Res	ENE	1.70	2.4E-08	2.4E-08	2.4E-08	1.9E-10
A	Nearest Res	E	2.00	2.6E-08	2.6E-08	2.5E-08	1.9E-10
A	Nearest Res	SE	2.90	2.2E-08	2.2E-08	2.1E-08	1.7E-10
A	Nearest Cow	NNW	3.50	2.1E-07	2.1E-07	2.1E-07	7.1E-10
A	Nearest Garde	SW	2.20	9.4E-08	9.4E-08	9.2E-08	3.1E-10
A	Nearest Garde	WSW	2.40	9.4E-08	9.3E-08	9.1E-08	2.6E-10
A	Nearest Garde	WNW	2.60	3.6E-07	3.6E-07	3.5E-07	7.7E-10
A	Nearest Garde	NNW	2.70	2.5E-07	2.5E-07	2.5E-07	1.1E-09
A	Nearest Garde	ENE	1.70	2.4E-08	2.4E-08	2.4E-08	1.9E-10
A	Nearest Garde	E	2.00	2.6E-08	2.6E-08	2.5E-08	1.9E-10
A	Nearest Garde	ESE	2.20	2.7E-08	2.7E-08	2.7E-08	2.1E-10
A	Nearest Garde	SE	2.90	2.2E-08	2.2E-08	2.1E-08	1.7E-10
A	MAXIMUM CHI/Q	S	1.00	8.4E-08	8.4E-08	8.3E-08	2.8E-09
A	MAXIMUM CHI/Q	SSW	.75	4.3E-08	4.3E-08	4.2E-08	2.0E-09
A	MAXIMUM CHI/Q	SW	1.50	1.5E-07	1.5E-07	1.4E-07	7.1E-10
A	MAXIMUM CHI/Q	WSW	1.50	1.9E-07	1.9E-07	1.9E-07	7.1E-10
A	MAXIMUM CHI/Q	W	1.50	2.5E-07	2.5E-07	2.5E-07	5.7E-10
A	MAXIMUM CHI/Q	WNW	1.50	8.7E-07	8.7E-07	8.6E-07	2.6E-09
A	MAXIMUM CHI/Q	NW	1.50	9.8E-07	9.8E-07	9.7E-07	5.6E-09
A	MAXIMUM CHI/Q	NNW	1.50	2.8E-07	2.8E-07	2.8E-07	3.4E-09
A	MAXIMUM CHI/Q	N	1.50	4.4E-08	4.4E-08	4.4E-08	8.0E-10
A	MAXIMUM CHI/Q	NNE	1.50	4.5E-08	4.5E-08	4.4E-08	5.7E-10
A	MAXIMUM CHI/Q	NE	1.50	3.1E-08	3.1E-08	3.1E-08	3.4E-10
A	MAXIMUM CHI/Q	ENE	1.50	2.3E-08	2.3E-08	2.3E-08	2.3E-10
A	MAXIMUM CHI/Q	E	1.50	2.6E-08	2.6E-08	2.6E-08	2.8E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.0E-08	3.0E-08	2.9E-08	3.7E-10
A	MAXIMUM CHI/Q	SE	1.50	3.1E-08	3.1E-08	3.1E-08	4.5E-10
A	MAXIMUM CHI/Q	SSE	1.50	3.9E-08	3.9E-08	3.9E-08	6.4E-10

Atmospheric Diffusion Estimates

Elevated Releases

October-December 2024

B306

ERP ELEVATED STACK RELEASES - OCT-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.267E-10	1.398E-08	3.816E-08	5.249E-08	5.867E-08	5.206E-08	4.389E-08	3.683E-08	3.119E-08	3.655E-08	4.007E-08
SSW	1.305E-10	9.199E-09	2.464E-08	3.394E-08	3.903E-08	3.550E-08	3.053E-08	3.497E-08	3.785E-08	3.384E-08	3.058E-08
SW	1.515E-09	1.777E-08	6.323E-08	1.110E-07	1.547E-07	1.024E-07	7.276E-08	5.465E-08	4.283E-08	3.468E-08	2.882E-08
WSW	3.168E-11	4.216E-09	4.239E-08	1.068E-07	1.922E-07	1.241E-07	8.732E-08	6.540E-08	5.127E-08	4.159E-08	3.465E-08
W	2.038E-13	2.764E-08	1.457E-07	1.978E-07	2.004E-07	1.289E-07	9.060E-08	6.780E-08	5.311E-08	4.305E-08	3.585E-08
WNW	1.452E-14	7.469E-09	1.374E-07	3.125E-07	5.173E-07	3.340E-07	2.350E-07	1.866E-07	1.535E-07	1.234E-07	1.021E-07
NW	1.041E-15	1.123E-09	6.627E-08	2.144E-07	5.001E-07	3.120E-07	2.157E-07	1.650E-07	1.320E-07	1.061E-07	8.776E-08
NNW	1.521E-15	1.160E-09	3.263E-08	8.422E-08	1.607E-07	1.759E-07	1.754E-07	1.670E-07	1.590E-07	1.266E-07	1.039E-07
N	4.291E-09	2.489E-08	3.866E-08	4.142E-08	4.043E-08	3.613E-08	3.117E-08	2.628E-08	2.243E-08	1.940E-08	1.699E-08
NNE	6.464E-16	5.016E-10	7.732E-09	1.517E-08	2.085E-08	2.033E-08	1.825E-08	1.606E-08	1.413E-08	1.250E-08	1.116E-08
NE	2.170E-16	2.619E-10	5.115E-09	1.143E-08	1.737E-08	1.736E-08	1.560E-08	1.363E-08	1.187E-08	1.038E-08	9.159E-09
ENE	2.566E-16	2.738E-10	4.669E-09	9.386E-09	1.262E-08	1.187E-08	1.033E-08	8.856E-09	7.623E-09	6.622E-09	5.816E-09
E	3.861E-16	3.520E-10	6.008E-09	1.235E-08	1.693E-08	1.593E-08	1.378E-08	1.173E-08	1.002E-08	8.639E-09	7.536E-09
ESE	1.184E-15	1.006E-09	1.675E-08	3.328E-08	4.299E-08	3.884E-08	3.266E-08	2.723E-08	2.289E-08	1.949E-08	1.683E-08
SE	1.998E-15	1.534E-09	2.366E-08	4.498E-08	5.622E-08	5.056E-08	4.266E-08	3.576E-08	3.025E-08	2.590E-08	2.247E-08
SSE	1.233E-09	1.479E-08	4.631E-08	6.847E-08	7.760E-08	6.817E-08	5.688E-08	4.734E-08	3.981E-08	3.393E-08	2.932E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.568E-08	2.356E-08	1.526E-08	8.712E-09	6.065E-09	4.556E-09	3.542E-09	2.866E-09	2.402E-09	2.052E-09	1.777E-09
SSW	2.886E-08	2.294E-08	1.496E-08	8.627E-09	6.137E-09	4.612E-09	3.599E-09	2.922E-09	2.443E-09	2.085E-09	1.811E-09
SW	2.605E-08	1.831E-08	1.190E-08	6.831E-09	4.796E-09	3.625E-09	2.872E-09	2.326E-09	1.939E-09	1.652E-09	1.433E-09
WSW	3.099E-08	2.130E-08	1.549E-08	9.802E-09	6.645E-09	4.926E-09	3.863E-09	3.147E-09	2.636E-09	2.257E-09	1.965E-09
W	3.048E-08	1.709E-08	1.262E-08	8.578E-09	6.514E-09	4.853E-09	3.802E-09	3.097E-09	2.595E-09	2.221E-09	1.934E-09
WNW	8.763E-08	5.097E-08	3.544E-08	2.213E-08	1.536E-08	1.157E-08	9.217E-09	7.574E-09	6.362E-09	5.444E-09	4.738E-09
NW	7.548E-08	4.439E-08	3.142E-08	1.995E-08	1.364E-08	1.017E-08	8.212E-09	6.763E-09	5.682E-09	4.874E-09	4.251E-09
NNW	8.973E-08	5.313E-08	3.495E-08	2.044E-08	1.401E-08	1.047E-08	8.358E-09	6.907E-09	5.916E-09	5.105E-09	4.454E-09
N	1.510E-08	9.719E-09	8.350E-09	7.806E-09	7.833E-09	7.088E-09	5.650E-09	4.638E-09	3.905E-09	3.358E-09	2.935E-09
NNE	1.303E-08	2.473E-08	1.624E-08	9.486E-09	6.503E-09	4.862E-09	3.839E-09	3.147E-09	2.651E-09	2.279E-09	1.992E-09
NE	1.002E-08	1.470E-08	9.592E-09	5.553E-09	3.782E-09	2.814E-09	2.244E-09	1.852E-09	1.572E-09	1.347E-09	1.174E-09
ENE	6.217E-09	7.781E-09	5.101E-09	2.962E-09	2.018E-09	1.500E-09	1.220E-09	1.017E-09	8.511E-10	7.276E-10	6.327E-10
E	7.848E-09	1.312E-08	8.834E-09	5.314E-09	3.707E-09	2.807E-09	2.237E-09	1.848E-09	1.652E-09	1.483E-09	1.298E-09
ESE	1.674E-08	1.846E-08	1.226E-08	7.235E-09	4.978E-09	3.727E-09	2.944E-09	2.413E-09	2.032E-09	1.746E-09	1.526E-09
SE	1.972E-08	1.206E-08	9.271E-09	6.684E-09	4.955E-09	3.973E-09	3.346E-09	2.909E-09	2.449E-09	2.105E-09	1.839E-09
SSE	3.053E-08	3.249E-08	2.083E-08	1.177E-08	7.891E-09	5.798E-09	4.514E-09	3.656E-09	3.048E-09	2.598E-09	2.253E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.915E-08	5.436E-08	4.325E-08	3.484E-08	3.740E-08	2.256E-08	8.990E-09	4.553E-09	2.882E-09	2.054E-09
SSW	2.534E-08	3.633E-08	3.363E-08	3.550E-08	3.091E-08	2.071E-08	8.927E-09	4.614E-09	2.933E-09	2.089E-09
SW	7.436E-08	1.218E-07	7.343E-08	4.310E-08	2.953E-08	1.718E-08	7.054E-09	3.636E-09	2.334E-09	1.656E-09
WSW	6.252E-08	1.429E-07	8.835E-08	5.162E-08	3.535E-08	2.087E-08	9.663E-09	4.959E-09	3.157E-09	2.261E-09
W	1.426E-07	1.681E-07	9.170E-08	5.347E-08	3.600E-08	1.808E-08	8.558E-09	4.876E-09	3.107E-09	2.225E-09
WNW	1.864E-07	3.903E-07	2.420E-07	1.515E-07	1.031E-07	5.221E-08	2.208E-08	1.164E-08	7.582E-09	5.455E-09
NW	1.176E-07	3.530E-07	2.211E-07	1.316E-07	8.864E-08	4.554E-08	1.969E-08	1.031E-08	6.765E-09	4.883E-09
NNW	4.856E-08	1.505E-07	1.722E-07	1.489E-07	1.054E-07	5.318E-08	2.081E-08	1.057E-08	6.944E-09	5.104E-09
N	3.683E-08	3.874E-08	3.054E-08	2.238E-08	1.700E-08	1.031E-08	7.939E-09	6.711E-09	4.648E-09	3.363E-09
NNE	9.432E-09	1.936E-08	1.793E-08	1.406E-08	1.225E-08	1.835E-08	9.660E-09	4.890E-09	3.156E-09	2.283E-09
NE	6.841E-09	1.604E-08	1.528E-08	1.181E-08	9.841E-09	1.139E-08	5.663E-09	2.844E-09	1.857E-09	1.350E-09
ENE	5.789E-09	1.157E-08	1.015E-08	7.594E-09	6.204E-09	6.242E-09	3.017E-09	1.526E-09	1.012E-09	7.291E-10
E	7.568E-09	1.547E-08	1.353E-08	9.981E-09	7.978E-09	1.004E-08	5.382E-09	2.819E-09	1.884E-09	1.465E-09
ESE	2.060E-08	3.899E-08	3.213E-08	2.283E-08	1.758E-08	1.533E-08	7.350E-09	3.747E-09	2.419E-09	1.749E-09
SE	2.822E-08	5.120E-08	4.201E-08	3.017E-08	2.247E-08	1.252E-08	6.491E-09	3.984E-09	2.858E-09	2.108E-09
SSE	4.916E-08	7.138E-08	5.607E-08	3.972E-08	3.113E-08	2.687E-08	1.206E-08	5.843E-09	3.670E-09	2.604E-09

ERP ELEVATED STACK RELEASES - OCT-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.267E-10	1.397E-08	3.812E-08	5.242E-08	5.853E-08	5.189E-08	4.370E-08	3.664E-08	3.100E-08	3.628E-08	3.975E-08
SSW	1.305E-10	9.193E-09	2.462E-08	3.389E-08	3.892E-08	3.536E-08	3.038E-08	3.475E-08	3.756E-08	3.354E-08	3.027E-08
SW	1.514E-09	1.775E-08	6.312E-08	1.108E-07	1.542E-07	1.020E-07	7.237E-08	5.431E-08	4.251E-08	3.439E-08	2.855E-08
WSW	3.166E-11	4.212E-09	4.234E-08	1.066E-07	1.915E-07	1.235E-07	8.680E-08	6.493E-08	5.083E-08	4.118E-08	3.426E-08
W	2.038E-13	2.761E-08	1.455E-07	1.974E-07	1.997E-07	1.284E-07	9.008E-08	6.732E-08	5.267E-08	4.265E-08	3.546E-08
WNW	1.451E-14	7.462E-09	1.372E-07	3.118E-07	5.153E-07	3.322E-07	2.334E-07	1.851E-07	1.519E-07	1.220E-07	1.008E-07
NW	1.041E-15	1.122E-09	6.620E-08	2.141E-07	4.989E-07	3.109E-07	2.147E-07	1.641E-07	1.311E-07	1.053E-07	8.699E-08
NNW	1.520E-15	1.160E-09	3.260E-08	8.412E-08	1.605E-07	1.755E-07	1.749E-07	1.664E-07	1.583E-07	1.259E-07	1.033E-07
N	4.291E-09	2.488E-08	3.864E-08	4.139E-08	4.038E-08	3.606E-08	3.109E-08	2.621E-08	2.235E-08	1.932E-08	1.692E-08
NNE	6.463E-16	5.014E-10	7.725E-09	1.516E-08	2.081E-08	2.028E-08	1.819E-08	1.600E-08	1.406E-08	1.243E-08	1.108E-08
NE	2.170E-16	2.617E-10	5.107E-09	1.140E-08	1.730E-08	1.726E-08	1.549E-08	1.352E-08	1.175E-08	1.027E-08	9.046E-09
ENE	2.565E-16	2.736E-10	4.664E-09	9.372E-09	1.259E-08	1.184E-08	1.029E-08	8.816E-09	7.583E-09	6.584E-09	5.778E-09
E	3.861E-16	3.518E-10	6.000E-09	1.232E-08	1.688E-08	1.587E-08	1.371E-08	1.165E-08	9.945E-09	8.568E-09	7.466E-09
ESE	1.184E-15	1.005E-09	1.673E-08	3.322E-08	4.287E-08	3.870E-08	3.250E-08	2.707E-08	2.273E-08	1.934E-08	1.668E-08
SE	1.997E-15	1.533E-09	2.364E-08	4.493E-08	5.611E-08	5.042E-08	4.251E-08	3.561E-08	3.009E-08	2.575E-08	2.232E-08
SSE	1.233E-09	1.479E-08	4.628E-08	6.840E-08	7.747E-08	6.801E-08	5.671E-08	4.717E-08	3.964E-08	3.377E-08	2.916E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.535E-08	2.325E-08	1.499E-08	8.485E-09	5.858E-09	4.365E-09	3.365E-09	2.700E-09	2.244E-09	1.903E-09	1.634E-09
SSW	2.853E-08	2.250E-08	1.458E-08	8.298E-09	5.818E-09	4.310E-09	3.319E-09	2.658E-09	2.192E-09	1.846E-09	1.582E-09
SW	2.578E-08	1.805E-08	1.168E-08	6.640E-09	4.621E-09	3.462E-09	2.719E-09	2.183E-09	1.804E-09	1.525E-09	1.311E-09
WSW	3.059E-08	2.086E-08	1.505E-08	9.377E-09	6.261E-09	4.572E-09	3.532E-09	2.835E-09	2.340E-09	1.974E-09	1.693E-09
W	3.012E-08	1.678E-08	1.231E-08	8.267E-09	6.201E-09	4.563E-09	3.532E-09	2.842E-09	2.353E-09	1.990E-09	1.712E-09
WNW	8.637E-08	4.985E-08	3.439E-08	2.113E-08	1.444E-08	1.070E-08	8.392E-09	6.787E-09	5.612E-09	4.727E-09	4.050E-09
NW	7.474E-08	4.371E-08	3.076E-08	1.930E-08	1.304E-08	9.621E-09	7.674E-09	6.246E-09	5.188E-09	4.400E-09	3.795E-09
NNW	8.914E-08	5.257E-08	3.446E-08	2.001E-08	1.361E-08	1.010E-08	8.003E-09	6.565E-09	5.580E-09	4.779E-09	4.139E-09
N	1.502E-08	9.643E-09	8.257E-09	7.666E-09	7.641E-09	6.870E-09	5.441E-09	4.439E-09	3.715E-09	3.174E-09	2.757E-09
NNE	1.293E-08	2.443E-08	1.598E-08	9.258E-09	6.295E-09	4.668E-09	3.656E-09	2.972E-09	2.483E-09	2.118E-09	1.837E-09
NE	9.888E-09	1.439E-08	9.325E-09	5.323E-09	3.575E-09	2.622E-09	2.062E-09	1.677E-09	1.404E-09	1.186E-09	1.019E-09
ENE	6.172E-09	7.694E-09	5.025E-09	2.895E-09	1.957E-09	1.444E-09	1.166E-09	9.639E-10	8.003E-10	6.790E-10	5.859E-10
E	7.770E-09	1.292E-08	8.650E-09	5.147E-09	3.552E-09	2.660E-09	2.098E-09	1.714E-09	1.515E-09	1.343E-09	1.164E-09
ESE	1.658E-08	1.817E-08	1.200E-08	6.999E-09	4.760E-09	3.524E-09	2.752E-09	2.230E-09	1.856E-09	1.578E-09	1.363E-09
SE	1.957E-08	1.192E-08	9.117E-09	6.500E-09	4.763E-09	3.770E-09	3.131E-09	2.683E-09	2.231E-09	1.894E-09	1.634E-09
SSE	3.034E-08	3.217E-08	2.055E-08	1.154E-08	7.681E-09	5.605E-09	4.334E-09	3.487E-09	2.887E-09	2.444E-09	2.105E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.911E-08	5.422E-08	4.306E-08	3.462E-08	3.709E-08	2.227E-08	8.763E-09	4.363E-09	2.716E-09	1.905E-09
SSW	2.531E-08	3.622E-08	3.345E-08	3.522E-08	3.059E-08	2.032E-08	8.591E-09	4.316E-09	2.669E-09	1.851E-09
SW	7.422E-08	1.214E-07	7.304E-08	4.279E-08	2.925E-08	1.694E-08	6.862E-09	3.474E-09	2.192E-09	1.528E-09
WSW	6.242E-08	1.424E-07	8.784E-08	5.118E-08	3.495E-08	2.044E-08	9.253E-09	4.607E-09	2.846E-09	1.978E-09
W	1.424E-07	1.675E-07	9.118E-08	5.304E-08	3.561E-08	1.776E-08	8.248E-09	4.588E-09	2.853E-09	1.994E-09
WNW	1.860E-07	3.887E-07	2.404E-07	1.500E-07	1.017E-07	5.109E-08	2.110E-08	1.077E-08	6.798E-09	4.739E-09
NW	1.175E-07	3.520E-07	2.201E-07	1.307E-07	8.787E-08	4.485E-08	1.907E-08	9.755E-09	6.251E-09	4.410E-09
NNW	4.851E-08	1.502E-07	1.716E-07	1.483E-07	1.047E-07	5.265E-08	2.038E-08	1.020E-08	6.601E-09	4.779E-09
N	3.681E-08	3.868E-08	3.046E-08	2.230E-08	1.693E-08	1.022E-08	7.786E-09	6.504E-09	4.449E-09	3.180E-09
NNE	9.422E-09	1.932E-08	1.787E-08	1.399E-08	1.217E-08	1.812E-08	9.434E-09	4.697E-09	2.982E-09	2.122E-09
NE	6.826E-09	1.597E-08	1.517E-08	1.169E-08	9.720E-09	1.114E-08	5.435E-09	2.652E-09	1.683E-09	1.189E-09
ENE	5.781E-09	1.154E-08	1.011E-08	7.555E-09	6.163E-09	6.170E-09	2.952E-09	1.470E-09	9.593E-10	6.805E-10
E	7.556E-09	1.542E-08	1.346E-08	9.909E-09	7.905E-09	9.877E-09	5.217E-09	2.673E-09	1.748E-09	1.328E-09
ESE	2.057E-08	3.887E-08	3.198E-08	2.268E-08	1.743E-08	1.507E-08	7.116E-09	3.545E-09	2.237E-09	1.581E-09
SE	2.819E-08	5.110E-08	4.186E-08	3.002E-08	2.232E-08	1.237E-08	6.309E-09	3.779E-09	2.639E-09	1.898E-09
SSE	4.911E-08	7.125E-08	5.590E-08	3.955E-08	3.096E-08	2.660E-08	1.183E-08	5.650E-09	3.500E-09	2.450E-09

ERP ELEVATED STACK RELEASES - OCT-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.267E-10	1.386E-08	3.772E-08	5.203E-08	5.787E-08	5.099E-08	4.270E-08	3.560E-08	2.998E-08	3.512E-08	3.853E-08
SSW	1.305E-10	9.121E-09	2.434E-08	3.362E-08	3.849E-08	3.478E-08	2.973E-08	3.397E-08	3.673E-08	3.274E-08	2.952E-08
SW	1.515E-09	1.761E-08	6.247E-08	1.101E-07	1.524E-07	9.993E-08	7.045E-08	5.257E-08	4.097E-08	3.301E-08	2.731E-08
WSW	3.167E-11	4.184E-09	4.220E-08	1.064E-07	1.899E-07	1.217E-07	8.521E-08	6.355E-08	4.964E-08	4.014E-08	3.335E-08
W	2.038E-13	2.763E-08	1.449E-07	1.955E-07	1.968E-07	1.259E-07	8.811E-08	6.570E-08	5.131E-08	4.149E-08	3.447E-08
WNW	1.452E-14	7.467E-09	1.373E-07	3.105E-07	5.113E-07	3.283E-07	2.300E-07	1.822E-07	1.496E-07	1.198E-07	9.865E-08
NW	1.041E-15	1.123E-09	6.625E-08	2.136E-07	4.956E-07	3.075E-07	2.118E-07	1.617E-07	1.291E-07	1.034E-07	8.511E-08
NNW	1.521E-15	1.160E-09	3.262E-08	8.419E-08	1.596E-07	1.740E-07	1.732E-07	1.648E-07	1.569E-07	1.245E-07	1.017E-07
N	4.291E-09	2.467E-08	3.805E-08	4.084E-08	3.978E-08	3.540E-08	3.040E-08	2.554E-08	2.172E-08	1.872E-08	1.635E-08
NNE	6.464E-16	5.016E-10	7.730E-09	1.517E-08	2.068E-08	2.005E-08	1.791E-08	1.570E-08	1.376E-08	1.214E-08	1.081E-08
NE	2.170E-16	2.618E-10	5.113E-09	1.142E-08	1.721E-08	1.707E-08	1.524E-08	1.324E-08	1.147E-08	9.985E-09	8.770E-09
ENE	2.566E-16	2.738E-10	4.668E-09	9.382E-09	1.251E-08	1.168E-08	1.010E-08	8.607E-09	7.373E-09	6.378E-09	5.580E-09
E	3.861E-16	3.519E-10	6.006E-09	1.234E-08	1.677E-08	1.565E-08	1.343E-08	1.135E-08	9.639E-09	8.267E-09	7.174E-09
ESE	1.184E-15	1.005E-09	1.674E-08	3.326E-08	4.257E-08	3.811E-08	3.176E-08	2.626E-08	2.192E-08	1.854E-08	1.590E-08
SE	1.998E-15	1.533E-09	2.365E-08	4.497E-08	5.570E-08	4.966E-08	4.158E-08	3.462E-08	2.910E-08	2.478E-08	2.139E-08
SSE	1.233E-09	1.468E-08	4.592E-08	6.808E-08	7.668E-08	6.685E-08	5.538E-08	4.578E-08	3.827E-08	3.244E-08	2.789E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	3.421E-08	2.215E-08	1.388E-08	7.423E-09	4.804E-09	3.404E-09	2.533E-09	1.970E-09	1.595E-09	1.324E-09	1.115E-09
SSW	2.784E-08	2.179E-08	1.373E-08	7.378E-09	4.869E-09	3.501E-09	2.632E-09	2.064E-09	1.672E-09	1.385E-09	1.170E-09
SW	2.464E-08	1.708E-08	1.075E-08	5.778E-09	3.775E-09	2.688E-09	2.050E-09	1.604E-09	1.296E-09	1.073E-09	9.049E-10
WSW	2.979E-08	2.008E-08	1.414E-08	8.459E-09	5.470E-09	3.893E-09	2.944E-09	2.321E-09	1.886E-09	1.569E-09	1.330E-09
W	2.925E-08	1.626E-08	1.187E-08	7.593E-09	5.402E-09	3.868E-09	2.926E-09	2.308E-09	1.878E-09	1.564E-09	1.327E-09
WNW	8.423E-08	4.745E-08	3.185E-08	1.845E-08	1.173E-08	8.221E-09	6.243E-09	4.941E-09	4.008E-09	3.320E-09	2.802E-09
NW	7.284E-08	4.153E-08	2.838E-08	1.679E-08	1.074E-08	7.581E-09	5.865E-09	4.664E-09	3.796E-09	3.161E-09	2.681E-09
NNW	8.742E-08	5.015E-08	3.182E-08	1.725E-08	1.083E-08	7.512E-09	5.638E-09	4.454E-09	3.684E-09	3.080E-09	2.610E-09
N	1.449E-08	9.248E-09	7.946E-09	7.479E-09	7.347E-09	6.332E-09	4.897E-09	3.912E-09	3.213E-09	2.699E-09	2.309E-09
NNE	1.265E-08	2.402E-08	1.523E-08	8.347E-09	5.379E-09	3.817E-09	2.880E-09	2.266E-09	1.839E-09	1.528E-09	1.293E-09
NE	9.598E-09	1.408E-08	8.874E-09	4.818E-09	3.078E-09	2.169E-09	1.652E-09	1.316E-09	1.082E-09	9.004E-10	7.629E-10
ENE	5.967E-09	7.477E-09	4.740E-09	2.569E-09	1.618E-09	1.125E-09	8.633E-10	6.881E-10	5.578E-10	4.631E-10	3.917E-10
E	7.463E-09	1.262E-08	8.215E-09	4.607E-09	2.964E-09	2.094E-09	1.571E-09	1.228E-09	1.043E-09	8.953E-10	7.565E-10
ESE	1.577E-08	1.744E-08	1.123E-08	6.213E-09	3.979E-09	2.802E-09	2.095E-09	1.634E-09	1.315E-09	1.083E-09	9.090E-10
SE	1.869E-08	1.123E-08	8.557E-09	6.120E-09	4.502E-09	3.592E-09	3.014E-09	2.604E-09	2.146E-09	1.808E-09	1.549E-09
SSE	2.902E-08	3.075E-08	1.905E-08	1.015E-08	6.449E-09	4.529E-09	3.388E-09	2.647E-09	2.136E-09	1.765E-09	1.488E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	3.878E-08	5.352E-08	4.207E-08	3.354E-08	3.592E-08	2.116E-08	7.695E-09	3.429E-09	1.988E-09	1.327E-09
SSW	2.508E-08	3.576E-08	3.277E-08	3.442E-08	2.985E-08	1.955E-08	7.674E-09	3.518E-09	2.077E-09	1.390E-09
SW	7.368E-08	1.197E-07	7.116E-08	4.125E-08	2.801E-08	1.594E-08	5.992E-09	2.723E-09	1.614E-09	1.077E-09
WSW	6.228E-08	1.410E-07	8.629E-08	4.999E-08	3.404E-08	1.960E-08	8.393E-09	3.934E-09	2.333E-09	1.574E-09
W	1.413E-07	1.650E-07	8.923E-08	5.168E-08	3.462E-08	1.720E-08	7.570E-09	3.900E-09	2.321E-09	1.569E-09
WNW	1.854E-07	3.853E-07	2.371E-07	1.476E-07	9.958E-08	4.869E-08	1.844E-08	8.366E-09	4.957E-09	3.332E-09
NW	1.173E-07	3.494E-07	2.173E-07	1.286E-07	8.598E-08	4.264E-08	1.668E-08	7.738E-09	4.676E-09	3.171E-09
NNW	4.855E-08	1.492E-07	1.701E-07	1.468E-07	1.032E-07	5.029E-08	1.763E-08	7.646E-09	4.499E-09	3.085E-09
N	3.632E-08	3.807E-08	2.979E-08	2.167E-08	1.637E-08	9.835E-09	7.524E-09	6.028E-09	3.927E-09	2.707E-09
NNE	9.429E-09	1.917E-08	1.759E-08	1.370E-08	1.189E-08	1.759E-08	8.557E-09	3.859E-09	2.279E-09	1.533E-09
NE	6.837E-09	1.586E-08	1.493E-08	1.141E-08	9.437E-09	1.077E-08	4.946E-09	2.204E-09	1.323E-09	9.034E-10
ENE	5.787E-09	1.144E-08	9.923E-09	7.346E-09	5.960E-09	5.925E-09	2.629E-09	1.152E-09	6.885E-10	4.647E-10
E	7.565E-09	1.529E-08	1.319E-08	9.607E-09	7.605E-09	9.515E-09	4.678E-09	2.116E-09	1.256E-09	8.877E-10
ESE	2.059E-08	3.852E-08	3.125E-08	2.187E-08	1.663E-08	1.431E-08	6.334E-09	2.833E-09	1.644E-09	1.087E-09
SE	2.821E-08	5.063E-08	4.095E-08	2.903E-08	2.139E-08	1.170E-08	5.942E-09	3.604E-09	2.547E-09	1.812E-09
SSE	4.883E-08	7.040E-08	5.460E-08	3.820E-08	2.966E-08	2.516E-08	1.048E-08	4.585E-09	2.664E-09	1.772E-09

ERP ELEVATED STACK RELEASES - OCT-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.141E-09	2.107E-09	2.332E-09	1.921E-09	1.066E-09	6.873E-10	4.767E-10	3.469E-10	2.616E-10	2.108E-10	1.935E-10
SSW	1.078E-09	1.097E-09	1.258E-09	1.056E-09	5.923E-10	3.836E-10	2.665E-10	1.942E-10	1.816E-10	1.374E-10	1.075E-10
SW	1.849E-09	1.698E-09	1.729E-09	1.358E-09	1.285E-09	6.982E-10	4.326E-10	2.938E-10	2.125E-10	1.607E-10	1.259E-10
WSW	3.156E-10	5.512E-10	9.044E-10	1.867E-09	1.031E-09	5.599E-10	3.462E-10	2.347E-10	1.694E-10	1.280E-10	1.002E-10
W	4.847E-11	2.613E-09	2.534E-09	1.667E-09	7.824E-10	4.256E-10	2.633E-10	1.785E-10	1.289E-10	9.739E-11	7.619E-11
WNW	8.908E-11	5.344E-10	3.280E-09	2.943E-09	1.803E-09	9.240E-10	5.542E-10	3.766E-10	3.046E-10	2.442E-10	2.076E-10
NW	9.170E-11	5.501E-10	1.171E-09	3.189E-09	2.122E-09	1.061E-09	6.357E-10	4.337E-10	3.274E-10	2.673E-10	2.319E-10
NNW	1.061E-10	6.366E-10	1.355E-09	1.404E-09	1.749E-09	9.517E-10	5.887E-10	5.307E-10	4.128E-10	3.482E-10	3.120E-10
N	3.907E-09	3.302E-09	2.990E-09	2.170E-09	1.103E-09	6.889E-10	4.700E-10	3.393E-10	2.547E-10	1.970E-10	1.560E-10
NNE	4.585E-11	2.751E-10	5.857E-10	6.067E-10	3.789E-10	2.541E-10	1.795E-10	1.318E-10	9.985E-11	7.750E-11	6.137E-11
NE	2.489E-11	1.493E-10	3.179E-10	3.293E-10	2.057E-10	1.379E-10	9.743E-11	7.157E-11	5.420E-11	4.207E-11	3.332E-11
ENE	2.358E-11	1.415E-10	3.012E-10	3.120E-10	1.949E-10	1.307E-10	9.230E-11	6.780E-11	5.135E-11	3.986E-11	3.156E-11
E	3.275E-11	1.965E-10	4.183E-10	4.333E-10	2.707E-10	1.815E-10	1.282E-10	9.417E-11	7.132E-11	5.536E-11	4.384E-11
ESE	9.563E-11	5.737E-10	1.222E-09	1.265E-09	7.903E-10	5.299E-10	3.743E-10	2.750E-10	2.083E-10	1.616E-10	1.280E-10
SE	1.415E-10	8.488E-10	1.807E-09	1.872E-09	1.169E-09	7.840E-10	5.538E-10	4.068E-10	3.081E-10	2.391E-10	1.894E-10
SSE	2.230E-09	2.642E-09	3.470E-09	3.100E-09	1.802E-09	1.181E-09	8.253E-10	6.031E-10	4.555E-10	3.532E-10	2.797E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.556E-10	1.202E-10	8.392E-11	4.956E-11	3.151E-11	2.168E-11	1.548E-11	1.158E-11	9.062E-12	7.223E-12	5.897E-12
SSW	8.711E-11	8.065E-11	5.845E-11	3.555E-11	2.100E-11	1.446E-11	1.036E-11	7.782E-12	6.099E-12	4.872E-12	3.977E-12
SW	1.023E-10	7.642E-11	5.298E-11	3.113E-11	1.980E-11	1.349E-11	9.891E-12	7.427E-12	5.775E-12	4.613E-12	3.765E-12
WSW	8.052E-11	6.785E-11	4.822E-11	3.004E-11	1.818E-11	1.219E-11	8.774E-12	6.588E-12	5.123E-12	4.092E-12	3.340E-12
W	6.125E-11	2.740E-11	4.645E-11	3.013E-11	1.767E-11	1.190E-11	8.525E-12	6.401E-12	4.977E-12	3.976E-12	3.245E-12
WNW	1.876E-10	1.258E-10	9.400E-11	5.848E-11	3.759E-11	2.504E-11	1.594E-11	1.198E-11	9.431E-12	7.534E-12	6.149E-12
NW	2.110E-10	1.482E-10	1.129E-10	6.789E-11	4.164E-11	2.783E-11	1.931E-11	1.450E-11	1.128E-11	9.007E-12	7.352E-12
NNW	2.920E-10	2.199E-10	1.719E-10	1.103E-10	7.113E-11	4.694E-11	2.950E-11	2.098E-11	1.625E-11	1.298E-11	1.059E-11
N	1.259E-10	5.993E-11	3.676E-11	1.961E-11	5.968E-11	3.432E-11	2.459E-11	1.847E-11	1.436E-11	1.147E-11	9.362E-12
NNE	4.943E-11	1.214E-10	7.611E-11	4.004E-11	2.452E-11	1.639E-11	1.168E-11	8.721E-12	6.746E-12	5.365E-12	4.362E-12
NE	2.683E-11	5.652E-11	3.550E-11	1.873E-11	1.149E-11	7.677E-12	5.473E-12	4.049E-12	3.150E-12	2.575E-12	2.102E-12
ENE	2.542E-11	3.487E-11	2.606E-11	1.620E-11	1.037E-11	6.858E-12	4.803E-12	3.226E-12	2.511E-12	2.008E-12	1.640E-12
E	3.531E-11	5.236E-11	3.955E-11	2.478E-11	1.590E-11	1.051E-11	7.353E-12	5.367E-12	4.076E-12	3.058E-12	2.493E-12
ESE	1.031E-10	9.533E-11	6.608E-11	3.869E-11	2.443E-11	1.622E-11	1.145E-11	8.443E-12	6.475E-12	5.117E-12	4.142E-12
SE	1.525E-10	7.222E-11	4.401E-11	2.312E-11	1.406E-11	9.643E-12	7.189E-12	1.334E-11	1.026E-11	8.132E-12	6.610E-12
SSE	2.254E-10	2.725E-10	1.666E-10	8.521E-11	5.176E-11	3.467E-11	2.481E-11	1.860E-11	1.445E-11	1.153E-11	9.404E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.100E-09	1.088E-09	4.809E-10	2.666E-10	1.846E-10	1.119E-10	4.917E-11	2.182E-11	1.174E-11	7.277E-12
SSW	1.132E-09	6.026E-10	2.688E-10	1.684E-10	1.088E-10	7.222E-11	3.417E-11	1.456E-11	7.878E-12	4.904E-12
SW	1.557E-09	1.041E-09	4.479E-10	2.160E-10	1.275E-10	7.175E-11	3.095E-11	1.373E-11	7.502E-12	4.643E-12
WSW	1.254E-09	1.007E-09	3.586E-10	1.723E-10	1.011E-10	6.194E-11	2.881E-11	1.242E-11	6.655E-12	4.119E-12
W	2.166E-09	8.205E-10	2.727E-10	1.311E-10	7.694E-11	4.338E-11	2.822E-11	1.209E-11	6.466E-12	4.002E-12
WNW	2.520E-09	1.666E-09	5.818E-10	3.022E-10	2.110E-10	1.254E-10	5.709E-11	2.475E-11	1.214E-11	7.583E-12
NW	1.930E-09	1.887E-09	6.682E-10	3.349E-10	2.346E-10	1.464E-10	6.622E-11	2.811E-11	1.465E-11	9.066E-12
NNW	1.217E-09	1.318E-09	6.623E-10	4.219E-10	3.153E-10	2.146E-10	1.066E-10	4.642E-11	2.161E-11	1.306E-11
N	2.695E-09	1.156E-09	4.761E-10	2.569E-10	1.570E-10	6.429E-11	4.123E-11	3.719E-11	1.865E-11	1.155E-11
NNE	5.260E-10	3.740E-10	1.803E-10	1.005E-10	6.173E-11	8.526E-11	4.116E-11	1.668E-11	8.815E-12	5.403E-12
NE	2.855E-10	2.031E-10	9.788E-11	5.454E-11	3.351E-11	4.058E-11	1.924E-11	7.811E-12	4.113E-12	2.570E-12
ENE	2.705E-10	1.924E-10	9.273E-11	5.167E-11	3.175E-11	2.886E-11	1.580E-11	6.973E-12	3.404E-12	2.021E-12
E	3.757E-10	2.672E-10	1.288E-10	7.177E-11	4.409E-11	4.288E-11	2.412E-11	1.068E-11	5.443E-12	3.151E-12
ESE	1.097E-09	7.802E-10	3.761E-10	2.096E-10	1.287E-10	8.405E-11	3.844E-11	1.650E-11	8.551E-12	5.158E-12
SE	1.623E-09	1.154E-09	5.564E-10	3.100E-10	1.905E-10	7.753E-11	2.373E-11	9.838E-12	1.041E-11	8.198E-12
SSE	3.121E-09	1.814E-09	8.313E-10	4.587E-10	2.814E-10	2.150E-10	8.843E-11	3.529E-11	1.879E-11	1.161E-11

ERP ELEVATED STACK RELEASES - OCT-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	4.2E-08	4.2E-08	4.1E-08	2.3E-09
A	Site Boundary	SSW	.82	2.8E-08	2.8E-08	2.8E-08	1.2E-09
A	Site Boundary	SW	.97	1.1E-07	1.1E-07	1.1E-07	1.4E-09
A	Site Boundary	WSW	.93	8.8E-08	8.7E-08	8.7E-08	1.8E-09
A	Site Boundary	W	.91	1.9E-07	1.9E-07	1.8E-07	1.9E-09
A	Site Boundary	WNW	.94	2.7E-07	2.7E-07	2.7E-07	3.3E-09
A	Site Boundary	NW	.81	9.9E-08	9.9E-08	9.9E-08	1.2E-09
A	Site Boundary	NNW	.69	2.0E-08	2.0E-08	2.0E-08	1.2E-09
A	Site Boundary	N	.67	3.4E-08	3.4E-08	3.4E-08	3.0E-09
A	Site Boundary	NNE	.60	2.3E-09	2.3E-09	2.3E-09	4.0E-10
A	Site Boundary	NE	.62	1.8E-09	1.8E-09	1.8E-09	2.3E-10
A	Site Boundary	ENE	.59	1.1E-09	1.1E-09	1.1E-09	2.0E-10
A	Site Boundary	E	.53	5.7E-10	5.7E-10	5.7E-10	2.2E-10
A	Site Boundary	ESE	.54	2.0E-09	2.0E-09	2.0E-09	6.7E-10
A	Site Boundary	SE	.65	1.2E-08	1.2E-08	1.2E-08	1.4E-09
A	Site Boundary	SSE	.81	5.3E-08	5.3E-08	5.3E-08	3.5E-09
A	Nearest Res	SW	1.30	1.5E-07	1.5E-07	1.4E-07	1.7E-09
A	Nearest Res	WSW	1.80	1.5E-07	1.5E-07	1.4E-07	7.0E-10
A	Nearest Res	WNW	2.40	2.5E-07	2.5E-07	2.5E-07	6.1E-10
A	Nearest Res	NW	.90	1.5E-07	1.5E-07	1.5E-07	3.3E-09
A	Nearest Res	NNW	1.90	1.7E-07	1.7E-07	1.7E-07	1.1E-09
A	Nearest Res	NE	1.60	1.8E-08	1.8E-08	1.7E-08	1.9E-10
A	Nearest Res	ENE	1.70	1.3E-08	1.3E-08	1.2E-08	1.6E-10
A	Nearest Res	E	2.00	1.6E-08	1.6E-08	1.6E-08	1.8E-10
A	Nearest Res	SE	2.90	3.7E-08	3.7E-08	3.6E-08	4.3E-10
A	Nearest Cow	NNW	3.50	1.6E-07	1.6E-07	1.6E-07	4.1E-10
A	Nearest Garde	SW	2.20	8.9E-08	8.8E-08	8.6E-08	5.7E-10
A	Nearest Garde	WSW	2.40	9.3E-08	9.3E-08	9.1E-08	3.8E-10
A	Nearest Garde	WNW	2.60	2.2E-07	2.2E-07	2.2E-07	5.1E-10
A	Nearest Garde	NNW	2.70	1.7E-07	1.7E-07	1.7E-07	6.1E-10
A	Nearest Garde	ENE	1.70	1.3E-08	1.3E-08	1.2E-08	1.6E-10
A	Nearest Garde	E	2.00	1.6E-08	1.6E-08	1.6E-08	1.8E-10
A	Nearest Garde	ESE	2.20	3.6E-08	3.6E-08	3.6E-08	4.6E-10
A	Nearest Garde	SE	2.90	3.7E-08	3.7E-08	3.6E-08	4.3E-10
A	MAXIMUM CHI/Q	S	1.50	5.9E-08	5.9E-08	5.8E-08	1.1E-09
A	MAXIMUM CHI/Q	SSW	1.50	3.9E-08	3.9E-08	3.8E-08	5.9E-10
A	MAXIMUM CHI/Q	SW	1.50	1.5E-07	1.5E-07	1.5E-07	1.3E-09
A	MAXIMUM CHI/Q	WSW	1.50	1.9E-07	1.9E-07	1.9E-07	1.0E-09
A	MAXIMUM CHI/Q	W	1.50	2.0E-07	2.0E-07	2.0E-07	7.8E-10
A	MAXIMUM CHI/Q	WNW	1.50	5.2E-07	5.2E-07	5.1E-07	1.8E-09
A	MAXIMUM CHI/Q	NW	1.50	5.0E-07	5.0E-07	5.0E-07	2.1E-09
A	MAXIMUM CHI/Q	NNW	2.00	1.8E-07	1.8E-07	1.7E-07	9.5E-10
A	MAXIMUM CHI/Q	N	1.00	4.1E-08	4.1E-08	4.1E-08	2.2E-09
A	MAXIMUM CHI/Q	NNE	7.50	2.5E-08	2.4E-08	2.4E-08	1.2E-10
A	MAXIMUM CHI/Q	NE	1.50	1.7E-08	1.7E-08	1.7E-08	2.1E-10
A	MAXIMUM CHI/Q	ENE	1.50	1.3E-08	1.3E-08	1.3E-08	1.9E-10
A	MAXIMUM CHI/Q	E	1.50	1.7E-08	1.7E-08	1.7E-08	2.7E-10
A	MAXIMUM CHI/Q	ESE	1.50	4.3E-08	4.3E-08	4.3E-08	7.9E-10
A	MAXIMUM CHI/Q	SE	1.50	5.6E-08	5.6E-08	5.6E-08	1.2E-09
A	MAXIMUM CHI/Q	SSE	1.50	7.8E-08	7.7E-08	7.7E-08	1.8E-09

Atmospheric Diffusion Estimates

Elevated Releases

July-December 2024

B312

ERP ELEVATED STACK RELEASES - JUL-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.765E-09	3.301E-08	5.946E-08	6.829E-08	6.934E-08	6.022E-08	5.043E-08	4.223E-08	3.575E-08	4.224E-08	4.721E-08
SSW	3.826E-09	2.222E-08	3.370E-08	3.710E-08	3.848E-08	3.457E-08	2.981E-08	3.506E-08	3.981E-08	3.659E-08	3.400E-08
SW	9.236E-10	2.235E-08	6.489E-08	1.016E-07	1.503E-07	1.040E-07	7.653E-08	5.911E-08	4.739E-08	3.911E-08	3.304E-08
WSW	1.344E-09	1.183E-08	4.746E-08	1.056E-07	1.910E-07	1.241E-07	8.764E-08	6.576E-08	5.160E-08	4.188E-08	3.490E-08
W	1.373E-10	2.885E-08	1.435E-07	2.058E-07	2.269E-07	1.496E-07	1.066E-07	8.043E-08	6.335E-08	5.156E-08	4.304E-08
WNW	2.299E-10	2.067E-08	2.025E-07	4.392E-07	6.953E-07	4.437E-07	3.095E-07	2.429E-07	1.976E-07	1.583E-07	1.305E-07
NW	1.840E-15	2.070E-09	1.232E-07	3.786E-07	7.399E-07	4.487E-07	3.040E-07	2.276E-07	1.788E-07	1.423E-07	1.168E-07
NNW	6.363E-11	5.089E-09	5.572E-08	1.302E-07	2.224E-07	2.288E-07	2.185E-07	2.007E-07	1.849E-07	1.465E-07	1.198E-07
N	2.712E-09	1.655E-08	3.135E-08	3.913E-08	4.240E-08	3.893E-08	3.388E-08	2.867E-08	2.452E-08	2.124E-08	1.862E-08
NNE	6.097E-16	6.369E-10	1.126E-08	2.343E-08	3.279E-08	3.147E-08	2.773E-08	2.402E-08	2.085E-08	1.826E-08	1.616E-08
NE	1.905E-16	3.638E-10	7.604E-09	1.681E-08	2.440E-08	2.355E-08	2.069E-08	1.780E-08	1.533E-08	1.332E-08	1.168E-08
ENE	1.799E-16	2.693E-10	5.509E-09	1.225E-08	1.801E-08	1.754E-08	1.552E-08	1.344E-08	1.166E-08	1.020E-08	9.008E-09
E	2.750E-16	3.639E-10	7.051E-09	1.522E-08	2.171E-08	2.079E-08	1.818E-08	1.559E-08	1.339E-08	1.160E-08	1.015E-08
ESE	7.705E-16	7.386E-10	1.304E-08	2.690E-08	3.637E-08	3.376E-08	2.889E-08	2.439E-08	2.071E-08	1.778E-08	1.545E-08
SE	1.269E-15	1.077E-09	1.740E-08	3.407E-08	4.384E-08	3.987E-08	3.381E-08	2.841E-08	2.407E-08	2.063E-08	1.791E-08
SSE	1.683E-09	1.173E-08	3.346E-08	5.017E-08	5.854E-08	5.234E-08	4.420E-08	3.712E-08	3.144E-08	2.696E-08	2.342E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.237E-08	2.939E-08	1.920E-08	1.109E-08	7.874E-09	6.003E-09	4.689E-09	3.809E-09	3.213E-09	2.761E-09	2.397E-09
SSW	3.335E-08	3.186E-08	2.112E-08	1.245E-08	9.188E-09	7.026E-09	5.522E-09	4.509E-09	3.791E-09	3.251E-09	2.835E-09
SW	3.101E-08	2.519E-08	1.670E-08	9.829E-09	7.113E-09	5.490E-09	4.434E-09	3.613E-09	3.027E-09	2.592E-09	2.256E-09
WSW	3.118E-08	2.121E-08	1.532E-08	9.628E-09	6.519E-09	4.828E-09	3.784E-09	3.081E-09	2.580E-09	2.207E-09	1.921E-09
W	3.668E-08	2.065E-08	1.516E-08	1.012E-08	7.546E-09	5.613E-09	4.392E-09	3.574E-09	2.991E-09	2.558E-09	2.225E-09
WNW	1.115E-07	6.378E-08	4.389E-08	2.706E-08	1.868E-08	1.402E-08	1.113E-08	9.124E-09	7.656E-09	6.542E-09	5.686E-09
NW	9.938E-08	5.617E-08	3.868E-08	2.376E-08	1.608E-08	1.191E-08	9.508E-09	7.784E-09	6.514E-09	5.568E-09	4.841E-09
NNW	1.027E-07	5.938E-08	3.882E-08	2.251E-08	1.534E-08	1.142E-08	9.066E-09	7.462E-09	6.365E-09	5.482E-09	4.773E-09
N	1.656E-08	1.070E-08	9.241E-09	8.475E-09	8.263E-09	7.446E-09	5.941E-09	4.884E-09	4.108E-09	3.529E-09	3.082E-09
NNE	1.836E-08	3.089E-08	2.015E-08	1.166E-08	7.940E-09	5.906E-09	4.643E-09	3.792E-09	3.184E-09	2.730E-09	2.381E-09
NE	1.270E-08	1.992E-08	1.301E-08	7.535E-09	5.135E-09	3.823E-09	3.049E-09	2.515E-09	2.134E-09	1.829E-09	1.594E-09
ENE	9.806E-09	1.474E-08	9.746E-09	5.717E-09	3.919E-09	2.927E-09	2.398E-09	2.008E-09	1.683E-09	1.442E-09	1.255E-09
E	1.065E-08	1.571E-08	1.046E-08	6.203E-09	4.286E-09	3.221E-09	2.552E-09	2.098E-09	1.850E-09	1.644E-09	1.436E-09
ESE	1.562E-08	1.734E-08	1.148E-08	6.729E-09	4.608E-09	3.437E-09	2.706E-09	2.212E-09	1.858E-09	1.593E-09	1.389E-09
SE	1.574E-08	9.667E-09	7.512E-09	5.608E-09	4.253E-09	3.482E-09	2.988E-09	2.641E-09	2.233E-09	1.926E-09	1.687E-09
SSE	2.483E-08	3.279E-08	2.130E-08	1.225E-08	8.315E-09	6.169E-09	4.840E-09	3.947E-09	3.310E-09	2.835E-09	2.470E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	5.751E-08	6.505E-08	4.976E-08	4.007E-08	4.394E-08	2.775E-08	1.146E-08	5.976E-09	3.833E-09	2.760E-09
SSW	3.266E-08	3.643E-08	3.318E-08	3.722E-08	3.453E-08	2.742E-08	1.293E-08	7.001E-09	4.525E-09	3.257E-09
SW	7.175E-08	1.189E-07	7.690E-08	4.758E-08	3.409E-08	2.271E-08	1.015E-08	5.500E-09	3.624E-09	2.596E-09
WSW	6.539E-08	1.423E-07	8.861E-08	5.194E-08	3.559E-08	2.081E-08	9.511E-09	4.862E-09	3.091E-09	2.211E-09
W	1.457E-07	1.879E-07	1.076E-07	6.374E-08	4.321E-08	2.177E-08	1.010E-08	5.640E-09	3.586E-09	2.563E-09
WNW	2.673E-07	5.266E-07	3.186E-07	1.956E-07	1.317E-07	6.554E-08	2.708E-08	1.410E-08	9.138E-09	6.555E-09
NW	2.098E-07	5.302E-07	3.120E-07	1.789E-07	1.179E-07	5.800E-08	2.366E-08	1.206E-08	7.793E-09	5.579E-09
NNW	7.757E-08	2.048E-07	2.141E-07	1.748E-07	1.214E-07	5.988E-08	2.295E-08	1.152E-08	7.502E-09	5.481E-09
N	3.152E-08	4.013E-08	3.314E-08	2.445E-08	1.863E-08	1.135E-08	8.551E-09	7.062E-09	4.890E-09	3.535E-09
NNE	1.431E-08	3.012E-08	2.725E-08	2.077E-08	1.759E-08	2.333E-08	1.189E-08	5.943E-09	3.803E-09	2.735E-09
NE	1.009E-08	2.233E-08	2.029E-08	1.527E-08	1.254E-08	1.524E-08	7.685E-09	3.863E-09	2.522E-09	1.832E-09
ENE	7.340E-09	1.652E-08	1.523E-08	1.161E-08	9.656E-09	1.142E-08	5.813E-09	2.980E-09	1.996E-09	1.444E-09
E	9.197E-09	1.986E-08	1.784E-08	1.333E-08	1.077E-08	1.225E-08	6.298E-09	3.237E-09	2.133E-09	1.628E-09
ESE	1.646E-08	3.310E-08	2.839E-08	2.065E-08	1.620E-08	1.435E-08	6.842E-09	3.457E-09	2.218E-09	1.596E-09
SE	2.118E-08	3.990E-08	3.327E-08	2.400E-08	1.791E-08	1.006E-08	5.429E-09	3.490E-09	2.584E-09	1.928E-09
SSE	3.606E-08	5.392E-08	4.354E-08	3.136E-08	2.499E-08	2.591E-08	1.251E-08	6.210E-09	3.960E-09	2.841E-09

ERP ELEVATED STACK RELEASES - JUL-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.765E-09	3.299E-08	5.941E-08	6.819E-08	6.916E-08	6.001E-08	5.020E-08	4.199E-08	3.551E-08	4.191E-08	4.679E-08
SSW	3.826E-09	2.221E-08	3.366E-08	3.704E-08	3.837E-08	3.442E-08	2.964E-08	3.480E-08	3.946E-08	3.621E-08	3.360E-08
SW	9.234E-10	2.233E-08	6.479E-08	1.014E-07	1.498E-07	1.035E-07	7.600E-08	5.861E-08	4.692E-08	3.867E-08	3.261E-08
WSW	1.344E-09	1.181E-08	4.739E-08	1.054E-07	1.902E-07	1.234E-07	8.704E-08	6.521E-08	5.109E-08	4.140E-08	3.444E-08
W	1.372E-10	2.882E-08	1.433E-07	2.053E-07	2.259E-07	1.487E-07	1.058E-07	7.967E-08	6.265E-08	5.090E-08	4.242E-08
WNW	2.299E-10	2.065E-08	2.022E-07	4.381E-07	6.923E-07	4.411E-07	3.072E-07	2.406E-07	1.955E-07	1.563E-07	1.286E-07
NW	1.840E-15	2.069E-09	1.231E-07	3.780E-07	7.379E-07	4.470E-07	3.026E-07	2.263E-07	1.775E-07	1.412E-07	1.157E-07
NNW	6.362E-11	5.087E-09	5.567E-08	1.300E-07	2.219E-07	2.282E-07	2.177E-07	1.998E-07	1.838E-07	1.455E-07	1.189E-07
N	2.711E-09	1.654E-08	3.133E-08	3.909E-08	4.233E-08	3.884E-08	3.377E-08	2.856E-08	2.441E-08	2.113E-08	1.852E-08
NNE	6.096E-16	6.364E-10	1.124E-08	2.339E-08	3.268E-08	3.133E-08	2.757E-08	2.385E-08	2.068E-08	1.808E-08	1.598E-08
NE	1.905E-16	3.634E-10	7.591E-09	1.677E-08	2.430E-08	2.342E-08	2.054E-08	1.765E-08	1.518E-08	1.317E-08	1.154E-08
ENE	1.798E-16	2.690E-10	5.499E-09	1.222E-08	1.794E-08	1.744E-08	1.540E-08	1.333E-08	1.154E-08	1.008E-08	8.891E-09
E	2.749E-16	3.636E-10	7.040E-09	1.519E-08	2.162E-08	2.068E-08	1.806E-08	1.546E-08	1.326E-08	1.147E-08	1.003E-08
ESE	7.703E-16	7.381E-10	1.302E-08	2.684E-08	3.625E-08	3.360E-08	2.871E-08	2.421E-08	2.053E-08	1.760E-08	1.528E-08
SE	1.269E-15	1.077E-09	1.738E-08	3.402E-08	4.373E-08	3.973E-08	3.365E-08	2.825E-08	2.391E-08	2.048E-08	1.776E-08
SSE	1.683E-09	1.172E-08	3.343E-08	5.011E-08	5.842E-08	5.219E-08	4.405E-08	3.696E-08	3.128E-08	2.680E-08	2.327E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.195E-08	2.892E-08	1.878E-08	1.073E-08	7.518E-09	5.659E-09	4.368E-09	3.507E-09	2.923E-09	2.482E-09	2.130E-09
SSW	3.290E-08	3.112E-08	2.046E-08	1.186E-08	8.599E-09	6.459E-09	4.994E-09	4.013E-09	3.320E-09	2.803E-09	2.407E-09
SW	3.056E-08	2.461E-08	1.618E-08	9.379E-09	6.681E-09	5.075E-09	4.033E-09	3.237E-09	2.672E-09	2.254E-09	1.934E-09
WSW	3.072E-08	2.072E-08	1.484E-08	9.164E-09	6.104E-09	4.448E-09	3.431E-09	2.749E-09	2.266E-09	1.909E-09	1.636E-09
W	3.609E-08	2.015E-08	1.467E-08	9.626E-09	7.065E-09	5.170E-09	3.982E-09	3.189E-09	2.628E-09	2.213E-09	1.896E-09
WNW	1.097E-07	6.221E-08	4.242E-08	2.567E-08	1.740E-08	1.282E-08	9.999E-09	8.052E-09	6.636E-09	5.574E-09	4.763E-09
NW	9.835E-08	5.525E-08	3.781E-08	2.292E-08	1.533E-08	1.121E-08	8.835E-09	7.142E-09	5.905E-09	4.988E-09	4.286E-09
NNW	1.019E-07	5.859E-08	3.813E-08	2.190E-08	1.479E-08	1.090E-08	8.576E-09	6.992E-09	5.906E-09	5.037E-09	4.347E-09
N	1.645E-08	1.060E-08	9.107E-09	8.251E-09	7.920E-09	7.022E-09	5.534E-09	4.496E-09	3.739E-09	3.177E-09	2.745E-09
NNE	1.813E-08	3.033E-08	1.967E-08	1.125E-08	7.571E-09	5.567E-09	4.327E-09	3.495E-09	2.902E-09	2.462E-09	2.123E-09
NE	1.252E-08	1.952E-08	1.266E-08	7.237E-09	4.867E-09	3.576E-09	2.815E-09	2.292E-09	1.918E-09	1.624E-09	1.398E-09
ENE	9.665E-09	1.442E-08	9.465E-09	5.473E-09	3.700E-09	2.725E-09	2.204E-09	1.821E-09	1.507E-09	1.274E-09	1.095E-09
E	1.051E-08	1.543E-08	1.021E-08	5.984E-09	4.086E-09	3.035E-09	2.377E-09	1.932E-09	1.684E-09	1.479E-09	1.277E-09
ESE	1.542E-08	1.697E-08	1.115E-08	6.442E-09	4.346E-09	3.195E-09	2.479E-09	1.998E-09	1.655E-09	1.400E-09	1.204E-09
SE	1.558E-08	9.523E-09	7.358E-09	5.420E-09	4.052E-09	3.266E-09	2.757E-09	2.394E-09	1.995E-09	1.697E-09	1.466E-09
SSE	2.465E-08	3.224E-08	2.082E-08	1.183E-08	7.932E-09	5.814E-09	4.507E-09	3.632E-09	3.010E-09	2.548E-09	2.194E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	5.744E-08	6.488E-08	4.953E-08	3.980E-08	4.355E-08	2.731E-08	1.109E-08	5.638E-09	3.531E-09	2.482E-09
SSW	3.262E-08	3.632E-08	3.298E-08	3.689E-08	3.411E-08	2.678E-08	1.232E-08	6.444E-09	4.030E-09	2.810E-09
SW	7.161E-08	1.184E-07	7.637E-08	4.711E-08	3.365E-08	2.219E-08	9.692E-09	5.086E-09	3.249E-09	2.259E-09
WSW	6.526E-08	1.417E-07	8.801E-08	5.143E-08	3.512E-08	2.033E-08	9.065E-09	4.483E-09	2.760E-09	1.914E-09
W	1.454E-07	1.870E-07	1.068E-07	6.304E-08	4.259E-08	2.125E-08	9.608E-09	5.200E-09	3.202E-09	2.219E-09
WNW	2.667E-07	5.242E-07	3.163E-07	1.935E-07	1.298E-07	6.397E-08	2.572E-08	1.291E-08	8.069E-09	5.589E-09
NW	2.095E-07	5.286E-07	3.106E-07	1.776E-07	1.168E-07	5.708E-08	2.285E-08	1.136E-08	7.154E-09	5.000E-09
NNW	7.747E-08	2.043E-07	2.133E-07	1.738E-07	1.205E-07	5.911E-08	2.235E-08	1.101E-08	7.031E-09	5.039E-09
N	3.149E-08	4.006E-08	3.304E-08	2.435E-08	1.853E-08	1.124E-08	8.294E-09	6.666E-09	4.504E-09	3.183E-09
NNE	1.428E-08	3.001E-08	2.708E-08	2.059E-08	1.740E-08	2.288E-08	1.149E-08	5.605E-09	3.507E-09	2.467E-09
NE	1.007E-08	2.223E-08	2.015E-08	1.512E-08	1.238E-08	1.492E-08	7.389E-09	3.616E-09	2.299E-09	1.627E-09
ENE	7.323E-09	1.644E-08	1.512E-08	1.149E-08	9.529E-09	1.116E-08	5.572E-09	2.777E-09	1.811E-09	1.276E-09
E	9.177E-09	1.978E-08	1.772E-08	1.321E-08	1.064E-08	1.202E-08	6.080E-09	3.052E-09	1.965E-09	1.465E-09
ESE	1.643E-08	3.298E-08	2.822E-08	2.047E-08	1.602E-08	1.404E-08	6.557E-09	3.216E-09	2.005E-09	1.403E-09
SE	2.115E-08	3.979E-08	3.311E-08	2.384E-08	1.776E-08	9.908E-09	5.243E-09	3.272E-09	2.346E-09	1.700E-09
SSE	3.602E-08	5.380E-08	4.338E-08	3.120E-08	2.483E-08	2.548E-08	1.210E-08	5.856E-09	3.645E-09	2.554E-09

ERP ELEVATED STACK RELEASES - JUL-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	3.765E-09	3.272E-08	5.853E-08	6.736E-08	6.818E-08	5.886E-08	4.898E-08	4.077E-08	3.433E-08	4.058E-08	4.542E-08
SSW	3.826E-09	2.202E-08	3.313E-08	3.656E-08	3.784E-08	3.381E-08	2.900E-08	3.407E-08	3.872E-08	3.552E-08	3.297E-08
SW	9.236E-10	2.215E-08	6.390E-08	1.005E-07	1.482E-07	1.018E-07	7.447E-08	5.725E-08	4.572E-08	3.761E-08	3.168E-08
WSW	1.344E-09	1.172E-08	4.704E-08	1.051E-07	1.887E-07	1.217E-07	8.550E-08	6.387E-08	4.992E-08	4.038E-08	3.355E-08
W	1.372E-10	2.872E-08	1.426E-07	2.036E-07	2.233E-07	1.465E-07	1.039E-07	7.819E-08	6.142E-08	4.986E-08	4.154E-08
WNW	2.299E-10	2.057E-08	2.020E-07	4.363E-07	6.867E-07	4.356E-07	3.025E-07	2.367E-07	1.921E-07	1.532E-07	1.257E-07
NW	1.840E-15	2.070E-09	1.232E-07	3.771E-07	7.313E-07	4.402E-07	2.966E-07	2.213E-07	1.732E-07	1.373E-07	1.121E-07
NNW	6.362E-11	5.059E-09	5.558E-08	1.300E-07	2.205E-07	2.256E-07	2.149E-07	1.971E-07	1.814E-07	1.432E-07	1.165E-07
N	2.712E-09	1.641E-08	3.094E-08	3.874E-08	4.183E-08	3.819E-08	3.306E-08	2.785E-08	2.371E-08	2.046E-08	1.788E-08
NNE	6.097E-16	6.368E-10	1.125E-08	2.342E-08	3.248E-08	3.093E-08	2.707E-08	2.330E-08	2.012E-08	1.753E-08	1.545E-08
NE	1.905E-16	3.637E-10	7.601E-09	1.680E-08	2.416E-08	2.312E-08	2.015E-08	1.722E-08	1.475E-08	1.274E-08	1.112E-08
ENE	1.798E-16	2.692E-10	5.506E-09	1.224E-08	1.784E-08	1.722E-08	1.512E-08	1.301E-08	1.122E-08	9.759E-09	8.581E-09
E	2.750E-16	3.638E-10	7.047E-09	1.521E-08	2.150E-08	2.041E-08	1.771E-08	1.508E-08	1.287E-08	1.108E-08	9.655E-09
ESE	7.705E-16	7.384E-10	1.303E-08	2.688E-08	3.602E-08	3.312E-08	2.810E-08	2.354E-08	1.985E-08	1.693E-08	1.462E-08
SE	1.269E-15	1.077E-09	1.739E-08	3.405E-08	4.342E-08	3.914E-08	3.292E-08	2.746E-08	2.311E-08	1.969E-08	1.700E-08
SSE	1.683E-09	1.163E-08	3.318E-08	4.989E-08	5.786E-08	5.135E-08	4.306E-08	3.593E-08	3.026E-08	2.581E-08	2.232E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.067E-08	2.772E-08	1.752E-08	9.459E-09	6.221E-09	4.455E-09	3.318E-09	2.582E-09	2.098E-09	1.746E-09	1.473E-09
SSW	3.234E-08	3.051E-08	1.952E-08	1.068E-08	7.266E-09	5.306E-09	4.012E-09	3.162E-09	2.573E-09	2.140E-09	1.812E-09
SW	2.972E-08	2.390E-08	1.531E-08	8.390E-09	5.595E-09	4.031E-09	3.119E-09	2.451E-09	1.986E-09	1.647E-09	1.392E-09
WSW	2.994E-08	1.997E-08	1.396E-08	8.284E-09	5.348E-09	3.802E-09	2.872E-09	2.261E-09	1.836E-09	1.526E-09	1.292E-09
W	3.532E-08	1.972E-08	1.434E-08	8.984E-09	6.256E-09	4.468E-09	3.371E-09	2.653E-09	2.154E-09	1.790E-09	1.516E-09
WNW	1.068E-07	5.920E-08	3.933E-08	2.250E-08	1.425E-08	9.947E-09	7.517E-09	5.929E-09	4.800E-09	3.968E-09	3.342E-09
NW	9.485E-08	5.196E-08	3.459E-08	1.983E-08	1.261E-08	8.849E-09	6.771E-09	5.350E-09	4.336E-09	3.596E-09	3.039E-09
NNW	9.941E-08	5.567E-08	3.512E-08	1.891E-08	1.183E-08	8.186E-09	6.115E-09	4.804E-09	3.951E-09	3.294E-09	2.784E-09
N	1.586E-08	1.015E-08	8.757E-09	8.070E-09	7.706E-09	6.596E-09	5.096E-09	4.069E-09	3.332E-09	2.792E-09	2.382E-09
NNE	1.759E-08	2.971E-08	1.872E-08	1.016E-08	6.488E-09	4.573E-09	3.429E-09	2.685E-09	2.169E-09	1.794E-09	1.513E-09
NE	1.208E-08	1.906E-08	1.202E-08	6.529E-09	4.168E-09	2.935E-09	2.240E-09	1.784E-09	1.466E-09	1.220E-09	1.034E-09
ENE	9.346E-09	1.414E-08	9.034E-09	4.936E-09	3.120E-09	2.175E-09	1.677E-09	1.337E-09	1.080E-09	8.942E-10	7.540E-10
E	1.012E-08	1.504E-08	9.689E-09	5.359E-09	3.420E-09	2.402E-09	1.793E-09	1.396E-09	1.171E-09	9.947E-10	8.382E-10
ESE	1.475E-08	1.640E-08	1.051E-08	5.779E-09	3.683E-09	2.582E-09	1.925E-09	1.497E-09	1.201E-09	9.871E-10	8.266E-10
SE	1.486E-08	8.959E-09	6.899E-09	5.118E-09	3.855E-09	3.143E-09	2.690E-09	2.365E-09	1.959E-09	1.659E-09	1.427E-09
SSE	2.366E-08	3.126E-08	1.960E-08	1.058E-08	6.747E-09	4.745E-09	3.552E-09	2.775E-09	2.238E-09	1.849E-09	1.556E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	5.672E-08	6.386E-08	4.833E-08	3.855E-08	4.223E-08	2.606E-08	9.810E-09	4.471E-09	2.608E-09	1.749E-09
SSW	3.218E-08	3.576E-08	3.231E-08	3.617E-08	3.349E-08	2.603E-08	1.113E-08	5.311E-09	3.180E-09	2.147E-09
SW	7.089E-08	1.170E-07	7.487E-08	4.592E-08	3.271E-08	2.137E-08	8.685E-09	4.083E-09	2.465E-09	1.653E-09
WSW	6.498E-08	1.403E-07	8.651E-08	5.027E-08	3.424E-08	1.951E-08	8.241E-09	3.842E-09	2.274E-09	1.531E-09
W	1.444E-07	1.848E-07	1.050E-07	6.181E-08	4.170E-08	2.080E-08	8.962E-09	4.506E-09	2.668E-09	1.796E-09
WNW	2.658E-07	5.195E-07	3.117E-07	1.900E-07	1.269E-07	6.095E-08	2.257E-08	1.012E-08	5.953E-09	3.983E-09
NW	2.091E-07	5.232E-07	3.048E-07	1.733E-07	1.132E-07	5.377E-08	1.990E-08	9.020E-09	5.370E-09	3.609E-09
NNW	7.743E-08	2.027E-07	2.106E-07	1.713E-07	1.181E-07	5.626E-08	1.936E-08	8.329E-09	4.853E-09	3.300E-09
N	3.118E-08	3.953E-08	3.234E-08	2.366E-08	1.790E-08	1.080E-08	8.061E-09	6.292E-09	4.082E-09	2.801E-09
NNE	1.430E-08	2.978E-08	2.659E-08	2.004E-08	1.686E-08	2.213E-08	1.043E-08	4.626E-09	2.701E-09	1.801E-09
NE	1.008E-08	2.206E-08	1.977E-08	1.469E-08	1.195E-08	1.438E-08	6.700E-09	2.986E-09	1.793E-09	1.224E-09
ENE	7.335E-09	1.632E-08	1.484E-08	1.117E-08	9.213E-09	1.081E-08	5.040E-09	2.228E-09	1.336E-09	8.975E-10
E	9.191E-09	1.962E-08	1.738E-08	1.282E-08	1.025E-08	1.157E-08	5.459E-09	2.430E-09	1.424E-09	9.889E-10
ESE	1.646E-08	3.270E-08	2.761E-08	1.979E-08	1.535E-08	1.341E-08	5.899E-09	2.613E-09	1.507E-09	9.911E-10
SE	2.117E-08	3.944E-08	3.240E-08	2.305E-08	1.701E-08	9.355E-09	4.953E-09	3.152E-09	2.303E-09	1.662E-09
SSE	3.582E-08	5.320E-08	4.242E-08	3.019E-08	2.385E-08	2.439E-08	1.088E-08	4.801E-09	2.792E-09	1.856E-09

ERP ELEVATED STACK RELEASES - JUL-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	3.923E-09	3.397E-09	3.191E-09	2.379E-09	1.234E-09	7.762E-10	5.317E-10	3.845E-10	2.890E-10	2.295E-10	2.116E-10
SSW	2.085E-09	1.770E-09	1.613E-09	1.176E-09	6.001E-10	3.753E-10	2.562E-10	1.850E-10	1.693E-10	1.281E-10	1.003E-10
SW	2.212E-09	1.857E-09	1.663E-09	1.198E-09	9.970E-10	5.415E-10	3.361E-10	2.286E-10	1.655E-10	1.253E-10	9.816E-11
WSW	6.851E-10	7.535E-10	9.308E-10	1.462E-09	8.719E-10	4.725E-10	2.918E-10	1.978E-10	1.427E-10	1.079E-10	8.440E-11
W	1.683E-10	2.212E-09	2.108E-09	1.451E-09	6.780E-10	3.685E-10	2.278E-10	1.545E-10	1.115E-10	8.427E-11	6.593E-11
WNW	7.480E-10	1.131E-09	3.686E-09	3.860E-09	2.211E-09	1.150E-09	6.956E-10	4.738E-10	3.873E-10	3.070E-10	2.578E-10
NW	1.684E-10	1.010E-09	2.151E-09	5.799E-09	3.875E-09	1.932E-09	1.147E-09	7.671E-10	5.624E-10	4.429E-10	3.697E-10
NNW	7.886E-10	1.374E-09	2.253E-09	2.179E-09	2.568E-09	1.397E-09	8.680E-10	7.446E-10	5.594E-10	4.533E-10	3.901E-10
N	2.505E-09	2.275E-09	2.283E-09	1.778E-09	9.509E-10	6.054E-10	4.171E-10	3.026E-10	2.277E-10	1.763E-10	1.396E-10
NNE	5.765E-11	3.459E-10	7.365E-10	7.628E-10	4.765E-10	3.195E-10	2.257E-10	1.658E-10	1.256E-10	9.745E-11	7.717E-11
NE	3.276E-11	1.965E-10	4.184E-10	4.334E-10	2.707E-10	1.815E-10	1.282E-10	9.419E-11	7.134E-11	5.537E-11	4.385E-11
ENE	2.555E-11	1.533E-10	3.264E-10	3.381E-10	2.112E-10	1.416E-10	1.000E-10	7.347E-11	5.564E-11	4.319E-11	3.420E-11
E	3.341E-11	2.004E-10	4.268E-10	4.421E-10	2.761E-10	1.852E-10	1.308E-10	9.607E-11	7.276E-11	5.648E-11	4.473E-11
ESE	7.010E-11	4.205E-10	8.955E-10	9.275E-10	5.794E-10	3.885E-10	2.744E-10	2.016E-10	1.527E-10	1.185E-10	9.384E-11
SE	9.827E-11	5.896E-10	1.255E-09	1.300E-09	8.122E-10	5.446E-10	3.847E-10	2.826E-10	2.140E-10	1.661E-10	1.315E-10
SSE	1.531E-09	1.802E-09	2.356E-09	2.100E-09	1.219E-09	7.989E-10	5.582E-10	4.079E-10	3.081E-10	2.389E-10	1.892E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.702E-10	1.346E-10	9.462E-11	5.629E-11	3.594E-11	2.413E-11	1.723E-11	1.289E-11	1.013E-11	8.067E-12	6.586E-12
SSW	8.147E-11	8.752E-11	6.515E-11	4.051E-11	2.308E-11	1.564E-11	1.121E-11	8.420E-12	6.607E-12	5.278E-12	4.308E-12
SW	8.028E-11	7.231E-11	5.223E-11	3.176E-11	2.039E-11	1.337E-11	9.298E-12	6.982E-12	5.429E-12	4.336E-12	3.540E-12
WSW	6.786E-11	6.030E-11	4.336E-11	2.656E-11	1.607E-11	1.078E-11	7.821E-12	5.873E-12	4.566E-12	3.647E-12	2.977E-12
W	5.300E-11	2.372E-11	4.223E-11	2.946E-11	1.669E-11	1.134E-11	8.128E-12	6.103E-12	4.746E-12	3.791E-12	3.094E-12
WNW	2.329E-10	1.521E-10	1.125E-10	6.944E-11	4.449E-11	2.936E-11	1.930E-11	1.449E-11	1.144E-11	9.136E-12	7.457E-12
NW	3.245E-10	2.061E-10	1.506E-10	9.186E-11	5.612E-11	3.754E-11	2.677E-11	2.010E-11	1.568E-11	1.252E-11	1.022E-11
NNW	3.522E-10	2.423E-10	1.831E-10	1.148E-10	7.368E-11	4.873E-11	3.216E-11	2.320E-11	1.801E-11	1.438E-11	1.174E-11
N	1.126E-10	5.353E-11	3.277E-11	1.740E-11	5.173E-11	3.010E-11	2.157E-11	1.619E-11	1.259E-11	1.006E-11	8.210E-12
NNE	6.215E-11	1.232E-10	7.754E-11	4.099E-11	2.515E-11	1.680E-11	1.198E-11	8.935E-12	6.911E-12	5.497E-12	4.470E-12
NE	3.532E-11	6.191E-11	3.941E-11	2.113E-11	1.302E-11	8.693E-12	6.371E-12	4.723E-12	3.674E-12	2.993E-12	2.443E-12
ENE	2.755E-11	4.092E-11	3.091E-11	1.937E-11	1.242E-11	8.213E-12	5.752E-12	3.652E-12	2.840E-12	2.270E-12	1.855E-12
E	3.602E-11	4.957E-11	3.704E-11	2.303E-11	1.475E-11	9.753E-12	6.831E-12	4.992E-12	3.797E-12	2.845E-12	2.315E-12
ESE	7.557E-11	7.259E-11	5.075E-11	2.993E-11	1.894E-11	1.257E-11	8.859E-12	6.528E-12	5.001E-12	3.948E-12	3.193E-12
SE	1.059E-10	5.016E-11	3.057E-11	1.605E-11	9.771E-12	6.711E-12	5.016E-12	9.361E-12	7.212E-12	5.729E-12	4.669E-12
SSE	1.524E-10	2.010E-10	1.242E-10	6.425E-11	3.917E-11	2.621E-11	1.873E-11	1.402E-11	1.087E-11	8.666E-12	7.061E-12

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.876E-09	1.285E-09	5.380E-10	2.936E-10	2.016E-10	1.247E-10	5.577E-11	2.452E-11	1.308E-11	8.129E-12
SSW	1.454E-09	6.282E-10	2.595E-10	1.581E-10	1.016E-10	7.623E-11	3.824E-11	1.585E-11	8.527E-12	5.313E-12
SW	1.499E-09	8.392E-10	3.479E-10	1.682E-10	9.958E-11	6.515E-11	3.126E-11	1.361E-11	7.052E-12	4.365E-12
WSW	1.127E-09	8.255E-10	3.024E-10	1.452E-10	8.523E-11	5.445E-11	2.563E-11	1.101E-11	5.931E-12	3.671E-12
W	1.839E-09	7.123E-10	2.360E-10	1.134E-10	6.657E-11	3.846E-11	2.662E-11	1.148E-11	6.165E-12	3.816E-12
WNW	3.196E-09	2.106E-09	7.280E-10	3.814E-10	2.632E-10	1.525E-10	6.792E-11	2.937E-11	1.470E-11	9.195E-12
NW	3.519E-09	3.439E-09	1.204E-09	5.754E-10	3.746E-10	2.078E-10	8.904E-11	3.819E-11	2.032E-11	1.261E-11
NNW	2.025E-09	1.961E-09	9.597E-10	5.719E-10	3.948E-10	2.404E-10	1.117E-10	4.876E-11	2.378E-11	1.448E-11
N	2.057E-09	9.811E-10	4.215E-10	2.295E-10	1.405E-10	5.743E-11	3.607E-11	3.246E-11	1.636E-11	1.012E-11
NNE	6.614E-10	4.703E-10	2.267E-10	1.263E-10	7.762E-11	8.934E-11	4.207E-11	1.710E-11	9.033E-12	5.536E-12
NE	3.758E-10	2.672E-10	1.288E-10	7.178E-11	4.410E-11	4.600E-11	2.159E-11	8.918E-12	4.794E-12	2.991E-12
ENE	2.931E-10	2.084E-10	1.005E-10	5.599E-11	3.440E-11	3.350E-11	1.885E-11	8.352E-12	3.943E-12	2.285E-12
E	3.833E-10	2.726E-10	1.314E-10	7.322E-11	4.498E-11	4.099E-11	2.246E-11	9.916E-12	5.062E-12	2.931E-12
ESE	8.042E-10	5.719E-10	2.757E-10	1.536E-10	9.438E-11	6.354E-11	2.967E-11	1.278E-11	6.612E-12	3.980E-12
SE	1.127E-09	8.017E-10	3.865E-10	2.154E-10	1.323E-10	5.385E-11	1.649E-11	6.849E-12	7.301E-12	5.776E-12
SSE	2.119E-09	1.228E-09	5.623E-10	3.102E-10	1.903E-10	1.561E-10	6.642E-11	2.668E-11	1.417E-11	8.725E-12

ERP ELEVATED STACK RELEASES - JUL-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	6.2E-08	6.2E-08	6.1E-08	3.0E-09
A	Site Boundary	SSW	.82	3.5E-08	3.5E-08	3.4E-08	1.5E-09
A	Site Boundary	SW	.97	9.8E-08	9.8E-08	9.7E-08	1.2E-09
A	Site Boundary	WSW	.93	8.8E-08	8.7E-08	8.7E-08	1.3E-09
A	Site Boundary	W	.91	1.9E-07	1.9E-07	1.9E-07	1.6E-09
A	Site Boundary	WNW	.94	3.8E-07	3.8E-07	3.8E-07	4.3E-09
A	Site Boundary	NW	.81	1.8E-07	1.8E-07	1.8E-07	2.3E-09
A	Site Boundary	NNW	.69	3.6E-08	3.6E-08	3.6E-08	2.0E-09
A	Site Boundary	N	.67	2.6E-08	2.6E-08	2.6E-08	2.3E-09
A	Site Boundary	NNE	.60	3.1E-09	3.1E-09	3.1E-09	5.0E-10
A	Site Boundary	NE	.62	2.6E-09	2.6E-09	2.6E-09	3.1E-10
A	Site Boundary	ENE	.59	1.2E-09	1.2E-09	1.2E-09	2.1E-10
A	Site Boundary	E	.53	6.0E-10	6.0E-10	6.0E-10	2.2E-10
A	Site Boundary	ESE	.54	1.5E-09	1.5E-09	1.5E-09	4.9E-10
A	Site Boundary	SE	.65	8.5E-09	8.5E-09	8.5E-09	9.9E-10
A	Site Boundary	SSE	.81	3.8E-08	3.8E-08	3.8E-08	2.3E-09
A	Nearest Res	SW	1.30	1.4E-07	1.4E-07	1.3E-07	1.3E-09
A	Nearest Res	WSW	1.80	1.5E-07	1.5E-07	1.4E-07	5.9E-10
A	Nearest Res	WNW	2.40	3.3E-07	3.3E-07	3.2E-07	7.6E-10
A	Nearest Res	NW	.90	2.7E-07	2.7E-07	2.7E-07	6.0E-09
A	Nearest Res	NNW	1.90	2.3E-07	2.3E-07	2.3E-07	1.6E-09
A	Nearest Res	NE	1.60	2.5E-08	2.4E-08	2.4E-08	2.5E-10
A	Nearest Res	ENE	1.70	1.8E-08	1.8E-08	1.8E-08	1.8E-10
A	Nearest Res	E	2.00	2.1E-08	2.1E-08	2.0E-08	1.9E-10
A	Nearest Res	SE	2.90	2.9E-08	2.9E-08	2.8E-08	3.0E-10
A	Nearest Cow	NNW	3.50	1.8E-07	1.8E-07	1.8E-07	5.6E-10
A	Nearest Garde	SW	2.20	9.1E-08	9.1E-08	8.9E-08	4.4E-10
A	Nearest Garde	WSW	2.40	9.3E-08	9.3E-08	9.1E-08	3.2E-10
A	Nearest Garde	WNW	2.60	2.9E-07	2.9E-07	2.9E-07	6.4E-10
A	Nearest Garde	NNW	2.70	2.1E-07	2.1E-07	2.1E-07	8.5E-10
A	Nearest Garde	ENE	1.70	1.8E-08	1.8E-08	1.8E-08	1.8E-10
A	Nearest Garde	E	2.00	2.1E-08	2.1E-08	2.0E-08	1.9E-10
A	Nearest Garde	ESE	2.20	3.2E-08	3.2E-08	3.1E-08	3.4E-10
A	Nearest Garde	SE	2.90	2.9E-08	2.9E-08	2.8E-08	3.0E-10
A	MAXIMUM CHI/Q	S	1.50	6.9E-08	6.9E-08	6.8E-08	1.2E-09
A	MAXIMUM CHI/Q	SSW	3.50	4.0E-08	3.9E-08	3.9E-08	1.7E-10
A	MAXIMUM CHI/Q	SW	1.50	1.5E-07	1.5E-07	1.5E-07	1.0E-09
A	MAXIMUM CHI/Q	WSW	1.50	1.9E-07	1.9E-07	1.9E-07	8.7E-10
A	MAXIMUM CHI/Q	W	1.50	2.3E-07	2.3E-07	2.2E-07	6.8E-10
A	MAXIMUM CHI/Q	WNW	1.50	7.0E-07	6.9E-07	6.9E-07	2.2E-09
A	MAXIMUM CHI/Q	NW	1.50	7.4E-07	7.4E-07	7.3E-07	3.9E-09
A	MAXIMUM CHI/Q	NNW	2.00	2.3E-07	2.3E-07	2.3E-07	1.4E-09
A	MAXIMUM CHI/Q	N	1.50	4.2E-08	4.2E-08	4.2E-08	9.5E-10
A	MAXIMUM CHI/Q	NNE	1.50	3.3E-08	3.3E-08	3.2E-08	4.8E-10
A	MAXIMUM CHI/Q	NE	1.50	2.4E-08	2.4E-08	2.4E-08	2.7E-10
A	MAXIMUM CHI/Q	ENE	1.50	1.8E-08	1.8E-08	1.8E-08	2.1E-10
A	MAXIMUM CHI/Q	E	1.50	2.2E-08	2.2E-08	2.1E-08	2.8E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.6E-08	3.6E-08	3.6E-08	5.8E-10
A	MAXIMUM CHI/Q	SE	1.50	4.4E-08	4.4E-08	4.3E-08	8.1E-10
A	MAXIMUM CHI/Q	SSE	1.50	5.9E-08	5.8E-08	5.8E-08	1.2E-09

Atmospheric Diffusion Estimates

Elevated Releases

January-December 2024

ERP ELEVATED STACK RELEASES - JAN-DEC 2024
NO DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.215E-09	2.110E-08	4.719E-08	6.214E-08	6.831E-08	6.050E-08	5.105E-08	4.292E-08	3.643E-08	4.332E-08	4.867E-08
SSW	3.494E-09	2.128E-08	3.554E-08	4.105E-08	4.284E-08	3.800E-08	3.238E-08	3.697E-08	4.042E-08	3.646E-08	3.331E-08
SW	2.141E-09	2.027E-08	5.714E-08	9.622E-08	1.469E-07	1.010E-07	7.383E-08	5.669E-08	4.522E-08	3.717E-08	3.128E-08
WSW	1.500E-09	9.475E-09	4.119E-08	9.938E-08	1.842E-07	1.199E-07	8.471E-08	6.354E-08	4.982E-08	4.040E-08	3.363E-08
W	6.933E-11	2.597E-08	1.340E-07	1.905E-07	2.041E-07	1.331E-07	9.415E-08	7.073E-08	5.553E-08	4.509E-08	3.758E-08
WNW	2.064E-10	1.690E-08	1.552E-07	3.227E-07	4.883E-07	3.088E-07	2.143E-07	1.674E-07	1.359E-07	1.087E-07	8.954E-08
NW	4.141E-11	4.181E-09	1.103E-07	3.175E-07	5.805E-07	3.497E-07	2.360E-07	1.761E-07	1.379E-07	1.097E-07	8.986E-08
NNW	4.471E-11	3.707E-09	4.341E-08	1.021E-07	1.720E-07	1.740E-07	1.635E-07	1.487E-07	1.363E-07	1.079E-07	8.818E-08
N	1.387E-09	9.904E-09	2.619E-08	3.828E-08	4.516E-08	4.240E-08	3.717E-08	3.153E-08	2.697E-08	2.334E-08	2.044E-08
NNE	8.001E-10	7.296E-09	2.150E-08	3.295E-08	4.024E-08	3.725E-08	3.231E-08	2.772E-08	2.391E-08	2.082E-08	1.834E-08
NE	5.322E-12	7.198E-10	8.830E-09	1.822E-08	2.569E-08	2.471E-08	2.172E-08	1.871E-08	1.613E-08	1.401E-08	1.229E-08
ENE	4.215E-16	4.377E-10	7.831E-09	1.628E-08	2.249E-08	2.130E-08	1.855E-08	1.590E-08	1.367E-08	1.187E-08	1.042E-08
E	5.322E-12	7.562E-10	9.211E-09	1.850E-08	2.493E-08	2.327E-08	2.003E-08	1.700E-08	1.449E-08	1.248E-08	1.088E-08
ESE	6.711E-16	6.914E-10	1.221E-08	2.504E-08	3.363E-08	3.113E-08	2.662E-08	2.247E-08	1.908E-08	1.638E-08	1.423E-08
SE	1.757E-15	1.423E-09	2.234E-08	4.297E-08	5.425E-08	4.891E-08	4.126E-08	3.456E-08	2.921E-08	2.500E-08	2.167E-08
SSE	1.504E-09	1.765E-08	4.800E-08	6.772E-08	7.598E-08	6.713E-08	5.640E-08	4.723E-08	3.994E-08	3.421E-08	2.970E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.373E-08	3.046E-08	1.993E-08	1.153E-08	8.191E-09	6.252E-09	4.883E-09	3.967E-09	3.348E-09	2.878E-09	2.499E-09
SSW	3.200E-08	2.851E-08	1.879E-08	1.099E-08	8.016E-09	6.091E-09	4.776E-09	3.892E-09	3.266E-09	2.796E-09	2.435E-09
SW	2.909E-08	2.299E-08	1.520E-08	8.924E-09	6.442E-09	4.966E-09	4.012E-09	3.267E-09	2.735E-09	2.340E-09	2.036E-09
WSW	2.997E-08	2.009E-08	1.440E-08	8.983E-09	6.069E-09	4.487E-09	3.512E-09	2.855E-09	2.388E-09	2.041E-09	1.775E-09
W	3.198E-08	1.794E-08	1.316E-08	8.818E-09	6.623E-09	4.931E-09	3.860E-09	3.141E-09	2.629E-09	2.249E-09	1.956E-09
WNW	7.644E-08	4.365E-08	3.002E-08	1.850E-08	1.277E-08	9.581E-09	7.607E-09	6.235E-09	5.230E-09	4.469E-09	3.885E-09
NW	7.637E-08	4.298E-08	2.952E-08	1.807E-08	1.222E-08	9.038E-09	7.205E-09	5.891E-09	4.927E-09	4.209E-09	3.658E-09
NNW	7.557E-08	4.358E-08	2.846E-08	1.648E-08	1.122E-08	8.338E-09	6.618E-09	5.444E-09	4.643E-09	3.997E-09	3.479E-09
N	1.815E-08	1.162E-08	9.842E-09	8.657E-09	8.175E-09	7.242E-09	5.761E-09	4.725E-09	3.969E-09	3.405E-09	2.970E-09
NNE	2.051E-08	3.208E-08	2.091E-08	1.208E-08	8.220E-09	6.110E-09	4.802E-09	3.921E-09	3.291E-09	2.822E-09	2.460E-09
NE	1.333E-08	2.035E-08	1.329E-08	7.706E-09	5.255E-09	3.913E-09	3.125E-09	2.579E-09	2.190E-09	1.878E-09	1.637E-09
ENE	1.111E-08	1.792E-08	1.198E-08	7.137E-09	4.946E-09	3.725E-09	3.132E-09	2.670E-09	2.247E-09	1.931E-09	1.687E-09
E	1.127E-08	1.585E-08	1.054E-08	6.239E-09	4.306E-09	3.234E-09	2.561E-09	2.104E-09	1.856E-09	1.649E-09	1.440E-09
ESE	1.440E-08	1.661E-08	1.107E-08	6.554E-09	4.519E-09	3.388E-09	2.679E-09	2.197E-09	1.851E-09	1.592E-09	1.391E-09
SE	1.901E-08	1.162E-08	8.960E-09	6.532E-09	4.866E-09	3.912E-09	3.299E-09	2.868E-09	2.415E-09	2.075E-09	1.813E-09
SSE	3.148E-08	3.962E-08	2.564E-08	1.468E-08	9.930E-09	7.349E-09	5.755E-09	4.685E-09	3.923E-09	3.356E-09	2.920E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.804E-08	6.347E-08	5.032E-08	4.091E-08	4.526E-08	2.873E-08	1.191E-08	6.222E-09	3.993E-09	2.877E-09
SSW	3.482E-08	4.029E-08	3.572E-08	3.792E-08	3.376E-08	2.496E-08	1.140E-08	6.078E-09	3.906E-09	2.802E-09
SW	6.632E-08	1.153E-07	7.423E-08	4.543E-08	3.222E-08	2.088E-08	9.216E-09	4.978E-09	3.277E-09	2.345E-09
WSW	6.000E-08	1.368E-07	8.563E-08	5.015E-08	3.428E-08	1.976E-08	8.892E-09	4.519E-09	2.865E-09	2.045E-09
W	1.351E-07	1.695E-07	9.515E-08	5.590E-08	3.773E-08	1.893E-08	8.807E-09	4.954E-09	3.151E-09	2.253E-09
WNW	1.989E-07	3.717E-07	2.208E-07	1.346E-07	9.037E-08	4.488E-08	1.851E-08	9.642E-09	6.244E-09	4.478E-09
NW	1.788E-07	4.195E-07	2.424E-07	1.381E-07	9.073E-08	4.442E-08	1.802E-08	9.153E-09	5.899E-09	4.218E-09
NNW	6.069E-08	1.574E-07	1.604E-07	1.290E-07	8.936E-08	4.397E-08	1.680E-08	8.417E-09	5.474E-09	3.996E-09
N	2.794E-08	4.240E-08	3.631E-08	2.689E-08	2.045E-08	1.228E-08	8.706E-09	6.898E-09	4.733E-09	3.411E-09
NNE	2.343E-08	3.729E-08	3.179E-08	2.382E-08	1.988E-08	2.454E-08	1.233E-08	6.149E-09	3.933E-09	2.827E-09
NE	1.120E-08	2.359E-08	2.131E-08	1.606E-08	1.319E-08	1.565E-08	7.857E-09	3.956E-09	2.587E-09	1.881E-09
ENE	9.945E-09	2.059E-08	1.823E-08	1.362E-08	1.111E-08	1.377E-08	7.240E-09	3.814E-09	2.641E-09	1.935E-09
E	1.146E-08	2.276E-08	1.968E-08	1.444E-08	1.150E-08	1.247E-08	6.336E-09	3.251E-09	2.140E-09	1.633E-09
ESE	1.535E-08	3.061E-08	2.616E-08	1.902E-08	1.493E-08	1.366E-08	6.653E-09	3.406E-09	2.203E-09	1.595E-09
SE	2.686E-08	4.937E-08	4.062E-08	2.913E-08	2.167E-08	1.208E-08	6.331E-09	3.921E-09	2.818E-09	2.079E-09
SSE	5.002E-08	7.021E-08	5.559E-08	3.984E-08	3.170E-08	3.160E-08	1.500E-08	7.400E-09	4.700E-09	3.362E-09

ERP ELEVATED STACK RELEASES - JAN-DEC 2024
2.260 DAY DECAY, UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.215E-09	2.109E-08	4.714E-08	6.206E-08	6.814E-08	6.029E-08	5.082E-08	4.269E-08	3.619E-08	4.298E-08	4.822E-08
SSW	3.493E-09	2.127E-08	3.550E-08	4.098E-08	4.272E-08	3.785E-08	3.222E-08	3.672E-08	4.009E-08	3.610E-08	3.293E-08
SW	2.141E-09	2.025E-08	5.705E-08	9.601E-08	1.464E-07	1.005E-07	7.334E-08	5.622E-08	4.479E-08	3.675E-08	3.088E-08
WSW	1.499E-09	9.466E-09	4.112E-08	9.914E-08	1.834E-07	1.192E-07	8.407E-08	6.294E-08	4.927E-08	3.988E-08	3.315E-08
W	6.929E-11	2.595E-08	1.337E-07	1.900E-07	2.032E-07	1.323E-07	9.343E-08	7.007E-08	5.492E-08	4.452E-08	3.704E-08
WNW	2.064E-10	1.688E-08	1.549E-07	3.220E-07	4.865E-07	3.071E-07	2.128E-07	1.660E-07	1.345E-07	1.074E-07	8.832E-08
NW	4.140E-11	4.179E-09	1.102E-07	3.170E-07	5.789E-07	3.484E-07	2.348E-07	1.750E-07	1.369E-07	1.087E-07	8.900E-08
NNW	4.470E-11	3.706E-09	4.337E-08	1.020E-07	1.716E-07	1.735E-07	1.629E-07	1.480E-07	1.355E-07	1.072E-07	8.749E-08
N	1.386E-09	9.900E-09	2.618E-08	3.824E-08	4.508E-08	4.229E-08	3.705E-08	3.140E-08	2.684E-08	2.321E-08	2.032E-08
NNE	7.999E-10	7.293E-09	2.148E-08	3.290E-08	4.014E-08	3.712E-08	3.216E-08	2.756E-08	2.375E-08	2.066E-08	1.818E-08
NE	5.321E-12	7.194E-10	8.818E-09	1.818E-08	2.560E-08	2.460E-08	2.159E-08	1.857E-08	1.599E-08	1.387E-08	1.216E-08
ENE	4.214E-16	4.374E-10	7.820E-09	1.625E-08	2.242E-08	2.121E-08	1.844E-08	1.579E-08	1.356E-08	1.176E-08	1.031E-08
E	5.321E-12	7.558E-10	9.199E-09	1.847E-08	2.485E-08	2.316E-08	1.991E-08	1.688E-08	1.437E-08	1.236E-08	1.076E-08
ESE	6.710E-16	6.909E-10	1.220E-08	2.499E-08	3.352E-08	3.100E-08	2.647E-08	2.232E-08	1.893E-08	1.623E-08	1.409E-08
SE	1.757E-15	1.422E-09	2.232E-08	4.292E-08	5.414E-08	4.876E-08	4.110E-08	3.440E-08	2.904E-08	2.483E-08	2.150E-08
SSE	1.504E-09	1.764E-08	4.796E-08	6.764E-08	7.584E-08	6.696E-08	5.621E-08	4.704E-08	3.975E-08	3.402E-08	2.951E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.328E-08	2.993E-08	1.945E-08	1.111E-08	7.783E-09	5.857E-09	4.515E-09	3.620E-09	3.014E-09	2.557E-09	2.192E-09
SSW	3.158E-08	2.788E-08	1.822E-08	1.050E-08	7.535E-09	5.635E-09	4.353E-09	3.496E-09	2.890E-09	2.439E-09	2.095E-09
SW	2.867E-08	2.244E-08	1.472E-08	8.500E-09	6.033E-09	4.573E-09	3.631E-09	2.910E-09	2.399E-09	2.021E-09	1.732E-09
WSW	2.948E-08	1.957E-08	1.390E-08	8.505E-09	5.644E-09	4.100E-09	3.153E-09	2.520E-09	2.073E-09	1.743E-09	1.490E-09
W	3.146E-08	1.749E-08	1.272E-08	8.376E-09	6.181E-09	4.525E-09	3.484E-09	2.790E-09	2.299E-09	1.936E-09	1.658E-09
WNW	7.527E-08	4.261E-08	2.905E-08	1.760E-08	1.194E-08	8.807E-09	6.875E-09	5.542E-09	4.572E-09	3.845E-09	3.290E-09
NW	7.555E-08	4.225E-08	2.884E-08	1.743E-08	1.165E-08	8.513E-09	6.703E-09	5.415E-09	4.476E-09	3.781E-09	3.249E-09
NNW	7.490E-08	4.297E-08	2.793E-08	1.601E-08	1.080E-08	7.951E-09	6.251E-09	5.094E-09	4.301E-09	3.667E-09	3.163E-09
N	1.802E-08	1.150E-08	9.692E-09	8.425E-09	7.851E-09	6.863E-09	5.399E-09	4.381E-09	3.642E-09	3.094E-09	2.672E-09
NNE	2.030E-08	3.153E-08	2.042E-08	1.167E-08	7.849E-09	5.770E-09	4.485E-09	3.622E-09	3.008E-09	2.552E-09	2.202E-09
NE	1.317E-08	1.996E-08	1.295E-08	7.414E-09	4.992E-09	3.671E-09	2.893E-09	2.358E-09	1.976E-09	1.674E-09	1.441E-09
ENE	1.097E-08	1.755E-08	1.165E-08	6.845E-09	4.678E-09	3.476E-09	2.881E-09	2.422E-09	2.012E-09	1.707E-09	1.472E-09
E	1.113E-08	1.554E-08	1.027E-08	5.996E-09	4.084E-09	3.027E-09	2.366E-09	1.920E-09	1.670E-09	1.465E-09	1.263E-09
ESE	1.423E-08	1.627E-08	1.077E-08	6.281E-09	4.268E-09	3.155E-09	2.460E-09	1.990E-09	1.653E-09	1.403E-09	1.210E-09
SE	1.885E-08	1.147E-08	8.793E-09	6.336E-09	4.665E-09	3.704E-09	3.084E-09	2.646E-09	2.202E-09	1.871E-09	1.616E-09
SSE	3.126E-08	3.907E-08	2.516E-08	1.426E-08	9.552E-09	7.000E-09	5.427E-09	4.375E-09	3.628E-09	3.074E-09	2.648E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.798E-08	6.330E-08	5.009E-08	4.064E-08	4.484E-08	2.824E-08	1.148E-08	5.834E-09	3.645E-09	2.557E-09
SSW	3.477E-08	4.017E-08	3.552E-08	3.761E-08	3.337E-08	2.441E-08	1.090E-08	5.629E-09	3.510E-09	2.445E-09
SW	6.618E-08	1.148E-07	7.374E-08	4.499E-08	3.180E-08	2.039E-08	8.786E-09	4.586E-09	2.921E-09	2.026E-09
WSW	5.987E-08	1.362E-07	8.499E-08	4.960E-08	3.378E-08	1.925E-08	8.431E-09	4.133E-09	2.531E-09	1.747E-09
W	1.348E-07	1.688E-07	9.445E-08	5.529E-08	3.719E-08	1.848E-08	8.366E-09	4.550E-09	2.801E-09	1.940E-09
WNW	1.985E-07	3.702E-07	2.192E-07	1.332E-07	8.915E-08	4.384E-08	1.763E-08	8.869E-09	5.553E-09	3.855E-09
NW	1.785E-07	4.182E-07	2.412E-07	1.371E-07	8.986E-08	4.369E-08	1.740E-08	8.625E-09	5.425E-09	3.790E-09
NNW	6.061E-08	1.570E-07	1.597E-07	1.283E-07	8.866E-08	4.338E-08	1.634E-08	8.030E-09	5.122E-09	3.668E-09
N	2.792E-08	4.232E-08	3.619E-08	2.676E-08	2.033E-08	1.215E-08	8.451E-09	6.541E-09	4.391E-09	3.100E-09
NNE	2.340E-08	3.719E-08	3.164E-08	2.366E-08	1.970E-08	2.410E-08	1.192E-08	5.810E-09	3.635E-09	2.557E-09
NE	1.118E-08	2.350E-08	2.118E-08	1.592E-08	1.304E-08	1.534E-08	7.568E-09	3.712E-09	2.366E-09	1.677E-09
ENE	9.927E-09	2.051E-08	1.812E-08	1.351E-08	1.098E-08	1.347E-08	6.950E-09	3.559E-09	2.397E-09	1.711E-09
E	1.144E-08	2.268E-08	1.957E-08	1.432E-08	1.137E-08	1.222E-08	6.096E-09	3.045E-09	1.952E-09	1.451E-09
ESE	1.533E-08	3.050E-08	2.602E-08	1.887E-08	1.478E-08	1.337E-08	6.383E-09	3.174E-09	1.996E-09	1.406E-09
SE	2.683E-08	4.925E-08	4.046E-08	2.897E-08	2.151E-08	1.192E-08	6.139E-09	3.712E-09	2.602E-09	1.875E-09
SSE	4.997E-08	7.007E-08	5.541E-08	3.965E-08	3.150E-08	3.115E-08	1.459E-08	7.052E-09	4.391E-09	3.080E-09

ERP ELEVATED STACK RELEASES - JAN-DEC 2024
8.000 DAY DECAY, DEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	.250	.500	.750	1.000	1.500	2.000	2.500	3.000	3.500	4.000	4.500
S	2.215E-09	2.092E-08	4.660E-08	6.155E-08	6.735E-08	5.925E-08	4.966E-08	4.150E-08	3.503E-08	4.166E-08	4.686E-08
SSW	3.494E-09	2.109E-08	3.498E-08	4.051E-08	4.216E-08	3.718E-08	3.149E-08	3.588E-08	3.922E-08	3.528E-08	3.218E-08
SW	2.141E-09	2.008E-08	5.636E-08	9.536E-08	1.449E-07	9.891E-08	7.185E-08	5.489E-08	4.360E-08	3.570E-08	2.995E-08
WSW	1.500E-09	9.392E-09	4.088E-08	9.895E-08	1.820E-07	1.176E-07	8.257E-08	6.162E-08	4.811E-08	3.887E-08	3.226E-08
W	6.932E-11	2.590E-08	1.332E-07	1.885E-07	2.008E-07	1.302E-07	9.177E-08	6.870E-08	5.379E-08	4.356E-08	3.622E-08
WNW	2.064E-10	1.681E-08	1.547E-07	3.203E-07	4.820E-07	3.029E-07	2.092E-07	1.630E-07	1.320E-07	1.051E-07	8.616E-08
NW	4.141E-11	4.159E-09	1.101E-07	3.160E-07	5.732E-07	3.425E-07	2.297E-07	1.707E-07	1.333E-07	1.054E-07	8.594E-08
NNW	4.471E-11	3.686E-09	4.331E-08	1.020E-07	1.705E-07	1.714E-07	1.606E-07	1.458E-07	1.335E-07	1.053E-07	8.558E-08
N	1.386E-09	9.823E-09	2.596E-08	3.804E-08	4.465E-08	4.165E-08	3.631E-08	3.064E-08	2.609E-08	2.249E-08	1.963E-08
NNE	8.000E-10	7.237E-09	2.131E-08	3.276E-08	3.978E-08	3.658E-08	3.152E-08	2.690E-08	2.309E-08	2.002E-08	1.757E-08
NE	5.322E-12	7.174E-10	8.819E-09	1.820E-08	2.544E-08	2.428E-08	2.119E-08	1.814E-08	1.555E-08	1.344E-08	1.174E-08
ENE	4.215E-16	4.376E-10	7.828E-09	1.628E-08	2.228E-08	2.092E-08	1.808E-08	1.539E-08	1.316E-08	1.136E-08	9.928E-09
E	5.322E-12	7.538E-10	9.199E-09	1.848E-08	2.469E-08	2.284E-08	1.950E-08	1.643E-08	1.392E-08	1.192E-08	1.033E-08
ESE	6.711E-16	6.913E-10	1.221E-08	2.503E-08	3.330E-08	3.055E-08	2.591E-08	2.171E-08	1.830E-08	1.562E-08	1.349E-08
SE	1.757E-15	1.423E-09	2.233E-08	4.296E-08	5.375E-08	4.802E-08	4.019E-08	3.342E-08	2.806E-08	2.387E-08	2.058E-08
SSE	1.504E-09	1.750E-08	4.752E-08	6.723E-08	7.503E-08	6.582E-08	5.491E-08	4.570E-08	3.843E-08	3.275E-08	2.830E-08

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED) DISTANCE IN MILES FROM THE SITE

SECTOR	5.000	7.500	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
S	4.201E-08	2.876E-08	1.819E-08	9.832E-09	6.469E-09	4.632E-09	3.438E-09	2.668E-09	2.163E-09	1.800E-09	1.517E-09
SSW	3.091E-08	2.719E-08	1.730E-08	9.407E-09	6.342E-09	4.606E-09	3.475E-09	2.735E-09	2.221E-09	1.846E-09	1.562E-09
SW	2.784E-08	2.175E-08	1.390E-08	7.599E-09	5.059E-09	3.643E-09	2.819E-09	2.213E-09	1.791E-09	1.484E-09	1.253E-09
WSW	2.870E-08	1.885E-08	1.308E-08	7.702E-09	4.960E-09	3.519E-09	2.653E-09	2.085E-09	1.690E-09	1.403E-09	1.186E-09
W	3.075E-08	1.709E-08	1.240E-08	7.808E-09	5.476E-09	3.913E-09	2.952E-09	2.323E-09	1.886E-09	1.567E-09	1.327E-09
WNW	7.317E-08	4.048E-08	2.689E-08	1.539E-08	9.748E-09	6.824E-09	5.162E-09	4.072E-09	3.297E-09	2.726E-09	2.297E-09
NW	7.264E-08	3.963E-08	2.632E-08	1.506E-08	9.555E-09	6.697E-09	5.119E-09	4.040E-09	3.272E-09	2.713E-09	2.292E-09
NNW	7.295E-08	4.076E-08	2.569E-08	1.382E-08	8.644E-09	5.983E-09	4.470E-09	3.510E-09	2.885E-09	2.405E-09	2.032E-09
N	1.737E-08	1.100E-08	9.300E-09	8.209E-09	7.598E-09	6.406E-09	4.936E-09	3.934E-09	3.219E-09	2.695E-09	2.298E-09
NNE	1.967E-08	3.085E-08	1.941E-08	1.052E-08	6.730E-09	4.747E-09	3.563E-09	2.792E-09	2.257E-09	1.868E-09	1.576E-09
NE	1.273E-08	1.949E-08	1.230E-08	6.686E-09	4.275E-09	3.015E-09	2.303E-09	1.836E-09	1.510E-09	1.258E-09	1.066E-09
ENE	1.058E-08	1.722E-08	1.113E-08	6.172E-09	3.941E-09	2.768E-09	2.187E-09	1.774E-09	1.438E-09	1.193E-09	1.009E-09
E	1.068E-08	1.513E-08	9.734E-09	5.377E-09	3.430E-09	2.408E-09	1.797E-09	1.399E-09	1.173E-09	9.965E-10	8.384E-10
ESE	1.362E-08	1.576E-08	1.018E-08	5.645E-09	3.618E-09	2.548E-09	1.905E-09	1.486E-09	1.195E-09	9.839E-10	8.254E-10
SE	1.797E-08	1.078E-08	8.234E-09	5.957E-09	4.405E-09	3.525E-09	2.962E-09	2.562E-09	2.112E-09	1.781E-09	1.527E-09
SSE	2.999E-08	3.775E-08	2.359E-08	1.270E-08	8.093E-09	5.694E-09	4.265E-09	3.335E-09	2.692E-09	2.225E-09	1.875E-09

CHI/Q (SEC/METER CUBED) FOR EACH SEGMENT

SEGMENT BOUNDARIES IN MILES FROM THE SITE

DIRECTION FROM SITE	.5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	4.754E-08	6.246E-08	4.895E-08	3.940E-08	4.352E-08	2.701E-08	1.019E-08	4.644E-09	2.696E-09	1.803E-09
SSW	3.435E-08	3.958E-08	3.476E-08	3.677E-08	3.263E-08	2.362E-08	9.798E-09	4.617E-09	2.751E-09	1.852E-09
SW	6.563E-08	1.135E-07	7.228E-08	4.382E-08	3.087E-08	1.961E-08	7.870E-09	3.691E-09	2.225E-09	1.490E-09
WSW	5.969E-08	1.349E-07	8.353E-08	4.845E-08	3.290E-08	1.848E-08	7.678E-09	3.557E-09	2.097E-09	1.408E-09
W	1.339E-07	1.667E-07	9.280E-08	5.415E-08	3.637E-08	1.804E-08	7.793E-09	3.945E-09	2.336E-09	1.572E-09
WNW	1.977E-07	3.665E-07	2.157E-07	1.306E-07	8.697E-08	4.170E-08	1.544E-08	6.939E-09	4.088E-09	2.737E-09
NW	1.781E-07	4.135E-07	2.362E-07	1.334E-07	8.679E-08	4.105E-08	1.511E-08	6.828E-09	4.056E-09	2.723E-09
NNW	6.059E-08	1.557E-07	1.576E-07	1.263E-07	8.674E-08	4.122E-08	1.416E-08	6.088E-09	3.546E-09	2.409E-09
N	2.774E-08	4.185E-08	3.547E-08	2.602E-08	1.964E-08	1.166E-08	8.180E-09	6.136E-09	3.948E-09	2.703E-09
NNE	2.327E-08	3.680E-08	3.102E-08	2.301E-08	1.907E-08	2.328E-08	1.081E-08	4.802E-09	2.808E-09	1.875E-09
NE	1.119E-08	2.332E-08	2.080E-08	1.549E-08	1.261E-08	1.479E-08	6.861E-09	3.066E-09	1.845E-09	1.262E-09
ENE	9.940E-09	2.034E-08	1.777E-08	1.311E-08	1.060E-08	1.304E-08	6.281E-09	2.848E-09	1.764E-09	1.197E-09
E	1.145E-08	2.249E-08	1.916E-08	1.387E-08	1.093E-08	1.174E-08	5.480E-09	2.436E-09	1.427E-09	9.903E-10
ESE	1.535E-08	3.024E-08	2.547E-08	1.825E-08	1.417E-08	1.280E-08	5.751E-09	2.576E-09	1.495E-09	9.877E-10
SE	2.685E-08	4.881E-08	3.957E-08	2.800E-08	2.059E-08	1.125E-08	5.773E-09	3.534E-09	2.505E-09	1.785E-09
SSE	4.961E-08	6.920E-08	5.414E-08	3.834E-08	3.024E-08	2.974E-08	1.307E-08	5.762E-09	3.356E-09	2.234E-09

ERP ELEVATED STACK RELEASES - JAN-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES .25	.50	.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.563E-09	2.511E-09	2.764E-09	2.270E-09	1.257E-09	8.103E-10	5.618E-10	4.088E-10	3.082E-10	2.525E-10	2.279E-10
SSW	1.860E-09	1.677E-09	1.668E-09	1.292E-09	6.881E-10	4.374E-10	3.012E-10	2.184E-10	2.026E-10	1.532E-10	1.200E-10
SW	1.848E-09	1.604E-09	1.512E-09	1.130E-09	9.909E-10	5.390E-10	3.347E-10	2.276E-10	1.648E-10	1.247E-10	9.772E-11
WSW	5.600E-10	6.505E-10	8.415E-10	1.362E-09	8.198E-10	4.445E-10	2.746E-10	1.861E-10	1.343E-10	1.015E-10	7.942E-11
W	1.057E-10	2.201E-09	2.121E-09	1.449E-09	6.872E-10	3.723E-10	2.299E-10	1.559E-10	1.127E-10	8.538E-11	6.706E-11
WNW	7.387E-10	1.046E-09	3.976E-09	3.440E-09	2.045E-09	1.047E-09	6.290E-10	4.251E-10	3.348E-10	2.639E-10	2.204E-10
NW	5.418E-10	1.219E-09	2.188E-09	5.519E-09	3.656E-09	1.820E-09	1.075E-09	7.134E-10	5.165E-10	4.002E-10	3.281E-10
NNW	5.699E-10	1.049E-09	1.757E-09	1.711E-09	2.018E-09	1.099E-09	6.853E-10	5.810E-10	4.328E-10	3.470E-10	2.952E-10
N	1.513E-09	1.630E-09	1.975E-09	1.703E-09	9.706E-10	6.320E-10	4.403E-10	3.212E-10	2.424E-10	1.879E-10	1.488E-10
NNE	1.231E-09	1.290E-09	1.523E-09	1.297E-09	7.338E-10	4.766E-10	3.317E-10	2.418E-10	1.825E-10	1.414E-10	1.120E-10
NE	1.070E-10	3.036E-10	5.785E-10	5.836E-10	3.603E-10	2.407E-10	1.698E-10	1.246E-10	9.434E-11	7.321E-11	5.797E-11
ENE	4.031E-11	2.419E-10	5.150E-10	5.334E-10	3.332E-10	2.234E-10	1.578E-10	1.159E-10	8.780E-11	6.814E-11	5.397E-11
E	1.097E-10	3.195E-10	6.123E-10	6.186E-10	3.822E-10	2.554E-10	1.801E-10	1.322E-10	1.001E-10	7.768E-11	6.151E-11
ESE	6.311E-11	3.787E-10	8.063E-10	8.351E-10	5.216E-10	3.498E-10	2.471E-10	1.815E-10	1.375E-10	1.067E-10	8.449E-11
SE	1.295E-10	7.771E-10	1.655E-09	1.714E-09	1.071E-09	7.178E-10	5.070E-10	3.725E-10	2.821E-10	2.190E-10	1.734E-10
SSE	2.609E-09	2.782E-09	3.342E-09	2.869E-09	1.631E-09	1.061E-09	7.390E-10	5.390E-10	4.068E-10	3.153E-10	2.496E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	1.833E-10	1.374E-10	9.529E-11	5.596E-11	3.553E-11	2.482E-11	1.771E-11	1.323E-11	1.041E-11	8.274E-12	6.754E-12
SSW	9.704E-11	8.850E-11	6.402E-11	3.893E-11	2.313E-11	1.586E-11	1.137E-11	8.538E-12	6.681E-12	5.337E-12	4.356E-12
SW	7.984E-11	7.098E-11	5.111E-11	3.098E-11	1.986E-11	1.293E-11	9.141E-12	6.864E-12	5.337E-12	4.263E-12	3.480E-12
WSW	6.443E-11	5.596E-11	4.014E-11	2.446E-11	1.480E-11	9.923E-12	7.269E-12	5.458E-12	4.244E-12	3.390E-12	2.767E-12
W	5.420E-11	2.491E-11	4.185E-11	2.848E-11	1.628E-11	1.104E-11	7.913E-12	5.942E-12	4.620E-12	3.691E-12	3.012E-12
WNW	1.969E-10	1.263E-10	9.280E-11	5.697E-11	3.623E-11	2.395E-11	1.616E-11	1.213E-11	9.513E-12	7.599E-12	6.203E-12
NW	2.828E-10	1.699E-10	1.210E-10	7.555E-11	4.614E-11	3.087E-11	2.199E-11	1.651E-11	1.287E-11	1.028E-11	8.394E-12
NNW	2.638E-10	1.763E-10	1.317E-10	8.187E-11	5.244E-11	3.471E-11	2.329E-11	1.687E-11	1.312E-11	1.048E-11	8.556E-12
N	1.199E-10	5.691E-11	3.477E-11	1.837E-11	5.292E-11	3.125E-11	2.238E-11	1.680E-11	1.306E-11	1.043E-11	8.518E-12
NNE	9.026E-11	1.581E-10	9.830E-11	5.124E-11	3.131E-11	2.094E-11	1.495E-11	1.118E-11	8.658E-12	6.895E-12	5.613E-12
NE	4.670E-11	8.232E-11	5.159E-11	2.715E-11	1.664E-11	1.112E-11	7.974E-12	5.934E-12	4.615E-12	3.741E-12	3.053E-12
ENE	4.346E-11	5.638E-11	4.176E-11	2.579E-11	1.649E-11	1.091E-11	7.649E-12	5.189E-12	4.034E-12	3.223E-12	2.632E-12
E	4.955E-11	5.561E-11	4.017E-11	2.434E-11	1.550E-11	1.027E-11	7.219E-12	5.299E-12	4.046E-12	3.271E-12	2.663E-12
ESE	6.805E-11	7.077E-11	5.034E-11	3.012E-11	1.912E-11	1.268E-11	8.920E-12	6.558E-12	5.013E-12	3.950E-12	3.188E-12
SE	1.397E-10	6.612E-11	4.029E-11	2.117E-11	1.287E-11	8.835E-12	6.593E-12	1.221E-11	9.396E-12	7.455E-12	6.067E-12
SSE	2.012E-10	2.607E-10	1.607E-10	8.296E-11	5.054E-11	3.383E-11	2.418E-11	1.810E-11	1.404E-11	1.120E-11	9.123E-12

ERP ELEVATED STACK RELEASES - JAN-DEC 2024

********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	SEGMENT BOUNDARIES IN MILES .5-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
S	2.488E-09	1.284E-09	5.668E-10	3.157E-10	2.187E-10	1.289E-10	5.562E-11	2.483E-11	1.344E-11	8.343E-12
SSW	1.503E-09	7.109E-10	3.044E-10	1.883E-10	1.213E-10	7.952E-11	3.748E-11	1.600E-11	8.639E-12	5.372E-12
SW	1.363E-09	8.210E-10	3.463E-10	1.675E-10	9.910E-11	6.412E-11	3.051E-11	1.326E-11	6.933E-12	4.291E-12
WSW	1.031E-09	7.736E-10	2.845E-10	1.366E-10	8.041E-11	5.081E-11	2.365E-11	1.016E-11	5.513E-12	3.412E-12
W	1.840E-09	7.164E-10	2.383E-10	1.146E-10	6.773E-11	3.895E-11	2.603E-11	1.119E-11	6.002E-12	3.715E-12
WNW	3.087E-09	1.912E-09	6.590E-10	3.336E-10	2.246E-10	1.271E-10	5.571E-11	2.411E-11	1.228E-11	7.649E-12
NW	3.453E-09	3.254E-09	1.129E-09	5.285E-10	3.327E-10	1.733E-10	7.259E-11	3.139E-11	1.669E-11	1.035E-11
NNW	1.579E-09	1.541E-09	7.539E-10	4.424E-10	2.989E-10	1.759E-10	7.987E-11	3.487E-11	1.728E-11	1.055E-11
N	1.778E-09	9.829E-10	4.438E-10	2.442E-10	1.497E-10	6.107E-11	3.737E-11	3.348E-11	1.697E-11	1.050E-11
NNE	1.371E-09	7.447E-10	3.344E-10	1.838E-10	1.126E-10	1.164E-10	5.284E-11	2.131E-11	1.129E-11	6.943E-12
NE	5.197E-10	3.568E-10	1.706E-10	9.494E-11	5.831E-11	6.074E-11	2.791E-11	1.133E-11	6.014E-12	3.745E-12
ENE	4.625E-10	3.289E-10	1.585E-10	8.835E-11	5.428E-11	4.701E-11	2.520E-11	1.109E-11	5.452E-12	3.244E-12
E	5.500E-10	3.784E-10	1.810E-10	1.007E-10	6.187E-11	4.740E-11	2.393E-11	1.045E-11	5.370E-12	3.276E-12
ESE	7.241E-10	5.149E-10	2.482E-10	1.383E-10	8.497E-11	6.109E-11	2.973E-11	1.289E-11	6.644E-12	3.983E-12
SE	1.486E-09	1.057E-09	5.094E-10	2.839E-10	1.744E-10	7.098E-11	2.173E-11	9.015E-12	9.532E-12	7.516E-12
SSE	3.008E-09	1.653E-09	7.449E-10	4.097E-10	2.512E-10	2.030E-10	8.583E-11	3.443E-11	1.829E-11	1.127E-11

ERP ELEVATED STACK RELEASES - JAN-DEC 2024
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

SPECIFIC POINTS OF INTEREST

RELEASE ID	TYPE OF LOCATION	DIRECTION FROM SITE	DIST. (MI)	X/Q (SEC/M3) NO DECAY UNDEPLETED	X/Q (SEC/M3) 2.26 DAY DECAY UNDEPLETED	X/Q (SEC/M3) 8.0 DAY DECAY DEPLETED	D/Q (PER SQ.METER)
A	Site Boundary	S	.80	5.1E-08	5.1E-08	5.0E-08	2.7E-09
A	Site Boundary	SSW	.82	3.8E-08	3.7E-08	3.7E-08	1.6E-09
A	Site Boundary	SW	.97	9.2E-08	9.2E-08	9.2E-08	1.2E-09
A	Site Boundary	WSW	.93	8.1E-08	8.1E-08	8.1E-08	1.2E-09
A	Site Boundary	W	.91	1.8E-07	1.8E-07	1.7E-07	1.6E-09
A	Site Boundary	WNW	.94	2.8E-07	2.8E-07	2.8E-07	3.8E-09
A	Site Boundary	NW	.81	1.6E-07	1.6E-07	1.6E-07	2.3E-09
A	Site Boundary	NNW	.69	2.8E-08	2.8E-08	2.7E-08	1.6E-09
A	Site Boundary	N	.67	2.0E-08	2.0E-08	2.0E-08	1.9E-09
A	Site Boundary	NNE	.60	1.1E-08	1.1E-08	1.1E-08	1.4E-09
A	Site Boundary	NE	.62	3.4E-09	3.4E-09	3.4E-09	4.4E-10
A	Site Boundary	ENE	.59	1.8E-09	1.8E-09	1.8E-09	3.3E-10
A	Site Boundary	E	.53	1.1E-09	1.1E-09	1.1E-09	3.5E-10
A	Site Boundary	ESE	.54	1.4E-09	1.4E-09	1.4E-09	4.4E-10
A	Site Boundary	SE	.65	1.1E-08	1.1E-08	1.1E-08	1.3E-09
A	Site Boundary	SSE	.81	5.4E-08	5.4E-08	5.4E-08	3.3E-09
A	Nearest Res	SW	1.30	1.3E-07	1.3E-07	1.3E-07	1.3E-09
A	Nearest Res	WSW	1.80	1.4E-07	1.4E-07	1.4E-07	5.6E-10
A	Nearest Res	WNW	2.40	2.3E-07	2.3E-07	2.2E-07	6.9E-10
A	Nearest Res	NW	.90	2.3E-07	2.3E-07	2.3E-07	5.9E-09
A	Nearest Res	NNW	1.90	1.8E-07	1.7E-07	1.7E-07	1.2E-09
A	Nearest Res	NE	1.60	2.6E-08	2.6E-08	2.6E-08	3.3E-10
A	Nearest Res	ENE	1.70	2.2E-08	2.2E-08	2.2E-08	2.8E-10
A	Nearest Res	E	2.00	2.3E-08	2.3E-08	2.3E-08	2.6E-10
A	Nearest Res	SE	2.90	3.6E-08	3.6E-08	3.5E-08	4.0E-10
A	Nearest Cow	NNW	3.50	1.4E-07	1.4E-07	1.3E-07	4.3E-10
A	Nearest Garde	SW	2.20	8.9E-08	8.8E-08	8.6E-08	4.4E-10
A	Nearest Garde	WSW	2.40	9.0E-08	9.0E-08	8.8E-08	3.0E-10
A	Nearest Garde	WNW	2.60	2.0E-07	2.0E-07	2.0E-07	5.8E-10
A	Nearest Garde	NNW	2.70	1.6E-07	1.6E-07	1.5E-07	6.7E-10
A	Nearest Garde	ENE	1.70	2.2E-08	2.2E-08	2.2E-08	2.8E-10
A	Nearest Garde	E	2.00	2.3E-08	2.3E-08	2.3E-08	2.6E-10
A	Nearest Garde	ESE	2.20	2.9E-08	2.9E-08	2.9E-08	3.0E-10
A	Nearest Garde	SE	2.90	3.6E-08	3.6E-08	3.5E-08	4.0E-10
A	MAXIMUM CHI/Q	S	1.50	6.8E-08	6.8E-08	6.7E-08	1.3E-09
A	MAXIMUM CHI/Q	SSW	1.50	4.3E-08	4.3E-08	4.2E-08	6.9E-10
A	MAXIMUM CHI/Q	SW	1.50	1.5E-07	1.5E-07	1.4E-07	9.9E-10
A	MAXIMUM CHI/Q	WSW	1.50	1.8E-07	1.8E-07	1.8E-07	8.2E-10
A	MAXIMUM CHI/Q	W	1.50	2.0E-07	2.0E-07	2.0E-07	6.9E-10
A	MAXIMUM CHI/Q	WNW	1.50	4.9E-07	4.9E-07	4.8E-07	2.0E-09
A	MAXIMUM CHI/Q	NW	1.50	5.8E-07	5.8E-07	5.7E-07	3.7E-09
A	MAXIMUM CHI/Q	NNW	2.00	1.7E-07	1.7E-07	1.7E-07	1.1E-09
A	MAXIMUM CHI/Q	N	1.50	4.5E-08	4.5E-08	4.5E-08	9.7E-10
A	MAXIMUM CHI/Q	NNE	1.50	4.0E-08	4.0E-08	4.0E-08	7.3E-10
A	MAXIMUM CHI/Q	NE	1.50	2.6E-08	2.6E-08	2.5E-08	3.6E-10
A	MAXIMUM CHI/Q	ENE	1.50	2.2E-08	2.2E-08	2.2E-08	3.3E-10
A	MAXIMUM CHI/Q	E	1.50	2.5E-08	2.5E-08	2.5E-08	3.8E-10
A	MAXIMUM CHI/Q	ESE	1.50	3.4E-08	3.4E-08	3.3E-08	5.2E-10
A	MAXIMUM CHI/Q	SE	1.50	5.4E-08	5.4E-08	5.4E-08	1.1E-09
A	MAXIMUM CHI/Q	SSE	1.50	7.6E-08	7.6E-08	7.5E-08	1.6E-09

ATMOSPHERIC DIFFUSION MODEL

Onsite meteorological data from January 1 through December 31, 2024 were used to determine long-term (routine) diffusion estimates for evaluating normal atmospheric releases from Cooper Nuclear Station. Atmospheric dispersion parameters (X/Q values) were determined for the site boundary distances from each release point, the standard population distances, and special locations for nearest residence, cow, and garden using the methodology presented in U.S. NRC Regulatory Guide 1.111 (Rev.1) and the computer code XOQDOQ (NUREG/CR2919). Two release modes were analyzed. Releases from the 99-meter free-standing stack were considered 100 percent elevated, while releases from the reactor building, turbine-generator building, radwaste building and augmented radwaste building vents were considered as a 100 percent ground level release (one combined source term was assumed to apply for these vents).

Winds were obtained from measurements at the 10-meter level (for ground-level releases) and the 100-meter level (for elevated releases), and the stability class was based on the vertical temperature gradient between 60 meters and 10 meters (for ground releases) and 100 meters and 10 meters (for elevated releases). In accordance with Regulatory Guide 1.111, calm periods were distributed directionally in proportion to the directional distribution within a stability class of the lowest wind speed group. For the calculations, calm periods were assigned a speed of one-half the threshold wind speed of the wind vane or anemometer, whichever is higher.

The Gaussian straight-line trajectory model, which assumes that the air flow transports and diffuses effluents along a straight line through the entire region of interest in the airflow direction at the release point, was modified to account for various modes of effluent releases. In the case of an elevated release, plume rise due to momentum effects was incorporated into the calculation. For ground-level releases, building wake effects were considered.

The mathematical equation used in the Gaussian straight-line trajectory model is:

$$(X/Q)_I = 2.032 \sum_{jk} \frac{f_{ijk}}{x u_{jk} \Sigma_{zk}} \exp\left[\frac{-1/2\, h_e^2}{\sigma_{zk}^2}\right] \qquad \text{(Eq. 1)}$$

and

$$\Sigma_{zk} = \left(\sigma_{zk}^2 + 0.5 D_z^2/\pi\right)^{1/2} \le \sqrt{3}\sigma_{zk} \qquad \text{(Eq. 2)}$$

where

I	=	index identifying direction sector;
j	=	index identifying wind speed class;
k	=	index identifying atmospheric stability class;
$\frac{X}{Q}$	=	average effluent concentration normalized by source strength at the specific downwind distance;
f	=	joint frequency distribution of wind direction, wind speed class, and atmospheric stability class;
x	=	distance from the release point to a receptor;
u	=	wind speed;
Σ_z	=	vertical plume spread with volumetric building wake correction for a release within the building wake cavity;
σ_z	=	vertical plume spread without volumetric building wake correction;
D_z	=	maximum adjacent building height either upwind or downwind of the release point (44.5 meters for ground-level releases); and
h_e	=	effective plume height;

The term Σ_{zk} given in Equations 1 and 2 is used for ground-level release ($h = 0$) within the building wake cavity. For an elevated release, no volumetric building wake correction needs to be considered, i.e., $\Sigma_{zk} = \sigma_{zk}$. For all building wake determinations, the reactor building was considered to be the dominating structure in the modification of air flows within the building complex.

Since the model does not directly consider the effects of spatial and temporal variation in airflow due to terrain, appropriate adjustments were made to the calculated X/Q values, using the default values of Regulatory Guide 1.111, Rev. 0.

APPENDIX C

DOSE CALCULATIONS

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LIQUID EFFLUENT DOSE CALCULATIONS

Doses to the maximum individual and 0 to 50 - mile population resulting from the release of radioactive material in liquid effluents from Cooper Nuclear Station were calculated using the latest version of the LADTAP II computer program included as part of NRCDose 2.3.20 (ORNL 2015). The LADTAP II program implements the radiological dose models of Regulatory Guide 1.109 for determining the radiation exposure to man from three principal exposure pathways in the aquatic environment -- potable water, aquatic foods, and recreational water use. Doses to both the maximum individual and 0 to 50 mile population are calculated as a function of age group and pathway for significant body organs, and are presented in Tables 1 - 6.

Assumptions and data sources used for input to the LADTAP II code are described in a separate section of this appendix (see page C66).

No Liquid Releases in 2024

TABLE 1. Doses to Maximum Individual at the Site Boundary, Resulting From Exposure to Radioactivity Discharged in Liquid Effluents, January-June 2024 Cooper Nuclear Station

Period and Pathway	Dose to Individual, mrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
1st Quarter								
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
2nd Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
Totals for 1st & 2nd Quarters	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

Calculated doses are based on the following periods of exposures: Fishing: April - November; Drinking water and shoreline: January - December

TABLE 2. Doses to Maximum Individual at the Site Boundary, Resulting From Exposure to Radioactivity Discharged in Liquid Effluents, July-December 2024, Cooper Nuclear Station

Period and Pathway	Dose to Individual, mrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
3rd Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
4th Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
Totals for 3rd & 4th Quarters	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

Calculated doses are based on the following periods of exposures: Fishing: April - November; Drinking water and shoreline: January - December

TABLE 3. Summary of Doses to Maximum Individual at the Site Boundary, Resulting from Exposure to Radioactivity Discharged in Liquid Effluents, January-December 2024, Cooper Nuclear Station

Period and Pathway	Dose to Individual, mrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
1st Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
2nd Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+001	0.00 E+00	0.00 E+00
3rd Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
4th Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals for 2024	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

TABLE 4. Doses to Population Within a 50-Mile Radius, Resulting From Exposure to Radioactivity Discharged in Liquid Effluents, January-June 2024, Cooper Nuclear Station

Period and Pathway	Dose to Population, manrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
1st Quarter								
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
2nd Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Swimming	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Boating	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
Totals for 1st & 2nd Quarters	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

Calculated doses are based on the following periods of exposures: Fishing and Boating: April - November; Drinking water and shoreline: January - December; Swimming: June - September. Exposure from drinking water is calculated for the city of St. Joseph, Missouri, nearest public water intake from the Missouri River, 84 miles downstream.

TABLE 5. Doses to Population Within a 50-Mile Radius, Resulting From Exposure to Radioactivity Discharged in Liquid Effluents, July-December 2024, Cooper Nuclear Station

Period and Pathway	Dose to Population, manrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
3rd Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Swimming	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Boating	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
4th Quarter								
Eating Fish		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Drinking Water		0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Shoreline	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Boating	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**
Totals for 3rd & 4th Quarters	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

Calculated doses are based on the following periods of exposures: Fishing and Boating: April - November; Drinking water and shoreline: January - December; Swimming: June - September. Exposure from drinking water is calculated for the city of St. Joseph, Missouri, nearest public water intake from the Missouri River, 84 miles downstream.

TABLE 6. **Summary of Doses to Population Within a 50-Mile Radius, Resulting from Exposure to Radioactivity Discharged in Liquid Effluents, January-December 2024 Cooper Nuclear Station**

Period and Pathway	Dose to Population, manrem							
	Skin	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-LLI
1st Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
2nd Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
3rd Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
4th Quarter	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Totals for 2024	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**	**0.00 E+00**

GASEOUS EFFLUENT DOSE CALCULATIONS (EXCEPT CARBON-14)

Doses to the maximum individual and 0 to 50 mile population resulting from the release of radioactive material in gaseous effluents from the Cooper Nuclear Station were calculated using the latest version of the GASPAR computer code included as part of NRCDose 2.3.20 (ORNL 2015). Four sites were selected for individual dose calculations: the site boundary, the nearest residence, the nearest garden and the nearest cow. GASPAR implements the radiological dose models of Regulatory Guide 1.109 for determining the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground, inhalation, and ingestion. Doses to the maximum individual and the population are calculated as a function of age group and pathway for significant body organs.

Tables 1 through 7 present maximum individual doses. Population doses are given in Tables 8 through 14.

Assumptions and data used for input to the GASPAR code are described in a separate section of this appendix (see page C66).

TABLE 1. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 1.22E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.38E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	2.26E-06	3.60E-06
GROUND	4.68E-04	4.68E-04	4.68E-04	4.68E-04	4.68E-04	4.68E-04	4.68E-04	5.51E-04
VEGET								
ADULT	8.94E-06	6.42E-05	1.52E-05	6.33E-06	4.66E-06	8.32E-04	9.12E-21	0.00E+00
TEEN	1.38E-05	6.86E-05	2.51E-05	9.57E-06	6.93E-06	1.11E-03	1.03E-20	0.00E+00
CHILD	2.76E-05	4.52E-05	6.10E-05	1.52E-05	1.10E-05	2.13E-03	1.23E-20	0.00E+00
MEAT								
ADULT	1.93E-06	1.61E-05	1.77E-07	9.31E-07	1.17E-07	2.19E-05	0.00E+00	0.00E+00
TEEN	1.53E-06	8.69E-06	1.49E-07	7.25E-07	9.55E-08	1.59E-05	0.00E+00	0.00E+00
CHILD	2.37E-06	4.39E-06	2.80E-07	8.69E-07	1.21E-07	2.39E-05	0.00E+00	0.00E+00
COW MILK								
ADULT	1.57E-06	4.37E-06	2.07E-06	2.31E-06	3.64E-06	6.44E-04	1.37E-26	0.00E+00
TEEN	2.66E-06	5.30E-06	3.78E-06	4.09E-06	6.50E-06	1.02E-03	3.04E-26	0.00E+00
CHILD	5.10E-06	3.71E-06	9.23E-06	7.08E-06	1.08E-05	2.05E-03	4.83E-26	0.00E+00
INFANT	9.30E-06	3.38E-06	1.88E-05	1.71E-05	1.88E-05	4.97E-03	1.32E-25	0.00E+00
GOATMILK								
ADULT	1.45E-06	1.52E-06	3.05E-06	2.56E-06	4.37E-06	7.73E-04	1.64E-27	0.00E+00
TEEN	2.44E-06	2.01E-06	5.58E-06	4.55E-06	7.79E-06	1.23E-03	3.65E-27	0.00E+00
CHILD	4.63E-06	1.59E-06	1.37E-05	7.94E-06	1.30E-05	2.46E-03	5.80E-27	0.00E+00
INFANT	8.73E-06	1.56E-06	2.74E-05	1.94E-05	2.26E-05	5.97E-03	1.58E-26	0.00E+00
INHAL								
ADULT	4.55E-07	2.41E-06	6.88E-07	1.08E-06	1.73E-06	1.82E-04	3.81E-05	0.00E+00
TEEN	6.12E-07	2.33E-06	9.70E-07	1.49E-06	2.40E-06	2.39E-04	5.57E-05	0.00E+00
CHILD	7.15E-07	9.63E-07	1.32E-06	1.46E-06	2.25E-06	2.97E-04	4.52E-05	0.00E+00
INFANT	4.88E-07	3.41E-07	1.03E-06	1.34E-06	1.49E-06	2.74E-04	2.90E-05	0.00E+00

TABLE 1. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .60 MILES NNE

ANNUAL BETA AIR DOSE = 3.59E-07 MILLRADS
ANNUAL GAMMA AIR DOSE = 8.92E-07 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.96E-07	5.96E-07	5.96E-07	5.96E-07	5.96E-07	5.96E-07	5.98E-07	9.70E-07
GROUND	3.51E-04	3.51E-04	3.51E-04	3.51E-04	3.51E-04	3.51E-04	3.51E-04	4.13E-04
VEGET								
ADULT	6.72E-06	4.81E-05	1.15E-05	4.77E-06	3.53E-06	6.31E-04	1.22E-21	0.00E+00
TEEN	1.04E-05	5.15E-05	1.89E-05	7.21E-06	5.25E-06	8.43E-04	1.38E-21	0.00E+00
CHILD	2.08E-05	3.39E-05	4.59E-05	1.15E-05	8.37E-06	1.61E-03	1.64E-21	0.00E+00
MEAT								
ADULT	1.45E-06	1.21E-05	1.34E-07	6.99E-07	8.88E-08	1.66E-05	0.00E+00	0.00E+00
TEEN	1.15E-06	6.52E-06	1.12E-07	5.44E-07	7.24E-08	1.20E-05	0.00E+00	0.00E+00
CHILD	1.78E-06	3.29E-06	2.11E-07	6.52E-07	9.17E-08	1.82E-05	0.00E+00	0.00E+00
COW MILK								
ADULT	1.19E-06	3.28E-06	1.57E-06	1.75E-06	2.76E-06	4.88E-04	1.83E-27	0.00E+00
TEEN	2.01E-06	3.99E-06	2.86E-06	3.10E-06	4.92E-06	7.76E-04	4.06E-27	0.00E+00
CHILD	3.86E-06	2.79E-06	6.98E-06	5.36E-06	8.19E-06	1.55E-03	6.47E-27	0.00E+00
INFANT	7.03E-06	2.54E-06	1.42E-05	1.30E-05	1.43E-05	3.77E-03	1.76E-26	0.00E+00
GOATMILK								
ADULT	1.10E-06	1.14E-06	2.31E-06	1.94E-06	3.31E-06	5.86E-04	2.20E-28	0.00E+00
TEEN	1.85E-06	1.52E-06	4.22E-06	3.45E-06	5.91E-06	9.31E-04	4.88E-28	0.00E+00
CHILD	3.51E-06	1.20E-06	1.03E-05	6.02E-06	9.83E-06	1.86E-03	7.76E-28	0.00E+00
INFANT	6.61E-06	1.18E-06	2.07E-05	1.47E-05	1.71E-05	4.53E-03	2.11E-27	0.00E+00
INHAL								
ADULT	3.63E-07	1.95E-06	5.48E-07	8.62E-07	1.37E-06	1.45E-04	3.09E-05	0.00E+00
TEEN	4.89E-07	1.88E-06	7.73E-07	1.19E-06	1.90E-06	1.90E-04	4.53E-05	0.00E+00
CHILD	5.70E-07	7.76E-07	1.05E-06	1.16E-06	1.79E-06	2.36E-04	3.67E-05	0.00E+00
INFANT	3.89E-07	2.74E-07	8.21E-07	1.06E-06	1.18E-06	2.17E-04	2.36E-05	0.00E+00

TABLE 1. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 1.22E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.38E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	2.26E-05	3.60E-05
GROUND	9.01E-05	9.01E-05	9.01E-05	9.01E-05	9.01E-05	9.01E-05	9.01E-05	1.06E-04
VEGET								
ADULT	1.77E-06	1.24E-05	3.10E-06	1.29E-06	1.03E-06	1.84E-04	2.31E-20	0.00E+00
TEEN	2.72E-06	1.32E-05	5.09E-06	1.95E-06	1.53E-06	2.47E-04	2.61E-20	0.00E+00
CHILD	5.44E-06	8.74E-06	1.24E-05	3.12E-06	2.44E-06	4.72E-04	3.12E-20	0.00E+00
MEAT								
ADULT	3.73E-07	3.11E-06	3.66E-08	1.81E-07	2.59E-08	4.86E-06	0.00E+00	0.00E+00
TEEN	2.95E-07	1.67E-06	3.07E-08	1.41E-07	2.12E-08	3.52E-06	0.00E+00	0.00E+00
CHILD	4.58E-07	8.44E-07	5.78E-08	1.69E-07	2.68E-08	5.32E-06	0.00E+00	0.00E+00
COW MILK								
ADULT	3.35E-07	8.58E-07	4.45E-07	5.03E-07	8.00E-07	1.42E-04	3.48E-26	0.00E+00
TEEN	5.65E-07	1.05E-06	8.11E-07	8.91E-07	1.43E-06	2.26E-04	7.71E-26	0.00E+00
CHILD	1.08E-06	7.33E-07	1.98E-06	1.54E-06	2.38E-06	4.52E-04	1.23E-25	0.00E+00
INFANT	1.98E-06	6.70E-07	4.03E-06	3.74E-06	4.14E-06	1.10E-03	3.34E-25	0.00E+00
GOATMILK								
ADULT	3.19E-07	3.14E-07	6.47E-07	5.63E-07	9.60E-07	1.71E-04	4.17E-27	0.00E+00
TEEN	5.36E-07	4.17E-07	1.18E-06	1.00E-06	1.71E-06	2.71E-04	9.25E-27	0.00E+00
CHILD	1.01E-06	3.31E-07	2.89E-06	1.75E-06	2.85E-06	5.42E-04	1.47E-26	0.00E+00
INFANT	1.91E-06	3.25E-07	5.82E-06	4.27E-06	4.96E-06	1.32E-03	4.01E-26	0.00E+00
INHAL								
ADULT	8.90E-08	4.68E-07	1.35E-07	2.12E-07	3.39E-07	3.58E-05	7.38E-06	0.00E+00
TEEN	1.20E-07	4.54E-07	1.90E-07	2.92E-07	4.70E-07	4.69E-05	1.08E-05	0.00E+00
CHILD	1.40E-07	1.97E-07	2.59E-07	2.86E-07	4.41E-07	5.84E-05	8.76E-06	0.00E+00
INFANT	9.56E-08	7.47E-08	2.02E-07	2.62E-07	2.92E-07	5.37E-05	5.62E-06	0.00E+00

TABLE 1. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 6.18E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.72E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.83E-05
GROUND	4.23E-06	4.23E-06	4.23E-06	4.23E-06	4.23E-06	4.23E-06	4.23E-06	4.98E-06
VEGET								
ADULT	8.31E-08	5.82E-07	1.46E-07	6.08E-08	4.83E-08	8.70E-06	1.19E-21	0.00E+00
TEEN	1.28E-07	6.22E-07	2.40E-07	9.20E-08	7.20E-08	1.16E-05	1.35E-21	0.00E+00
CHILD	2.56E-07	4.11E-07	5.84E-07	1.47E-07	1.15E-07	2.23E-05	1.61E-21	0.00E+00
MEAT								
ADULT	1.75E-08	1.46E-07	1.73E-09	8.52E-09	1.23E-09	2.30E-07	0.00E+00	0.00E+00
TEEN	1.39E-08	7.85E-08	1.45E-09	6.63E-09	1.00E-09	1.67E-07	0.00E+00	0.00E+00
CHILD	2.15E-08	3.97E-08	2.73E-09	7.96E-09	1.27E-09	2.51E-07	0.00E+00	0.00E+00
COW MILK								
ADULT	1.57E-08	4.02E-08	2.09E-08	2.35E-08	3.74E-08	6.70E-06	1.79E-27	0.00E+00
TEEN	2.66E-08	4.89E-08	3.81E-08	4.17E-08	6.68E-08	1.06E-05	3.97E-27	0.00E+00
CHILD	5.09E-08	3.42E-08	9.29E-08	7.22E-08	1.11E-07	2.12E-05	6.32E-27	0.00E+00
INFANT	9.30E-08	3.12E-08	1.89E-07	1.75E-07	1.94E-07	5.16E-05	1.72E-26	0.00E+00
GOATMILK								
ADULT	1.50E-08	1.46E-08	3.04E-08	2.64E-08	4.49E-08	8.04E-06	2.15E-28	0.00E+00
TEEN	2.52E-08	1.93E-08	5.55E-08	4.68E-08	8.01E-08	1.28E-05	4.77E-28	0.00E+00
CHILD	4.75E-08	1.53E-08	1.36E-07	8.17E-08	1.33E-07	2.55E-05	7.59E-28	0.00E+00
INFANT	8.97E-08	1.50E-08	2.73E-07	2.00E-07	2.32E-07	6.19E-05	2.07E-27	0.00E+00
INHAL								
ADULT	6.82E-09	3.40E-08	1.03E-08	1.62E-08	2.59E-08	2.81E-06	5.29E-07	0.00E+00
TEEN	9.17E-09	3.35E-08	1.46E-08	2.22E-08	3.59E-08	3.67E-06	7.74E-07	0.00E+00
CHILD	1.07E-08	1.89E-08	1.99E-08	2.18E-08	3.38E-08	4.54E-06	6.28E-07	0.00E+00
INFANT	7.31E-09	9.48E-09	1.55E-08	2.00E-08	2.23E-08	4.18E-06	4.04E-07	0.00E+00

TABLE 1. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 1.70 MILES ENE

ANNUAL BETA AIR DOSE = 2.34E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 6.50E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06	4.34E-06	6.93E-06
GROUND	1.35E-05	1.35E-05	1.35E-05	1.35E-05	1.35E-05	1.35E-05	1.35E-05	1.59E-05
VEGET								
ADULT	2.62E-07	1.85E-06	4.53E-07	1.88E-07	1.44E-07	2.59E-05	2.10E-21	0.00E+00
TEEN	4.04E-07	1.98E-06	7.45E-07	2.85E-07	2.15E-07	3.46E-05	2.37E-21	0.00E+00
CHILD	8.07E-07	1.31E-06	1.81E-06	4.54E-07	3.43E-07	6.63E-05	2.83E-21	0.00E+00
MEAT								
ADULT	5.58E-08	4.66E-07	5.31E-09	2.70E-08	3.65E-09	6.83E-07	0.00E+00	0.00E+00
TEEN	4.42E-08	2.51E-07	4.46E-09	2.10E-08	2.98E-09	4.95E-07	0.00E+00	0.00E+00
CHILD	6.86E-08	1.27E-07	8.40E-09	2.52E-08	3.77E-09	7.47E-07	0.00E+00	0.00E+00
COW MILK								
ADULT	4.77E-08	1.27E-07	6.32E-08	7.08E-08	1.12E-07	2.00E-05	3.16E-27	0.00E+00
TEEN	8.06E-08	1.54E-07	1.15E-07	1.25E-07	2.00E-07	3.17E-05	7.01E-27	0.00E+00
CHILD	1.55E-07	1.08E-07	2.81E-07	2.17E-07	3.33E-07	6.33E-05	1.12E-26	0.00E+00
INFANT	2.82E-07	9.83E-08	5.72E-07	5.25E-07	5.79E-07	1.54E-04	3.04E-26	0.00E+00
GOATMILK								
ADULT	4.49E-08	4.50E-08	9.25E-08	7.89E-08	1.34E-07	2.40E-05	3.79E-28	0.00E+00
TEEN	7.54E-08	5.96E-08	1.69E-07	1.40E-07	2.40E-07	3.80E-05	8.41E-28	0.00E+00
CHILD	1.42E-07	4.71E-08	4.13E-07	2.44E-07	3.99E-07	7.60E-05	1.34E-27	0.00E+00
INFANT	2.69E-07	4.62E-08	8.31E-07	5.98E-07	6.95E-07	1.85E-04	3.65E-27	0.00E+00
INHAL								
ADULT	1.80E-08	9.52E-08	2.71E-08	4.25E-08	6.77E-08	7.23E-06	1.51E-06	0.00E+00
TEEN	2.42E-08	9.21E-08	3.81E-08	5.84E-08	9.38E-08	9.45E-06	2.21E-06	0.00E+00
CHILD	2.82E-08	3.99E-08	5.20E-08	5.72E-08	8.81E-08	1.17E-05	1.79E-06	0.00E+00
INFANT	1.92E-08	1.52E-08	4.06E-08	5.23E-08	5.83E-08	1.08E-05	1.15E-06	0.00E+00

TABLE 2. DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 1.17E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.22E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.15E-06	2.15E-06	2.15E-06	2.15E-06	2.15E-06	2.15E-06	2.15E-06	3.42E-06
GROUND	2.56E-03	2.56E-03	2.56E-03	2.56E-03	2.56E-03	2.56E-03	2.56E-03	3.01E-03
VEGET								
ADULT	9.11E-05	4.05E-04	9.25E-05	1.32E-04	9.10E-05	4.88E-03	2.63E-08	0.00E+00
TEEN	1.42E-04	4.29E-04	1.44E-04	2.00E-04	1.33E-04	6.54E-03	2.34E-08	0.00E+00
CHILD	2.82E-04	2.80E-04	3.30E-04	3.04E-04	2.01E-04	1.25E-02	3.65E-08	0.00E+00
MEAT								
ADULT	3.31E-05	1.18E-04	1.66E-05	5.54E-05	3.44E-05	1.30E-04	1.41E-16	0.00E+00
TEEN	2.62E-05	6.26E-05	1.18E-05	4.26E-05	2.53E-05	9.39E-05	1.13E-16	0.00E+00
CHILD	4.04E-05	3.12E-05	1.79E-05	4.92E-05	2.88E-05	1.42E-04	1.80E-16	0.00E+00
COW MILK								
ADULT	9.69E-05	1.46E-04	7.19E-05	2.08E-04	1.51E-04	3.72E-03	2.40E-07	0.00E+00
TEEN	1.67E-04	1.66E-04	1.14E-04	3.49E-04	2.45E-04	5.90E-03	4.19E-07	0.00E+00
CHILD	3.34E-04	1.06E-04	2.32E-04	5.31E-04	3.70E-04	1.17E-02	8.72E-07	0.00E+00
INFANT	4.44E-04	7.35E-04	3.45E-04	9.45E-04	5.18E-04	2.85E-02	1.52E-06	0.00E+00
GOATMILK								
ADULT	1.88E-05	2.23E-05	2.23E-05	3.77E-05	4.01E-05	4.46E-03	2.88E-08	0.00E+00
TEEN	3.21E-05	2.65E-05	3.86E-05	6.47E-05	6.87E-05	7.07E-03	5.03E-08	0.00E+00
CHILD	6.27E-05	1.82E-05	8.88E-05	1.03E-04	1.10E-04	1.41E-02	1.05E-07	0.00E+00
INFANT	9.61E-05	9.36E-05	1.65E-04	2.11E-04	1.76E-04	3.42E-02	1.82E-07	0.00E+00
INHAL								
ADULT	2.22E-06	8.29E-06	2.46E-06	4.45E-06	5.41E-06	4.80E-04	1.35E-04	0.00E+00
TEEN	2.98E-06	7.97E-06	3.35E-06	5.98E-06	7.35E-06	6.20E-04	1.97E-04	0.00E+00
CHILD	3.41E-06	3.55E-06	4.34E-06	5.69E-06	6.89E-06	7.55E-04	1.60E-04	0.00E+00
INFANT	2.07E-06	2.02E-06	3.13E-06	4.46E-06	4.35E-06	6.94E-04	1.03E-04	0.00E+00

TABLE 2. DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .65 MILES SE

ANNUAL BETA AIR DOSE = 6.42E-07 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.74E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.17E-06	1.17E-06	1.17E-06	1.17E-06	1.17E-06	1.17E-06	1.17E-06	1.86E-06
GROUND	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.84E-03
VEGET								
ADULT	8.60E-05	3.83E-04	8.73E-05	1.25E-04	8.59E-05	4.60E-03	2.49E-08	0.00E+00
TEEN	1.34E-04	4.05E-04	1.36E-04	1.89E-04	1.26E-04	6.17E-03	2.21E-08	0.00E+00
CHILD	2.66E-04	2.64E-04	3.12E-04	2.87E-04	1.90E-04	1.18E-02	3.45E-08	0.00E+00
MEAT								
ADULT	3.12E-05	1.11E-04	1.57E-05	5.24E-05	3.25E-05	1.22E-04	1.33E-16	0.00E+00
TEEN	2.47E-05	5.92E-05	1.11E-05	4.02E-05	2.39E-05	8.87E-05	1.07E-16	0.00E+00
CHILD	3.81E-05	2.95E-05	1.69E-05	4.65E-05	2.72E-05	1.34E-04	1.70E-16	0.00E+00
COW MILK								
ADULT	9.15E-05	1.38E-04	6.79E-05	1.96E-04	1.42E-04	3.51E-03	2.27E-07	0.00E+00
TEEN	1.58E-04	1.57E-04	1.07E-04	3.30E-04	2.32E-04	5.56E-03	3.96E-07	0.00E+00
CHILD	3.16E-04	1.00E-04	2.19E-04	5.01E-04	3.50E-04	1.11E-02	8.24E-07	0.00E+00
INFANT	4.20E-04	6.94E-04	3.26E-04	8.93E-04	4.89E-04	2.69E-02	1.43E-06	0.00E+00
GOATMILK								
ADULT	1.78E-05	2.11E-05	2.10E-05	3.56E-05	3.78E-05	4.21E-03	2.72E-08	0.00E+00
TEEN	3.03E-05	2.51E-05	3.64E-05	6.11E-05	6.49E-05	6.68E-03	4.75E-08	0.00E+00
CHILD	5.92E-05	1.72E-05	8.38E-05	9.77E-05	1.04E-04	1.33E-02	9.89E-08	0.00E+00
INFANT	9.07E-05	8.84E-05	1.55E-04	1.99E-04	1.66E-04	3.23E-02	1.72E-07	0.00E+00
INHAL								
ADULT	3.14E-06	1.16E-05	3.49E-06	6.29E-06	7.69E-06	6.86E-04	1.89E-04	0.00E+00
TEEN	4.20E-06	1.12E-05	4.75E-06	8.47E-06	1.05E-05	8.86E-04	2.76E-04	0.00E+00
CHILD	4.81E-06	4.98E-06	6.16E-06	8.06E-06	9.79E-06	1.08E-03	2.24E-04	0.00E+00
INFANT	2.92E-06	2.83E-06	4.44E-06	6.34E-06	6.19E-06	9.91E-04	1.44E-04	0.00E+00

TABLE 2. DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 2.16E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 5.98E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.99E-05	3.99E-05	3.99E-05	3.99E-05	3.99E-05	3.99E-05	4.00E-05	6.36E-05
GROUND	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.04E-03	1.23E-03
VEGET								
ADULT	3.72E-05	1.65E-04	3.83E-05	5.40E-05	3.74E-05	2.05E-03	1.07E-08	0.00E+00
TEEN	5.79E-05	1.75E-04	5.98E-05	8.19E-05	5.49E-05	2.75E-03	9.52E-09	0.00E+00
CHILD	1.15E-04	1.14E-04	1.37E-04	1.24E-04	8.27E-05	5.27E-03	1.49E-08	0.00E+00
MEAT								
ADULT	1.35E-05	4.80E-05	6.78E-06	2.26E-05	1.40E-05	5.46E-05	5.76E-17	0.00E+00
TEEN	1.07E-05	2.55E-05	4.81E-06	1.74E-05	1.03E-05	3.95E-05	4.60E-17	0.00E+00
CHILD	1.64E-05	1.27E-05	7.33E-06	2.01E-05	1.17E-05	5.97E-05	7.32E-17	0.00E+00
COW MILK								
ADULT	3.96E-05	5.94E-05	2.94E-05	8.47E-05	6.16E-05	1.56E-03	9.78E-08	0.00E+00
TEEN	6.83E-05	6.78E-05	4.65E-05	1.42E-04	1.00E-04	2.48E-03	1.71E-07	0.00E+00
CHILD	1.36E-04	4.34E-05	9.51E-05	2.17E-04	1.52E-04	4.93E-03	3.55E-07	0.00E+00
INFANT	1.82E-04	3.00E-04	1.42E-04	3.86E-04	2.12E-04	1.20E-02	6.19E-07	0.00E+00
GOATMILK								
ADULT	7.78E-06	9.15E-06	9.26E-06	1.56E-05	1.67E-05	1.88E-03	1.17E-08	0.00E+00
TEEN	1.33E-05	1.09E-05	1.60E-05	2.67E-05	2.86E-05	2.98E-03	2.05E-08	0.00E+00
CHILD	2.59E-05	7.47E-06	3.70E-05	4.27E-05	4.57E-05	5.92E-03	4.26E-08	0.00E+00
INFANT	3.98E-05	3.82E-05	6.86E-05	8.73E-05	7.33E-05	1.44E-02	7.43E-08	0.00E+00
INHAL								
ADULT	4.29E-07	1.58E-06	4.79E-07	8.62E-07	1.06E-06	9.47E-05	2.57E-05	0.00E+00
TEEN	5.74E-07	1.53E-06	6.53E-07	1.16E-06	1.44E-06	1.22E-04	3.75E-05	0.00E+00
CHILD	6.58E-07	7.23E-07	8.46E-07	1.11E-06	1.35E-06	1.49E-04	3.04E-05	0.00E+00
INFANT	4.00E-07	4.25E-07	6.11E-07	8.70E-07	8.52E-07	1.37E-04	1.95E-05	0.00E+00

TABLE 2. DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 9.16E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.53E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.69E-05	1.69E-05	1.69E-05	1.69E-05	1.69E-05	1.69E-05	1.69E-05	2.69E-05
GROUND	3.36E-05	3.36E-05	3.36E-05	3.36E-05	3.36E-05	3.36E-05	3.36E-05	3.95E-05
VEGET								
ADULT	1.20E-06	5.33E-06	1.25E-06	1.74E-06	1.21E-06	6.66E-05	2.90E-10	0.00E+00
TEEN	1.87E-06	5.65E-06	1.95E-06	2.64E-06	1.77E-06	8.95E-05	2.58E-10	0.00E+00
CHILD	3.72E-06	3.68E-06	4.46E-06	4.01E-06	2.68E-06	1.71E-04	4.02E-10	0.00E+00
MEAT								
ADULT	4.35E-07	1.55E-06	2.19E-07	7.29E-07	4.53E-07	1.78E-06	1.56E-18	0.00E+00
TEEN	3.44E-07	8.24E-07	1.55E-07	5.60E-07	3.33E-07	1.29E-06	1.25E-18	0.00E+00
CHILD	5.31E-07	4.10E-07	2.37E-07	6.47E-07	3.79E-07	1.94E-06	1.98E-18	0.00E+00
COW MILK								
ADULT	1.28E-06	1.92E-06	9.50E-07	2.73E-06	1.99E-06	5.07E-05	2.65E-09	0.00E+00
TEEN	2.20E-06	2.18E-06	1.50E-06	4.59E-06	3.24E-06	8.03E-05	4.62E-09	0.00E+00
CHILD	4.40E-06	1.40E-06	3.07E-06	6.99E-06	4.89E-06	1.60E-04	9.62E-09	0.00E+00
INFANT	5.85E-06	9.66E-06	4.58E-06	1.25E-05	6.85E-06	3.88E-04	1.67E-08	0.00E+00
GOATMILK								
ADULT	2.51E-07	2.94E-07	3.00E-07	5.02E-07	5.37E-07	6.08E-05	3.18E-10	0.00E+00
TEEN	4.29E-07	3.50E-07	5.19E-07	8.60E-07	9.21E-07	9.64E-05	5.55E-10	0.00E+00
CHILD	8.36E-07	2.40E-07	1.20E-06	1.38E-06	1.47E-06	1.92E-04	1.15E-09	0.00E+00
INFANT	1.28E-06	1.23E-06	2.22E-06	2.81E-06	2.36E-06	4.66E-04	2.01E-09	0.00E+00
INHAL								
ADULT	3.61E-08	1.34E-07	4.04E-08	7.31E-08	9.01E-08	8.36E-06	2.19E-06	0.00E+00
TEEN	4.83E-08	1.31E-07	5.51E-08	9.84E-08	1.22E-07	1.08E-05	3.20E-06	0.00E+00
CHILD	5.51E-08	7.34E-08	7.17E-08	9.34E-08	1.14E-07	1.30E-05	2.60E-06	0.00E+00
INFANT	3.35E-08	4.70E-08	5.19E-08	7.38E-08	7.24E-08	1.20E-05	1.67E-06	0.00E+00

TABLE 2. DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.90 MILES SE

ANNUAL BETA AIR DOSE = 2.58E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 7.13E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.76E-06	4.76E-06	4.76E-06	4.76E-06	4.76E-06	4.76E-06	4.77E-06	7.58E-06
GROUND	6.63E-05	6.63E-05	6.63E-05	6.63E-05	6.63E-05	6.63E-05	6.63E-05	7.80E-05
VEGET								
ADULT	2.37E-06	1.05E-05	2.42E-06	3.43E-06	2.37E-06	1.28E-04	6.18E-10	0.00E+00
TEEN	3.68E-06	1.11E-05	3.77E-06	5.20E-06	3.47E-06	1.72E-04	5.48E-10	0.00E+00
CHILD	7.31E-06	7.26E-06	8.65E-06	7.89E-06	5.23E-06	3.29E-04	8.56E-10	0.00E+00
MEAT								
ADULT	8.58E-07	3.05E-06	4.31E-07	1.44E-06	8.92E-07	3.41E-06	3.32E-18	0.00E+00
TEEN	6.79E-07	1.62E-06	3.06E-07	1.10E-06	6.57E-07	2.47E-06	2.65E-18	0.00E+00
CHILD	1.05E-06	8.09E-07	4.66E-07	1.28E-06	7.46E-07	3.73E-06	4.22E-18	0.00E+00
COW MILK								
ADULT	2.51E-06	3.78E-06	1.87E-06	5.38E-06	3.91E-06	9.74E-05	5.63E-09	0.00E+00
TEEN	4.34E-06	4.31E-06	2.95E-06	9.05E-06	6.36E-06	1.54E-04	9.83E-09	0.00E+00
CHILD	8.67E-06	2.75E-06	6.03E-06	1.38E-05	9.61E-06	3.07E-04	2.05E-08	0.00E+00
INFANT	1.15E-05	1.90E-05	8.97E-06	2.45E-05	1.34E-05	7.47E-04	3.56E-08	0.00E+00
GOATMILK								
ADULT	4.90E-07	5.78E-07	5.82E-07	9.81E-07	1.04E-06	1.17E-04	6.76E-10	0.00E+00
TEEN	8.36E-07	6.88E-07	1.01E-06	1.68E-06	1.79E-06	1.85E-04	1.18E-09	0.00E+00
CHILD	1.63E-06	4.70E-07	2.32E-06	2.69E-06	2.86E-06	3.69E-04	2.46E-09	0.00E+00
INFANT	2.50E-06	2.43E-06	4.30E-06	5.48E-06	4.58E-06	8.96E-04	4.28E-09	0.00E+00
INHAL								
ADULT	1.29E-07	4.83E-07	1.44E-07	2.61E-07	3.19E-07	2.90E-05	7.91E-06	0.00E+00
TEEN	1.73E-07	4.64E-07	1.96E-07	3.51E-07	4.34E-07	3.74E-05	1.15E-05	0.00E+00
CHILD	1.98E-07	2.09E-07	2.55E-07	3.33E-07	4.06E-07	4.54E-05	9.35E-06	0.00E+00
INFANT	1.20E-07	1.20E-07	1.84E-07	2.62E-07	2.56E-07	4.18E-05	6.00E-06	0.00E+00

TABLE 3. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 2.47E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 6.84E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	7.29E-06
GROUND	2.99E-03	2.99E-03	2.99E-03	2.99E-03	2.99E-03	2.99E-03	2.99E-03	3.51E-03
VEGET								
ADULT	9.85E-05	4.63E-04	1.06E-04	1.36E-04	9.41E-05	5.63E-03	2.58E-08	0.00E+00
TEEN	1.53E-04	4.91E-04	1.67E-04	2.06E-04	1.38E-04	7.55E-03	2.29E-08	0.00E+00
CHILD	3.04E-04	3.21E-04	3.86E-04	3.14E-04	2.09E-04	1.45E-02	3.58E-08	0.00E+00
MEAT								
ADULT	3.44E-05	1.32E-04	1.65E-05	5.54E-05	3.39E-05	1.50E-04	1.39E-16	0.00E+00
TEEN	2.73E-05	7.03E-05	1.17E-05	4.25E-05	2.50E-05	1.08E-04	1.11E-16	0.00E+00
CHILD	4.20E-05	3.51E-05	1.79E-05	4.92E-05	2.84E-05	1.64E-04	1.76E-16	0.00E+00
COW MILK								
ADULT	9.67E-05	1.47E-04	7.27E-05	2.06E-04	1.52E-04	4.31E-03	2.36E-07	0.00E+00
TEEN	1.67E-04	1.69E-04	1.15E-04	3.47E-04	2.47E-04	6.83E-03	4.12E-07	0.00E+00
CHILD	3.33E-04	1.08E-04	2.37E-04	5.28E-04	3.75E-04	1.36E-02	8.56E-07	0.00E+00
INFANT	4.46E-04	7.25E-04	3.58E-04	9.45E-04	5.28E-04	3.30E-02	1.49E-06	0.00E+00
GOATMILK								
ADULT	2.00E-05	2.34E-05	2.50E-05	3.96E-05	4.38E-05	5.17E-03	2.83E-08	0.00E+00
TEEN	3.40E-05	2.81E-05	4.35E-05	6.81E-05	7.54E-05	8.19E-03	4.94E-08	0.00E+00
CHILD	6.63E-05	1.95E-05	1.01E-04	1.10E-04	1.21E-04	1.63E-02	1.03E-07	0.00E+00
INFANT	1.03E-04	9.35E-05	1.89E-04	2.27E-04	1.96E-04	3.97E-02	1.79E-07	0.00E+00
INHAL								
ADULT	3.24E-06	1.27E-05	3.73E-06	6.61E-06	8.35E-06	7.62E-04	2.07E-04	0.00E+00
TEEN	4.34E-06	1.22E-05	5.11E-06	8.92E-06	1.14E-05	9.87E-04	3.02E-04	0.00E+00
CHILD	4.98E-06	5.38E-06	6.66E-06	8.52E-06	1.07E-05	1.21E-03	2.45E-04	0.00E+00
INFANT	3.06E-06	2.90E-06	4.86E-06	6.83E-06	6.79E-06	1.11E-03	1.57E-04	0.00E+00

TABLE 3. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .65 MILES SE

ANNUAL BETA AIR DOSE = 2.47E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 6.84E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	4.57E-06	7.29E-06
GROUND	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.16E-03	3.71E-03
VEGET								
ADULT	1.04E-04	4.89E-04	1.12E-04	1.44E-04	9.94E-05	5.95E-03	2.73E-08	0.00E+00
TEEN	1.62E-04	5.19E-04	1.77E-04	2.18E-04	1.46E-04	7.98E-03	2.42E-08	0.00E+00
CHILD	3.22E-04	3.39E-04	4.08E-04	3.32E-04	2.20E-04	1.53E-02	3.78E-08	0.00E+00
MEAT								
ADULT	3.64E-05	1.39E-04	1.74E-05	5.85E-05	3.58E-05	1.58E-04	1.47E-16	0.00E+00
TEEN	2.88E-05	7.43E-05	1.24E-05	4.50E-05	2.64E-05	1.15E-04	1.17E-16	0.00E+00
CHILD	4.44E-05	3.71E-05	1.89E-05	5.20E-05	3.00E-05	1.73E-04	1.86E-16	0.00E+00
COW MILK								
ADULT	1.02E-04	1.56E-04	7.68E-05	2.18E-04	1.60E-04	4.55E-03	2.49E-07	0.00E+00
TEEN	1.76E-04	1.78E-04	1.22E-04	3.66E-04	2.61E-04	7.22E-03	4.35E-07	0.00E+00
CHILD	3.52E-04	1.14E-04	2.51E-04	5.58E-04	3.96E-04	1.44E-02	9.05E-07	0.00E+00
INFANT	4.71E-04	7.66E-04	3.78E-04	9.99E-04	5.58E-04	3.49E-02	1.58E-06	0.00E+00
GOATMILK								
ADULT	2.11E-05	2.48E-05	2.64E-05	4.19E-05	4.63E-05	5.46E-03	2.99E-08	0.00E+00
TEEN	3.60E-05	2.97E-05	4.60E-05	7.20E-05	7.97E-05	8.66E-03	5.22E-08	0.00E+00
CHILD	7.00E-05	2.06E-05	1.07E-04	1.16E-04	1.28E-04	1.72E-02	1.09E-07	0.00E+00
INFANT	1.09E-04	9.88E-05	2.00E-04	2.40E-04	2.07E-04	4.19E-02	1.89E-07	0.00E+00
INHAL								
ADULT	3.29E-06	1.28E-05	3.82E-06	6.75E-06	8.60E-06	7.91E-04	2.07E-04	0.00E+00
TEEN	4.41E-06	1.23E-05	5.23E-06	9.12E-06	1.17E-05	1.02E-03	3.02E-04	0.00E+00
CHILD	5.06E-06	5.42E-06	6.83E-06	8.71E-06	1.10E-05	1.25E-03	2.45E-04	0.00E+00
INFANT	3.12E-06	2.91E-06	4.99E-06	7.01E-06	7.00E-06	1.15E-03	1.57E-04	0.00E+00

TABLE 3. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 3.35E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 9.29E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.20E-05	6.20E-05	6.20E-05	6.20E-05	6.20E-05	6.20E-05	6.21E-05	9.89E-05
GROUND	9.58E-04	9.58E-04	9.58E-04	9.58E-04	9.58E-04	9.58E-04	9.58E-04	1.13E-03
VEGET								
ADULT	3.18E-05	1.49E-04	3.49E-05	4.39E-05	3.06E-05	1.90E-03	8.29E-09	0.00E+00
TEEN	4.93E-05	1.58E-04	5.48E-05	6.66E-05	4.50E-05	2.54E-03	7.36E-09	0.00E+00
CHILD	9.81E-05	1.03E-04	1.27E-04	1.01E-04	6.80E-05	4.87E-03	1.15E-08	0.00E+00
MEAT								
ADULT	1.11E-05	4.23E-05	5.30E-06	1.78E-05	1.09E-05	5.04E-05	4.45E-17	0.00E+00
TEEN	8.75E-06	2.26E-05	3.77E-06	1.37E-05	8.01E-06	3.65E-05	3.56E-17	0.00E+00
CHILD	1.35E-05	1.13E-05	5.76E-06	1.58E-05	9.11E-06	5.51E-05	5.66E-17	0.00E+00
COW MILK								
ADULT	3.11E-05	4.74E-05	2.35E-05	6.63E-05	4.90E-05	1.45E-03	7.56E-08	0.00E+00
TEEN	5.37E-05	5.41E-05	3.73E-05	1.12E-04	8.00E-05	2.30E-03	1.32E-07	0.00E+00
CHILD	1.07E-04	3.47E-05	7.68E-05	1.70E-04	1.21E-04	4.57E-03	2.75E-07	0.00E+00
INFANT	1.44E-04	2.33E-04	1.16E-04	3.05E-04	1.71E-04	1.11E-02	4.78E-07	0.00E+00
GOATMILK								
ADULT	6.55E-06	7.60E-06	8.25E-06	1.30E-05	1.45E-05	1.74E-03	9.07E-09	0.00E+00
TEEN	1.12E-05	9.13E-06	1.44E-05	2.23E-05	2.50E-05	2.76E-03	1.58E-08	0.00E+00
CHILD	2.17E-05	6.34E-06	3.34E-05	3.60E-05	4.01E-05	5.49E-03	3.30E-08	0.00E+00
INFANT	3.40E-05	3.01E-05	6.28E-05	7.46E-05	6.50E-05	1.33E-02	5.74E-08	0.00E+00
INHAL								
ADULT	6.07E-07	2.36E-06	7.03E-07	1.24E-06	1.58E-06	1.45E-04	3.82E-05	0.00E+00
TEEN	8.13E-07	2.27E-06	9.63E-07	1.68E-06	2.16E-06	1.88E-04	5.57E-05	0.00E+00
CHILD	9.33E-07	1.05E-06	1.26E-06	1.60E-06	2.02E-06	2.30E-04	4.52E-05	0.00E+00
INFANT	5.75E-07	5.79E-07	9.19E-07	1.29E-06	1.29E-06	2.12E-04	2.90E-05	0.00E+00

TABLE 3. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 1.15E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.12E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.09E-05	2.09E-05	2.09E-05	2.09E-05	2.09E-05	2.09E-05	2.09E-05	3.34E-05
GROUND	3.38E-05	3.38E-05	3.38E-05	3.38E-05	3.38E-05	3.38E-05	3.38E-05	3.98E-05
VEGET								
ADULT	1.12E-06	5.25E-06	1.24E-06	1.55E-06	1.08E-06	6.76E-05	2.52E-10	0.00E+00
TEEN	1.74E-06	5.57E-06	1.95E-06	2.35E-06	1.59E-06	9.08E-05	2.24E-10	0.00E+00
CHILD	3.47E-06	3.64E-06	4.52E-06	3.58E-06	2.41E-06	1.74E-04	3.50E-10	0.00E+00
MEAT								
ADULT	3.90E-07	1.49E-06	1.87E-07	6.27E-07	3.84E-07	1.80E-06	1.36E-18	0.00E+00
TEEN	3.09E-07	7.96E-07	1.33E-07	4.82E-07	2.83E-07	1.30E-06	1.08E-18	0.00E+00
CHILD	4.76E-07	3.97E-07	2.03E-07	5.57E-07	3.22E-07	1.97E-06	1.72E-18	0.00E+00
COW MILK								
ADULT	1.10E-06	1.67E-06	8.30E-07	2.34E-06	1.73E-06	5.16E-05	2.30E-09	0.00E+00
TEEN	1.90E-06	1.91E-06	1.32E-06	3.94E-06	2.82E-06	8.18E-05	4.02E-09	0.00E+00
CHILD	3.79E-06	1.22E-06	2.71E-06	6.00E-06	4.28E-06	1.63E-04	8.37E-09	0.00E+00
INFANT	5.07E-06	8.20E-06	4.11E-06	1.08E-05	6.04E-06	3.95E-04	1.46E-08	0.00E+00
GOATMILK								
ADULT	2.32E-07	2.68E-07	2.93E-07	4.58E-07	5.13E-07	6.19E-05	2.76E-10	0.00E+00
TEEN	3.95E-07	3.21E-07	5.10E-07	7.88E-07	8.83E-07	9.81E-05	4.83E-10	0.00E+00
CHILD	7.68E-07	2.22E-07	1.19E-06	1.27E-06	1.42E-06	1.95E-04	1.00E-09	0.00E+00
INFANT	1.20E-06	1.06E-06	2.23E-06	2.64E-06	2.30E-06	4.74E-04	1.75E-09	0.00E+00
INHAL								
ADULT	4.89E-08	1.89E-07	5.72E-08	1.01E-07	1.30E-07	1.24E-05	3.06E-06	0.00E+00
TEEN	6.55E-08	1.83E-07	7.84E-08	1.36E-07	1.77E-07	1.60E-05	4.46E-06	0.00E+00
CHILD	7.50E-08	9.24E-08	1.03E-07	1.30E-07	1.66E-07	1.95E-05	3.62E-06	0.00E+00
INFANT	4.63E-08	5.41E-08	7.53E-08	1.05E-07	1.06E-07	1.79E-05	2.32E-06	0.00E+00

TABLE 3. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 1.70 MILES ENE

ANNUAL BETA AIR DOSE = 4.76E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.32E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.81E-06	8.81E-06	8.81E-06	8.81E-06	8.81E-06	8.81E-06	8.82E-06	1.41E-05
GROUND	1.01E-04	1.01E-04	1.01E-04	1.01E-04	1.01E-04	1.01E-04	1.01E-04	1.19E-04
VEGET								
ADULT	3.36E-06	1.57E-05	3.66E-06	4.63E-06	3.22E-06	1.96E-04	8.30E-10	0.00E+00
TEEN	5.21E-06	1.67E-05	5.75E-06	7.03E-06	4.73E-06	2.63E-04	7.37E-10	0.00E+00
CHILD	1.04E-05	1.09E-05	1.33E-05	1.07E-05	7.14E-06	5.04E-04	1.15E-09	0.00E+00
MEAT								
ADULT	1.17E-06	4.48E-06	5.61E-07	1.88E-06	1.15E-06	5.21E-06	4.46E-18	0.00E+00
TEEN	9.26E-07	2.39E-06	3.99E-07	1.45E-06	8.48E-07	3.77E-06	3.56E-18	0.00E+00
CHILD	1.43E-06	1.19E-06	6.09E-07	1.67E-06	9.64E-07	5.70E-06	5.67E-18	0.00E+00
COW MILK								
ADULT	3.29E-06	5.01E-06	2.48E-06	7.01E-06	5.16E-06	1.50E-04	7.57E-09	0.00E+00
TEEN	5.68E-06	5.73E-06	3.93E-06	1.18E-05	8.43E-06	2.37E-04	1.32E-08	0.00E+00
CHILD	1.13E-05	3.67E-06	8.09E-06	1.80E-05	1.28E-05	4.73E-04	2.75E-08	0.00E+00
INFANT	1.52E-05	2.46E-05	1.22E-05	3.22E-05	1.80E-05	1.15E-03	4.79E-08	0.00E+00
GOATMILK								
ADULT	6.85E-07	7.99E-07	8.61E-07	1.36E-06	1.51E-06	1.80E-04	9.08E-10	0.00E+00
TEEN	1.17E-06	9.58E-07	1.50E-06	2.33E-06	2.60E-06	2.85E-04	1.59E-09	0.00E+00
CHILD	2.27E-06	6.63E-07	3.48E-06	3.76E-06	4.17E-06	5.67E-04	3.30E-09	0.00E+00
INFANT	3.55E-06	3.18E-06	6.54E-06	7.79E-06	6.75E-06	1.38E-03	5.75E-09	0.00E+00
INHAL								
ADULT	1.38E-07	5.41E-07	1.60E-07	2.84E-07	3.60E-07	3.34E-05	8.79E-06	0.00E+00
TEEN	1.85E-07	5.20E-07	2.19E-07	3.83E-07	4.91E-07	4.32E-05	1.28E-05	0.00E+00
CHILD	2.12E-07	2.34E-07	2.86E-07	3.65E-07	4.60E-07	5.27E-05	1.04E-05	0.00E+00
INFANT	1.31E-07	1.28E-07	2.09E-07	2.94E-07	2.93E-07	4.85E-05	6.67E-06	0.00E+00

TABLE 4. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .54 MILES ESE

ANNUAL BETA AIR DOSE = 2.05E-07 MILLRADS
ANNUAL GAMMA AIR DOSE = 4.50E-07 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.01E-07	3.01E-07	3.01E-07	3.01E-07	3.01E-07	3.01E-07	3.03E-07	5.20E-07
GROUND	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.08E-02	1.27E-02
VEGET								
ADULT	4.26E-04	1.84E-03	3.16E-04	6.81E-04	4.03E-04	3.56E-03	4.72E-07	0.00E+00
TEEN	6.67E-04	1.94E-03	4.77E-04	1.03E-03	5.87E-04	4.79E-03	4.28E-07	0.00E+00
CHILD	1.33E-03	1.25E-03	1.04E-03	1.55E-03	8.64E-04	9.17E-03	6.67E-07	0.00E+00
MEAT								
ADULT	1.76E-04	5.47E-04	9.41E-05	3.15E-04	1.98E-04	9.50E-05	5.30E-09	0.00E+00
TEEN	1.39E-04	2.90E-04	6.64E-05	2.42E-04	1.45E-04	6.88E-05	4.75E-09	0.00E+00
CHILD	2.14E-04	1.44E-04	1.00E-04	2.79E-04	1.65E-04	1.04E-04	5.37E-09	0.00E+00
COW MILK								
ADULT	5.32E-04	8.04E-04	3.74E-04	1.15E-03	7.79E-04	2.71E-03	4.22E-06	0.00E+00
TEEN	9.20E-04	9.13E-04	5.78E-04	1.93E-03	1.25E-03	4.30E-03	7.37E-06	0.00E+00
CHILD	1.85E-03	5.85E-04	1.15E-03	2.92E-03	1.87E-03	8.55E-03	1.53E-05	0.00E+00
INFANT	2.40E-03	4.27E-03	1.58E-03	5.07E-03	2.51E-03	2.08E-02	2.67E-05	0.00E+00
GOATMILK								
ADULT	6.93E-05	1.01E-04	6.36E-05	1.48E-04	1.09E-04	3.25E-03	5.06E-07	0.00E+00
TEEN	1.20E-04	1.16E-04	1.04E-04	2.49E-04	1.79E-04	5.15E-03	8.84E-07	0.00E+00
CHILD	2.39E-04	7.56E-05	2.22E-04	3.79E-04	2.71E-04	1.02E-02	1.84E-06	0.00E+00
INFANT	3.21E-04	5.18E-04	3.56E-04	6.79E-04	3.83E-04	2.49E-02	3.20E-06	0.00E+00
INHAL								
ADULT	4.55E-05	1.42E-04	3.94E-05	6.78E-05	5.59E-05	1.27E-03	2.27E-03	0.00E+00
TEEN	6.11E-05	1.40E-04	5.19E-05	8.96E-05	7.36E-05	1.64E-03	3.30E-03	0.00E+00
CHILD	7.04E-05	7.82E-05	6.16E-05	8.77E-05	7.37E-05	1.98E-03	2.68E-03	0.00E+00
INFANT	4.10E-05	5.18E-05	3.89E-05	5.60E-05	4.41E-05	1.81E-03	1.72E-03	0.00E+00

TABLE 4. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .65 MILES SE

ANNUAL BETA AIR DOSE = 1.10E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.41E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.61E-06	1.61E-06	1.61E-06	1.61E-06	1.61E-06	1.61E-06	1.62E-06	2.79E-06
GROUND	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.33E-02	1.56E-02
VEGET								
ADULT	5.23E-04	2.26E-03	3.89E-04	8.36E-04	4.95E-04	4.38E-03	5.85E-07	0.00E+00
TEEN	8.19E-04	2.39E-03	5.86E-04	1.27E-03	7.21E-04	5.88E-03	5.35E-07	0.00E+00
CHILD	1.64E-03	1.54E-03	1.28E-03	1.90E-03	1.06E-03	1.13E-02	8.32E-07	0.00E+00
MEAT								
ADULT	2.16E-04	6.73E-04	1.16E-04	3.87E-04	2.43E-04	1.17E-04	9.39E-09	0.00E+00
TEEN	1.71E-04	3.57E-04	8.16E-05	2.97E-04	1.79E-04	8.46E-05	8.41E-09	0.00E+00
CHILD	2.63E-04	1.77E-04	1.23E-04	3.43E-04	2.02E-04	1.28E-04	9.51E-09	0.00E+00
COW MILK								
ADULT	6.54E-04	9.88E-04	4.59E-04	1.42E-03	9.57E-04	3.34E-03	5.18E-06	0.00E+00
TEEN	1.13E-03	1.12E-03	7.10E-04	2.38E-03	1.54E-03	5.29E-03	9.05E-06	0.00E+00
CHILD	2.27E-03	7.19E-04	1.41E-03	3.59E-03	2.29E-03	1.05E-02	1.88E-05	0.00E+00
INFANT	2.94E-03	5.25E-03	1.94E-03	6.23E-03	3.08E-03	2.55E-02	3.28E-05	0.00E+00
GOATMILK								
ADULT	8.52E-05	1.25E-04	7.82E-05	1.82E-04	1.34E-04	4.00E-03	6.22E-07	0.00E+00
TEEN	1.47E-04	1.43E-04	1.28E-04	3.06E-04	2.20E-04	6.34E-03	1.09E-06	0.00E+00
CHILD	2.94E-04	9.29E-05	2.73E-04	4.66E-04	3.33E-04	1.26E-02	2.26E-06	0.00E+00
INFANT	3.94E-04	6.36E-04	4.38E-04	8.35E-04	4.71E-04	3.06E-02	3.93E-06	0.00E+00
INHAL								
ADULT	4.55E-05	1.42E-04	3.94E-05	6.78E-05	5.59E-05	1.27E-03	2.27E-03	0.00E+00
TEEN	6.11E-05	1.40E-04	5.19E-05	8.96E-05	7.36E-05	1.64E-03	3.30E-03	0.00E+00
CHILD	7.04E-05	7.82E-05	6.16E-05	8.77E-05	7.37E-05	1.98E-03	2.68E-03	0.00E+00
INFANT	4.10E-05	5.18E-05	3.89E-05	5.60E-05	4.41E-05	1.81E-03	1.72E-03	0.00E+00

TABLE 4. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 8.43E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.85E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.24E-04	1.24E-04	1.24E-04	1.24E-04	1.24E-04	1.24E-04	1.25E-04	2.14E-04
GROUND	9.35E-03	9.35E-03	9.35E-03	9.35E-03	9.35E-03	9.35E-03	9.35E-03	1.10E-02
VEGET								
ADULT	3.61E-04	1.58E-03	2.65E-04	5.72E-04	3.38E-04	3.21E-03	7.00E-07	0.00E+00
TEEN	5.65E-04	1.67E-03	3.99E-04	8.68E-04	4.91E-04	4.31E-03	8.50E-07	0.00E+00
CHILD	1.13E-03	1.08E-03	8.73E-04	1.30E-03	7.23E-04	8.25E-03	1.28E-06	0.00E+00
MEAT								
ADULT	1.48E-04	4.70E-04	7.87E-05	2.63E-04	1.65E-04	8.54E-05	1.48E-07	0.00E+00
TEEN	1.17E-04	2.49E-04	5.55E-05	2.02E-04	1.21E-04	6.19E-05	1.33E-07	0.00E+00
CHILD	1.80E-04	1.24E-04	8.38E-05	2.33E-04	1.37E-04	9.34E-05	1.50E-07	0.00E+00
COW MILK								
ADULT	4.44E-04	6.74E-04	3.12E-04	9.63E-04	6.51E-04	2.45E-03	4.02E-06	0.00E+00
TEEN	7.69E-04	7.66E-04	4.83E-04	1.61E-03	1.05E-03	3.88E-03	7.03E-06	0.00E+00
CHILD	1.54E-03	4.92E-04	9.59E-04	2.44E-03	1.56E-03	7.71E-03	1.46E-05	0.00E+00
INFANT	2.00E-03	3.56E-03	1.32E-03	4.24E-03	2.10E-03	1.87E-02	2.54E-05	0.00E+00
GOATMILK								
ADULT	5.83E-05	8.51E-05	5.36E-05	1.24E-04	9.25E-05	2.93E-03	4.83E-07	0.00E+00
TEEN	1.01E-04	9.77E-05	8.76E-05	2.09E-04	1.51E-04	4.65E-03	8.44E-07	0.00E+00
CHILD	2.01E-04	6.38E-05	1.88E-04	3.19E-04	2.30E-04	9.24E-03	1.75E-06	0.00E+00
INFANT	2.70E-04	4.33E-04	3.02E-04	5.72E-04	3.26E-04	2.25E-02	3.05E-06	0.00E+00
INHAL								
ADULT	7.14E-06	2.13E-05	6.28E-06	1.05E-05	8.81E-06	2.02E-04	3.33E-04	0.00E+00
TEEN	9.59E-06	2.12E-05	8.29E-06	1.38E-05	1.16E-05	2.60E-04	4.84E-04	0.00E+00
CHILD	1.11E-05	1.24E-05	9.83E-06	1.37E-05	1.17E-05	3.16E-04	3.94E-04	0.00E+00
INFANT	6.50E-06	8.17E-06	6.26E-06	8.78E-06	7.08E-06	2.89E-04	2.53E-04	0.00E+00

TABLE 4. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 4.43E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 9.73E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.52E-05	6.55E-05	1.13E-04
GROUND	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	3.71E-04	4.36E-04
VEGET								
ADULT	1.40E-05	6.27E-05	1.01E-05	2.20E-05	1.29E-05	1.30E-04	3.58E-08	0.00E+00
TEEN	2.20E-05	6.62E-05	1.53E-05	3.34E-05	1.88E-05	1.75E-04	5.05E-08	0.00E+00
CHILD	4.39E-05	4.28E-05	3.34E-05	5.01E-05	2.77E-05	3.35E-04	7.50E-08	0.00E+00
MEAT								
ADULT	5.71E-06	1.85E-05	3.01E-06	1.01E-05	6.29E-06	3.47E-06	1.21E-08	0.00E+00
TEEN	4.53E-06	9.84E-06	2.13E-06	7.76E-06	4.62E-06	2.52E-06	1.08E-08	0.00E+00
CHILD	6.97E-06	4.89E-06	3.21E-06	8.96E-06	5.24E-06	3.80E-06	1.22E-08	0.00E+00
COW MILK								
ADULT	1.70E-05	2.58E-05	1.19E-05	3.67E-05	2.48E-05	9.91E-05	1.34E-07	0.00E+00
TEEN	2.93E-05	2.93E-05	1.84E-05	6.16E-05	3.99E-05	1.57E-04	2.35E-07	0.00E+00
CHILD	5.89E-05	1.88E-05	3.66E-05	9.30E-05	5.95E-05	3.12E-04	4.86E-07	0.00E+00
INFANT	7.64E-05	1.36E-04	5.05E-05	1.62E-04	8.01E-05	7.58E-04	8.48E-07	0.00E+00
GOATMILK								
ADULT	2.23E-06	3.27E-06	2.06E-06	4.75E-06	3.56E-06	1.19E-04	1.61E-08	0.00E+00
TEEN	3.85E-06	3.75E-06	3.36E-06	8.00E-06	5.83E-06	1.88E-04	2.82E-08	0.00E+00
CHILD	7.70E-06	2.44E-06	7.22E-06	1.22E-05	8.87E-06	3.74E-04	5.84E-08	0.00E+00
INFANT	1.04E-05	1.65E-05	1.16E-05	2.20E-05	1.26E-05	9.09E-04	1.02E-07	0.00E+00
INHAL								
ADULT	4.13E-07	1.39E-06	3.56E-07	6.21E-07	5.17E-07	1.42E-05	2.25E-05	0.00E+00
TEEN	5.54E-07	1.36E-06	4.70E-07	8.21E-07	6.83E-07	1.82E-05	3.27E-05	0.00E+00
CHILD	6.38E-07	7.91E-07	5.60E-07	8.01E-07	6.80E-07	2.20E-05	2.66E-05	0.00E+00
INFANT	3.72E-07	5.21E-07	3.56E-07	5.17E-07	4.08E-07	2.01E-05	1.71E-05	0.00E+00

TABLE 4. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 5.69E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.25E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.38E-06	8.38E-06	8.38E-06	8.38E-06	8.38E-06	8.38E-06	8.43E-06	1.45E-05
GROUND	4.42E-04	4.42E-04	4.42E-04	4.42E-04	4.42E-04	4.42E-04	4.42E-04	5.19E-04
VEGET								
ADULT	1.72E-05	7.51E-05	1.27E-05	2.74E-05	1.62E-05	1.49E-04	2.75E-08	0.00E+00
TEEN	2.70E-05	7.91E-05	1.92E-05	4.16E-05	2.36E-05	2.01E-04	3.00E-08	0.00E+00
CHILD	5.39E-05	5.11E-05	4.20E-05	6.23E-05	3.47E-05	3.84E-04	4.57E-08	0.00E+00
MEAT								
ADULT	7.08E-06	2.23E-05	3.78E-06	1.27E-05	7.94E-06	3.98E-06	3.58E-09	0.00E+00
TEEN	5.61E-06	1.18E-05	2.67E-06	9.72E-06	5.83E-06	2.88E-06	3.20E-09	0.00E+00
CHILD	8.64E-06	5.86E-06	4.02E-06	1.12E-05	6.61E-06	4.35E-06	3.62E-09	0.00E+00
COW MILK								
ADULT	2.14E-05	3.24E-05	1.50E-05	4.63E-05	3.13E-05	1.14E-04	1.94E-07	0.00E+00
TEEN	3.70E-05	3.68E-05	2.33E-05	7.77E-05	5.03E-05	1.81E-04	3.38E-07	0.00E+00
CHILD	7.42E-05	2.36E-05	4.61E-05	1.17E-04	7.50E-05	3.59E-04	7.04E-07	0.00E+00
INFANT	9.64E-05	1.72E-04	6.37E-05	2.04E-04	1.01E-04	8.73E-04	1.23E-06	0.00E+00
GOATMILK								
ADULT	2.80E-06	4.09E-06	2.57E-06	5.95E-06	4.43E-06	1.37E-04	2.33E-08	0.00E+00
TEEN	4.83E-06	4.69E-06	4.20E-06	1.00E-05	7.24E-06	2.16E-04	4.06E-08	0.00E+00
CHILD	9.64E-06	3.06E-06	8.99E-06	1.53E-05	1.10E-05	4.30E-04	8.44E-08	0.00E+00
INFANT	1.30E-05	2.08E-05	1.44E-05	2.74E-05	1.56E-05	1.05E-03	1.47E-07	0.00E+00
INHAL								
ADULT	2.45E-06	7.23E-06	2.16E-06	3.59E-06	3.04E-06	7.12E-05	1.13E-04	0.00E+00
TEEN	3.29E-06	7.19E-06	2.85E-06	4.75E-06	4.01E-06	9.20E-05	1.64E-04	0.00E+00
CHILD	3.79E-06	4.19E-06	3.38E-06	4.69E-06	4.05E-06	1.12E-04	1.33E-04	0.00E+00
INFANT	2.23E-06	2.77E-06	2.15E-06	3.02E-06	2.44E-06	1.02E-04	8.55E-05	0.00E+00

TABLE 5. DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 8.87E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.82E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05	1.22E-05	2.17E-05
GROUND	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.31E-03	3.90E-03
VEGET								
ADULT	5.61E-05	4.59E-04	2.04E-05	3.91E-05	1.11E-05	9.33E-04	6.13E-08	0.00E+00
TEEN	8.76E-05	4.88E-04	3.24E-05	5.96E-05	1.67E-05	1.26E-03	1.09E-07	0.00E+00
CHILD	1.76E-04	3.18E-04	7.64E-05	9.14E-05	2.53E-05	2.41E-03	1.62E-07	0.00E+00
MEAT								
ADULT	1.49E-05	1.17E-04	1.22E-06	9.41E-06	2.26E-06	2.52E-05	4.43E-09	0.00E+00
TEEN	1.18E-05	6.27E-05	8.84E-07	7.27E-06	1.67E-06	1.82E-05	4.07E-09	0.00E+00
CHILD	1.83E-05	3.16E-05	1.39E-06	8.56E-06	1.91E-06	2.75E-05	4.69E-09	0.00E+00
COW MILK								
ADULT	9.75E-06	3.43E-05	6.16E-06	1.58E-05	1.18E-05	6.96E-04	2.61E-08	0.00E+00
TEEN	1.67E-05	4.00E-05	1.01E-05	2.67E-05	1.96E-05	1.10E-03	5.32E-08	0.00E+00
CHILD	3.31E-05	2.62E-05	2.19E-05	4.13E-05	3.02E-05	2.17E-03	8.11E-08	0.00E+00
INFANT	4.85E-05	6.26E-05	3.60E-05	7.73E-05	4.47E-05	5.28E-03	1.49E-07	0.00E+00
GOATMILK								
ADULT	2.89E-06	4.95E-06	4.25E-06	4.76E-06	5.55E-06	8.35E-04	6.67E-08	0.00E+00
TEEN	4.61E-06	5.93E-06	7.57E-06	8.28E-06	9.72E-06	1.32E-03	1.38E-07	0.00E+00
CHILD	8.45E-06	4.03E-06	1.80E-05	1.38E-05	1.59E-05	2.61E-03	2.12E-07	0.00E+00
INFANT	1.40E-05	8.40E-06	3.38E-05	3.01E-05	2.66E-05	6.34E-03	3.83E-07	0.00E+00
INHAL								
ADULT	1.10E-06	1.53E-05	3.28E-07	1.49E-06	7.65E-07	8.51E-05	3.09E-04	0.00E+00
TEEN	1.47E-06	1.39E-05	4.51E-07	1.97E-06	1.03E-06	1.05E-04	4.50E-04	0.00E+00
CHILD	1.67E-06	5.37E-06	5.97E-07	1.76E-06	9.36E-07	1.16E-04	3.65E-04	0.00E+00
INFANT	9.30E-07	2.16E-06	4.49E-07	1.24E-06	5.80E-07	1.06E-04	2.33E-04	0.00E+00

TABLE 5. DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .60 MILES NNE

ANNUAL BETA AIR DOSE = 6.00E-07 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.23E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.23E-07	8.23E-07	8.23E-07	8.23E-07	8.23E-07	8.23E-07	8.27E-07	1.47E-06
GROUND	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.11E-03	2.49E-03
VEGET								
ADULT	3.55E-05	2.92E-04	4.62E-06	2.48E-05	6.98E-06	5.78E-04	2.24E-08	0.00E+00
TEEN	5.56E-05	3.10E-04	7.12E-06	3.78E-05	1.04E-05	7.80E-04	3.84E-08	0.00E+00
CHILD	1.11E-04	2.02E-04	1.62E-05	5.79E-05	1.58E-05	1.49E-03	5.57E-08	0.00E+00
MEAT								
ADULT	9.51E-06	7.46E-05	6.84E-07	6.00E-06	1.44E-06	1.56E-05	1.08E-09	0.00E+00
TEEN	7.53E-06	4.01E-05	4.88E-07	4.64E-06	1.06E-06	1.13E-05	9.65E-10	0.00E+00
CHILD	1.17E-05	2.02E-05	7.49E-07	5.46E-06	1.21E-06	1.71E-05	1.09E-09	0.00E+00
COW MILK								
ADULT	6.13E-06	2.19E-05	3.45E-06	9.94E-06	7.42E-06	4.31E-04	5.48E-09	0.00E+00
TEEN	1.05E-05	2.55E-05	5.59E-06	1.68E-05	1.23E-05	6.81E-04	1.08E-08	0.00E+00
CHILD	2.10E-05	1.67E-05	1.18E-05	2.59E-05	1.90E-05	1.35E-03	1.62E-08	0.00E+00
INFANT	3.07E-05	4.00E-05	1.92E-05	4.85E-05	2.80E-05	3.27E-03	3.06E-08	0.00E+00
GOATMILK								
ADULT	1.60E-06	3.03E-06	1.66E-06	2.69E-06	3.35E-06	5.17E-04	9.14E-09	0.00E+00
TEEN	2.68E-06	3.60E-06	2.93E-06	4.67E-06	5.87E-06	8.18E-04	1.88E-08	0.00E+00
CHILD	5.08E-06	2.43E-06	6.90E-06	7.74E-06	9.57E-06	1.61E-03	2.89E-08	0.00E+00
INFANT	8.49E-06	5.21E-06	1.34E-05	1.70E-05	1.60E-05	3.92E-03	5.24E-08	0.00E+00
INHAL								
ADULT	6.87E-07	1.03E-05	1.63E-07	9.00E-07	4.36E-07	5.81E-05	2.08E-04	0.00E+00
TEEN	9.16E-07	9.34E-06	2.22E-07	1.19E-06	5.85E-07	7.13E-05	3.04E-04	0.00E+00
CHILD	1.03E-06	3.47E-06	2.91E-07	1.05E-06	5.28E-07	7.91E-05	2.46E-04	0.00E+00
INFANT	5.60E-07	1.22E-06	2.15E-07	7.06E-07	3.23E-07	7.23E-05	1.57E-04	0.00E+00

TABLE 5. DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 3.91E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 8.02E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.37E-05	5.37E-05	5.37E-05	5.37E-05	5.37E-05	5.37E-05	5.40E-05	9.59E-05
GROUND	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.23E-03
VEGET								
ADULT	1.82E-05	1.46E-04	1.95E-05	1.26E-05	3.80E-06	3.34E-04	4.55E-08	0.00E+00
TEEN	2.83E-05	1.55E-04	3.14E-05	1.93E-05	5.69E-06	4.50E-04	8.35E-08	0.00E+00
CHILD	5.68E-05	1.02E-04	7.48E-05	2.96E-05	8.68E-06	8.62E-04	1.25E-07	0.00E+00
MEAT								
ADULT	4.69E-06	3.67E-05	5.29E-07	2.98E-06	7.22E-07	8.99E-06	4.11E-09	0.00E+00
TEEN	3.71E-06	1.97E-05	3.98E-07	2.30E-06	5.35E-07	6.51E-06	3.82E-09	0.00E+00
CHILD	5.75E-06	9.94E-06	6.60E-07	2.71E-06	6.12E-07	9.83E-06	4.43E-09	0.00E+00
COW MILK								
ADULT	3.24E-06	1.09E-05	2.71E-06	5.21E-06	3.93E-06	2.50E-04	2.56E-08	0.00E+00
TEEN	5.46E-06	1.27E-05	4.58E-06	8.84E-06	6.55E-06	3.95E-04	5.27E-08	0.00E+00
CHILD	1.07E-05	8.36E-06	1.03E-05	1.38E-05	1.02E-05	7.82E-04	8.08E-08	0.00E+00
INFANT	1.57E-05	1.98E-05	1.75E-05	2.60E-05	1.52E-05	1.90E-03	1.47E-07	0.00E+00
GOATMILK								
ADULT	1.31E-06	1.78E-06	3.00E-06	2.08E-06	2.11E-06	3.00E-04	7.30E-08	0.00E+00
TEEN	1.90E-06	2.17E-06	5.38E-06	3.63E-06	3.70E-06	4.74E-04	1.51E-07	0.00E+00
CHILD	3.22E-06	1.52E-06	1.29E-05	6.12E-06	6.06E-06	9.38E-04	2.32E-07	0.00E+00
INFANT	5.27E-06	2.89E-06	2.37E-05	1.31E-05	1.02E-05	2.28E-03	4.20E-07	0.00E+00
INHAL								
ADULT	6.32E-07	3.47E-06	4.89E-07	1.08E-06	7.55E-07	2.06E-05	6.86E-05	0.00E+00
TEEN	8.60E-07	3.25E-06	6.85E-07	1.47E-06	1.04E-06	2.54E-05	1.00E-04	0.00E+00
CHILD	1.03E-06	2.22E-06	9.26E-07	1.40E-06	9.65E-07	2.84E-05	8.11E-05	0.00E+00
INFANT	6.81E-07	2.11E-06	7.28E-07	1.21E-06	6.28E-07	2.60E-05	5.19E-05	0.00E+00

TABLE 5. DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 4.17E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 8.55E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.73E-05	5.73E-05	5.73E-05	5.73E-05	5.73E-05	5.73E-05	5.76E-05	1.02E-04
GROUND	3.92E-05	3.92E-05	3.92E-05	3.92E-05	3.92E-05	3.92E-05	3.92E-05	4.60E-05
VEGET								
ADULT	7.35E-07	5.58E-06	2.32E-06	5.05E-07	1.74E-07	1.70E-05	4.89E-09	0.00E+00
TEEN	1.13E-06	5.98E-06	3.75E-06	7.72E-07	2.62E-07	2.29E-05	9.08E-09	0.00E+00
CHILD	2.28E-06	3.95E-06	8.96E-06	1.20E-06	4.04E-07	4.38E-05	1.37E-08	0.00E+00
MEAT								
ADULT	1.74E-07	1.34E-06	3.74E-08	1.12E-07	2.80E-08	4.56E-07	4.84E-10	0.00E+00
TEEN	1.37E-07	7.22E-07	2.93E-08	8.67E-08	2.08E-08	3.30E-07	4.52E-10	0.00E+00
CHILD	2.12E-07	3.65E-07	5.14E-08	1.02E-07	2.40E-08	4.98E-07	5.25E-10	0.00E+00
COW MILK								
ADULT	1.39E-07	4.14E-07	1.95E-07	2.22E-07	1.71E-07	1.28E-05	3.08E-09	0.00E+00
TEEN	2.26E-07	4.86E-07	3.39E-07	3.79E-07	2.88E-07	2.03E-05	6.35E-09	0.00E+00
CHILD	4.31E-07	3.23E-07	7.91E-07	5.99E-07	4.51E-07	4.02E-05	9.75E-09	0.00E+00
INFANT	6.40E-07	7.44E-07	1.39E-06	1.16E-06	6.91E-07	9.76E-05	1.77E-08	0.00E+00
GOATMILK								
ADULT	9.71E-08	9.27E-08	3.14E-07	1.47E-07	1.21E-07	1.54E-05	9.06E-09	0.00E+00
TEEN	1.25E-07	1.17E-07	5.64E-07	2.58E-07	2.13E-07	2.43E-05	1.87E-08	0.00E+00
CHILD	1.86E-07	8.59E-08	1.36E-06	4.41E-07	3.50E-07	4.82E-05	2.88E-08	0.00E+00
INFANT	2.97E-07	1.37E-07	2.46E-06	9.25E-07	5.88E-07	1.17E-04	5.21E-08	0.00E+00
INHAL								
ADULT	4.51E-07	3.25E-07	4.71E-07	8.56E-07	6.66E-07	3.00E-06	4.76E-06	0.00E+00
TEEN	6.20E-07	3.98E-07	6.61E-07	1.18E-06	9.18E-07	3.81E-06	6.99E-06	0.00E+00
CHILD	7.67E-07	1.23E-06	8.97E-07	1.15E-06	8.61E-07	4.50E-06	5.69E-06	0.00E+00
INFANT	5.46E-07	1.86E-06	7.09E-07	1.07E-06	5.67E-07	4.11E-06	3.74E-06	0.00E+00

TABLE 5. DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 9.39E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.92E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.29E-05	1.29E-05	1.29E-05	1.29E-05	1.29E-05	1.29E-05	1.29E-05	2.30E-05
GROUND	8.99E-05	8.99E-05	8.99E-05	8.99E-05	8.99E-05	8.99E-05	8.99E-05	1.06E-04
VEGET								
ADULT	1.59E-06	1.26E-05	2.65E-06	1.10E-06	3.46E-07	3.14E-05	5.87E-09	0.00E+00
TEEN	2.48E-06	1.35E-05	4.28E-06	1.69E-06	5.18E-07	4.23E-05	1.08E-08	0.00E+00
CHILD	4.97E-06	8.82E-06	1.02E-05	2.60E-06	7.94E-07	8.11E-05	1.64E-08	0.00E+00
MEAT								
ADULT	4.02E-07	3.13E-06	5.63E-08	2.56E-07	6.26E-08	8.45E-07	5.57E-10	0.00E+00
TEEN	3.17E-07	1.68E-06	4.31E-08	1.98E-07	4.64E-08	6.12E-07	5.18E-10	0.00E+00
CHILD	4.92E-07	8.49E-07	7.32E-08	2.34E-07	5.32E-08	9.24E-07	6.02E-10	0.00E+00
COW MILK								
ADULT	2.89E-07	9.39E-07	2.90E-07	4.64E-07	3.52E-07	2.36E-05	3.51E-09	0.00E+00
TEEN	4.82E-07	1.10E-06	4.97E-07	7.89E-07	5.89E-07	3.73E-05	7.23E-09	0.00E+00
CHILD	9.40E-07	7.24E-07	1.13E-06	1.23E-06	9.16E-07	7.38E-05	1.11E-08	0.00E+00
INFANT	1.38E-06	1.70E-06	1.95E-06	2.34E-06	1.38E-06	1.79E-04	2.01E-08	0.00E+00
GOATMILK								
ADULT	1.42E-07	1.69E-07	3.82E-07	2.21E-07	2.07E-07	2.83E-05	1.02E-08	0.00E+00
TEEN	1.97E-07	2.08E-07	6.86E-07	3.87E-07	3.63E-07	4.47E-05	2.10E-08	0.00E+00
CHILD	3.17E-07	1.48E-07	1.65E-06	6.56E-07	5.96E-07	8.86E-05	3.23E-08	0.00E+00
INFANT	5.14E-07	2.66E-07	3.00E-06	1.39E-06	1.00E-06	2.15E-04	5.84E-08	0.00E+00
INHAL								
ADULT	1.31E-07	5.20E-07	1.13E-07	2.31E-07	1.69E-07	3.27E-06	1.01E-05	0.00E+00
TEEN	1.79E-07	4.96E-07	1.58E-07	3.16E-07	2.32E-07	4.05E-06	1.48E-05	0.00E+00
CHILD	2.17E-07	4.27E-07	2.14E-07	3.05E-07	2.17E-07	4.55E-06	1.20E-05	0.00E+00
INFANT	1.47E-07	4.70E-07	1.69E-07	2.70E-07	1.42E-07	4.16E-06	7.67E-06	0.00E+00

TABLE 6. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 1.23E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.59E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	1.74E-05	3.05E-05
GROUND	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.77E-02
VEGET								
ADULT	8.49E-04	3.90E-03	6.05E-04	1.31E-03	7.61E-04	7.69E-03	1.11E-06	0.00E+00
TEEN	1.33E-03	4.11E-03	9.14E-04	1.98E-03	1.11E-03	1.03E-02	1.09E-06	0.00E+00
CHILD	2.66E-03	2.66E-03	2.00E-03	2.97E-03	1.63E-03	1.98E-02	1.69E-06	0.00E+00
MEAT								
ADULT	3.42E-04	1.14E-03	1.76E-04	5.95E-04	3.70E-04	2.05E-04	4.29E-08	0.00E+00
TEEN	2.71E-04	6.04E-04	1.24E-04	4.57E-04	2.72E-04	1.48E-04	3.85E-08	0.00E+00
CHILD	4.17E-04	3.00E-04	1.87E-04	5.27E-04	3.08E-04	2.24E-04	4.35E-08	0.00E+00
COW MILK								
ADULT	1.00E-03	1.53E-03	7.01E-04	2.16E-03	1.46E-03	5.85E-03	9.00E-06	0.00E+00
TEEN	1.73E-03	1.74E-03	1.09E-03	3.62E-03	2.35E-03	9.27E-03	1.57E-05	0.00E+00
CHILD	3.47E-03	1.12E-03	2.16E-03	5.47E-03	3.50E-03	1.84E-02	3.27E-05	0.00E+00
INFANT	4.51E-03	8.01E-03	2.98E-03	9.51E-03	4.71E-03	4.48E-02	5.69E-05	0.00E+00
GOATMILK								
ADULT	1.32E-04	1.94E-04	1.23E-04	2.80E-04	2.10E-04	7.01E-03	1.13E-06	0.00E+00
TEEN	2.27E-04	2.22E-04	2.01E-04	4.71E-04	3.44E-04	1.11E-02	1.99E-06	0.00E+00
CHILD	4.54E-04	1.45E-04	4.31E-04	7.20E-04	5.23E-04	2.21E-02	4.08E-06	0.00E+00
INFANT	6.12E-04	9.72E-04	6.96E-04	1.30E-03	7.44E-04	5.36E-02	7.11E-06	0.00E+00
INHAL								
ADULT	4.16E-05	1.34E-04	3.60E-05	6.07E-05	5.06E-05	1.18E-03	2.15E-03	0.00E+00
TEEN	5.58E-05	1.32E-04	4.75E-05	8.02E-05	6.68E-05	1.52E-03	3.13E-03	0.00E+00
CHILD	6.44E-05	7.42E-05	5.64E-05	7.91E-05	6.73E-05	1.84E-03	2.54E-03	0.00E+00
INFANT	3.78E-05	4.78E-05	3.59E-05	5.09E-05	4.06E-05	1.68E-03	1.63E-03	0.00E+00

TABLE 6. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .54 MILES ESE

ANNUAL BETA AIR DOSE = 7.07E-07 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.50E-06 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.01E-06	1.76E-06
GROUND	1.41E-02	1.41E-02	1.41E-02	1.41E-02	1.41E-02	1.41E-02	1.41E-02	1.65E-02
VEGET								
ADULT	5.09E-04	2.33E-03	3.58E-04	7.82E-04	4.56E-04	4.57E-03	6.28E-07	0.00E+00
TEEN	7.96E-04	2.46E-03	5.40E-04	1.19E-03	6.65E-04	6.14E-03	5.90E-07	0.00E+00
CHILD	1.59E-03	1.59E-03	1.18E-03	1.78E-03	9.78E-04	1.18E-02	9.15E-07	0.00E+00
MEAT								
ADULT	2.05E-04	6.81E-04	1.06E-04	3.56E-04	2.22E-04	1.22E-04	9.53E-09	0.00E+00
TEEN	1.62E-04	3.62E-04	7.45E-05	2.74E-04	1.63E-04	8.83E-05	8.53E-09	0.00E+00
CHILD	2.50E-04	1.80E-04	1.12E-04	3.16E-04	1.85E-04	1.33E-04	9.65E-09	0.00E+00
COW MILK								
ADULT	5.99E-04	9.18E-04	4.20E-04	1.30E-03	8.76E-04	3.48E-03	5.39E-06	0.00E+00
TEEN	1.04E-03	1.04E-03	6.51E-04	2.17E-03	1.41E-03	5.52E-03	9.42E-06	0.00E+00
CHILD	2.08E-03	6.70E-04	1.29E-03	3.28E-03	2.10E-03	1.10E-02	1.96E-05	0.00E+00
INFANT	2.70E-03	4.80E-03	1.79E-03	5.70E-03	2.83E-03	2.66E-02	3.41E-05	0.00E+00
GOATMILK								
ADULT	7.90E-05	1.16E-04	7.28E-05	1.68E-04	1.26E-04	4.17E-03	6.58E-07	0.00E+00
TEEN	1.36E-04	1.33E-04	1.19E-04	2.82E-04	2.06E-04	6.61E-03	1.15E-06	0.00E+00
CHILD	2.72E-04	8.70E-05	2.56E-04	4.31E-04	3.13E-04	1.31E-02	2.38E-06	0.00E+00
INFANT	3.67E-04	5.83E-04	4.12E-04	7.75E-04	4.45E-04	3.19E-02	4.15E-06	0.00E+00
INHAL								
ADULT	4.15E-05	1.34E-04	3.59E-05	6.06E-05	5.05E-05	1.18E-03	2.15E-03	0.00E+00
TEEN	5.57E-05	1.32E-04	4.74E-05	8.01E-05	6.66E-05	1.52E-03	3.13E-03	0.00E+00
CHILD	6.43E-05	7.40E-05	5.62E-05	7.90E-05	6.72E-05	1.84E-03	2.54E-03	0.00E+00
INFANT	3.77E-05	4.75E-05	3.58E-05	5.07E-05	4.05E-05	1.68E-03	1.63E-03	0.00E+00

TABLE 6. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 1.27E-04 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.69E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.80E-04	1.80E-04	1.80E-04	1.80E-04	1.80E-04	1.80E-04	1.81E-04	3.17E-04
GROUND	8.94E-03	8.94E-03	8.94E-03	8.94E-03	8.94E-03	8.94E-03	8.94E-03	1.05E-02
VEGET								
ADULT	3.20E-04	1.48E-03	2.53E-04	4.87E-04	2.83E-04	3.04E-03	5.95E-07	0.00E+00
TEEN	5.00E-04	1.56E-03	3.86E-04	7.40E-04	4.13E-04	4.09E-03	7.60E-07	0.00E+00
CHILD	9.99E-04	1.01E-03	8.55E-04	1.11E-03	6.08E-04	7.83E-03	1.15E-06	0.00E+00
MEAT								
ADULT	1.28E-04	4.30E-04	6.57E-05	2.21E-04	1.37E-04	8.12E-05	1.09E-07	0.00E+00
TEEN	1.01E-04	2.29E-04	4.64E-05	1.70E-04	1.01E-04	5.88E-05	9.83E-08	0.00E+00
CHILD	1.56E-04	1.14E-04	7.01E-05	1.96E-04	1.14E-04	8.88E-05	1.11E-07	0.00E+00
COW MILK								
ADULT	3.71E-04	5.69E-04	2.62E-04	8.02E-04	5.42E-04	2.31E-03	3.13E-06	0.00E+00
TEEN	6.41E-04	6.47E-04	4.06E-04	1.34E-03	8.72E-04	3.66E-03	5.48E-06	0.00E+00
CHILD	1.29E-03	4.15E-04	8.06E-04	2.03E-03	1.30E-03	7.28E-03	1.13E-05	0.00E+00
INFANT	1.67E-03	2.97E-03	1.12E-03	3.53E-03	1.75E-03	1.77E-02	1.98E-05	0.00E+00
GOATMILK								
ADULT	5.00E-05	7.25E-05	4.92E-05	1.05E-04	7.90E-05	2.77E-03	5.03E-07	0.00E+00
TEEN	8.56E-05	8.34E-05	8.12E-05	1.77E-04	1.30E-04	4.39E-03	9.21E-07	0.00E+00
CHILD	1.70E-04	5.45E-05	1.76E-04	2.72E-04	1.97E-04	8.73E-03	1.77E-06	0.00E+00
INFANT	2.30E-04	3.61E-04	2.88E-04	4.90E-04	2.82E-04	2.12E-02	3.10E-06	0.00E+00
INHAL								
ADULT	9.15E-06	2.82E-05	8.00E-06	1.38E-05	1.14E-05	2.51E-04	4.58E-04	0.00E+00
TEEN	1.23E-05	2.78E-05	1.06E-05	1.83E-05	1.50E-05	3.23E-04	6.66E-04	0.00E+00
CHILD	1.43E-05	1.71E-05	1.28E-05	1.80E-05	1.50E-05	3.90E-04	5.41E-04	0.00E+00
INFANT	8.50E-06	1.28E-05	8.36E-06	1.21E-05	9.08E-06	3.56E-04	3.47E-04	0.00E+00

TABLE 6. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 8.48E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.79E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.21E-04	2.11E-04
GROUND	3.59E-04	3.59E-04	3.59E-04	3.59E-04	3.59E-04	3.59E-04	3.59E-04	4.22E-04
VEGET								
ADULT	1.26E-05	5.94E-05	1.16E-05	1.90E-05	1.10E-05	1.31E-04	3.60E-08	0.00E+00
TEEN	1.98E-05	6.28E-05	1.79E-05	2.89E-05	1.61E-05	1.75E-04	5.31E-08	0.00E+00
CHILD	3.95E-05	4.07E-05	4.02E-05	4.33E-05	2.37E-05	3.36E-04	7.94E-08	0.00E+00
MEAT								
ADULT	4.99E-06	1.72E-05	2.57E-06	8.58E-06	5.29E-06	3.49E-06	1.02E-08	0.00E+00
TEEN	3.95E-06	9.12E-06	1.82E-06	6.59E-06	3.89E-06	2.52E-06	9.16E-09	0.00E+00
CHILD	6.09E-06	4.54E-06	2.75E-06	7.61E-06	4.41E-06	3.81E-06	1.04E-08	0.00E+00
COW MILK								
ADULT	1.44E-05	2.21E-05	1.02E-05	3.10E-05	2.10E-05	9.92E-05	1.20E-07	0.00E+00
TEEN	2.48E-05	2.51E-05	1.59E-05	5.20E-05	3.38E-05	1.57E-04	2.10E-07	0.00E+00
CHILD	4.97E-05	1.61E-05	3.16E-05	7.85E-05	5.03E-05	3.12E-04	4.31E-07	0.00E+00
INFANT	6.47E-05	1.15E-04	4.41E-05	1.37E-04	6.78E-05	7.59E-04	7.53E-07	0.00E+00
GOATMILK								
ADULT	2.00E-06	2.85E-06	2.15E-06	4.16E-06	3.13E-06	1.19E-04	2.62E-08	0.00E+00
TEEN	3.39E-06	3.29E-06	3.58E-06	7.02E-06	5.15E-06	1.88E-04	4.98E-08	0.00E+00
CHILD	6.68E-06	2.15E-06	7.89E-06	1.08E-05	7.87E-06	3.74E-04	8.95E-08	0.00E+00
INFANT	9.06E-06	1.40E-05	1.31E-05	1.96E-05	1.13E-05	9.10E-04	1.59E-07	0.00E+00
INHAL								
ADULT	1.02E-06	1.97E-06	9.74E-07	1.73E-06	1.39E-06	2.00E-05	3.07E-05	0.00E+00
TEEN	1.38E-06	2.03E-06	1.33E-06	2.33E-06	1.88E-06	2.57E-05	4.48E-05	0.00E+00
CHILD	1.65E-06	2.31E-06	1.71E-06	2.29E-06	1.81E-06	3.10E-05	3.64E-05	0.00E+00
INFANT	1.07E-06	2.71E-06	1.24E-06	1.84E-06	1.14E-06	2.83E-05	2.35E-05	0.00E+00

TABLE 6. DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 1.51E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.19E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.14E-05	2.14E-05	2.14E-05	2.14E-05	2.14E-05	2.14E-05	2.15E-05	3.76E-05
GROUND	5.57E-04	5.57E-04	5.57E-04	5.57E-04	5.57E-04	5.57E-04	5.57E-04	6.55E-04
VEGET								
ADULT	1.99E-05	9.22E-05	1.56E-05	3.04E-05	1.77E-05	1.90E-04	3.74E-08	0.00E+00
TEEN	3.12E-05	9.74E-05	2.38E-05	4.62E-05	2.58E-05	2.55E-04	4.64E-08	0.00E+00
CHILD	6.23E-05	6.30E-05	5.27E-05	6.93E-05	3.80E-05	4.88E-04	7.02E-08	0.00E+00
MEAT								
ADULT	7.97E-06	2.68E-05	4.10E-06	1.38E-05	8.57E-06	5.06E-06	6.21E-09	0.00E+00
TEEN	6.31E-06	1.43E-05	2.90E-06	1.06E-05	6.29E-06	3.67E-06	5.57E-09	0.00E+00
CHILD	9.72E-06	7.08E-06	4.38E-06	1.22E-05	7.13E-06	5.53E-06	6.31E-09	0.00E+00
COW MILK								
ADULT	2.32E-05	3.56E-05	1.63E-05	5.01E-05	3.39E-05	1.44E-04	2.11E-07	0.00E+00
TEEN	4.01E-05	4.04E-05	2.53E-05	8.40E-05	5.45E-05	2.29E-04	3.68E-07	0.00E+00
CHILD	8.04E-05	2.60E-05	5.04E-05	1.27E-04	8.13E-05	4.55E-04	7.63E-07	0.00E+00
INFANT	1.05E-04	1.86E-04	6.99E-05	2.21E-04	1.09E-04	1.10E-03	1.33E-06	0.00E+00
GOATMILK								
ADULT	3.12E-06	4.53E-06	3.05E-06	6.57E-06	4.94E-06	1.73E-04	3.25E-08	0.00E+00
TEEN	5.34E-06	5.21E-06	5.04E-06	1.11E-05	8.09E-06	2.74E-04	5.91E-08	0.00E+00
CHILD	1.06E-05	3.41E-06	1.09E-05	1.70E-05	1.23E-05	5.45E-04	1.14E-07	0.00E+00
INFANT	1.44E-05	2.26E-05	1.78E-05	3.06E-05	1.76E-05	1.32E-03	2.01E-07	0.00E+00
INHAL								
ADULT	2.17E-06	6.73E-06	1.90E-06	3.21E-06	2.68E-06	6.25E-05	1.08E-04	0.00E+00
TEEN	2.91E-06	6.65E-06	2.51E-06	4.25E-06	3.54E-06	8.05E-05	1.57E-04	0.00E+00
CHILD	3.37E-06	3.94E-06	3.00E-06	4.19E-06	3.56E-06	9.72E-05	1.28E-04	0.00E+00
INFANT	2.00E-06	2.74E-06	1.94E-06	2.76E-06	2.16E-06	8.88E-05	8.19E-05	0.00E+00

TABLE 7. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024

SPECIAL LOCATION NO. 1A Site Boundary
AT .67 MILES N

ANNUAL BETA AIR DOSE = 1.30E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.98E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.99E-05	1.99E-05	1.99E-05	1.99E-05	1.99E-05	1.99E-05	2.00E-05	3.39E-05
GROUND	2.47E-02	2.47E-02	2.47E-02	2.47E-02	2.47E-02	2.47E-02	2.47E-02	2.90E-02
VEGET								
ADULT	8.81E-04	4.05E-03	6.67E-04	1.34E-03	7.96E-04	1.32E-02	1.03E-06	0.00E+00
TEEN	1.38E-03	4.28E-03	1.01E-03	2.03E-03	1.16E-03	1.78E-02	1.00E-06	0.00E+00
CHILD	2.75E-03	2.77E-03	2.24E-03	3.05E-03	1.71E-03	3.40E-02	1.55E-06	0.00E+00
MEAT								
ADULT	3.49E-04	1.18E-03	1.78E-04	6.01E-04	3.73E-04	3.52E-04	3.55E-08	0.00E+00
TEEN	2.76E-04	6.27E-04	1.26E-04	4.62E-04	2.74E-04	2.55E-04	3.18E-08	0.00E+00
CHILD	4.25E-04	3.11E-04	1.90E-04	5.33E-04	3.11E-04	3.85E-04	3.60E-08	0.00E+00
COW MILK								
ADULT	1.02E-03	1.55E-03	7.18E-04	2.19E-03	1.50E-03	1.01E-02	8.42E-06	0.00E+00
TEEN	1.76E-03	1.77E-03	1.11E-03	3.68E-03	2.41E-03	1.60E-02	1.47E-05	0.00E+00
CHILD	3.52E-03	1.14E-03	2.22E-03	5.56E-03	3.60E-03	3.18E-02	3.06E-05	0.00E+00
INFANT	4.59E-03	8.08E-03	3.10E-03	9.69E-03	4.87E-03	7.74E-02	5.33E-05	0.00E+00
GOATMILK								
ADULT	1.42E-04	2.02E-04	1.39E-04	2.98E-04	2.39E-04	1.21E-02	1.05E-06	0.00E+00
TEEN	2.44E-04	2.33E-04	2.30E-04	5.03E-04	3.96E-04	1.92E-02	1.85E-06	0.00E+00
CHILD	4.86E-04	1.54E-04	5.03E-04	7.76E-04	6.09E-04	3.82E-02	3.80E-06	0.00E+00
INFANT	6.71E-04	9.87E-04	8.42E-04	1.43E-03	8.92E-04	9.28E-02	6.62E-06	0.00E+00
INHAL								
ADULT	3.73E-05	1.23E-04	3.34E-05	5.68E-05	5.10E-05	1.92E-03	1.98E-03	0.00E+00
TEEN	5.01E-05	1.21E-04	4.44E-05	7.54E-05	6.78E-05	2.47E-03	2.88E-03	0.00E+00
CHILD	5.77E-05	6.60E-05	5.35E-05	7.40E-05	6.73E-05	3.01E-03	2.34E-03	0.00E+00
INFANT	3.41E-05	4.18E-05	3.48E-05	4.93E-05	4.10E-05	2.76E-03	1.50E-03	0.00E+00

TABLE 7. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 2A Site Boundary
AT .65 MILES SE

ANNUAL BETA AIR DOSE = 7.14E-06 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.64E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.87E-05
GROUND	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.09E-02	2.46E-02
VEGET								
ADULT	7.46E-04	3.43E-03	5.63E-04	1.13E-03	6.74E-04	1.12E-02	8.57E-07	0.00E+00
TEEN	1.17E-03	3.62E-03	8.56E-04	1.72E-03	9.83E-04	1.50E-02	8.27E-07	0.00E+00
CHILD	2.33E-03	2.35E-03	1.89E-03	2.58E-03	1.45E-03	2.88E-02	1.28E-06	0.00E+00
MEAT								
ADULT	2.95E-04	9.99E-04	1.51E-04	5.10E-04	3.16E-04	2.98E-04	2.44E-08	0.00E+00
TEEN	2.34E-04	5.31E-04	1.07E-04	3.91E-04	2.32E-04	2.16E-04	2.19E-08	0.00E+00
CHILD	3.60E-04	2.64E-04	1.61E-04	4.52E-04	2.64E-04	3.26E-04	2.48E-08	0.00E+00
COW MILK								
ADULT	8.60E-04	1.32E-03	6.08E-04	1.86E-03	1.27E-03	8.54E-03	7.14E-06	0.00E+00
TEEN	1.49E-03	1.50E-03	9.44E-04	3.12E-03	2.04E-03	1.35E-02	1.25E-05	0.00E+00
CHILD	2.98E-03	9.62E-04	1.88E-03	4.71E-03	3.05E-03	2.69E-02	2.59E-05	0.00E+00
INFANT	3.89E-03	6.84E-03	2.63E-03	8.21E-03	4.12E-03	6.54E-02	4.51E-05	0.00E+00
GOATMILK								
ADULT	1.20E-04	1.71E-04	1.17E-04	2.52E-04	2.03E-04	1.02E-02	8.84E-07	0.00E+00
TEEN	2.07E-04	1.98E-04	1.95E-04	4.26E-04	3.35E-04	1.62E-02	1.55E-06	0.00E+00
CHILD	4.12E-04	1.30E-04	4.25E-04	6.57E-04	5.16E-04	3.23E-02	3.20E-06	0.00E+00
INFANT	5.68E-04	8.36E-04	7.11E-04	1.21E-03	7.56E-04	7.85E-02	5.57E-06	0.00E+00
INHAL								
ADULT	3.73E-05	1.23E-04	3.34E-05	5.68E-05	5.10E-05	1.92E-03	1.98E-03	0.00E+00
TEEN	5.00E-05	1.21E-04	4.44E-05	7.53E-05	6.77E-05	2.47E-03	2.88E-03	0.00E+00
CHILD	5.77E-05	6.60E-05	5.34E-05	7.39E-05	6.73E-05	3.01E-03	2.34E-03	0.00E+00
INFANT	3.40E-05	4.17E-05	3.48E-05	4.92E-05	4.10E-05	2.76E-03	1.50E-03	0.00E+00

TABLE 7. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 3A Nearest Resident
AT .90 MILES NW

ANNUAL BETA AIR DOSE = 1.49E-04 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.42E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.29E-04	2.29E-04	2.29E-04	2.29E-04	2.29E-04	2.29E-04	2.30E-04	3.90E-04
GROUND	9.05E-03	9.05E-03	9.05E-03	9.05E-03	9.05E-03	9.05E-03	9.05E-03	1.06E-02
VEGET								
ADULT	3.20E-04	1.48E-03	2.68E-04	4.82E-04	2.86E-04	5.02E-03	5.80E-07	0.00E+00
TEEN	5.00E-04	1.57E-03	4.11E-04	7.31E-04	4.17E-04	6.74E-03	7.42E-07	0.00E+00
CHILD	9.98E-04	1.02E-03	9.19E-04	1.10E-03	6.17E-04	1.29E-02	1.12E-06	0.00E+00
MEAT								
ADULT	1.26E-04	4.30E-04	6.42E-05	2.16E-04	1.34E-04	1.34E-04	1.08E-07	0.00E+00
TEEN	9.95E-05	2.29E-04	4.54E-05	1.66E-04	9.81E-05	9.68E-05	9.67E-08	0.00E+00
CHILD	1.53E-04	1.14E-04	6.86E-05	1.91E-04	1.11E-04	1.46E-04	1.09E-07	0.00E+00
COW MILK								
ADULT	3.64E-04	5.58E-04	2.59E-04	7.84E-04	5.36E-04	3.83E-03	3.05E-06	0.00E+00
TEEN	6.29E-04	6.34E-04	4.02E-04	1.32E-03	8.63E-04	6.07E-03	5.34E-06	0.00E+00
CHILD	1.26E-03	4.08E-04	8.03E-04	1.99E-03	1.29E-03	1.21E-02	1.10E-05	0.00E+00
INFANT	1.64E-03	2.89E-03	1.13E-03	3.47E-03	1.75E-03	2.93E-02	1.92E-05	0.00E+00
GOATMILK								
ADULT	5.20E-05	7.31E-05	5.38E-05	1.08E-04	8.73E-05	4.59E-03	4.91E-07	0.00E+00
TEEN	8.89E-05	8.45E-05	8.98E-05	1.83E-04	1.45E-04	7.28E-03	8.99E-07	0.00E+00
CHILD	1.76E-04	5.58E-05	1.98E-04	2.83E-04	2.23E-04	1.45E-02	1.72E-06	0.00E+00
INFANT	2.44E-04	3.53E-04	3.34E-04	5.23E-04	3.28E-04	3.52E-02	3.03E-06	0.00E+00
INHAL								
ADULT	8.34E-06	2.56E-05	7.59E-06	1.30E-05	1.15E-05	4.06E-04	4.11E-04	0.00E+00
TEEN	1.12E-05	2.53E-05	1.01E-05	1.73E-05	1.54E-05	5.25E-04	5.98E-04	0.00E+00
CHILD	1.30E-05	1.54E-05	1.23E-05	1.69E-05	1.52E-05	6.38E-04	4.86E-04	0.00E+00
INFANT	7.81E-06	1.13E-05	8.22E-06	1.17E-05	9.32E-06	5.85E-04	3.12E-04	0.00E+00

TABLE 7. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 9.08E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.08E-04 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.39E-04	1.39E-04	1.39E-04	1.39E-04	1.39E-04	1.39E-04	1.40E-04	2.38E-04
GROUND	3.42E-04	3.42E-04	3.42E-04	3.42E-04	3.42E-04	3.42E-04	3.42E-04	4.02E-04
VEGET								
ADULT	1.20E-05	5.62E-05	1.11E-05	1.79E-05	1.06E-05	1.95E-04	2.87E-08	0.00E+00
TEEN	1.87E-05	5.94E-05	1.71E-05	2.72E-05	1.55E-05	2.62E-04	4.17E-08	0.00E+00
CHILD	3.74E-05	3.85E-05	3.86E-05	4.08E-05	2.29E-05	5.02E-04	6.24E-08	0.00E+00
MEAT								
ADULT	4.67E-06	1.62E-05	2.38E-06	7.97E-06	4.92E-06	5.20E-06	7.83E-09	0.00E+00
TEEN	3.70E-06	8.62E-06	1.69E-06	6.13E-06	3.61E-06	3.77E-06	7.03E-09	0.00E+00
CHILD	5.69E-06	4.29E-06	2.56E-06	7.07E-06	4.10E-06	5.69E-06	7.97E-09	0.00E+00
COW MILK								
ADULT	1.34E-05	2.06E-05	9.59E-06	2.89E-05	1.98E-05	1.48E-04	1.01E-07	0.00E+00
TEEN	2.32E-05	2.34E-05	1.49E-05	4.85E-05	3.18E-05	2.35E-04	1.78E-07	0.00E+00
CHILD	4.65E-05	1.50E-05	2.99E-05	7.34E-05	4.76E-05	4.68E-04	3.65E-07	0.00E+00
INFANT	6.06E-05	1.06E-04	4.21E-05	1.28E-04	6.44E-05	1.14E-03	6.38E-07	0.00E+00
GOATMILK								
ADULT	1.96E-06	2.72E-06	2.14E-06	4.06E-06	3.27E-06	1.78E-04	2.13E-08	0.00E+00
TEEN	3.33E-06	3.15E-06	3.60E-06	6.87E-06	5.43E-06	2.82E-04	4.02E-08	0.00E+00
CHILD	6.56E-06	2.08E-06	8.00E-06	1.06E-05	8.38E-06	5.61E-04	7.28E-08	0.00E+00
INFANT	9.10E-06	1.30E-05	1.36E-05	1.97E-05	1.24E-05	1.36E-03	1.29E-07	0.00E+00
INHAL								
ADULT	8.74E-07	1.93E-06	8.42E-07	1.49E-06	1.26E-06	3.23E-05	3.05E-05	0.00E+00
TEEN	1.18E-06	1.96E-06	1.15E-06	2.01E-06	1.70E-06	4.17E-05	4.45E-05	0.00E+00
CHILD	1.41E-06	1.94E-06	1.47E-06	1.97E-06	1.64E-06	5.05E-05	3.61E-05	0.00E+00
INFANT	9.04E-07	2.13E-06	1.06E-06	1.56E-06	1.04E-06	4.63E-05	2.33E-05	0.00E+00

TABLE 7. DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 1.88E-05 MILLRADS
ANNUAL GAMMA AIR DOSE = 4.32E-05 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.89E-05	2.89E-05	2.89E-05	2.89E-05	2.89E-05	2.89E-05	2.90E-05	4.92E-05
GROUND	5.98E-04	5.98E-04	5.98E-04	5.98E-04	5.98E-04	5.98E-04	5.98E-04	7.03E-04
VEGET								
ADULT	2.12E-05	9.82E-05	1.73E-05	3.20E-05	1.90E-05	3.26E-04	3.23E-08	0.00E+00
TEEN	3.31E-05	1.04E-04	2.65E-05	4.85E-05	2.77E-05	4.38E-04	4.03E-08	0.00E+00
CHILD	6.62E-05	6.72E-05	5.90E-05	7.29E-05	4.10E-05	8.38E-04	6.09E-08	0.00E+00
MEAT								
ADULT	8.34E-06	2.85E-05	4.26E-06	1.43E-05	8.89E-06	8.69E-06	5.48E-09	0.00E+00
TEEN	6.61E-06	1.51E-05	3.01E-06	1.10E-05	6.53E-06	6.29E-06	4.92E-09	0.00E+00
CHILD	1.02E-05	7.53E-06	4.56E-06	1.27E-05	7.41E-06	9.50E-06	5.57E-09	0.00E+00
COW MILK								
ADULT	2.42E-05	3.70E-05	1.71E-05	5.22E-05	3.56E-05	2.48E-04	1.79E-07	0.00E+00
TEEN	4.18E-05	4.21E-05	2.66E-05	8.75E-05	5.74E-05	3.93E-04	3.13E-07	0.00E+00
CHILD	8.38E-05	2.70E-05	5.32E-05	1.32E-04	8.56E-05	7.82E-04	6.48E-07	0.00E+00
INFANT	1.09E-04	1.92E-04	7.45E-05	2.31E-04	1.16E-04	1.90E-03	1.13E-06	0.00E+00
GOATMILK								
ADULT	3.43E-06	4.84E-06	3.49E-06	7.17E-06	5.75E-06	2.97E-04	2.78E-08	0.00E+00
TEEN	5.88E-06	5.59E-06	5.82E-06	1.21E-05	9.52E-06	4.72E-04	5.07E-08	0.00E+00
CHILD	1.16E-05	3.68E-06	1.28E-05	1.87E-05	1.47E-05	9.38E-04	9.80E-08	0.00E+00
INFANT	1.61E-05	2.35E-05	2.15E-05	3.45E-05	2.15E-05	2.28E-03	1.72E-07	0.00E+00
INHAL								
ADULT	1.65E-06	5.43E-06	1.48E-06	2.58E-06	2.28E-06	8.62E-05	8.88E-05	0.00E+00
TEEN	2.21E-06	5.31E-06	1.96E-06	3.43E-06	3.04E-06	1.11E-04	1.29E-04	0.00E+00
CHILD	2.56E-06	3.01E-06	2.39E-06	3.34E-06	2.98E-06	1.35E-04	1.05E-04	0.00E+00
INFANT	1.51E-06	2.10E-06	1.57E-06	2.28E-06	1.82E-06	1.23E-04	6.74E-05	0.00E+00

TABLE 8. DOSES TO POPULATION WITHIN 50 MILES, JANUARY-MARCH 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.48E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	3.49E-05	6.26E-05
	59.16%	54.60%	58.98%	59.48%	59.55%	15.47%	55.48%	70.14%
GROUND	2.27E-05	2.27E-05	2.27E-05	2.27E-05	2.27E-05	2.27E-05	2.27E-05	2.66E-05
	38.53%	35.56%	38.41%	38.74%	38.78%	10.07%	36.02%	29.86%
INHAL	6.68E-08	2.70E-07	1.04E-07	1.44E-07	2.27E-07	2.76E-05	5.35E-06	0.00E+00
	.11%	.42%	.18%	.25%	.39%	12.29%	8.51%	.00%
VEGET	7.47E-07	4.05E-06	8.88E-07	3.37E-07	2.14E-08	1.62E-06	0.00E+00	0.00E+00
	1.27%	6.36%	1.51%	.58%	.04%	.72%	.00%	.00%
COW MILK	3.38E-07	5.67E-07	5.26E-07	4.64E-07	7.15E-07	1.35E-04	8.02E-37	0.00E+00
	.57%	.89%	.89%	.79%	1.22%	60.21%	.00%	.00%
MEAT	2.07E-07	1.38E-06	2.24E-08	9.55E-08	1.47E-08	2.76E-06	0.00E+00	0.00E+00
	.35%	2.16%	.04%	.16%	.03%	1.23%	.00%	.00%
TOTAL	5.88E-05	6.37E-05	5.90E-05	5.85E-05	5.84E-05	2.25E-04	6.29E-05	8.92E-05

TABLE 9. DOSES TO POPULATION WITHIN 50 MILES, APRIL-JUNE 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.08E-05	5.52E-05
	16.14%	14.55%	17.03%	14.46%	15.80%	3.35%	17.20%	26.94%
GROUND	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.27E-04	1.50E-04
	66.88%	60.29%	70.57%	59.92%	65.47%	13.88%	70.98%	73.06%
INHAL	3.46E-07	1.04E-06	3.98E-07	6.73E-07	8.23E-07	8.46E-05	2.12E-05	0.00E+00
	.18%	.49%	.22%	.32%	.42%	9.23%	11.82%	.00%
VEGET	7.53E-06	2.43E-05	5.60E-06	9.15E-06	4.89E-06	7.66E-06	1.40E-36	0.00E+00
	3.96%	11.50%	3.11%	4.31%	2.51%	.84%	.00%	.00%
COW MILK	2.10E-05	1.81E-05	1.47E-05	3.92E-05	2.74E-05	6.53E-04	5.15E-09	0.00E+00
	11.05%	8.60%	8.16%	18.48%	14.12%	71.25%	.00%	.00%
MEAT	3.40E-06	9.63E-06	1.65E-06	5.33E-06	3.27E-06	1.33E-05	1.19E-17	0.00E+00
	1.79%	4.57%	.92%	2.51%	1.68%	1.45%	.00%	.00%
TOTAL	1.90E-04	2.11E-04	1.80E-04	2.12E-04	1.94E-04	9.16E-04	1.79E-04	2.05E-04

TABLE 10. DOSES TO POPULATION WITHIN 50 MILES, JANUARY-JUNE 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.31E-05	6.31E-05	6.31E-05	6.31E-05	6.31E-05	6.31E-05	6.33E-05	1.14E-04
	25.92%	23.43%	27.00%	23.78%	25.52%	5.52%	26.39%	39.70%
GROUND	1.47E-04	1.47E-04	1.47E-04	1.47E-04	1.47E-04	1.47E-04	1.47E-04	1.73E-04
	60.25%	54.48%	62.76%	55.30%	59.33%	12.83%	61.13%	60.30%
INHAL	4.63E-07	1.46E-06	5.52E-07	9.11E-07	1.15E-06	1.22E-04	3.00E-05	0.00E+00
	.19%	.54%	.24%	.34%	.46%	10.69%	12.48%	.00%
VEGET	8.28E-06	2.83E-05	6.48E-06	9.49E-06	4.91E-06	9.25E-06	1.35E-36	0.00E+00
	3.40%	10.52%	2.77%	3.57%	1.98%	.81%	.00%	.00%
COW MILK	2.13E-05	1.87E-05	1.52E-05	3.97E-05	2.81E-05	7.86E-04	5.01E-09	0.00E+00
	8.76%	6.95%	6.51%	14.96%	11.37%	68.76%	.00%	.00%
MEAT	3.60E-06	1.10E-05	1.67E-06	5.43E-06	3.28E-06	1.60E-05	1.15E-17	0.00E+00
	1.48%	4.09%	.71%	2.04%	1.33%	1.40%	.00%	.00%
TOTAL	2.44E-04	2.69E-04	2.34E-04	2.65E-04	2.47E-04	1.14E-03	2.40E-04	2.86E-04

TABLE 11. DOSES TO POPULATION WITHIN 50 MILES, JULY-SEPTEMBER 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.61E-05	7.61E-05	7.61E-05	7.61E-05	7.61E-05	7.61E-05	7.66E-05	1.45E-04
	5.45%	4.92%	5.89%	4.76%	5.34%	3.61%	5.56%	10.56%
GROUND	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03	1.23E-03
	74.88%	67.58%	80.98%	65.42%	73.47%	49.68%	75.86%	89.44%
INHAL	3.93E-06	1.22E-05	3.21E-06	6.11E-06	4.81E-06	1.57E-04	2.56E-04	0.00E+00
	.28%	.79%	.25%	.38%	.34%	7.46%	18.56%	.00%
VEGET	6.09E-05	1.83E-04	3.43E-05	8.22E-05	4.48E-05	9.49E-06	4.34E-08	0.00E+00
	4.36%	11.81%	2.65%	5.14%	3.15%	.45%	.00%	.00%
COW MILK	1.81E-04	1.57E-04	1.17E-04	3.41E-04	2.23E-04	8.00E-04	1.67E-07	0.00E+00
	12.98%	10.16%	9.09%	21.33%	15.65%	38.02%	.01%	.00%
MEAT	2.86E-05	7.35E-05	1.46E-05	4.75E-05	2.92E-05	1.63E-05	4.87E-08	0.00E+00
	2.05%	4.75%	1.13%	2.97%	2.05%	.77%	.00%	.00%
TOTAL	1.40E-03	1.55E-03	1.29E-03	1.60E-03	1.42E-03	2.10E-03	1.38E-03	1.37E-03

TABLE 12. DOSES TO POPULATION WITHIN 50 MILES, OCTOBER-DECEMBER 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.65E-05	8.65E-05	8.65E-05	8.65E-05	8.65E-05	8.65E-05	8.70E-05	1.70E-04
	36.38%	32.23%	35.47%	36.57%	37.19%	20.99%	32.22%	50.29%
GROUND	1.42E-04	1.42E-04	1.42E-04	1.42E-04	1.42E-04	1.42E-04	1.42E-04	1.68E-04
	59.95%	53.11%	58.45%	60.25%	61.29%	34.58%	52.74%	49.71%
INHAL	4.75E-07	2.23E-06	5.32E-07	7.92E-07	6.17E-07	2.36E-05	4.06E-05	0.00E+00
	.20%	.83%	.22%	.33%	.27%	5.73%	15.02%	.00%
VEGET	4.87E-06	2.49E-05	1.10E-05	2.86E-06	5.04E-07	1.92E-06	3.34E-08	0.00E+00
	2.05%	9.29%	4.53%	1.21%	.22%	.47%	.01%	.00%
COW MILK	2.05E-06	3.91E-06	2.99E-06	3.05E-06	2.21E-06	1.54E-04	4.31E-08	0.00E+00
	.86%	1.46%	1.23%	1.29%	.95%	37.45%	.02%	.00%
MEAT	1.33E-06	8.24E-06	2.77E-07	8.08E-07	1.98E-07	3.22E-06	3.37E-09	0.00E+00
	.56%	3.07%	.11%	.34%	.09%	.78%	.00%	.00%
TOTAL	2.38E-04	2.68E-04	2.44E-04	2.36E-04	2.32E-04	4.12E-04	2.70E-04	3.37E-04

TABLE 13. DOSES TO POPULATION WITHIN 50 MILES, JULY-DECEMBER 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.58E-04	3.04E-04
	9.94%	8.91%	10.60%	8.82%	9.80%	6.37%	9.87%	18.48%
GROUND	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.14E-03	1.34E-03
	72.12%	64.69%	76.93%	63.99%	71.14%	46.20%	71.16%	81.52%
INHAL	4.55E-06	1.48E-05	3.88E-06	7.12E-06	5.60E-06	1.85E-04	3.03E-04	0.00E+00
	.29%	.84%	.26%	.40%	.35%	7.52%	18.95%	.00%
VEGET	6.57E-05	2.07E-04	4.55E-05	8.50E-05	4.53E-05	1.14E-05	7.67E-08	0.00E+00
	4.16%	11.78%	3.07%	4.77%	2.83%	.46%	.00%	.00%
COW MILK	1.83E-04	1.61E-04	1.20E-04	3.44E-04	2.25E-04	9.53E-04	2.08E-07	0.00E+00
	11.60%	9.14%	8.13%	19.31%	14.04%	38.65%	.01%	.00%
MEAT	2.99E-05	8.16E-05	1.48E-05	4.83E-05	2.94E-05	1.95E-05	5.15E-08	0.00E+00
	1.90%	4.63%	1.00%	2.71%	1.83%	.79%	.00%	.00%
TOTAL	1.58E-03	1.76E-03	1.48E-03	1.78E-03	1.60E-03	2.47E-03	1.60E-03	1.64E-03

TABLE 14. DOSES TO POPULATION WITHIN 50 MILES, JANUARY-DECEMBER 2024

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.09E-04	2.09E-04	2.09E-04	2.09E-04	2.09E-04	2.09E-04	2.11E-04	3.95E-04
	11.78%	10.56%	12.55%	10.47%	11.61%	5.88%	11.97%	21.15%
GROUND	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.47E-03
	70.41%	63.09%	74.99%	62.58%	69.41%	35.14%	71.14%	78.85%
INHAL	4.48E-06	1.45E-05	4.02E-06	7.20E-06	6.20E-06	3.07E-04	2.97E-04	0.00E+00
	.25%	.73%	.24%	.36%	.34%	8.62%	16.87%	.00%
VEGET	7.40E-05	2.36E-04	5.19E-05	9.45E-05	5.02E-05	2.06E-05	7.65E-08	0.00E+00
	4.16%	11.89%	3.11%	4.72%	2.78%	.58%	.00%	.00%
COW MILK	2.05E-04	1.80E-04	1.36E-04	3.84E-04	2.53E-04	1.74E-03	2.14E-07	0.00E+00
	11.51%	9.06%	8.13%	19.18%	14.04%	48.79%	.01%	.00%
MEAT	3.35E-05	9.26E-05	1.65E-05	5.37E-05	3.27E-05	3.54E-05	5.14E-08	0.00E+00
	1.89%	4.67%	.99%	2.69%	1.81%	.99%	.00%	.00%
TOTAL	1.78E-03	1.98E-03	1.67E-03	2.00E-03	1.80E-03	3.56E-03	1.76E-03	1.87E-03

CARBON-14 GASEOUS EFFLUENT DOSE CALCULATIONS

Doses to the maximum individual resulting from the release of Carbon-14 in gaseous effluents from the Cooper Nuclear Station (CNS) were calculated using the latest version of the GASPAR computer code included as part of NRCDose 2.3.20 (ORNL 2015). Four pathways were selected for individual dose calculations: the nearest site boundary for inhalation, nearest garden for vegetation ingestion, nearest animal for meat ingestion, and the nearest milk animal (cow). Based on the 2024 Land Use Census, there are no meat or milk animals identified within 5 miles of CNS. However, CNS maintains a virtual cow receptor at 3.5 miles north-northwest of the plant and conservatively includes this receptor in dose calculations.

Use of a normalized Carbon-14 source term and scaling factors based on the annual thermal gigawatts (GW_T) power generation were utilized to determine the quantity of Carbon-14 in the CNS gaseous effluent discharge for 2024. Specifically, the Boiling Water Reactor proxy production rate of 5.1 curies Carbon-14 per GW_T generation using the methodology described in EPRI, 2010 was the basis for the CNS total calculated emissions of 10.8 curies of Carbon-14 in 2024.

GASPAR implements the radiological dose models of Regulatory Guide 1.109 for determining the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground, inhalation, and ingestion. Doses to the maximum individual are calculated as a function of age group and pathway for significant body organs.

Tables 15 through 21 present maximum individual doses. Note that the inhalation pathway was calculated at the closest site boundary receptor and was negligible for Carbon-14 and is not included in the tables. In addition, the doses presented were conservatively calculated based on the annual site X/Qs. These X/Qs result in doses approximately 20% higher than those calculated with the X/Qs based on growing season meteorology.

Additional assumptions and data used for input to the GASPAR code are described in a separate section of this appendix (see page C66).

TABLE 15. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	4.16E-03	4.16E-03	2.08E-02	4.16E-03	4.16E-03	4.16E-03	4.16E-03	4.16E-03
TEEN	6.97E-03	6.97E-03	3.48E-02	6.97E-03	6.97E-03	6.97E-03	6.97E-03	6.97E-03
CHILD	1.70E-02	1.70E-02	8.48E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02
MEAT								
ADULT	1.66E-03	1.66E-03	8.31E-03	1.66E-03	1.66E-03	1.66E-03	1.66E-03	1.66E-03
TEEN	1.40E-03	1.40E-03	7.02E-03	1.40E-03	1.40E-03	1.40E-03	1.40E-03	1.40E-03
CHILD	2.64E-03	2.64E-03	1.32E-02	2.64E-03	2.64E-03	2.64E-03	2.64E-03	2.64E-03
COW MILK								
ADULT	1.81E-03	1.81E-03	9.07E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03
TEEN	3.34E-03	3.34E-03	1.67E-02	3.34E-03	3.34E-03	3.34E-03	3.34E-03	3.34E-03
CHILD	8.22E-03	8.22E-03	4.11E-02	8.22E-03	8.22E-03	8.22E-03	8.22E-03	8.22E-03
INFANT	1.72E-02	1.72E-02	8.05E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02
GOATMILK								
ADULT	1.81E-03	1.81E-03	9.07E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03
TEEN	3.34E-03	3.34E-03	1.67E-02	3.34E-03	3.34E-03	3.34E-03	3.34E-03	3.34E-03
CHILD	8.22E-03	8.22E-03	4.11E-02	8.22E-03	8.22E-03	8.22E-03	8.22E-03	8.22E-03
INFANT	1.72E-02	1.72E-02	8.05E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02	1.72E-02

TABLE 15. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-MARCH 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 1.70 MILES ENE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.09E-02	1.09E-02	5.46E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02	1.09E-02
TEEN	1.83E-02	1.83E-02	9.13E-02	1.83E-02	1.83E-02	1.83E-02	1.83E-02	1.83E-02
CHILD	4.44E-02	4.44E-02	2.22E-01	4.44E-02	4.44E-02	4.44E-02	4.44E-02	4.44E-02
MEAT								
ADULT	4.36E-03	4.36E-03	2.18E-02	4.36E-03	4.36E-03	4.36E-03	4.36E-03	4.36E-03
TEEN	3.68E-03	3.68E-03	1.84E-02	3.68E-03	3.68E-03	3.68E-03	3.68E-03	3.68E-03
CHILD	6.92E-03	6.92E-03	3.46E-02	6.92E-03	6.92E-03	6.92E-03	6.92E-03	6.92E-03
COW MILK								
ADULT	4.75E-03	4.75E-03	2.38E-02	4.75E-03	4.75E-03	4.75E-03	4.75E-03	4.75E-03
TEEN	8.77E-03	8.77E-03	4.38E-02	8.77E-03	8.77E-03	8.77E-03	8.77E-03	8.77E-03
CHILD	2.16E-02	2.16E-02	1.08E-01	2.16E-02	2.16E-02	2.16E-02	2.16E-02	2.16E-02
INFANT	4.51E-02	4.51E-02	2.11E-01	4.51E-02	4.51E-02	4.51E-02	4.51E-02	4.51E-02
GOATMILK								
ADULT	4.75E-03	4.75E-03	2.38E-02	4.75E-03	4.75E-03	4.75E-03	4.75E-03	4.75E-03
TEEN	8.77E-03	8.77E-03	4.38E-02	8.77E-03	8.77E-03	8.77E-03	8.77E-03	8.77E-03
CHILD	2.16E-02	2.16E-02	1.08E-01	2.16E-02	2.16E-02	2.16E-02	2.16E-02	2.16E-02
INFANT	4.51E-02	4.51E-02	2.11E-01	4.51E-02	4.51E-02	4.51E-02	4.51E-02	4.51E-02

TABLE 16. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	3.02E-03	3.02E-03	1.51E-02	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03
TEEN	5.04E-03	5.04E-03	2.52E-02	5.04E-03	5.04E-03	5.04E-03	5.04E-03	5.04E-03
CHILD	1.23E-02	1.23E-02	6.14E-02	1.23E-02	1.23E-02	1.23E-02	1.23E-02	1.23E-02
MEAT								
ADULT	1.20E-03	1.20E-03	6.02E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03	1.20E-03
TEEN	1.02E-03	1.02E-03	5.08E-03	1.02E-03	1.02E-03	1.02E-03	1.02E-03	1.02E-03
CHILD	1.91E-03	1.91E-03	9.56E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03
COW MILK								
ADULT	1.31E-03	1.31E-03	6.56E-03	1.31E-03	1.31E-03	1.31E-03	1.31E-03	1.31E-03
TEEN	2.42E-03	2.42E-03	1.21E-02	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03
CHILD	5.95E-03	5.95E-03	2.98E-02	5.95E-03	5.95E-03	5.95E-03	5.95E-03	5.95E-03
INFANT	1.25E-02	1.25E-02	5.83E-02	1.25E-02	1.25E-02	1.25E-02	1.25E-02	1.25E-02
GOATMILK								
ADULT	1.31E-03	1.31E-03	6.56E-03	1.31E-03	1.31E-03	1.31E-03	1.31E-03	1.31E-03
TEEN	2.42E-03	2.42E-03	1.21E-02	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03
CHILD	5.95E-03	5.95E-03	2.98E-02	5.95E-03	5.95E-03	5.95E-03	5.95E-03	5.95E-03
INFANT	1.25E-02	1.25E-02	5.83E-02	1.25E-02	1.25E-02	1.25E-02	1.25E-02	1.25E-02

TABLE 16. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), APRIL-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.90 MILES SE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.05E-02	1.05E-02	5.24E-02	1.05E-02	1.05E-02	1.05E-02	1.05E-02	1.05E-02
TEEN	1.75E-02	1.75E-02	8.77E-02	1.75E-02	1.75E-02	1.75E-02	1.75E-02	1.75E-02
CHILD	4.27E-02	4.27E-02	2.13E-01	4.27E-02	4.27E-02	4.27E-02	4.27E-02	4.27E-02
MEAT								
ADULT	4.18E-03	4.18E-03	2.09E-02	4.18E-03	4.18E-03	4.18E-03	4.18E-03	4.18E-03
TEEN	3.53E-03	3.53E-03	1.77E-02	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03
CHILD	6.64E-03	6.64E-03	3.32E-02	6.64E-03	6.64E-03	6.64E-03	6.64E-03	6.64E-03
COW MILK								
ADULT	4.56E-03	4.56E-03	2.28E-02	4.56E-03	4.56E-03	4.56E-03	4.56E-03	4.56E-03
TEEN	8.42E-03	8.42E-03	4.21E-02	8.42E-03	8.42E-03	8.42E-03	8.42E-03	8.42E-03
CHILD	2.07E-02	2.07E-02	1.04E-01	2.07E-02	2.07E-02	2.07E-02	2.07E-02	2.07E-02
INFANT	4.33E-02	4.33E-02	2.03E-01	4.33E-02	4.33E-02	4.33E-02	4.33E-02	4.33E-02
GOATMILK								
ADULT	4.56E-03	4.56E-03	2.28E-02	4.56E-03	4.56E-03	4.56E-03	4.56E-03	4.56E-03
TEEN	8.42E-03	8.42E-03	4.21E-02	8.42E-03	8.42E-03	8.42E-03	8.42E-03	8.42E-03
CHILD	2.07E-02	2.07E-02	1.04E-01	2.07E-02	2.07E-02	2.07E-02	2.07E-02	2.07E-02
INFANT	4.33E-02	4.33E-02	2.03E-01	4.33E-02	4.33E-02	4.33E-02	4.33E-02	4.33E-02

TABLE 17. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	7.17E-03	7.17E-03	3.58E-02	7.17E-03	7.17E-03	7.17E-03	7.17E-03	7.17E-03
TEEN	1.20E-02	1.20E-02	5.99E-02	1.20E-02	1.20E-02	1.20E-02	1.20E-02	1.20E-02
CHILD	2.92E-02	2.92E-02	1.46E-01	2.92E-02	2.92E-02	2.92E-02	2.92E-02	2.92E-02
MEAT								
ADULT	2.86E-03	2.86E-03	1.43E-02	2.86E-03	2.86E-03	2.86E-03	2.86E-03	2.86E-03
TEEN	2.42E-03	2.42E-03	1.21E-02	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.42E-03
CHILD	4.54E-03	4.54E-03	2.27E-02	4.54E-03	4.54E-03	4.54E-03	4.54E-03	4.54E-03
COW MILK								
ADULT	3.12E-03	3.12E-03	1.56E-02	3.12E-03	3.12E-03	3.12E-03	3.12E-03	3.12E-03
TEEN	5.76E-03	5.76E-03	2.88E-02	5.76E-03	5.76E-03	5.76E-03	5.76E-03	5.76E-03
CHILD	1.42E-02	1.42E-02	7.08E-02	1.42E-02	1.42E-02	1.42E-02	1.42E-02	1.42E-02
INFANT	2.96E-02	2.96E-02	1.39E-01	2.96E-02	2.96E-02	2.96E-02	2.96E-02	2.96E-02
GOATMILK								
ADULT	3.12E-03	3.12E-03	1.56E-02	3.12E-03	3.12E-03	3.12E-03	3.12E-03	3.12E-03
TEEN	5.76E-03	5.76E-03	2.88E-02	5.76E-03	5.76E-03	5.76E-03	5.76E-03	5.76E-03
CHILD	1.42E-02	1.42E-02	7.08E-02	1.42E-02	1.42E-02	1.42E-02	1.42E-02	1.42E-02
INFANT	2.96E-02	2.96E-02	1.39E-01	2.96E-02	2.96E-02	2.96E-02	2.96E-02	2.96E-02

TABLE 17. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-JUNE 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 1.70 MILES ENE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.86E-02	1.86E-02	9.32E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02
TEEN	3.12E-02	3.12E-02	1.56E-01	3.12E-02	3.12E-02	3.12E-02	3.12E-02	3.12E-02
CHILD	7.59E-02	7.59E-02	3.79E-01	7.59E-02	7.59E-02	7.59E-02	7.59E-02	7.59E-02
MEAT								
ADULT	7.44E-03	7.44E-03	3.72E-02	7.44E-03	7.44E-03	7.44E-03	7.44E-03	7.44E-03
TEEN	6.28E-03	6.28E-03	3.14E-02	6.28E-03	6.28E-03	6.28E-03	6.28E-03	6.28E-03
CHILD	1.18E-02	1.18E-02	5.90E-02	1.18E-02	1.18E-02	1.18E-02	1.18E-02	1.18E-02
COW MILK								
ADULT	8.11E-03	8.11E-03	4.06E-02	8.11E-03	8.11E-03	8.11E-03	8.11E-03	8.11E-03
TEEN	1.50E-02	1.50E-02	7.48E-02	1.50E-02	1.50E-02	1.50E-02	1.50E-02	1.50E-02
CHILD	3.68E-02	3.68E-02	1.84E-01	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02
INFANT	7.69E-02	7.69E-02	3.60E-01	7.69E-02	7.69E-02	7.69E-02	7.69E-02	7.69E-02
GOATMILK								
ADULT	8.11E-03	8.11E-03	4.06E-02	8.11E-03	8.11E-03	8.11E-03	8.11E-03	8.11E-03
TEEN	1.50E-02	1.50E-02	7.48E-02	1.50E-02	1.50E-02	1.50E-02	1.50E-02	1.50E-02
CHILD	3.68E-02	3.68E-02	1.84E-01	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02
INFANT	7.69E-02	7.69E-02	3.60E-01	7.69E-02	7.69E-02	7.69E-02	7.69E-02	7.69E-02

TABLE 18. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	3.91E-03	3.91E-03	1.95E-02	3.91E-03	3.91E-03	3.91E-03	3.91E-03	3.91E-03
TEEN	6.53E-03	6.53E-03	3.27E-02	6.53E-03	6.53E-03	6.53E-03	6.53E-03	6.53E-03
CHILD	1.59E-02	1.59E-02	7.95E-02	1.59E-02	1.59E-02	1.59E-02	1.59E-02	1.59E-02
MEAT								
ADULT	1.56E-03	1.56E-03	7.79E-03	1.56E-03	1.56E-03	1.56E-03	1.56E-03	1.56E-03
TEEN	1.32E-03	1.32E-03	6.58E-03	1.32E-03	1.32E-03	1.32E-03	1.32E-03	1.32E-03
CHILD	2.48E-03	2.48E-03	1.24E-02	2.48E-03	2.48E-03	2.48E-03	2.48E-03	2.48E-03
COW MILK								
ADULT	1.70E-03	1.70E-03	8.50E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03
TEEN	3.14E-03	3.14E-03	1.57E-02	3.14E-03	3.14E-03	3.14E-03	3.14E-03	3.14E-03
CHILD	7.71E-03	7.71E-03	3.86E-02	7.71E-03	7.71E-03	7.71E-03	7.71E-03	7.71E-03
INFANT	1.61E-02	1.61E-02	7.55E-02	1.61E-02	1.61E-02	1.61E-02	1.61E-02	1.61E-02
GOATMILK								
ADULT	1.70E-03	1.70E-03	8.50E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03
TEEN	3.14E-03	3.14E-03	1.57E-02	3.14E-03	3.14E-03	3.14E-03	3.14E-03	3.14E-03
CHILD	7.71E-03	7.71E-03	3.86E-02	7.71E-03	7.71E-03	7.71E-03	7.71E-03	7.71E-03
INFANT	1.61E-02	1.61E-02	7.55E-02	1.61E-02	1.61E-02	1.61E-02	1.61E-02	1.61E-02

TABLE 18. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-SEPTEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	2.17E-02	2.17E-02	1.09E-01	2.17E-02	2.17E-02	2.17E-02	2.17E-02	2.17E-02
TEEN	3.63E-02	3.63E-02	1.81E-01	3.63E-02	3.63E-02	3.63E-02	3.63E-02	3.63E-02
CHILD	8.83E-02	8.83E-02	4.42E-01	8.83E-02	8.83E-02	8.83E-02	8.83E-02	8.83E-02
MEAT								
ADULT	8.66E-03	8.66E-03	4.33E-02	8.66E-03	8.66E-03	8.66E-03	8.66E-03	8.66E-03
TEEN	7.32E-03	7.32E-03	3.66E-02	7.32E-03	7.32E-03	7.32E-03	7.32E-03	7.32E-03
CHILD	1.38E-02	1.38E-02	6.88E-02	1.38E-02	1.38E-02	1.38E-02	1.38E-02	1.38E-02
COW MILK								
ADULT	9.45E-03	9.45E-03	4.72E-02	9.45E-03	9.45E-03	9.45E-03	9.45E-03	9.45E-03
TEEN	1.74E-02	1.74E-02	8.71E-02	1.74E-02	1.74E-02	1.74E-02	1.74E-02	1.74E-02
CHILD	4.29E-02	4.29E-02	2.14E-01	4.29E-02	4.29E-02	4.29E-02	4.29E-02	4.29E-02
INFANT	8.96E-02	8.96E-02	4.20E-01	8.96E-02	8.96E-02	8.96E-02	8.96E-02	8.96E-02
GOATMILK								
ADULT	9.45E-03	9.45E-03	4.72E-02	9.45E-03	9.45E-03	9.45E-03	9.45E-03	9.45E-03
TEEN	1.74E-02	1.74E-02	8.71E-02	1.74E-02	1.74E-02	1.74E-02	1.74E-02	1.74E-02
CHILD	4.29E-02	4.29E-02	2.14E-01	4.29E-02	4.29E-02	4.29E-02	4.29E-02	4.29E-02
INFANT	8.96E-02	8.96E-02	4.20E-01	8.96E-02	8.96E-02	8.96E-02	8.96E-02	8.96E-02

TABLE 19. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	5.93E-03	5.93E-03	2.97E-02	5.93E-03	5.93E-03	5.93E-03	5.93E-03	5.93E-03
TEEN	9.92E-03	9.92E-03	4.96E-02	9.92E-03	9.92E-03	9.92E-03	9.92E-03	9.92E-03
CHILD	2.41E-02	2.41E-02	1.21E-01	2.41E-02	2.41E-02	2.41E-02	2.41E-02	2.41E-02
MEAT								
ADULT	2.37E-03	2.37E-03	1.18E-02	2.37E-03	2.37E-03	2.37E-03	2.37E-03	2.37E-03
TEEN	2.00E-03	2.00E-03	1.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
CHILD	3.76E-03	3.76E-03	1.88E-02	3.76E-03	3.76E-03	3.76E-03	3.76E-03	3.76E-03
COW MILK								
ADULT	2.58E-03	2.58E-03	1.29E-02	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
TEEN	4.76E-03	4.76E-03	2.38E-02	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03
CHILD	1.17E-02	1.17E-02	5.86E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02
INFANT	2.45E-02	2.45E-02	1.15E-01	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02
GOATMILK								
ADULT	2.58E-03	2.58E-03	1.29E-02	2.58E-03	2.58E-03	2.58E-03	2.58E-03	2.58E-03
TEEN	4.76E-03	4.76E-03	2.38E-02	4.76E-03	4.76E-03	4.76E-03	4.76E-03	4.76E-03
CHILD	1.17E-02	1.17E-02	5.86E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02
INFANT	2.45E-02	2.45E-02	1.15E-01	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02

TABLE 19. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), OCTOBER-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.27E-02	1.27E-02	6.37E-02	1.27E-02	1.27E-02	1.27E-02	1.27E-02	1.27E-02
TEEN	2.13E-02	2.13E-02	1.06E-01	2.13E-02	2.13E-02	2.13E-02	2.13E-02	2.13E-02
CHILD	5.18E-02	5.18E-02	2.59E-01	5.18E-02	5.18E-02	5.18E-02	5.18E-02	5.18E-02
MEAT								
ADULT	5.08E-03	5.08E-03	2.54E-02	5.08E-03	5.08E-03	5.08E-03	5.08E-03	5.08E-03
TEEN	4.29E-03	4.29E-03	2.15E-02	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03
CHILD	8.07E-03	8.07E-03	4.03E-02	8.07E-03	8.07E-03	8.07E-03	8.07E-03	8.07E-03
COW MILK								
ADULT	5.54E-03	5.54E-03	2.77E-02	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03
TEEN	1.02E-02	1.02E-02	5.11E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02
CHILD	2.51E-02	2.51E-02	1.26E-01	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02
INFANT	5.26E-02	5.26E-02	2.46E-01	5.26E-02	5.26E-02	5.26E-02	5.26E-02	5.26E-02
GOATMILK								
ADULT	5.54E-03	5.54E-03	2.77E-02	5.54E-03	5.54E-03	5.54E-03	5.54E-03	5.54E-03
TEEN	1.02E-02	1.02E-02	5.11E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02
CHILD	2.51E-02	2.51E-02	1.26E-01	2.51E-02	2.51E-02	2.51E-02	2.51E-02	2.51E-02
INFANT	5.26E-02	5.26E-02	2.46E-01	5.26E-02	5.26E-02	5.26E-02	5.26E-02	5.26E-02

TABLE 20. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	9.86E-03	9.86E-03	4.93E-02	9.86E-03	9.86E-03	9.86E-03	9.86E-03	9.86E-03
TEEN	1.65E-02	1.65E-02	8.24E-02	1.65E-02	1.65E-02	1.65E-02	1.65E-02	1.65E-02
CHILD	4.01E-02	4.01E-02	2.01E-01	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02
MEAT								
ADULT	3.93E-03	3.93E-03	1.97E-02	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03
TEEN	3.32E-03	3.32E-03	1.66E-02	3.32E-03	3.32E-03	3.32E-03	3.32E-03	3.32E-03
CHILD	6.25E-03	6.25E-03	3.12E-02	6.25E-03	6.25E-03	6.25E-03	6.25E-03	6.25E-03
COW MILK								
ADULT	4.29E-03	4.29E-03	2.15E-02	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03
TEEN	7.92E-03	7.92E-03	3.96E-02	7.92E-03	7.92E-03	7.92E-03	7.92E-03	7.92E-03
CHILD	1.95E-02	1.95E-02	9.73E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02
INFANT	4.07E-02	4.07E-02	1.91E-01	4.07E-02	4.07E-02	4.07E-02	4.07E-02	4.07E-02
GOATMILK								
ADULT	4.29E-03	4.29E-03	2.15E-02	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03
TEEN	7.92E-03	7.92E-03	3.96E-02	7.92E-03	7.92E-03	7.92E-03	7.92E-03	7.92E-03
CHILD	1.95E-02	1.95E-02	9.73E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02	1.95E-02
INFANT	4.07E-02	4.07E-02	1.91E-01	4.07E-02	4.07E-02	4.07E-02	4.07E-02	4.07E-02

TABLE 20. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JULY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	3.48E-02	3.48E-02	1.74E-01	3.48E-02	3.48E-02	3.48E-02	3.48E-02	3.48E-02
TEEN	5.82E-02	5.82E-02	2.91E-01	5.82E-02	5.82E-02	5.82E-02	5.82E-02	5.82E-02
CHILD	1.42E-01	1.42E-01	7.08E-01	1.42E-01	1.42E-01	1.42E-01	1.42E-01	1.42E-01
MEAT								
ADULT	1.39E-02	1.39E-02	6.94E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02
TEEN	1.17E-02	1.17E-02	5.86E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02	1.17E-02
CHILD	2.20E-02	2.20E-02	1.10E-01	2.20E-02	2.20E-02	2.20E-02	2.20E-02	2.20E-02
COW MILK								
ADULT	1.51E-02	1.51E-02	7.57E-02	1.51E-02	1.51E-02	1.51E-02	1.51E-02	1.51E-02
TEEN	2.79E-02	2.79E-02	1.40E-01	2.79E-02	2.79E-02	2.79E-02	2.79E-02	2.79E-02
CHILD	6.87E-02	6.87E-02	3.43E-01	6.87E-02	6.87E-02	6.87E-02	6.87E-02	6.87E-02
INFANT	1.44E-01	1.44E-01	6.73E-01	1.44E-01	1.44E-01	1.44E-01	1.44E-01	1.44E-01
GOATMILK								
ADULT	1.51E-02	1.51E-02	7.57E-02	1.51E-02	1.51E-02	1.51E-02	1.51E-02	1.51E-02
TEEN	2.79E-02	2.79E-02	1.40E-01	2.79E-02	2.79E-02	2.79E-02	2.79E-02	2.79E-02
CHILD	6.87E-02	6.87E-02	3.43E-01	6.87E-02	6.87E-02	6.87E-02	6.87E-02	6.87E-02
INFANT	1.44E-01	1.44E-01	6.73E-01	1.44E-01	1.44E-01	1.44E-01	1.44E-01	1.44E-01

TABLE 21. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024

SPECIAL LOCATION NO. 4A Nearest Cow
AT 3.50 MILES NNW

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.73E-02	1.73E-02	8.65E-02	1.73E-02	1.73E-02	1.73E-02	1.73E-02	1.73E-02
TEEN	2.89E-02	2.89E-02	1.45E-01	2.89E-02	2.89E-02	2.89E-02	2.89E-02	2.89E-02
CHILD	7.04E-02	7.04E-02	3.52E-01	7.04E-02	7.04E-02	7.04E-02	7.04E-02	7.04E-02
MEAT								
ADULT	6.90E-03	6.90E-03	3.45E-02	6.90E-03	6.90E-03	6.90E-03	6.90E-03	6.90E-03
TEEN	5.83E-03	5.83E-03	2.92E-02	5.83E-03	5.83E-03	5.83E-03	5.83E-03	5.83E-03
CHILD	1.10E-02	1.10E-02	5.48E-02	1.10E-02	1.10E-02	1.10E-02	1.10E-02	1.10E-02
COW MILK								
ADULT	7.53E-03	7.53E-03	3.77E-02	7.53E-03	7.53E-03	7.53E-03	7.53E-03	7.53E-03
TEEN	1.39E-02	1.39E-02	6.95E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02
CHILD	3.42E-02	3.42E-02	1.71E-01	3.42E-02	3.42E-02	3.42E-02	3.42E-02	3.42E-02
INFANT	7.14E-02	7.14E-02	3.34E-01	7.14E-02	7.14E-02	7.14E-02	7.14E-02	7.14E-02
GOATMILK								
ADULT	7.53E-03	7.53E-03	3.77E-02	7.53E-03	7.53E-03	7.53E-03	7.53E-03	7.53E-03
TEEN	1.39E-02	1.39E-02	6.95E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02	1.39E-02
CHILD	3.42E-02	3.42E-02	1.71E-01	3.42E-02	3.42E-02	3.42E-02	3.42E-02	3.42E-02
INFANT	7.14E-02	7.14E-02	3.34E-01	7.14E-02	7.14E-02	7.14E-02	7.14E-02	7.14E-02

TABLE 21. CARBON-14 DOSES TO MAXIMUM INDIVIDUAL (MREM), JANUARY-DECEMBER 2024 (Continued)

SPECIAL LOCATION NO. 5A Nearest Garden
AT 2.20 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	5.07E-02	5.07E-02	2.54E-01	5.07E-02	5.07E-02	5.07E-02	5.07E-02	5.07E-02
TEEN	8.49E-02	8.49E-02	4.24E-01	8.49E-02	8.49E-02	8.49E-02	8.49E-02	8.49E-02
CHILD	2.07E-01	2.07E-01	1.03E+00	2.07E-01	2.07E-01	2.07E-01	2.07E-01	2.07E-01
MEAT								
ADULT	2.02E-02	2.02E-02	1.01E-01	2.02E-02	2.02E-02	2.02E-02	2.02E-02	2.02E-02
TEEN	1.71E-02	1.71E-02	8.55E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02
CHILD	3.22E-02	3.22E-02	1.61E-01	3.22E-02	3.22E-02	3.22E-02	3.22E-02	3.22E-02
COW MILK								
ADULT	2.21E-02	2.21E-02	1.10E-01	2.21E-02	2.21E-02	2.21E-02	2.21E-02	2.21E-02
TEEN	4.07E-02	4.07E-02	2.04E-01	4.07E-02	4.07E-02	4.07E-02	4.07E-02	4.07E-02
CHILD	1.00E-01	1.00E-01	5.01E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
INFANT	2.09E-01	2.09E-01	9.81E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01
GOATMILK								
ADULT	2.21E-02	2.21E-02	1.10E-01	2.21E-02	2.21E-02	2.21E-02	2.21E-02	2.21E-02
TEEN	4.07E-02	4.07E-02	2.04E-01	4.07E-02	4.07E-02	4.07E-02	4.07E-02	4.07E-02
CHILD	1.00E-01	1.00E-01	5.01E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
INFANT	2.09E-01	2.09E-01	9.81E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01	2.09E-01

DOSE CALCULATION MODELS

To evaluate the radiological consequences of the routine release of liquid and gaseous effluents from the Cooper Nuclear Station, the latest versions of two computer codes were used: LADTAP II for liquid doses and GASPAR for gaseous doses included as part of NRCDose 2.3.20 (ORNL 2015). Both of these computer codes implement the dose calculational methodologies of U.S. NRC Regulatory Guide 1.109, Revision 1.

Source terms for each quarter are combined with station-specific demographic data and either hydrological dilution factors, for liquid dose calculations, or atmospheric diffusion estimates, for gaseous dose calculations.

For liquid dose calculations, the hydrological dilution factors used for input to LADTAP II, as well as other input parameters, are listed in Table 22. Other inputs not specifically listed in this table are taken from Regulatory Guide 1.109, Revision 1. Semiannual doses are obtained by summing the contributions from the appropriate quarters.

For gaseous dose calculations, atmospheric diffusion estimates are obtained from the reduction and processing of onsite meteorological data, as described in Appendix B. Source terms for the semiannual period are obtained by summing source terms for the appropriate quarters. Additional input to GASPAR includes the following station-supplied data:

- 0 to 50 mile population distribution
- 0 to 50 mile meat, milk, and vegetable distributions
- Absolute humidity at Cooper Nuclear Station (14.61 g/m^3)
- The fraction of the year that the vegetables are grown (0.5)
- The fraction of the daily feed intake derived from pasture for milk and meat animals (0.5)

Other values used for input to GASPAR are default values from Regulatory Guide 1.109, Rev. 1.

TABLE 22. Values of Parameters Used to Make Dose Estimates Resulting From Liquid Discharges at Cooper Nuclear Station January-December 2024

Parameter		Values Assigned	
		Individual	Population
Cooling flow rate (cfs) *	Q1	NR	NR
(Average daily value)	Q2	NR	NR
	Q3	NR	NR
	Q4	NR	NR
Dilution factor*	Q1	NR	NR
	Q2	NR	NR
	Q3	NR	NR
	Q4	NR	NR
Holding time:			
Fish		24 hr ***	168 hr ***
Drinking water		12 hr ***	22.4 hr **
Shoreline exposure		0 hr ***	22.4 hr **
Swimming		0 hr ***	22.4 hr **
Boating		0 hr ***	22.4 hr **

* Q1, Q2, Q3, and Q4 represent first, second, third and fourth quarter station data for 2024, respectively.

** Based on an average Missouri River water flow of 5.5 ft/sec, 84 miles down the river.

*** Values from Regulatory Guide 1.109, Revision 1.

NR- No release

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APPENDIX D
ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM (ARGPP) REPORT

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

Radiological Groundwater Protection Program

2024 Annual Report

January 1, 2024 to December 31, 2024

Prepared by
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Attachments

Attachment 1: Location Designation of the Annual Radiological Groundwater Protection Program Report (ARGPPR)

Tables

Table A-1: Radiological Groundwater Protection Program - Sampling Locations, Nebraska Public Power District, Cooper Nuclear Station, 2024

Map

Map A-1: Routine Well Water Sample Locations for the Radiological Groundwater Protection Program, Nebraska Public Power District, Cooper Nuclear Station, 2024

Attachment 2: Data Tables of the Annual Radiological Groundwater Protection Program Report (ARGPPR)

Table B-1: Exposure Pathway – Water - Ground, 2024

SECTION I. SUMMARY

I. SUMMARY

In 2008, the Cooper Nuclear Station (CNS) of the Nebraska Public Power District (NPPD) instituted a comprehensive program to evaluate the impact of station operations on groundwater in the vicinity of CNS. This report covers groundwater samples, collected outside of the Licensee required Off-Site Dose Assessment Manual (ODAM) requirements, both on and off station property in 2024. During that time period, analyses were performed on 54 samples from 22 locations.

In assessing all the data gathered for this report, it was concluded that the operation of CNS had no adverse radiological impact on the environment, and there are no known active releases into the groundwater or surface water at Nebraska Public Power District.

Tritium was not detected in any of the groundwater samples at concentrations greater than the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission [NRC] reporting limit) of 20,000 pCi/L. The tritium concentrations ranged from 805 ± 415 pCi/L to 1,380 ± 513 pCi/L.

Gamma-emitting radionuclides associated with licensed plant operations were not detected at concentrations greater than their respective Lower Limits of Detection (LLDs) as specified in NUREG-1302 in any of the groundwater samples. In the case of tritium, CNS specified that the independent laboratory achieve a lower limit of detection 10 times lower than that required by the United States Environmental Protection Agency (USEPA) regulation.

SECTION II. CHARACTERISTICS OF TRITIUM (H-3)

II. CHARACTERISTICS OF TRITIUM (H-3)

Tritium (chemical symbol H-3) is a radioactive isotope of hydrogen. The most common form of tritium is tritium oxide, which is also called "tritiated water." The chemical properties of tritium are essentially those of ordinary hydrogen.

Tritiated water functions the same as ordinary water in both the environment and the body. Tritium can be taken into the body by drinking water, breathing air, eating food, or absorption through skin. Once tritium enters the body, it disperses quickly and is uniformly distributed throughout the body. Tritium is excreted primarily through urine with a clearance rate characterized by an effective biological half-life of about 14 days. Within one month or so after ingestion, essentially all tritium is cleared. Organically bound tritium (tritium that is incorporated in organic compounds) can remain in the body for a longer period.

Tritium is produced naturally in the upper atmosphere when cosmic rays strike air molecules. Tritium is also produced during nuclear weapons explosions, as a by-product in reactors producing electricity, and in special production reactors, where the isotopes lithium-6 and/or boron-10 are activated to produce tritium. Like normal water, tritiated water is colorless and odorless. Tritiated water behaves chemically and physically like non-tritiated water in the subsurface, and therefore tritiated water will travel at the same velocity as the average groundwater velocity.

Tritium has a half-life of approximately 12.3 years. It decays spontaneously to helium-3 (3He). This radioactive decay releases a beta particle (low-energy electron). The radioactive decay of tritium is the source of the health risk from exposure to tritium. Tritium is one of the least dangerous radionuclides because it emits very weak beta radiation and leaves the body relatively quickly. Since tritium is almost always found as water, it goes directly into soft tissues and organs. The associated dose to these tissues is generally uniform and is dependent on the water content of the specific tissue.

SECTION III. INTRODUCTION

III. INTRODUCTION

Cooper Nuclear Station is located in Nemaha County in the southeast corner of Nebraska on the Missouri River. A portion of the site extends into Missouri. The reactor is an 830-megawatt (net electrical) boiling water reactor. Initial criticality was attained on February 21, 1974.

This report covers those analyses performed by Teledyne Brown Engineering (TBE) on samples collected in 2024.

III. INTRODUCTION (cont)

A. Objectives of the Radiological Groundwater Protection Program (RGPP)

The long-term objectives of the RGPP are as follows:

1. Identify suitable locations to monitor and evaluate potential impacts from station operations before significant radiological impact to the environment and potential drinking water sources.

2. Understand the local hydrogeologic regime in the vicinity of the station and maintain up-to-date knowledge of flow patterns on the surface and shallow subsurface.

3. Perform routine water sampling and radiological analysis of water from selected locations.

4. Report new leaks, spills, or other detections with potential radiological significance to stakeholders in a timely manner.

5. Regularly assess analytical results to identify adverse trends.

6. Take necessary corrective actions to protect groundwater resources.

B. Implementation of the Objectives

The objectives identified have been implemented at CNS as discussed below:

1. Cooper Nuclear Station will continue to perform routine sampling and radiological analysis of water from selected locations.

2. Cooper Nuclear Station has implemented procedures to identify and report new leaks, spills, or other detections with potential radiological significance in a timely manner.

3. Cooper Nuclear Station staff assesses analytical results on an ongoing basis to identify adverse trends.

III. INTRODUCTION (cont)

C. Program Description

1. Sample Collection

Sample locations can be found in Attachment 1, Table A-1 and Map A-1.

Groundwater

Samples of water are collected, managed, transported, and analyzed in accordance with approved procedures following regulatory methods. Sample locations, sample collection frequencies and analytical frequencies are controlled in accordance with approved station procedures. Contractor and/or station personnel are trained in the collection, preservation management, and shipment of samples, as well as in documentation of sampling events. Analytical laboratories are subject to internal quality assurance programs, inter-laboratory cross-check programs, as well as nuclear industry audits. Station personnel review and evaluate all analytical data deliverables after initial review by the contractor.

Analytical data results are reviewed by station personnel for adverse trends or changes to hydrogeologic conditions.

SECTION IV. PROGRAM DESCRIPTION

III. Program Description

A. Sample Analysis

This section describes the general analytical methodologies used by TBE to analyze the environmental samples for radioactivity for the CNS RGPP in 2024.

In order to achieve the stated objectives, the current program analyzes each sample for tritium. If a sample indicates tritium above TBE's lower limit of detection (LLD), then the sample is analyzed for gamma emitters (Be-7, K-40, Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Ru-103, Ru-106, I-131, Cs-134, Cs-137, Ba-140, La-140, Ce-141, Ce-144, Ra-226 and Th-228). If the sample indicates gamma emitters (other than those that are naturally occurring) above TBE's LLD, then the sample is analyzed for Hard to Detects (HTDs – Gross Alpha, Fe-55, Ni-63, Sr-89, Sr-90).

Note: Statistically positive results include their respective uncertainties. Results reported below TBE's LLD for a given radio nuclide are preceded with "<" (= "Less Than").

B. Data Interpretation

The radiological data collected prior to CNS becoming operational were used as a baseline with which these operational data were compared. For the purpose of this report, CNS was considered operational at initial criticality. Several factors were important in the interpretation of the data:

1. Lower Limit of Detection and Minimum Detectable Concentration

The lower limit of detection (LLD) is specified by federal regulation as a minimum sensitivity value that must be achieved routinely by the analytical parameter.

2. Laboratory Measurements Uncertainty

The estimated uncertainty in measurement of tritium in environmental samples is frequently on the order of 50% of the measurement value.

Statistically, the exact value of a measurement is expressed as a range with a stated level of confidence. Analytical uncertainties are reported at the 95% confidence level in this report for reporting consistency with the REMP. The uncertainty comes from calibration standards, sample volume or weight measurements, sampling uncertainty and other factors. CNS reports the uncertainty of a measurement created by statistical process (counting error). Each result has two values calculated. CNS reports the result with plus or minus (±) the estimated sample standard deviation.

SECTION V. RESULTS AND DISCUSSION

D. Results and Discussion

A. Groundwater Results

Tritium

Samples from 22 locations were analyzed for tritium activity (Table B-1, Attachment 2). Tritium was detected at one location. Tritium values ranged from 805 to 1,380 pCi/L. All values were below the United States Environmental Protection Agency (USEPA) drinking water standard (and the Nuclear Regulatory Commission [NRC] reporting limit) of 20,000 pCi/liter.

Gamma Emitters

No gamma emitting nuclides were detected (Table B-1, Attachment 2).

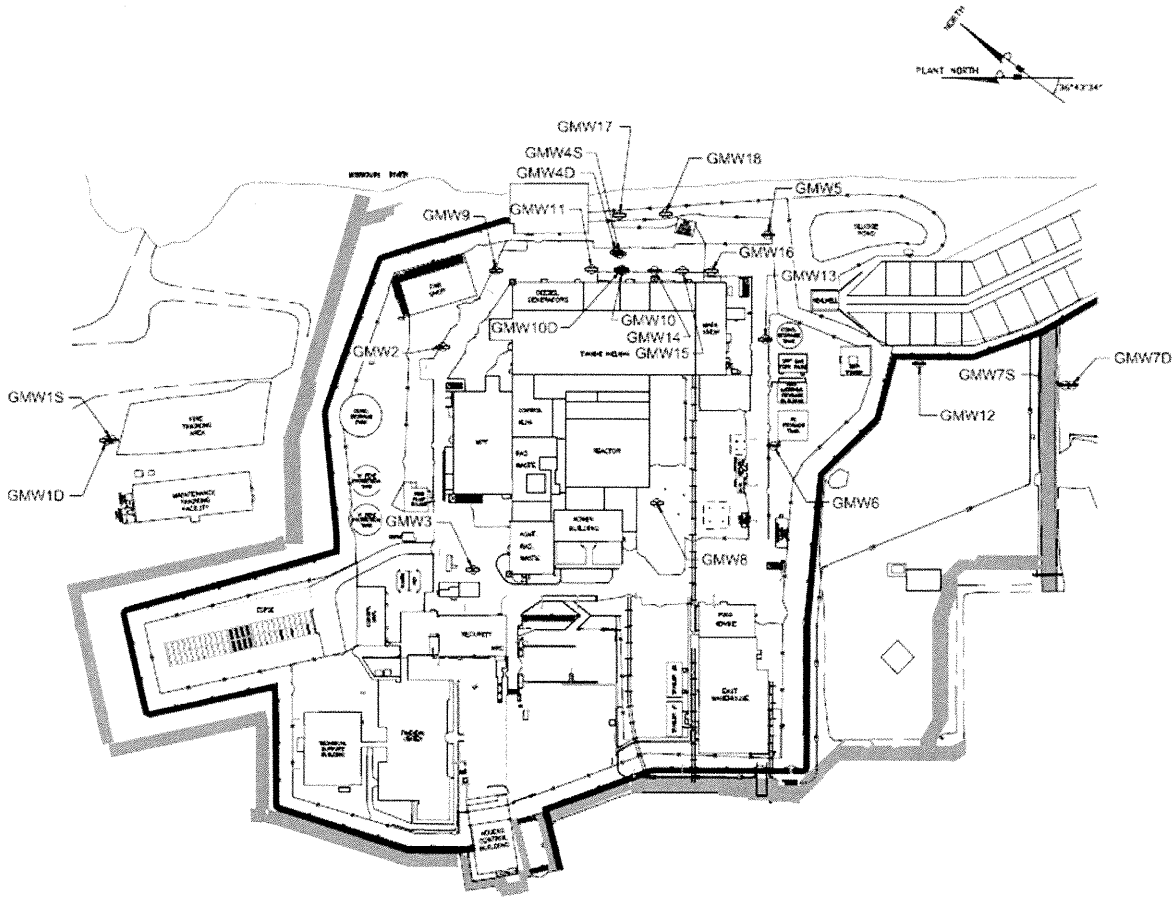
ATTACHMENT 1

LOCATION DESIGNATION OF THE ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

TABLE A-1: 2024- Radiological Groundwater Protection Program – Sampling Locations, Nebraska Public Power District, Cooper Nuclear Station

Site	Type
Ground Monitoring Well-1D	Ground Water
Ground Monitoring Well-1S	Ground Water
Ground Monitoring Well-2	Ground Water
Ground Monitoring Well-3	Ground Water
Ground Monitoring Well-4D	Ground Water
Ground Monitoring Well-4S	Ground Water
Ground Monitoring Well-5	Ground Water
Ground Monitoring Well-6	Ground Water
Ground Monitoring Well-7D	Ground Water
Ground Monitoring Well-7S	Ground Water
Ground Monitoring Well-8	Ground Water
Ground Monitoring Well-9	Ground Water
Ground Monitoring Well-10	Ground Water
Ground Monitoring Well-10D	Ground Water
Ground Monitoring Well-11	Ground Water
Ground Monitoring Well-12	Ground Water
Ground Monitoring Well-13	Ground Water
Ground Monitoring Well-14	Ground Water
Ground Monitoring Well-15	Ground Water
Ground Monitoring Well-16	Ground Water
Ground Monitoring Well-17	Ground Water
Ground Monitoring Well-18	Ground Water

MAP A-1



Routine Well Water Sample Locations for the Radiological Groundwater Protection Program, Nebraska Public Power District, Cooper Nuclear Station, 2024

ATTACHMENT 2

DATA TABLES OF THE ANNUAL RADIOLOGICAL GROUNDWATER PROTECTION PROGRAM REPORT (ARGPPR)

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 1D

DATE COLLECTED	2/8/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 1S

DATE COLLECTED	2/8/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 2

DATE COLLECTED	2/7/2024	9/12/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 5.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 3

DATE COLLECTED	2/7/2024	9/12/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 5.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 4D

DATE COLLECTED	2/7/2024	6/5/2024	9/12/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)	(a)	(a)
BE-7				
K-40				
MN-54				
CO-58				
FE-59				
CO-60				
ZN-65				
ZR-95				
RU-103				
RU-106				
I-131				
CS-134				
CS-137				
BA-140				
LA-140				
CE-141				
CE-144				
RA-226				
TH-228				
H-3	< 6.E+02	< 6.E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 4S

DATE COLLECTED	2/7/2024	6/5/2024	9/12/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)	(a)	(a)
BE-7				
K-40				
MN-54				
CO-58				
FE-59				
CO-60				
ZN-65				
ZR-95				
RU-103				
RU-106				
I-131				
CS-134				
CS-137				
BA-140				
LA-140				
CE-141				
CE-144				
RA-226				
TH-228				
H-3	< 6.E+02	< 6.E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 5

DATE COLLECTED	2/7/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 6

DATE COLLECTED	2/7/2024	6/5/2024	9/14/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)	(a)	(a)
BE-7				
K-40				
MN-54				
CO-58				
FE-59				
CO-60				
ZN-65				
ZR-95				
RU-103				
RU-106				
I-131				
CS-134				
CS-137				
BA-140				
LA-140				
CE-141				
CE-144				
RA-226				
TH-228				
H-3	< 6.E+02	< 6.E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 7D

DATE COLLECTED	2/8/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 7S

DATE COLLECTED	2/8/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 8

DATE COLLECTED	2/7/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 9

DATE COLLECTED	2/7/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 10

DATE COLLECTED	2/7/2024	6/6/2024	9/14/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	N/A[b]	(a)	(a)	N/A[b]
BE-7				
K-40				
MN-54				
CO-58				
FE-59				
CO-60				
ZN-65				
ZR-95				
RU-103				
RU-106				
I-131				
CS-134				
CS-137				
BA-140				
LA-140				
CE-141				
CE-144				
RA-226				
TH-228				
H-3	N/A[b]	< 6.E+02	< 6.E+02	N/A[b]

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

b: Attempted to obtain samples on these dates. Sample was not obtainable because there was no water in GMW-10 (a 25' deep well). This is a result of low river level and low water table. Because sample could not be obtained from GMW-10, a sample was obtained from GMW-10D which is just next to GMW-10 but is 10' deeper. Results for GMW-10D are on page 2-15.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 10D

DATE COLLECTED	2/7/2024	9/14/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)	(a)
BE-7			
K-40			
MN-54			
CO-58			
FE-59			
CO-60			
ZN-65			
ZR-95			
RU-103			
RU-106			
I-131			
CS-134			
CS-137			
BA-140			
LA-140			
CE-141			
CE-144			
RA-226			
TH-228			
H-3	< 5.E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 11

DATE COLLECTED	2/7/2024	6/6/2024	9/14/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)	(a)	(a)
BE-7				
K-40				
MN-54				
CO-58				
FE-59				
CO-60				
ZN-65				
ZR-95				
RU-103				
RU-106				
I-131				
CS-134				
CS-137				
BA-140				
LA-140				
CE-141				
CE-144				
RA-226				
TH-228				
H-3	< 5.E+02	< 6.E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 12

DATE COLLECTED	2/8/2024	9/14/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 3.E+02	< 6.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 13

DATE COLLECTED	2/7/2024	6/5/2024	9/14/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:			(a)	(a)
BE-7	< 1.E+01	< 2.E+01		
K-40	< 2.E+01	< 1.E+01		
MN-54	< 1.E+00	< 1.E+00		
CO-58	< 1.E+00	< 2.E+00		
FE-59	< 4.E+00	< 4.E+00		
CO-60	< 1.E+00	< 1.E+00		
ZN-65	< 3.E+00	< 3.E+00		
ZR-95	< 3.E+00	< 3.E+00		
RU-103	< 2.E+00	< 3.E+00		
RU-106	< 1.E+01	< 1.E+01		
I-131	< 2.E+01	< 7.E+01		
CS-134	< 1.E+00	< 1.E+00		
CS-137	< 1.E+00	< 1.E+00		
BA-140	< 2.E+01	< 5.E+01		
LA-140	< 8.E+00	< 2.E+01		
CE-141	< 4.E+00	< 5.E+00		
CE-144	< 9.E+00	< 9.E+00		
RA-226	< 3.E+01	< 3.E+01		
TH-228	< 2.E+00	< 2.E+00		
H-3	8.05E+02 ± 4.15E+02	1.38E+03 ± 5.13E+02	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 14

DATE COLLECTED	6/5/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 15

DATE COLLECTED	6/5/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	N/A[b]
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	N/A[b]

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

b: Attempted to obtain sample on this date. Sample was not obtainable because there was no water in GMW-15 (a 31' deep well). This is a result of low river level and low water table.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 16

DATE COLLECTED	6/5/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 17

DATE COLLECTED	6/6/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

B-1

COOPER NUCLEAR STATION
WATER - GROUND (PCI/LITER)

STATION NUMBER 18

DATE COLLECTED	6/6/2024	12/8/2024
GAMMA SPECTRUM ANALYSIS:	(a)	(a)
BE-7		
K-40		
MN-54		
CO-58		
FE-59		
CO-60		
ZN-65		
ZR-95		
RU-103		
RU-106		
I-131		
CS-134		
CS-137		
BA-140		
LA-140		
CE-141		
CE-144		
RA-226		
TH-228		
H-3	< 6.E+02	< 7.E+02

(a) Gamma analysis not performed. Refer to section IV.A for additional information.

NLS2025022
Enclosure 2

ENCLOSURE 2

Cooper Nuclear Station Offsite Dose Assessment Manual

Assessment Manual

-ODAM-

For assessment of

Gaseous and Liquid

Effluents

at

COOPER NUCLEAR STATION

Brownville, Nebraska

COOPER NUCLEAR STATION
OFFSITE DOSE ASSESSMENT MANUAL
-ODAM-
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OFFSITE DOSE ASSESSMENT MANUAL
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OFFSITE DOSE ASSESSMENT MANUAL
FOR GASEOUS AND LIQUID EFFLUENTS

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OFFSITE DOSE ASSESSMENT MANUAL
FOR GASEOUS AND LIQUID EFFLUENT

1.0 Introduction

This Manual describes acceptable methods of calculating radioactivity concentrations in the environment and the potentially resultant personal dose equivalent commitment beyond the site and exclusion area boundary that are associated with LWR liquid and gaseous effluents. The radioactivity concentrations and dose estimates are used to demonstrate compliance with the Appendix D Specifications required by 10 CFR 50.36.a. The methodology stated in this Manual is acceptable for use in demonstrating operational compliance with 10 CFR 20.1302, 10 CFR 50 Appendix I, and 40 CFR 190.10(a). Only the dose attributable to the Station is considered in demonstrating compliance with 40 CFR 190 since no other nuclear facility exists within 50 miles of the Station.

Calculations are made to assess the air dose from radioactive noble gases near ground level beyond the site and exclusion area boundary location that could be occupied by a person where the maximum air dose is expected. The maximum dose commitment to the person beyond the site and exclusion area boundary potentially experiencing the maximum exposure to all other radioactive material measured in gaseous and liquid effluents released from the Station is also calculated. Alternatively, the dose commitment from effluents other than radioactive noble gases may be calculated to correspond with residence at an occupiable location where airborne exposures are unlikely to underestimate those experienced by the maximally exposed person.

2.1 Radioactivity In Liquid Waste

The concentration of radionuclides in liquid waste is determined by sampling and analysis in accord with Table D3.1.1-1, Radioactive Liquid Waste Sampling and Analysis. Alternatively, pre-release analysis of the radioactivity concentration in liquid waste required by DSR 3.1.1.1 may be done by gross β-γ counting provided an effluent concentration beyond the site and exclusion area boundary for unidentified emitters, 1×10^{-8} μCi/ml, is applied where the discharge canal meets the river. When a radionuclide concentration is below the LLD for the analysis, it is not reported as being present in the sample. A general diagram of the liquid effluent stream components is shown in Figure 3.1A.

2.2 Aqueous Concentration

Radioactive material in liquid effluent is diluted successively by water flowing in the discharge canal and in the river. The diluted concentration of radionuclide i in a receiving stream is estimated with the equation

$$C_{zi} = C_i \frac{F_1}{F_2}$$

where C_i = concentration of radionuclide i in liquid radwaste released (μCi/ml)

C_{zi} = concentration of radionuclide i in the receiving stream (μCi/ml)

F_1 = release rate of liquid radwaste (ml/sec)*

F_2 = dilution flow of receiving stream of water (ml/sec)*

---

*F_1, F_2, and F_c may have any convenient units of flow (i.e., volume/time) provided the units of all are identical.

For the purpose of calculating the radioactivity concentration in water beyond the site and exclusion area boundary (Section 2.4), the flow in the discharge canal, F_c, is assigned to F_2.

This method of estimating concentration of radionuclide i in a receiving stream is very conservative as it is based on not exceeding the concentration limits in 10CFR20 Appendix B, Table 2, Column 2 during the period of radioactive material discharge.

As an alternate to the above method, the concentration of radionuclide i in a receiving stream can be calculated using the monthly and quarterly composite samples. This method, discussed in the basis of DSR 3.1.1.2, is performed as follows:

For Sr-89, Sr-90 and Fe-55

$$Czi = \frac{CqciVrq}{Vdq}$$

where Czi = concentration of radionuclide i in the receiving stream (µci/ml)

Cqci = concentration of radionuclide i in the quarterly composite sample (µci/ml)

Vrq = volume of liquid radwaste discharged during the quarter (ml)

Vdq = total volume of dilution flow corresponding to the time when Vrq was discharged for the quarter (ml)

For all other nuclides

$$Czi = \frac{Cmci\ Vrm}{Vdm}$$

where Czi = concentration of radionuclide i in the receiving stream (μci/ml)

Cmci = concentration of radionuclide i in the monthly composite sample (μci/ml)

Vrm = volume of liquid radwaste discharged during the month (ml)

Vdm = total volume of dilution flow corresponding to the time when Vrm was discharged for the month (ml)

2.3 Method of Establishing Alarm Setpoints

The liquid waste effluent monitor and the service water monitor are connected to alarms which provide automatic indication when 10 CFR Part 20, Appendix B, Table 2, Column 2 concentrations are expected to be exceeded beyond the site and exclusion area boundary. With prompt action to reduce radioactive releases following an alarm, the liquid release limit of 10 CFR Part 20.1302 and the limits provided by 10 CFR Part 50, Appendix I, Section IV are unlikely to be exceeded after the alarm.

The alarm setpoint for the liquid effluent radiation monitor is derived from the concentration limit provided in 10 CFR Part 20, Appendix B, Table 2, Column 2 applied where the discharge canal flows into the river. The alarm setpoint does not consider dilution, dispersion, or decay of radioactive material in the river. The radiation monitoring and isolation points are located in the liquid radwaste effluent line and the service water effluent line through which radioactive effluent is, or may be, eventually discharged into the discharge canal.

The alarm setpoint calculation for each liquid effluent monitor is based upon measurement according to Table D3.1.1-1 of radioactivity in a batch of liquid to be released or in the continuous aqueous discharge. Alternatively, the alarm setpoint may be based upon gross β-γ activity analysis of the liquid waste provided the effluent concentration beyond the site and exclusion area boundary for unidentified emitters, 1×10^{-8} μCi/ml, is observed.

In any case, a monitor may be set to alarm or trip at a lower activity concentration than the calculated setpoint.

2.3.1 Setpoint for a Batch Release

A sample of each batch of liquid radwaste is analyzed for I-131 and principal gamma emitters, or for total activity concentration prior to release. The ratio, $FMPC_b$, of the activity concentration in the tank to the effluent concentration (10 CFR Part 20, Appendix B, Table 2, Column 2) beyond the site and exclusion area boundary is calculated with the equation

$$FMPC_{bp} = \sum_{i} \frac{C_{bpi}}{MPC_i} \quad identified$$

where $FMPC_{bp}$ = fraction of effluent concentration beyond the site and exclusion area boundary in batch derived from activity measured prior to release.

C_{bpi} = concentration of radionuclide i (including I-131 and principal gamma emitters) in batch sample taken prior to release (μCi/ml).

MPC_i = effluent concentration beyond the site and exclusion area boundary of radionuclide i per 10 CFR Part 20, Appendix B, Table 2, Column 2 (μCi/ml)

When $FMPC_{bp}$ is derived from analyses identifying iodine and principal gamma emitters only, the value $FMPC_{bp}$ may be adjusted to account for radionuclides measured in the monthly and quarterly composite sample, but not measured prior to release. This adjustment, derived from measurements during past calendar quarters, is calculated with the equation:

$$FMPC_b = FMPC_{bp} \div E_b$$

where E_b = (Previous quarterly average of the fraction of the effluent concentration in the discharge canal due to I-131 and primary gamma emitters) ÷ (Previous quarterly average of the fraction of the effluent concentration in the discharge canal due to all radionuclides in batch releases.)

A reference value of E_b, derived from representative past measurements may be used routinely.

Whether radioiodine and primary gamma emitters are identified prior to a batch release or not, the liquid radwaste effluent line radiation monitor alarm and isolation valve closure setpoint is determined with the equation:

$$S = \frac{A}{FMPC_b} \cdot \frac{F_{S2}}{F_{S1}} \cdot g + Bkg$$

where S = radiation monitor alarm setpoint (cpm or μCi/ml)

A = counting rate (cpm/ml) or activity concentration (μCi/ml) of sample from laboratory analysis*

g = ratio of effluent radiation monitor counting rate to laboratory counting rate or activity concentration in a given batch of liquid (cpm per μCi/ml or μCi/ml per μCi/ml)

F_{S1} = maximum flow in the batch release line (gal/min)**

F_{S2} = minimum flow in the discharge canal (gal/min)**

Bkg = monitoring instrument background (cpm or μCi/ml)

Note that $A \div FMPC_b$ represents the counting rate of a solution having the same radionuclide distribution as the sample and having the maximum permissible concentration of that mixture.

Gross β-γ analysis alone may be used to determine the radioactivity in a batch prior to release. In that event, the fraction of the effluent concentration beyond the site and exclusion area boundary in the batch is:

$$FMPC_{bp} = \frac{C_{bp}}{1 \times 10^{-8}}$$

where

C_{bp} = gross or total radioactivity concentration in batch sample taken prior to release (μCi/ml)

1×10^{-8} = effluent concentration beyond the site and exclusion area boundary of unidentified radionuclides (μCi/ml)

---

*A equals $\sum_i C_{bpi}$ if isotopic analysis was performed or C_{bp} if gross activity analysis was performed.

**Any suitable but identical units of flow (volume/time).

The value of $FMPC_{bp}$ computed with this expression is substituted in the preceding equation to calculate the setpoint.

2.3.2 Setpoint for a Continuous Release

Continuous aqueous radioactive discharges are sampled and analyzed according to the schedule in Table D3.1.1-1. The ratio $FMPC_{cw}$, of the activity concentration in each of the continuous release streams of the effluent concentration beyond the site and exclusion area boundary is calculated with the equations.

$$FMPC_{cw} = \sum_{i} \frac{C_{cwi}}{MPC_i} \quad identified$$

where

$FMPC_{cw}$ = fraction of effluent concentration beyond the site and exclusion area boundary in continuous release based upon activity measured in weekly composite sample(s).

C_{cwi} = concentration of radionuclide i (including I-131 and principal gamma emitters) in weekly composite sample(s) (μCi/ml)

When $FMPC_c$ is derived from analyses of I-131 and principal gamma emitters, it may be adjusted to account for radionuclides measured in the monthly and quarterly composite sample but not measured prior to release. Adjustment for radionuclides measured in monthly and quarterly composite samples but not in weekly composite samples is given by the equation

$$FMPC_c = FMPC_{cw} \div E_c$$

where E_c = (Quarterly average fraction of the effluent concentration in the discharge canal due to I-131 and primary gamma emitters measured in weekly composite sample of continuous releases during previous quarter) ÷ (Quarterly average fraction of the effluent concentration in the discharge canal due to all radionuclides in samples of continuous releases during previous quarter.)

A reference value of E_c, derived from representative past measurements, may be used routinely, instead.

The alarm setpoint of the radiation monitor on the discharge line is determined with the equation

$$S = \frac{A}{FMPC_c} \cdot \frac{F_{S2}}{F_{S1}} \cdot g + Bkg$$

where A = counting rate (cpm/ml) or activity concentration (μCi/ml) of weekly composite sample in the laboratory.

Terms g, F_{S1}, F_{S2}, and Bkg are defined the same as in the setpoint equation for a batch release.

Gross β-γ analysis alone may be used to determine the radioactivity in a liquid radioactive discharge. In that event, the fraction of the effluent concentration beyond the site and exclusion area boundary in a sample of the release is:

$$FMPC_c = \frac{C_c}{1 \times 10^{-8}}$$

where C_c = gross or total radioactivity concentration in continuous aqueous release (μCi/ml)

1×10^{-8} = effluent concentration beyond the site and exclusion area boundary of unidentified radionuclides (μCi/ml)

The value of $FMPC_c$ computed with this expression is substituted in the preceding equation to calculate the setpoint.

In the event a long-term trend is evident in setpoints derived from the weekly sample and a setpoint value can be derived from the aggregate of the weekly samples which appears to have less variability and to better represent the effluent, then the setpoint based on the combined, long-term data may be used.

2.4 Radioactivity Concentration in Water Beyond the Site and Exclusion Area Boundary

DSR 3.1.1.2 requires that measured radioactivity concentrations in liquid releases be evaluated to verify that the activity concentration complied with Specification DLCO 3.1.1. Compliance with DLCO 3.1.1 is evaluated by calculating the average radioactivity concentration in water at the end of the discharge canal, expressed as a fraction of effluent concentration beyond the site and exclusion area boundary on the basis of measured release(s), per Table D3.1.1-1, of Fe-55, Sr-89, and Sr-90 averaged over no more than 92 days and other radionuclides averaged over no more than 31 days.

The average concentration of radioactive noble gases in discharge canal water may be calculated separately as a fraction of the effluent concentration 2×10^{-4} uCi/ml, since the critical exposure pathway for it, immersion in water, differs from the critical exposure pathway for other radionuclides in water, which is via ingestion of the water.

The average concentration, expressed as a fraction of the effluent concentration, is calculated with the equation:

$$\overline{FMPC} = \frac{1}{3785(TE-TB)} \sum_{k} \frac{1}{F2_k} \sum_{i} \frac{\hat{Q}_{ki}}{MPC_i}$$

where $\overline{FMPC}$ = fraction of the effluent concentration beyond the site and exclusion area boundary of a mixture of radionuclides in water (unitless, and should be limited to ≤ 1)

3785 = conversion factor (ml/gal)

TE-TB = increment of time between beginning and ending period of interest during which the concentration is averaged (min)

$F2_k$ = flow of aqueous stream beyond the site and exclusion area boundary into which radioactive release represented by sample k is diluted, i.e., the discharge canal flow during the release represented by sample k (gal/min)

$\hat{Q}_{ki}$ = quantity of radionuclide i represented by sample k which is released as an effluent within the time boundaries TB and TE (μCi)

MPC_i = maximum permissible concentration beyond the site and exclusion area boundary of radionuclide i per 10 CFR Part 20, Appendix B, Table 2, Column 2 (μCi/ml)

The data used to compute FMPC are measured by the radioactive liquid sampling and analysis program described in Table D3.1.1-1.

2.5 Accumulated Personal Maximum Dose

DSR 3.1.3.1 requires the dose or dose commitment to a member of the public due to radioactive material released in liquid effluent to be calculated on a cumulative basis at least once every 31 days. The requirement is satisfied by computing the accumulated dose commitment to the most exposed organ and to the total body of a hypothetical person exposed by eating fish taken from the river beyond the site and exclusion area boundary near the discharge canal and drinking water taken from the river three miles downstream.

The accumulated dose commitment is computed at least once every 31 days, but may be computed as analyses becomes available. The dose will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing the LADTAP II computer code.*

The LADTAP II program is routinely used for calculating radiological dose assessments for inclusion in the CNS Radioactive Effluents Release Report.

*With quality factor for Tritium reduced from 1.7 to 1.0 per ICRP.

Site specific parameters input to LADTAP II are listed below. These parameters are included in the program calculations and are only changed as conditions and/or situations warrant.

- CNS effluent water flow in cfs, the average flow in the discharge canal during the time of interest.

- Dilution factor for the effluent.

  Drinking water: ≤5 (for LADTAP variable Dilution factor)

  Fish*: ≤5 (for LADTAP variable Dilution factor)

  *Fishing - Seasonal variation: Consumption of fish is evaluated from April through November.

Alternatively, the accumulated dose commitment may be calculated in the following way:

$$\Delta D_{ank} = 3.785 \times 10^{-3} \sum_e \sum_i A_{eani} C_{ik} \cdot \Delta t_k \left(\frac{F_1}{F_2} \right)_k$$

$$D_{an} = \sum_k \Delta D_{ank}$$

where ΔD_{ank} = the dose commitment (mrem) to organ n of age group a due to the isotopes in a release represented by analysis k, where the analyses are those required by Table D3.1.1-1. Thus the contribution to the dose from gamma emitters become available on a batch basis for batch releases and on a weekly basis for

continuous releases. Similarly the contributions from H-3 are available on a monthly basis and the contributions from Sr-89, Sr-90, and Fe-55 become available on a quarterly basis.

D_{an} = the dose commitment attributed to releases represented by all analyses k to organ n, including total body, of the maximally exposed person in age group a (mrem).

A_{eani} = transfer factor relating a unit release of radionuclide i (Ci) in a unit stream flow (gal/min) to dose commitment to organ n, or total body, of an exposed person in age group a via environmental pathway e

$$\frac{mrem}{Ci \cdot min/gal}$$

$3.785 \times 10^{-3} = 3785$ ml/gal x 10^{-6}Ci/μCi

C_{ik} = the concentration of radionuclide i in the undiluted liquid waste to be discharged (μCi/ml), i.e., in the sample k

Δt_k = elapsed time of release represented by sample k during which radionuclide i is discharged at concentration C_{ik}, i.e., the duration of the release represented by sample k (minutes)

$(F/_1/F_2) =$ the quotient of the release flow, F_1, and the dilution flow, F_2, during the release represented by sample k

Pathway-to-dose transfer factors, A_{eani}, for use in calculating the dose commitment arising from radioactive material released in aqueous effluents, are calculated in accordance with equations and values recommended in Regulatory Guide 1.109, Revision O. Appropriate factors representing applicable environmental pathways of exposure and most exposed age group(s) are selected and used in calculating the dose commitment. The pathway(s) and thus age group(s) selected may vary by season. For instance, when fishing near the Station during the winter is nonexistent, evaluation of the fish pathway is not required.

The age group potentially most exposed via eating fish is expected to be the adult, and the age group potentially most exposed via drinking water from the Missouri River is expected to be the infant. Normally, only these need to be evaluated for compliance with DSR 3.1.3.1. For the purpose of calculating the dose to the Member of the Public who is potentially exposed most by eating fish taken from the river beyond the site and exclusion area boundary near the discharge canal, $F_2 = 5F_c$. As long as potable water is known not to be taken from the river within three miles downstream of Cooper Station, as verified by the annual land survey, the potential dose to a Member of the Public via drinking water will be assessed on the basis of water assumed to be taken from the river three miles downstream. At that location, F_2 is conservatively assumed to be $F_2 = 5F_c$. Variables F_1, F_2, and F_c are defined in Section 2.2.

2.6 Projected Personal Maximum Dose

DSR 3.1.3.2 requires the maximum total body and organ doses to a person beyond the site and exclusion area boundary due to radioactive material released in liquid effluent to be projected over a quarter at least one time during every 31 days if

radioactive liquid radwaste is released and the radwaste system is not operated.

This requirement is satisfied by calculating the projected dose commitment to a hypothetical person exposed by eating fish taken from the river beyond the site and exclusion area boundary near the discharge canal and drinking water taken from the river three miles downstream. The potential dose commitments to organs and to the total body are computed separately.

The quarterly dose commitment to a maximally exposed hypothetical person is projected by computing the accumulated doses to the total body and most exposed organ during the most recent three months and assuming the result represents the projected doses during the current quarter. Doses will be calculated in accordance with Section 2.5.

As an alternative, the quarterly dose commitment to the total body and most exposed organ may be projected by using the equation

$$P_{an} = \frac{91}{X} D_{an}$$

where P_{an} = projected dose commitment (mrem) to organ n (including total body of age group a during the current quarter)

91 = number of days in a quarter

X = number of days to date in current quarter

D_{an} = dose commitment during the quarter-to-date (mrem) based upon results of aqueous effluent sampling and analyses available to date during the quarter

3.0 Gaseous Effluent

3.1 Introduction

The Station discharges gaseous effluent through a stack (Elevated Release Point) and discharges ventilation air from the radwaste, augmented radwaste, turbine, and reactor buildings through the respective building vents. These gaseous effluent streams, radioactivity monitoring points, and effluent discharge points are shown schematically in Figure 3-1. Gaseous release point locations and elevations at Cooper Station are described in Table 3-1. Gaseous discharges from the Elevated Release Point (ERP) are treated as an elevated release while discharges via building vents are assumed to be ground-level releases or split-wake releases.

Gaseous release point locations and elevations at the Station are described in Table 3-1.

3.2 Radioactivity in Gaseous Effluent

For the purpose of estimating radionuclide concentrations and radiation doses, beyond the site and exclusion area boundary measured radionuclide concentrations in gaseous effluent and in ventilation air exhausted from the Station are relied upon. Table D3.2.3-1 identifies the radioactive gaseous effluent measurements. When a radionuclide concentration is below the LLD for the analysis, it is not reported as being present in the sample.

Noble Gases. The distribution of noble gas radionuclides in a gaseous effluent is determined in one of the following ways.

1. Preferably, the radionuclide distribution is obtained by gamma spectrum analysis of effluent gas samples in accordance with DLCO 3.2.3, Table D3.2.3-1. Results of analyses of one or more samples may be averaged to obtain a representative spectrum.

2. In the event a representative radioactive noble gas distribution is unobtainable from samples taken during the period of interest, it may be derived from previous measurements or may be based upon a computed spectrum appearing in Table 3-2.

3. Alternatively, the total activity concentration of radioactive noble gases may be assumed to be krypton - 88.

The total quantity of radioactive noble gas discharged during an interval of time is determined by integrating the rate measurement of each effluent noble gas monitor. This may be done by the effluent monitoring system or the measured activity discharged via a gaseous effluent stream may be calculated with the equation

$$Q = 2.8 \times 10^4 \frac{N}{g} \cdot F$$

where Q = total radioactive noble gas release via a gaseous effluent stream during a given time interval (μCi)

N = net counts accumulated during the time interval

g = effluent noble gas monitor counting rate response

$$\left(\frac{cpm}{\mu Ci/cm^3} \right)$$

F = gaseous effluent stream discharge rate (cfm)

2.8×10^4 = conversion constant (cm^3/ft^3)

3.3 Main Condenser Air Ejector Noble Gas Monitor Alarm Setpoint

A noble gas activity monitor is provided to measure gross gamma activity in gases at the main condenser air ejector. The monitor includes an alarm that is set to report when the gamma radiation level in gas discharged by the main condenser air ejector indicates the gross radioactivity discharge rate exceeds 1 Ci/sec.

The alarm setpoint is determined with the relation

$$S = 2120 \frac{h\ P}{F} + Bkg$$

where S = the alarm setpoint (mr/hr)

h = monitor response to activity concentration of SJAE offgas being monitored (mr/hr per ($\mu Ci/cm^3$))

F = air ejector discharge rate (cfm)

Bkg = monitoring instrument background (mr/hr)

P = fraction of allowable limit representing a chosen margin of conservatism in the setpoint (unitless)

$$2120 = 1 \frac{Ci}{Sec.} \times \frac{1.0E6\mu Ci}{Ci} \times \frac{1\ ft^3}{28317\ cm^3} \times \frac{60\ sec}{min.}$$

3.4 Effluent Noble Gas Monitor Alarm Setpoint

DSR 3.3.2.9 requires an alarm setpoint to be determined for each radioactive noble gas effluent monitor. Each setpoint is derived to cause the alarm to report when the dose equivalent rate beyond the site and exclusion area boundary due to radioactive noble gas in gaseous effluent exceeds a limit in DLCO 3.2.1.a. Each noble gas activity monitor included in Table D3.3.2-1 except the main condenser air ejector off gas monitor is set to initiate alarm at or below the derived setpoint.

For the purpose of deriving a setpoint, the distribution of noble gas radionuclides in an effluent stream is determined as described in Section 3.2.

3.4.1 Setpoint Based on Dose Rate

The alarm setpoint of a radioactive noble gas effluent monitor may be calculated on the basis of whole body dose equivalent rate beyond the site and exclusion area boundary. A setpoint of a monitor of an elevated release, e.g., from the stack, may be calculated with the equation.

$$S = 1.06 \frac{h \cdot P}{f} \frac{\sum_i C_i}{\sum_i \left(C_i \cdot DF_i^s \right)} + Bkg$$

The setpoint of a monitor of a ground-level or split-wake release, e.g., from the turbine building vent or the AOG building, may be calculated with the equation

$$S = 1.06 \frac{h \cdot P}{f \frac{X}{Q}} \frac{\sum_i C_i}{\sum_i \left(C_i \cdot DF_i^v \right)} + Bkg$$

where

S = the alarm setpoint (cpm, mr/hr, or $\mu Ci/cm^3$)

h = monitor response to activity concentration of effluent being monitored, (cpm per $\mu Ci/cm^3$, mr/hr per $\mu Ci/cm^3$, or $\mu Ci/cm^3$ per $\mu Ci/cm^3$)

C_i = relative concentration of noble gas radionuclide i in effluent at the point of monitoring ($\mu Ci/cm^3$)

X/Q = atmospheric dispersion from point of ground-level or split-wake release to the location of potential exposure (sec/m^3)

DF_i^s = factor converting elevated release rate of radionuclide i to total body dose equivalent rate at the location of potential exposure (mrem)/(yr $\cdot \mu$Ci/sec)

DF_i^v = factor converting ground-level or split-wake release of radionuclide i to the total body dose equivalent rate at the location of potential exposure

(mrem)/(yr ·μCi/m^3)

f = flow of gaseous effluent stream, i.e., flow past the monitor (ft^3/min)

Bkg = monitoring instrument background (cpm, mr/hr, or μCi/cm^3)

1.06 = 500 mrem/yr x 60 sec/min x 35.3 ft^3/m^3 x 1.0 m^3/1.0 x 10^6 cm^3

P = fraction of allowable limit representing a chosen margin of conservatism in the setpoint (unitless)

Each monitoring channel has a unique response, h, which is determined by the instrument calibration. In order to ensure the correct derivation of a setpoint, the monitor background (Bkg) and the monitor response factor (h) must be in consistent units.

The concentration of each noble gas radionuclide i in a gaseous effluent is determined as discussed in Section 3.2.

The atmospheric dispersion and the dose conversion factor, DF_i^s depends upon local conditions. For the purpose of calculating radioactive noble gas effluent monitor alarm setpoints appropriate for Cooper Station, the locations of maximum potential exposure beyond the site and exclusion area boundary and the reference atmospheric dispersion factors applicable to the derivation of setpoints are:

Discharge Point	Discharge Height	Receptor Location		Atm. Dispersion (sec/m3)
		Sector	Distance(m)	
Vent	Ground-Level or Split-Wake	NNW	1,150	3.4×10^{-6}
ERP	Elevated	W	1,800	8.2×10^{-8}

The applicable dose conversion factors, DF^s_i and DF^v_i for deriving setpoints are in Table 3-3.

3.5 Noble Gas Gamma Radiation Dose Accumulated in Air

DSR 3.2.2.1 requires the calculation on a cumulative basis of air dose due to gamma radiation from radioactive noble gas released in gaseous effluents. DLCO 3.2.2, Condition A requires reporting to the NRC when the air dose beyond the site and exclusion area boundary due to noble gas gamma radiation exceeds 5 mrad during any calendar quarter or 10 mrad during any calendar year.

The distribution of radioactive noble gases in gaseous releases and the quantity discharged during an interval of interest are determined as described in Section 3.2.

The gamma radiation dose to air beyond the site and exclusion area boundary as a consequence of noble gas released from the station will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing USNRC Computer Code GASPAR.*

The GASPAR program is routinely used for calculating radiological dose assessments for inclusion in the CNS Radioactive Effluents Release Report.

Site specific parameters input to GASPAR are listed below. These parameters are included in the program calculations and are only changed as conditions and/or situations warrant.

- Source terms for the intervals of interest
- Fraction of year milch animals are on pasture
- Atmospheric dispersion factors, for specific locations, obtained from annual meteorological data which are used to determine noble gas (gamma and beta) air doses for the following:
  - Maximum individual site boundary
  - Maximum individual nearest resident
  - Maximum individual nearest milch cow
  - Maximum individual nearest garden
- Population distribution (0 to 50 miles)
- Meat, milk, and vegetable distribution (0 to 50 miles)
- Absolute humidity at Cooper Nuclear Station
- Fraction of the year vegetables are grown
- Fraction of daily feed intake derived from pasture for milch and meat animals

*Quality factor for Tritium reduced from 1.7 to 1.0 per ICRP.

Alternatively, the gamma radiation dose to air beyond the site and exclusion area boundary as a consequence of noble gas released from the station may be calculated with the equation:

$$D = \sum_i \left(Q_{cs_i} \cdot A\gamma_{cs_i} \right) + \sum_i \left(Q_{cv_i} \cdot \left(\frac{X}{Q} \right)_{cv} \cdot A\gamma_{v_i} \right)$$

where D = noble gas gamma dose to air (mrad)

$Q_{cs_i} = \Sigma \Delta Q_{cs_i}$ = cumulative release of noble gas nuclide i from stack (μCi).

$A\gamma_{cs_i}$ = factor converting unit noble gas stack release to ground level air dose from overhead plume gamma radiation (mrad/μCi).

$A\gamma_{v_i}$ = factor converting time integrated, ground level concentration of noble gas to air dose from gamma radiation

$$\left(\frac{mrad}{\mu Ci \ \frac{sec}{m^3}} \right)$$

$Q_{cvi} = \sum_{time} \Delta Qcvi$ = cumulative release of noble gas nuclide i from building vents (μCi).

$\left(\frac{X}{Q}\right)_{cv}$ = long term average atmospheric dispersion factor for a ground level or split wake release (sec/m^3).

DSR 3.2.2-1 is satisfied by calculating the noble gas gamma radiation dose to air beyond the site and exclusion area boundary at a point situated at the NNW site boundary, and on the basis of reference* atmospheric dispersion assuming continuous gaseous release. At that location, the reference atmospheric dispersion factor for a vent (ground-level) release is $X/Q = 3.4 \times 10^{-6}$ sec/m^3. Appropriate values of $A\gamma_{csi}$ and $A\gamma_v$ for use in calculating air doses at that location are listed in Table 3-4.

3.6 Noble Gas Beta Radiation Dose Accumulated in Air

DLCO 3.2.2 requires that the air dose beyond the site and exclusion area boundary from beta radiation not exceed 10 mrad during any quarter and 20 mrad during any year. DSR 3.2.2-1 requires the air dose to be calculated on a cumulative basis.

The radioactive noble gas distribution and activity discharged are determined as described in § 3.4 herein.

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*Onsite meteorological data for the period July 1, 1976, to June 30, 1977, which was used in the Cooper Station Demonstrated of Compliance with 10 CFR 50, Appendix I, revision 1, January, 1978.

The beta radiation dose to air beyond the site and exclusion area boundary as a consequence of noble gas released from the station will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing USNRC Computer Code GASPAR.*

Alternatively, the beta radiation dose to air beyond the site and exclusion area boundary as a consequence of noble gas released from the station may be calculated with the equation

$$D = \sum_i \left(Q_{cs_i} \frac{X}{Q_{cs}} + Q_{cv_i} \frac{X}{Q_{cv}} \right) \cdot A\beta_i$$

Where

D = noble gas beta dose to air (mrad)

$(X/Q)_{cs}$ = long-term average atmospheric dispersion factor for stack releases (sec/m^3)

$A\beta_i$ = factor converting time integrated ground level concentration of noble gas radionuclide i to air dose from beta radiation

$$\frac{mrad}{(\mu Ci\ sec)/m^3}$$

DSR 3.2.2.1 is satisfied by calculating the noble gas beta radiation dose to air beyond the site and exclusion area boundary at a point situated at the NNW site boundary, and on the basis of reference atmospheric dispersion assuming continuous gaseous discharge. At that location, the reference atmospheric dispersion factors are:

$(X/Q)_s$ = 1.2×10^{-8} sec/m^3 at the NNW site boundary

$(X/Q)_v$ = 3.4×10^{-6} sec/m^3

Beta radiation-to-air dose conversion factors, $A\beta_i$, for noble gas radionuclides are listed in Table 3-4.

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*Quality factor for Tritium reduced from 1.7 to 1.0 per ICRP.

3.7 Dose Due to Iodine and Particulates in Gaseous Effluents*

DLCO 3.2.3 requires that radioiodine, and radioactive material in particulate form having half-lives greater than eight days in gaseous effluents released to the area beyond the site and exclusion area boundary cause no more than 7.5 mrem to any organ of a member of the public during any calendar quarter or 15 mrem to an organ of a member of the public during any calendar year. DSR 3.2.3.2 requires the dose to be calculated at least once every 31 days.

Radionuclides other than noble gases or tritium in gaseous effluents that are measured by the sampling and analysis program described in Table D3.2.3-1 are used as the release term in dose calculations. Airborne releases are discharged either via the stack (ERP) as an elevated release or via building vents and treated as a ground level or split-wake release. For each of these release combinations, samples are analyzed weekly, monthly, quarterly, or for a specific release according to Table D3.2.3-1.

Each sample provides a measure of the concentration of specific radionuclides, C_i, in gaseous effluent discharged at flow, F_a, during a time increment Δt. Thus, each release is quantified according to the relation:

*The dose to any organ of a person arising from radioactive iodine-131, iodine-133, and radioactive material in particulate form having half-lives greater than eight days. Noble gases not considered.

$$\Delta Q_{ijk} = C_{ik} F_{aj} \Delta t_j$$

$$Q_{ik} = \sum_j C_{ik} F_{aj} \Delta t_j$$

where Q_{ik} = the quantity of radionuclide i released in a given effluent stream based on analysis k (Ci)

C_{ik} = concentration of radionuclide i in gaseous effluent identified by analysis k (Ci/m^3) or ($\mu Ci/cm^3$)

F_{aj} = effluent stream discharge rate during time increment Δt_j(m^3/sec)

Δt_j = elapsed time in increment j during which radionuclide i at concentration C_{ik} is being discharged (sec)

3.7.1 GASPAR Method

A person may be exposed directly to an airborne concentration of radioactive material discharged in effluent and indirectly via pathways involving deposition of radioactive material onto the ground. Dose estimates account for the separate exposure pathways. The dose commitment to a person beyond the site and exclusion area boundary associated with a gaseous release, Q_{ik}, of radioactive material other than noble gas will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing USNRC Computer Code GASPAR.*

The GASPAR program is routinely used for calculating radiological dose assessments. Site specific parameters input to GASPAR are listed in Section 3.5.

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*Quality factor for Tritium reduced from 1.7 to 1.0 per ICRP.

3.7.2 Alternate Method

Alternatively, the dose commitment to a person beyond the site and exclusion area boundary associated with a gaseous release, Q_{ik}, of radioactive material other than noble gas may be calculated with one of the appropriate following equations

release via the stack:

$$D_{ansk} = Q_{iks}\left[\sum_i TA_{ani}\left(\frac{Xd}{Q}\right)_{cs} + \sum_e \sum_i TG_{eani}\left(\frac{D}{Q}\right)_{bse}\right]$$

release via a vent:

$$D_{anvk} = Q_{ikv}\left[\sum_i TA_{ani}\left(\frac{Xd}{Q}\right)_{bv} + \sum_e \sum_i TG_{eani}\left(\frac{D}{Q}\right)_{cve}\right]$$

where

D_{ansk} = the dose commitment (mrem) to organ n of a person in age group a due to radionuclides identified in analysis k of an elevated (ERP) release where the analysis is one required by Table D3.2.3-1.

D_{anvk} = the dose commitment from a vent release (mrem)

TA_{ani} = factor converting airborne concentration of radionuclide i to dose commitment to organ n of a person in age group a

$$\left(\frac{mrem}{(Ci\ sec)/m^3}\right)$$

TG_{eani} = factor converting ground deposition of radionuclide i to dose commitment to organ n of a person in age group a exposed via environmental pathway e (mrem/Ci/m^2)

(D/Q) = relative deposition factor (m^{-2})

(Xd/Q) = depleted atmospheric dispersion factor (mCi/m^3 per mCi/sec)

The analysis index k may represent either

p, analysis of a grab sample

w, a weekly composite analysis

m, a monthly composite analysis

q, a quarterly composite analysis

The dose commitment accumulated by a person beyond the site and exclusion area boundary is computed at least every 31 days, but may be calculated as analytical results of effluent measurements, performed according to Table D3.2.3-1, become available.

The dose is accumulated in the following way.

The dose accumulated as a result of stack discharge is

$$D_{ans} = \sum_{w} D_{answ} + \sum_{m} D_{ansm} + \sum_{q} D_{ansq}$$

and the dose accumulated as a result of a vent discharge is

$$D_{anv} = \sum_{w} D_{anvw} + \sum_{m} D_{anvm} + \sum_{q} D_{anvq}$$

Doses committed during the same time period due to discharges from the stack and vents are additive, thus:

$$D_{an} = D_{ans} + \sum_{v} D_{anv}$$

where D_{an} = the dose commitment accumulated during the quarter to date as a result of all measured radioactive gaseous discharges except noble gases and tritium to any organ n, including total body, of a person offsite in age group a (mrem)

When the dose to a person from iodine and particulates discharged in gaseous effluent is calculated as required by DSR 3.2.3.2, appropriate environmental pathways of exposure will be evaluated. The pathway(s) and/or age group(s) selected may vary by season. Appropriate pathway-to-dose transfer factors, A_{eani}, are selected for use in calculating the dose.

The dose to a receptor 1.1 miles west of the Station is calculated on the basis of continuous gaseous release and reference meteorological conditions. The reference atmospheric dispersion and deposition factors at that location to be used for assessing compliance with DLCO 3.2.3 are:

$$\left(\frac{Xd}{Q}\right)_s = 8.1 \times 10^{-8}\ sec/m^3 \qquad \left(\frac{D}{Q}\right)_s = 4.6 \times 10^{-10}\ m^{-2}$$

$$\left(\frac{Xd}{Q}\right)_v = 4.4 \times 10^{-7}\ sec/m^3 \qquad \left(\frac{D}{Q}\right)_v = 9.5 \times 10^{-10}\ m^{-2}$$

The receptor is assumed to drink milk produced by the milch animal which experiences the maximum D/Q. Maximum values of the relative deposition factors for a milch animal located 3.7 miles northwest of the Station, are:

$$\left(\frac{D}{Q}\right)_s = 1.2 \times 10^{-10}\ m^{-2}$$

$$\left(\frac{D}{Q}\right)_v = 3.7 \times 10^{-10}\ m^{-2}$$

40 CFR Part 190. When the dose due to gaseous effluent is calculated for the purpose of evaluating compliance with 40 CFR Part 190 (reference Section 4.2), the dose contributed by tritium is included in the evaluation and is calculated in the following way.

Since tritium in water vapor is absorbed directly by vegetation, the tritium concentration in growing vegetation is proportional to the airborne concentration rather than to relative deposition as in the case of particulates. Thus the dose commitment from airborne tritium via vegetation (fruit and vegetables), air-grass-cow-milk, or air-grass-cow-meat pathways is calculated with the appropriate one(s) of the equations:

for a stack release

$$D_{ansk} = \frac{X}{Q_s} \sum_i Q_{iks} \sum_p TA_{anip}$$

for a vent release

$$D_{ankv} = \frac{X}{Q_v} \sum_i Q_{ikv} \sum_p TA_{anip}$$

3.8 Dose to a Person from Noble Gases

DSR 3.4.1.1 requires the calculation of dose to a member of the public for the purpose of assessing compliance with provisions of 40 CFR Part 190.10(a). That assessment includes the calculation of the gamma dose to the total body and the beta plus gamma dose to the skin of the person due to radioactive noble gases in gaseous effluents.

3.8.1 Gamma Dose to Total Body - GASPAR Method

The gamma radiation dose to the whole body of a member of the public as a consequence of noble gas released from the station will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing USNRC Computer Code GASPAR.*

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*Quality factor for Tritium reduced from 1.7 to 1.0 per ICRP.

3.8.1.1 Alternate Method

Alternatively, the gamma radiation dose to the whole body of a member of the public as a consequence of noble gas released from the Station may be calculated with the equation:

$$D\gamma = \sum_i \left(Q_{csi} \cdot P\gamma_{cs_i} + Q_{cv_i} \left(\frac{X}{Q} \right)_{cv} \cdot P\gamma_{v_i} \right)$$

where

$D\gamma$ = noble gas gamma dose to total body (mrem)

$P\gamma_{cs_i}$ = factor converting unit noble gas nuclide i in stack release to total body dose at ground level received from the overhead plume (mrem/μCi)

$P\gamma_{v_i}$ = factor converting time integrated, ground level concentration of noble gas nuclide i to air dose from gamma radiation

$$\left(\frac{.mrem}{\mu Ci \ \frac{sec}{m^3}} \right)$$

When the total body dose due to gamma radiation from noble gas is evaluated as required by DSR 3.4.1.1, the dose to the nearby resident exposed most by all applicable exposure pathways combined is computed. Alternatively, the nearby resident exposed to maximal ground-level noble gas concentrations (maximum X/Q) may be selected as the receptor. Values by $P\gamma cs_i$ and $P\gamma v_i$ for this receptor, 1.1 miles west of the station, appear in Table 3-5.

3.8.2 Dose to Skin - GASPAR Method

The beta radiation dose to the skin of a member of the public due to beta radiation from noble gas released from the station will be calculated in accordance with Regulatory Guide 1.109, Revision 1, utilizing USNRC Computer Code GASPAR.*

3.8.2.1 Alternate Method

Alternatively, the beta radiation dose to the skin of a member of the public due to beta radiation from noble gas released from the Station may be calculated with the equation

$$D\beta = \sum_i \left(Q_{cs_i} \frac{X}{Q_{cs}} + Q_{cv_i} \frac{X}{Q_{cv}} \right) \cdot S\beta_i$$

where $D\beta$ = noble gas beta dose to skin (mrem)

$S\beta_i$ = factor converting time integrated ground level concentration of noble gas radionuclide i to skin dose from beta radiation

$$\frac{mrem}{(\mu Ci\ sec)/m^3}$$

Values of $S\beta_i$ for noble gases are included in Table 3-5.

When the skin dose due to noble gas beta radiation is evaluated as required by DSR 3.4.1.1, the receptor selected is the nearby resident exposed most via all applicable exposure pathways together. Alternatively, the nearby resident exposed to maximal ground-level concentrations (maximum X/Q) may be selected as the receptor. The location of the latter resident is 1.1 miles west of the station.

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*Quality factor Tritium reduced from 1.7 to 1.0 per ICRP.

The total dose to the skin from noble gases is approximately equal to the beta radiation dose to the skin plus the gamma radiation dose to the total body.

3.9 Projected Organ Dose Due to Gaseous Effluent

DSR 3.2.5.1 and DSR 3.2.4.2 requires organ dose to a member of the public due to radioactive material in air effluent be projected during each month in which radioactive material is released in gaseous effluent without treatment. The purpose is to guide plant personnel in operating the EVTS and the Offgas Treatment System.

The organ dose is projected by calculating the dose to the most exposed organ accumulated during the month to date in accordance with Sections 3.7 and by projecting it for an entire 31 day time by employing the equation:

$$PD = \frac{31}{X} D$$

where:

PD	=	projected organ dose to a member of the public (mrem)
31	=	number of days over which dose is projected
X	=	number of days to date during the projection period
D	=	dose accumulated to the most exposed organ of a member of the public during the month to date (mrem).

3.10 Dose Rate Due to Tritium, Iodines, and Particulates in Gaseous Effluents

DLCO 3.2.1.b requires that the dose rate to any body organ created by the release of tritium, radioiodines, and radioactive material in particulate form having half-lives greater than eight days, shall not exceed 1500 mrem/yr. DSR 3.2.1.1 requires the dose rate to be calculated at least once every 31 days.

The dose equivalent rate from tritium, iodine, and radionuclides in particulate form in airborne effluent due to exposure by inhalation plus tritium absorption through the skin may be calculated for each discharge point by using the following equations. For effluent from an elevated release point, i.e., stack discharge above building wake, the equation is:

$$D_{ans} = \frac{10^{-6}}{TE \cdot TB} \sum_k \sum_i Q_{ski} \left(\frac{X}{Q}\right)_s TA_{eani}$$

For effluent from a ground-level release point, i.e., a building vent, the equation is:

$$D_{anv} = \frac{10^{-6}}{TE \cdot TB} \sum_k \sum_i Q_{vki} \left(\frac{X}{Q}\right)_v TA_{eani}$$

Dose rates from separate release points may be combined to give

$$D_{an} = D_{ans} + \sum_v D_{anv}$$

where D_{an} = dose equivalent commitment rate to organ n of a person in age group a due to radioactive particulates, iodine, and tritium in airborne effluent that are inhaled (mrem/hr)

D_{ans}, D_{anv}	=	dose equivalent commitment rate due to radioactive particulates, iodine, and tritium from an elevated release and a ground-level release respectively (mrem/hr)
Q_{ski}, Q_{vki}	=	quantity of radionuclide i released in a given effluent stream, either elevated or ground-level, based on analysis k (uCi) during discharge time increment TB to TE (hr)
TE	=	ending time of effluent discharge
TB	=	beginning time of effluent discharge
TE-TB	=	effluent averaging time (hr)
$(X/Q)_s, (X/Q)_v$	=	atmospheric dispersion from an elevated or a ground-level release respectively to ground-level at the receptor (uCi/m^3 per uCi/sec)
TA_{eani}	=	factor converting airborne concentration of radionuclide i to dose commitment to organ n of a person in age group a and where e represents exposure via inhalation $\left(\frac{mrem}{(Ci\ sec)/m^3}\right)$
10^{-6}	=	conversion, 10^{-6}Ci/μCi

The analysis index, k, may represent either a grab sample, an integrated (continuous) sample, or a composite sample of an effluent. In turn, each sample represents certain radionuclides in the effluent during the time increment represented by the sample.

3.11 Carbon-14 Gaseous Effluent Dose Calculations

Doses to the maximum-exposed individual resulting from the release of Carbon-14 in gaseous effluents from Cooper Nuclear Station (CNS) are calculated using the GASPAR computer code. Source terms for each quarter are combined with station-specific demographic data and atmospheric diffusion estimates for gaseous dose calculations. Four pathways are selected for individual dose calculations: nearest site boundary for inhalation, nearest garden for vegetation ingestion, nearest animal for meat ingestion, and nearest milk animal (cow). Based on the 2011 Land Use Census, there are no meat or

milk animals identified within 5 miles of CNS; however, CNS maintains a virtual cow receptor at 3.5 miles north-northwest of the plant and conservatively includes this receptor in dose calculations.

Use of normalized Carbon-14 source term and scaling factors based on the annual thermal gigawatts (GW_T) power generation are utilized to determine the quantity of Carbon-14 in the CNS gaseous effluent discharge. The Boiling Water Reactor proxy production rate of 5.1 curies Carbon-14 per GW_T generation was found using the methodology described in EPRI Technical Report 1021106, Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents.

The proxy production rate of 5.1 curies Carbon-14 per GW_T generation is then inputted into GASPAR in addition to the following data:

- 0 to 50 mile population distribution
- 0 to 50 mile meat, milk, and vegetable distributions
- Absolute humidity at Cooper Nuclear Station (14.61 g/m^3)
- The fraction of the year that the vegetables are grown (0.5)
- The fraction of the daily feed intake derived from pasture for milk and meat animals (0.5)

Other values input to GASPAR are default values from U.S. NRC Regulatory Guide 1.109, Revision 1.

GASPAR implements the radiological dose models of U.S. NRC Regulatory Guide 1.109, Revision 1, for determining the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground, inhalation, and ingestion. Doses to the maximum-exposed individual are calculated as a function of age group and pathway for significant body organs.

Doses presented are conservatively calculated based on the annual site X/Qs. These X/Qs result in doses approximately 20% higher than those calculated with the X/Qs based on growing season meteorology.

4.0 Dose Commitment From Releases Over Extended Time

4.1 Releases During A Quarter

An annual assessment of radiation doses arising from liquid and gaseous effluents from the Station during each calendar quarter is required. The assessment includes the following calculations of doses for

1. total body and maximally exposed organ doses due to liquid effluent via drinking water and eating fish from the river as in § 2.6.

2. total body and maximally exposed organ doses due to gaseous effluents* other than noble gases and tritium as in § 3.7.

3. doses to air offsite due to noble gas γ as in § 3.5 and due to noble gas β as in § 3.6.

The dose calculations are based on liquid and gaseous effluents from the Station during each calendar quarter determined in accord with Tables D3.1.1-1 and D3.2.3-1.

*radioactive iodine-131, iodine-133, and radioactive material in particulate form, having half-lives greater than eight days.

Aqueous concentration is estimated according to 2.2 on the basis of quarterly averaged stream flow or stream flow during discharge. If practical, quarterly averaged meteorological conditions concurrent with the quarterly gaseous release being evaluated are used to estimate atmospheric dispersion and deposition. Otherwise, the quarterly dose commitment due to gaseous effluent will be calculated using either reference meteorology or annual averaged meteorology during the year in which the release occurred.

The receptor of the dose is described such that the dose to any resident near the Station is unlikely to be underestimated. That is, the receptor is selected on the basis of the combination of applicable pathways of exposure to gaseous effluent identified in the annual land use census and maximum ground level X/Q at the residence. Conditions (i.e., location, X/Q, and/or pathways) more conservative (i.e. expected to yield higher calculated doses) than appropriate for the maximally exposed individual may be assumed in the dose assessment.

Seasonal appropriateness of exposure pathways may be considered. Exposure by eating fresh vegetation or drinking milk from cows or goats fed fresh forage is an inappropriate assumption during the first or fourth calendar quarter; rather consumption of stored vegetation and stored forage is ordinarily assumed.

Similarly, the liquid effluent-river-fish-man pathway is not ordinarily assumed during the winter quarter.

Factors converting stack-released noble gas to gamma radiation dose from the overhead plume are calculated on the basis of reference meteorological data for the receptor location.

4.2 Releases During 12 Months

The regulation governing the maximum allowable dose or dose commitment to a member of the public from all uranium fuel cycle sources of radiation and radioactive material in the environment is stated in 40 CFR Part 190.10(a). It requires that the dose or dose commitment to a member of the public from all sources not exceed 75 mrem/yr to the thyroid or 25 mrem/yr to the total body or any other organ. DSR 3.4.1.1 requires calculation of the dose at least once per year to assess compliance with the regulation. If conditions warrant, according to provisions of DLCO 3.4.1, an assessment may be made for a portion of a calendar year.

Fuel cycle sources and nuclear power reactors other than the Station itself do not measurably or significantly increase the radioactivity concentration in the vicinity of the Station; therefore, only radiation and radioactivity in the environment attributable to the Station itself are considered in the assessment of compliance with 40 CFR Part 190.

The dose to a member of the public which is due to exposure to radioactive material in liquid and gaseous effluents from the station are ordinarily calculated while the dose attributable to irradiation is evaluated with environmental radiation dosimetry.

The receptor of the dose is selected on the basis of the combination of applicable pathways of exposure to gaseous effluent identified in the annual land use census and minimum atmospheric dispersion factor (maximum ground level X/Q) at his residence. The receptor is described such that the dose to any resident near the Station is not likely to be underestimated. Conditions more conservative than appropriate for the maximally exposed (real) person may be assumed in the dose assessment.

4.2.1 Calculated Doses

Doses to a member of the public are calculated on the basis of liquid and gaseous effluents from the station determined in accord with Tables D3.1.1-1 and D3.2.3-1.

Contributions to the dose due to liquid and gaseous effluent are calculated as described by the equation for:

1. Total body and maximally exposed organ doses due to liquid effluent via drinking water and eating fish from the river as in § 2.6.

2. Total body dose due to noble gas γ as in § 3.8.1.

3. Skin dose due to noble gas β as in § 3.8.2.

4. total body and maximally exposed organ doses due to gaseous effluents* other than noble gases as in § 3.7.

Aqueous radioactive material concentrations are estimated according to § 2.2 on the basis of annual averaged stream flow.

Atmospheric dispersion, deposition, and if calculated, exposure by irradiation from airborne emitters are based on annual averaged meteorological conditions during the year evaluated or, alternatively, on reference meteorological conditions. In the event a portion of the year is examined, average meteorology for the period examined may be used in lieu of annual averaged or reference meteorology data.

*radioactive iodine, tritium, and radioactive material in particulate form having half-lives greater than eight days.

Factors converting stack-released noble gas to gamma radiation dose from the overhead plume are calculated on the basis of annual averaged meteorological data for the receptor location.

4.2.2 Environmental Measurements

When assessing compliance with 40 CFR 190, Radiological Environmental Monitoring Program results may be used to indicate actual radioactivity levels in the environment attributable to CNS as an alternate to calculating the concentrations from radioactive effluent measurements. The measured environmental activity levels may thus be used to supplement the evaluation of doses to real persons for assessing compliance with 40 CFR 190.

The dose to a member of the public due to irradiation (external exposure to gamma radiation) from the station and station effluents will be estimated with the aid of environmental TLD, PIC, or similar environmental dosimetry. This will be done by examining the annual dosimetry data for a statistical difference between measurements near the station and background measurements. Alternatively, irradiation attributable to station effluents may be calculated by methods referenced earlier in this section.

The person most exposed to radiation and radioactive material in effluent from Cooper Station is expected to live within ten miles of the Station. Although the Station is in a rural area, the maximum personal exposure due to airborne effluent almost certainly occurs to a resident within three or four miles of it. Since the nearest public water intake downstream of Cooper Station in the Missouri River is about 85 miles, radioactive liquid effluent contamination of potable water is not foreseen to be significant. The other liquid effluent pathway of potential significance, via fish taken from the river, would be evaluated when assessing compliance with 40 CFR 190 only in the event that a significant increase in fishing downstream in the river near the Station occurs during the previous 12 months.

Fishing within about ten miles downstream of the Station is considered to be nonexistent during the first quarter and negligible during the remainder of the year. In the event the fish pathway is evaluated to assess compliance with 40 CFR 190, the fish would be taken from the river within ten miles downstream of the Station.

5.0 Radiological Environmental Monitoring Program

5.1 Environmental Sampling Program

DSR 4.1.1 requires a minimum radiological environmental monitoring program to be conducted as described in Table D4.1-1 of that document. APPENDIX C of the ODAM provides a numerical listing of the active sample stations along with a description of the sample types, locations, and maps showing their approximate location.

A radiological environmental monitoring program, approved by the Nuclear Regulatory Commission (NRC) was initiated at CNS before initial criticality was attained on February 21, 1974. The program monitors radiation levels in the air, terrestrial, and aquatic environments. Most samples are collected by Nebraska Public Power District (NPPD) personnel. However, all samples are shipped for analysis to a contractor's laboratory where there exists the special facilities required for measurements of extremely low levels of radioactivity.

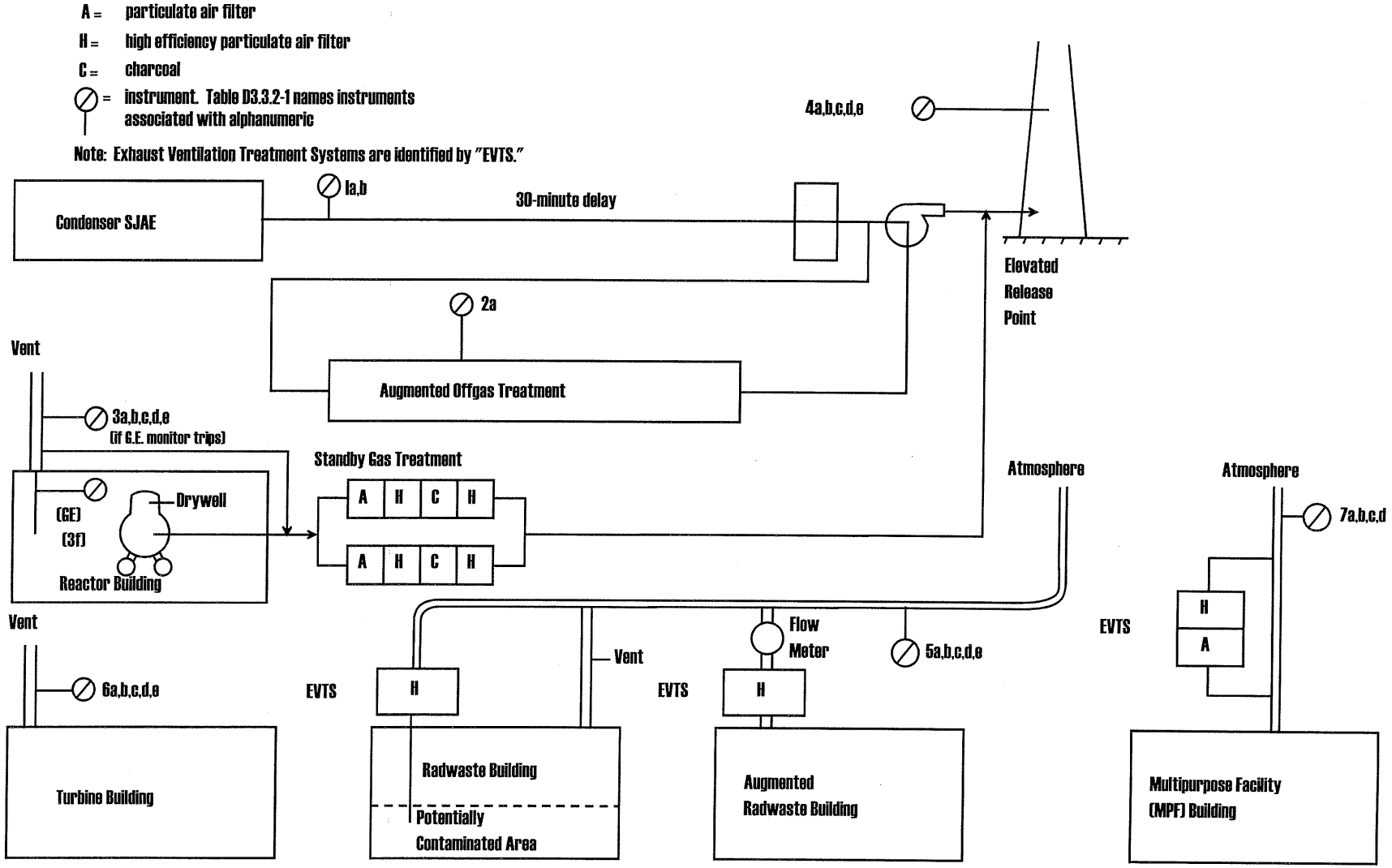


Figure 3-1 Gaseous Effluent Streams, Treatment and Monitoring Equipment, and Discharge Points.

g40242.dsf

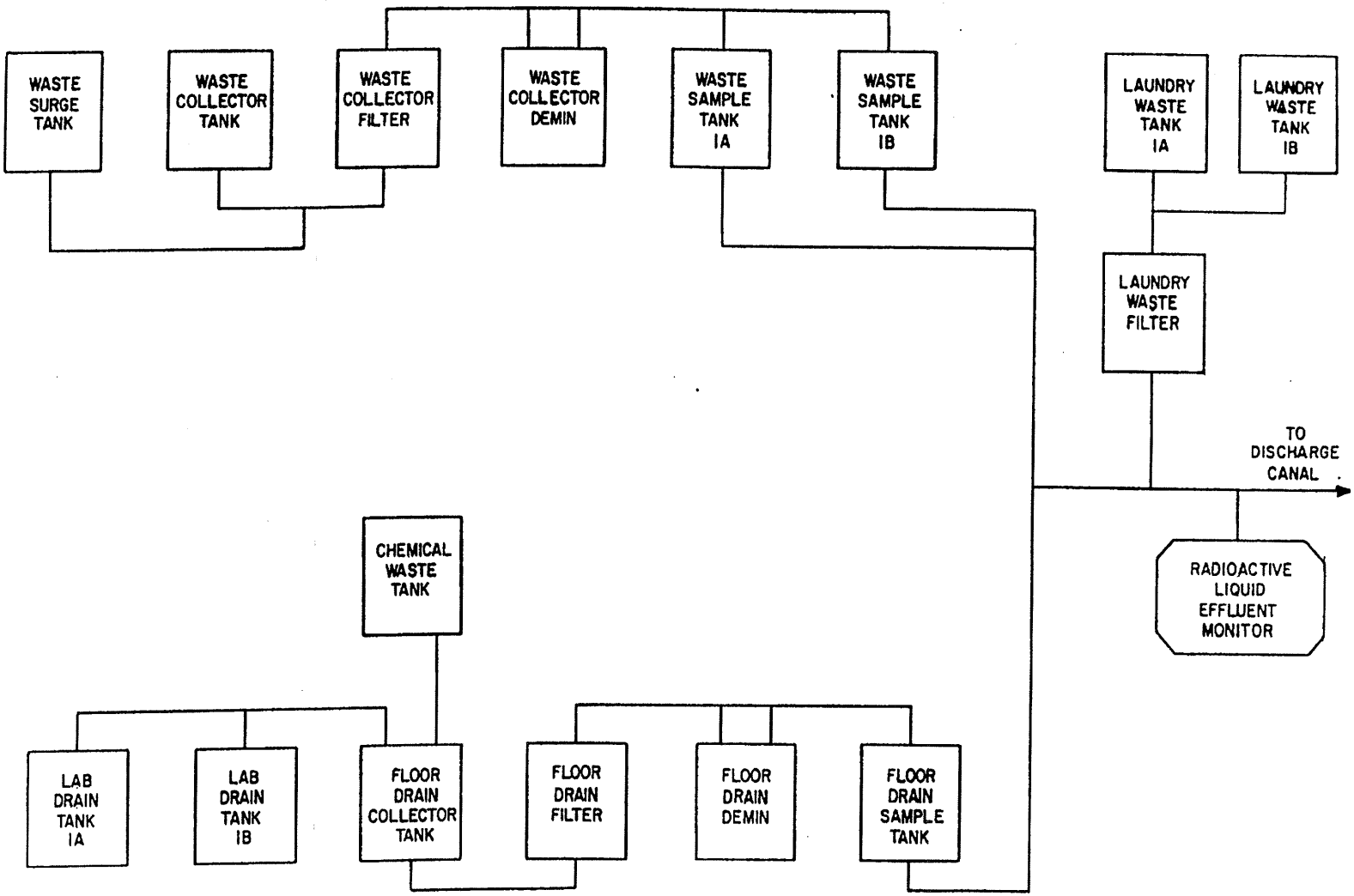


FIGURE 3.1A – LIQUID EFFLUENT STREAM, TREATMENT AND MONITORING, AND DISCHARGE POINT.

Table 3-1

Atmospheric Gaseous Release Points at the

Cooper Nuclear Generating Station

Structure	Reactor Building	Turbine Building	Combined Radwaste-Augmented Radwaste Building	Elevated Release Point
Number of Ducts	1	4	1	1
Duct Size (inches)	96" x 48"	48" x 96"	72" I.D.	14" I.D.
Height of Vent (feet above roof)	15	1.3	Horizontal discharge at rooftop	325 (above grade)
Flow Rate (cfm)	73405	50710(a)	67070	3000
Flow Velocity (fps)	3.82	26.4	39.5	46.7
Exhaust - Winter	70	70	70	60
Temp. (^{O}F) - Summer	90	90	90	90
Release Mode	Partial Elevated	Ground Level	Ground Level	Elevated

(a) Data given is for one operating fan. Multiply data by total number of fans in operation.

Table 3-2

Computed Release of Radioactive Noble Gases

In Gaseous Effluent From Cooper Nuclear Station

	Stack Release		Plant Vents Release	
Nuclide	(Ci/yr)	Fraction	(Ci/yr)	Fraction
Kr-83m	3.60E+01	8.38E-03	0	0
Kr-85m	6.50E+01	1.51E-02	7.10E+01	1.14E-02
Kr-85	2.00E+02	4.66E-02	0	0
Kr-87	2.13E+02	4.96E-02	1.33E+02	2.13E-02
Kr-88	2.13E+02	4.96E-02	2.33E+02	3.74E-02
Kr-89	1.00E+03	2.33E-01	0	0
Xe-133m	3.00E 00	6.99E-04	0	0
Xe-133	1.51E+02	3.52E-02	2.63E+03	4.22E-01
Xe-135m	7.20E+01	1.68E-02	6.96E+02	1.12E-01
Xe-135	2.64E+02	6.15E-02	1.06E+03	1.70E-01
Xe-137	1.20E+03	2.79E-01	0	0
Xe-138	8.77E+02	2.04E-01	1.41E+03	2.26E-01
Total	4294.	1.0	6233.	1.0

Releases computed by BWR-GALE for Cooper Station Base Case gaseous radwaste treatment.

The release rate (Ci/yr) is included only to show the basis of the radionuclide distribution. To estimate the concentrations of radionuclides in a sample in which only the total radioactivity has been measured, multiply the total activity concentration by the fraction of respective radionuclides listed above.

Table 3-3

Dose Conversion Factors for Deriving Radioactive

Noble Gas Effluent Monitor Setpoints

Radionuclide	Factor DF^s_i for Stack Release[a]		Factor DF^v_i for Ground-Level or Split-Wake Release
	(mrem)/(yr ·μCi/sec)[a]	mrem/μCi[a]	(mrem)/(yr ·μCi/m^3)
Kr-83m	3.5E-9	1.1E-16	7.56 E-2
Kr-85m	1.2E-4	3.8E-12	1.17 E3
Kr-85	1.7E-6	5.5E-14	1.61 E1
Kr-87	5.1E-4	1.6E-11	5.92 E3
Kr-88	1.4E-3	4.4E-11	1.47 E4
Kr-89	6.6E-4	2.1E-11	1.66 E4
Kr-90	--	--	1.56 E4
Xe-131m	3.1E-5	9.7E-13	9.15 E1
Xe-133m	2.3E-5	7.3E-13	2.51 E2
Xe-133	2.5E-5	8.0E-13	2.94 E2
Xe-135m	2.5E-4	7.8E-12	3.12 E3
Xe-135	1.9E-4	6.0E-12	1.81 E3
Xe-137	5.4E-5	1.7E-12	1.42 E3
Xe-138	8.0E-4	2.5E-11	8.83 E3
Xe-139	1.6E-5	5.2E-13	5.02 E3
Ar-41	9.7E-4	3.1E-11	8.84 E3

[a]Based on reference meteorology; applicable at the site boundary, 1,250 meters NNW of the ERP.

Table 3-4

Transfer Factors for Maximum Dose To A Person Beyond The Site And Exclusion Area Boundary Due To Radioactive Noble Gases

Radionuclide	Dose Transfer Factors		
	$A\gamma_{cs_i}$[a] $\frac{\text{mrad}}{\mu\text{Ci}}$	$A\gamma_{v_i}$ $\frac{\text{mrad}}{\mu\text{Ci sec/m}^3}$	$A\beta_i$ $\frac{\text{mrad}}{\mu\text{Ci sec/m}^3}$
Kr-83m	2.6E-14	6.1E-7	9.13E-6
Kr-85m	4.0E-12	3.9E-5	6.24E-5
Kr-85	5.8E-14	5.4E-7	6.18E-5
Kr-87	1.7E-11	2.0E-4	3.26E-4
Kr-88	4.6E-11	4.8E-4	9.28E-5
Kr-89	2.2E-11	5.5E-4	3.36E-4
Kr-90	--	5.2E-4	2.48E-4
Xe-131m	1.1E-11	4.9E-6	3.52E-5
Xe-133m	8.7E-13	1.0E-5	4.69E-5
Xe-133	9.0E-13	1.1E-5	3.33E-5
Xe-135m	8.3E-12	1.1E-4	2.34E-5
Xe-135	6.3E-12	6.1E-5	7.79E-5
Xe-137	1.8E-12	4.8E-5	4.02E-4
Xe-138	2.7E-11	2.9E-4	1.51E-4
Ar-41	3.2E-11	2.9E-4	1.04E-4

[a]Dose at NNW site boundary

Table 3-5

Transfer Factors for Maximum Dose To A

Person Beyond Site and Exclusion Area Boundary Due To Radioactive Noble Gases

Radionuclide	Dose Transfer Factors		
	$P\gamma_{cs_i}$ [a,b] $\frac{mrem}{\mu Ci}$	$P\gamma_{v_i}$ $\frac{mrem}{\mu Ci\ sec/m^3}$	$S\beta_i$ $\frac{mrem}{\mu Ci\ sec/m^3}$
Kr-83m	1.6E-16	2.4E-9	--
Kr-85m	2.4E-12	3.7E-5	4.6E-5
Kr-85	3.0E-14	5.1E-7	4.2E-5
Kr-87	7.9E-12	1.9E-4	3.1E-4
Kr-88	2.3E-11	4.7E-4	7.5E-5
Kr-89	6.7E-12	5.3E-4	3.2E-4
Kr-90	--	4.9E-4	2.3E-4
Xe-131m	7.7E-13	2.9E-6	1.5E-5
Xe-133m	5.9E-13	8.0E-6	3.1E-5
Xe-133	6.9E-13	9.3E-6	9.7E-6
Xe-135m	3.3E-12	9.9E-5	2.3E-5
Xe-135	3.7E-12	5.7E-5	5.9E-5
Xe-137	5.1E-13	4.5E-5	3.9E-4
Xe-138	1.2E-11	2.8E-4	1.3E-4
Ar-41	1.5E-11	2.8E-4	8.5E-5

[a]Receptor located at 1.1 miles west of Station

[b]Based on reference meteorology at Cooper Station

APPENDIX A

(DELETED)

APPENDIX B

REFERENCE METEOROLOGICAL DATA

Reference meteorological measurements were at Cooper Station during the period from July 1, 1976, through June 30, 1977. The summary data and the computer code, PUFF, were used to generate tables of reference values of X/Q, depleted X/Q, and D/Q herein.

UNDEPLETED MEAN RELATIVE CONCENTRATION (sec/m^3)
ELEVATED RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	6.7E-09	2.3E-08	2.2E-08	1.8E-08	1.5E-08	1.9E-08	5.8E-09	4.7E-09	3.0E-09	1.8E-09
NE	6.1E-09	1.4E-08	1.4E-08	1.3E-08	1.1E-08	1.5E-08	6.9E-09	2.7E-09	2.4E-09	1.8E-09
ENE	7.0E-09	1.4E-08	1.4E-08	1.2E-08	9.3E-09	1.3E-08	2.9E-09	3.7E-09	1.5E-09	9.4E-10
E	6.5E-09	1.4E-08	1.3E-08	1.2E-08	9.5E-09	1.5E-08	4.0E-09	2.3E-09	1.3E-09	3.0E-10
ESE	5.2E-09	1.2E-08	1.0E-08	9.8E-09	7.9E-09	7.3E-09	4.1E-09	1.8E-09	1.2E-09	6.3E-10
SE	8.2E-09	1.9E-08	1.6E-08	1.4E-08	1.2E-08	1.0E-08	3.7E-09	1.6E-09	1.3E-09	6.5E-10
SSE	1.1E-08	3.2E-08	2.3E-08	2.0E-08	3.4E-08	2.6E-08	6.1E-09	2.2E-09	2.3E-09	1.2E-09
S	1.9E-08	3.4E-08	3.3E-08	2.6E-08	2.5E-08	1.6E-08	4.8E-09	2.4E-09	1.4E-09	1.1E-09
SSW	1.0E-08	4.3E-08	1.7E-08	1.7E-08	1.4E-08	9.5E-09	2.5E-09	1.2E-09	9.9E-10	5.1E-10
SW	4.4E-09	5.0E-08	1.7E-08	1.1E-08	1.1E-08	9.3E-09	3.1E-09	1.5E-09	9.4E-10	7.3E-10
WSW	4.1E-09	6.6E-08	3.2E-08	2.8E-08	1.2E-08	6.6E-09	4.1E-09	1.6E-09	1.1E-09	5.0E-10
W	5.6E-09	6.8E-08	3.8E-08	2.2E-08	1.8E-08	6.4E-09	4.1E-09	1.3E-09	8.2E-10	4.9E-10
WNW	6.1E-09	8.0E-08	5.2E-08	3.4E-08	2.1E-08	9.5E-09	3.2E-09	1.6E-09	1.0E-09	6.6E-10
NW	4.8E-09	8.8E-08	7.4E-08	5.2E-08	3.3E-08	1.4E-08	7.2E-09	3.4E-09	1.9E-09	1.3E-09
NNW	8.4E-09	2.7E-08	7.9E-08	6.9E-08	2.2E-08	2.1E-08	5.5E-09	3.1E-09	2.2E-09	1.6E-09
N	7.5E-09	3.5E-08	3.3E-08	2.5E-08	2.0E-08	1.6E-08	6.8E-09	5.2E-09	3.4E-09	1.1E-09

UNDEPLETED MEAN RELATIVE CONCENTRATION (sec/m^3)
GROUND LEVEL RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	3.2E-06	5.5E-07	2.2E-07	1.5E-07	8.0E-08	4.4E-08	1.2E-08	4.9E-09	3.2E-09	2.4E-09
NE	2.0E-06	3.3E-07	1.8E-07	1.2E-07	6.1E-08	3.1E-08	9.2E-09	4.1E-09	2.6E-09	1.4E-09
ENE	2.2E-06	2.9E-07	1.5E-07	8.1E-08	5.4E-08	2.0E-08	7.4E-09	3.1E-09	1.6E-09	8.0E-10
E	2.2E-06	3.1E-07	1.5E-07	7.2E-08	5.5E-08	2.3E-08	6.3E-09	3.1E-09	1.8E-09	9.6E-10
ESE	2.4E-06	3.9E-07	1.5E-07	7.8E-08	5.7E-08	2.7E-08	7.4E-09	2.6E-09	1.3E-09	8.1E-10
SE	2.4E-06	3.9E-07	1.6E-07	1.2E-07	6.1E-08	2.5E-08	6.5E-09	1.8E-09	1.0E-09	7.8E-10
SSE	3.8E-06	6.0E-07	2.6E-07	1.5E-07	9.6E-08	4.2E-08	8.7E-09	2.8E-09	1.7E-09	1.2E-09
S	4.6E-06	8.1E-07	3.7E-07	2.0E-07	1.4E-07	6.6E-08	1.8E-08	6.4E-09	3.6E-09	2.1E-09
SSW	2.6E-06	5.0E-07	2.1E-07	1.1E-07	8.4E-08	5.5E-08	5.6E-09	1.5E-09	8.2E-10	4.8E-10
SW	1.9E-06	2.6E-07	1.8E-07	8.1E-08	6.2E-08	2.0E-08	5.2E-09	1.0E-09	3.9E-10	2.5E-10
WSW	2.0E-06	2.8E-07	1.7E-07	9.0E-08	6.4E-08	1.7E-08	3.6E-09	1.3E-09	7.4E-10	5.1E-10
W	1.6E-06	3.7E-07	1.4E-07	1.0E-07	6.5E-08	1.9E-08	6.1E-09	2.4E-09	1.1E-09	6.0E-10
WNW	3.1E-06	4.9E-07	2.2E-07	1.2E-07	1.0E-07	3.7E-08	1.0E-08	4.1E-09	2.1E-09	1.2E-09
NW	4.9E-06	7.8E-07	3.4E-07	2.2E-07	1.3E-07	6.5E-08	1.9E-08	5.0E-09	2.8E-09	2.0E-09
NNW	6.1E-06	9.7E-07	4.1E-07	2.5E-07	1.7E-07	9.5E-08	2.9E-08	1.2E-08	5.8E-09	1.6E-09
N	5.2E-06	8.9E-07	3.9E-07	2.2E-07	1.6E-07	7.4E-08	2.4E-08	1.1E-08	6.1E-09	3.5E-09

DEPLETED MEAN RELATIVE CONCENTRATION (sec/m^3)
ELEVATED RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	6.6E-09	2.2E-08	2.1E-08	1.7E-08	1.5E-08	1.8E-08	5.4E-09	4.5E-09	2.8E-09	1.6E-09
NE	6.0E-09	1.4E-08	1.4E-08	1.3E-08	1.1E-08	1.5E-08	6.5E-09	2.5E-09	2.2E-09	1.7E-09
ENE	6.9E-09	1.3E-08	1.4E-08	1.1E-08	8.8E-09	1.3E-08	2.7E-09	3.5E-09	1.4E-09	8.6E-10
E	6.4E-09	1.3E-08	1.3E-08	1.1E-08	9.0E-09	1.5E-08	3.9E-09	2.2E-09	1.2E-09	2.6E-10
ESE	5.1E-09	1.1E-08	1.0E-08	9.5E-09	7.6E-09	6.9E-09	3.9E-09	1.6E-09	1.1E-09	5.6E-10
SE	8.1E-09	1.9E-08	1.6E-08	1.3E-08	1.1E-08	9.6E-08	3.4E-09	1.4E-09	1.1E-09	5.5E-10
SSE	1.1E-08	3.1E-08	2.3E-08	2.0E-08	3.3E-08	2.5E-08	5.6E-09	1.9E-09	2.0E-09	9.8E-10
S	1.9E-08	3.3E-08	3.2E-08	2.5E-08	2.4E-08	1.6E-08	4.4E-09	2.0E-09	1.1E-09	8.3E-10
SSW	1.0E-08	4.3E-08	1.7E-08	1.6E-08	1.4E-08	9.0E-09	2.3E-09	1.0E-09	8.6E-10	4.2E-10
SW	4.3E-09	4.9E-08	1.6E-08	1.1E-08	1.0E-08	9.0E-09	2.9E-09	1.4E-09	8.4E-10	6.4E-10
WSW	4.0E-09	6.6E-08	3.2E-08	1.7E-08	1.1E-08	6.3E-09	3.9E-09	1.5E-09	9.5E-10	4.2E-10
W	5.5E-09	6.8E-08	3.7E-08	2.1E-08	1.7E-08	6.0E-09	3.8E-09	1.1E-09	6.8E-10	4.0E-10
WNW	6.0E-09	7.9E-08	5.1E-08	3.3E-08	2.1E-08	9.0E-09	3.0E-09	1.4E-09	8.8E-10	5.5E-10
NW	4.7E-09	8.7E-08	7.3E-08	5.1E-08	3.2E-08	1.3E-08	6.9E-09	3.1E-09	1.7E-09	1.2E-09
NNW	8.3E-09	2.6E-08	7.8E-08	6.8E-08	2.1E-08	2.1E-08	5.1E-09	2.8E-09	2.0E-09	1.5E-09
N	7.3E-09	3.5E-08	3.2E-08	2.4E-08	1.9E-08	1.5E-08	6.3E-09	4.8E-09	3.1E-09	9.4E-10

DEPLETED MEAN RELATIVE CONCENTRATION (sec/m^3)
GROUND LEVEL RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	2.8E-06	4.5E-07	1.7E-07	1.1E-07	6.1E-08	3.2E-08	7.8E-09	2.7E-09	1.6E-09	1.1E-09
NE	1.7E-06	2.8E-07	1.4E-07	9.1E-08	4.6E-08	2.2E-08	5.7E-09	2.2E-09	1.2E-09	5.6E-10
ENE	1.9E-06	2.4E-07	1.2E-07	6.2E-08	4.0E-08	1.4E-08	4.7E-09	1.7E-09	7.7E-10	3.3E-10
E	1.9E-06	2.5E-07	1.2E-07	5.5E-08	4.1E-08	1.6E-08	3.9E-09	1.5E-09	8.3E-10	3.9E-10
ESE	2.1E-06	3.2E-07	1.2E-07	6.0E-08	4.3E-08	1.9E-08	4.6E-09	1.5E-09	6.3E-10	3.9E-10
SE	2.1E-06	3.2E-07	1.3E-07	9.0E-08	4.6E-08	1.7E-08	3.9E-09	9.5E-10	5.0E-10	3.6E-10
SSE	3.3E-06	5.0E-07	2.1E-07	1.2E-07	7.3E-08	3.0E-08	5.4E-09	1.6E-09	8.5E-10	5.2E-10
S	4.0E-06	6.7E-07	3.0E-07	1.6E-07	1.1E-07	4.8E-08	1.2E-08	3.7E-09	1.9E-09	9.4E-10
SSW	2.3E-06	4.2E-07	1.7E-07	8.1E-08	6.3E-08	3.9E-09	3.4E-09	8.4E-10	4.2E-10	2.1E-10
SW	1.7E-06	2.2E-07	1.4E-07	6.1E-08	4.5E-08	1.4E-08	3.1E-09	5.8E-10	1.8E-10	1.1E-10
WSW	1.7E-06	2.3E-07	1.4E-07	6.8E-08	4.7E-08	1.2E-08	2.1E-09	7.0E-10	3.8E-10	2.5E-10
W	1.4E-06	3.0E-07	1.1E-07	7.7E-08	4.8E-08	1.3E-08	3.7E-09	1.2E-09	5.0E-10	2.7E-10
WNW	2.7E-06	4.0E-07	1.7E-07	9.2E-08	7.6E-08	2.7E-08	6.3E-09	2.3E-09	1.0E-09	5.8E-10
NW	4.1E-06	6.5E-07	2.7E-07	1.7E-07	1.0E-07	4.7E-08	1.2E-08	2.9E-09	1.5E-09	9.3E-10
NNW	5.4E-06	8.1E-07	3.3E-07	1.9E-07	1.3E-07	6.9E-08	1.9E-08	6.5E-09	3.0E-09	7.6E-10
N	4.6E-06	7.5E-07	3.1E-07	1.7E-07	1.3E-07	5.4E-08	1.5E-08	5.9E-09	3.0E-09	1.6E-09

MEAN RELATIVE DEPOSITION (m^{-2})
ELEVATED RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	2.6E-10	3.0E-10	1.8E-10	1.3E-10	9.2E-11	5.7E-11	2.3E-11	1.3E-11	8.1E-12	5.8E-12
NE	1.9E-10	2.0E-10	1.2E-10	8.2E-11	6.1E-11	4.0E-11	1.6E-11	8.3E-12	6.0E-12	3.8E-12
ENE	1.4E-10	1.4E-10	8.7E-11	6.2E-11	4.5E-11	2.9E-11	1.1E-11	5.7E-12	3.8E-12	2.6E-12
E	9.6E-11	9.5E-11	6.4E-11	4.6E-11	3.6E-11	2.3E-11	7.6E-12	3.7E-12	2.5E-12	8.5E-13
ESE	7.7E-11	1.0E-10	6.6E-11	4.8E-11	3.8E-11	2.3E-11	1.2E-11	5.2E-12	3.5E-12	2.0E-12
SE	2.3E-10	2.3E-10	1.4E-10	1.0E-10	7.5E-11	4.0E-11	1.7E-11	7.5E-12	4.8E-12	3.3E-12
SSE	4.2E-10	4.5E-10	2.6E-10	1.7E-10	1.6E-10	7.7E-11	3.3E-11	1.6E-11	1.1E-11	7.6E-12
S	6.4E-10	5.1E-10	3.0E-10	2.0E-10	1.5E-10	7.2E-11	2.9E-11	1.6E-11	1.1E-11	6.7E-12
SSW	3.0E-10	3.4E-10	1.4E-10	9.7E-11	7.2E-11	3.5E-11	1.3E-11	6.5E-12	4.9E-12	2.6E-12
SW	7.9E-11	2.1E-10	8.4E-11	5.0E-11	4.0E-11	2.1E-11	7.4E-12	3.8E-12	2.4E-12	1.8E-12
WSW	5.7E-11	2.3E-10	1.0E-10	6.2E-11	4.3E-11	2.3E-11	8.5E-12	4.3E-12	2.7E-12	1.8E-12
W	1.0E-10	3.4E-10	1.6E-10	9.8E-11	6.9E-11	2.9E-11	1.3E-11	6.2E-12	3.4E-12	2.0E-12
WNW	1.2E-10	4.1E-10	2.1E-10	1.3E-10	8.3E-11	3.9E-11	1.4E-11	7.0E-12	4.1E-12	2.6E-12
NW	1.2E-10	3.8E-10	2.1E-10	1.3E-10	8.2E-11	4.1E-11	1.7E-11	1.0E-11	6.3E-12	3.9E-12
NNW	2.3E-10	2.6E-10	3.0E-10	2.0E-10	1.1E-10	6.0E-11	2.1E-11	1.1E-11	6.1E-12	3.9E-12
N	2.5E-10	3.7E-10	2.3E-10	1.5E-10	1.2E-10	7.1E-11	2.9E-11	1.7E-11	1.3E-11	5.2E-12

MEAN RELATIVE DEPOSITION (m^{-2})
GROUND LEVEL RELEASE POINT - STANDARD DISTANCES
COOPER NUCLEAR STATION
NEBRASKA PUBLIC POWER DISTRICT

DISTANCE (miles)

SECTOR	.5	1.5	2.5	3.5	4.5	7.5	15.	25.	35.	45.
NNE	8.0E-09	1.2E-09	5.2E-10	3.1E-10	2.0E-10	9.9E-11	3.3E-11	1.6E-11	9.6E-12	6.0E-12
NE	5.1E-09	7.6E-10	3.4E-10	2.0E-10	1.3E-10	6.9E-11	2.4E-11	1.1E-11	6.7E-12	4.1E-12
ENE	4.0E-09	6.1E-10	2.7E-10	1.6E-10	1.1E-10	4.8E-11	2.0E-11	7.6E-12	3.9E-12	2.5E-12
E	4.0E-09	6.1E-10	2.8E-10	1.6E-10	1.1E-10	5.0E-11	1.8E-11	8.0E-12	4.2E-12	2.3E-12
ESE	5.3E-09	8.2E-10	3.5E-10	2.0E-10	1.4E-10	6.7E-11	2.1E-11	9.6E-12	5.6E-12	3.8E-12
SE	6.4E-09	9.6E-10	3.9E-10	2.4E-10	1.6E-10	7.1E-11	2.5E-11	1.1E-11	6.8E-12	4.1E-12
SSE	1.0E-08	1.5E-09	6.1E-10	3.5E-10	2.3E-10	1.1E-10	3.9E-11	1.8E-11	1.1E-11	6.5E-12
S	8.7E-09	1.4E-09	5.8E-10	3.3E-10	2.3E-10	1.1E-10	4.0E-11	1.8E-11	1.0E-11	6.3E-12
SSW	3.7E-09	6.0E-10	2.6E-10	1.5E-10	1.0E-10	5.9E-11	1.5E-11	5.0E-12	3.0E-12	1.8E-12
SW	2.9E-09	4.4E-10	2.2E-10	1.2E-10	8.3E-11	3.5E-11	1.1E-11	3.0E-12	1.4E-12	8.7E-13
WSW	2.8E-09	4.6E-10	2.2E-10	1.3E-10	9.0E-11	3.7E-11	1.1E-11	4.2E-12	2.2E-12	1.4E-12
W	3.6E-09	5.9E-10	2.6E-10	1.5E-10	1.0E-10	4.6E-11	1.7E-11	6.9E-12	3.8E-12	2.2E-12
WNW	5.6E-09	8.7E-10	3.8E-10	2.3E-10	1.6E-10	7.3E-11	2.5E-11	1.0E-11	6.2E-12	3.8E-12
NW	1.0E-08	1.6E-09	6.8E-10	4.1E-10	2.7E-10	1.3E-10	4.5E-11	1.8E-11	1.1E-11	6.8E-12
NNW	1.1E-08	1.6E-09	6.9E-10	4.1E-10	2.8E-10	1.4E-10	5.2E-11	2.3E-11	1.3E-11	5.2E-12
N	1.2E-08	1.9E-09	8.1E-10	4.6E-10	3.2E-10	1.5E-10	5.8E-11	2.7E-11	1.7E-11	1.0E-11

APPENDIX C

ENVIRONMENTAL RADIATION MONITORING PROGRAM

Appendix C contains the active environmental sampling stations for the Environmental Radiation Monitoring Program at Cooper Nuclear Station. Included in this appendix is a description of each sample and sample station along with maps showing the approximate location of each sampling station.

REMP SAMPLE STATION DESCRIPTION
SAMPLE TYPES AND SAMPLE LOCATIONS
(See Sample Station Locations Map - Figures C-1 and C-2)

Sample Station	Sample Description - Type and Location	
No. 1	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	Outside the northwest edge of fence, east of the gate to the LLRW storage pad on the CNS site, NW¼, S32, T5N, R16E, Nemaha County, Nebraska.
No. 2	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	On north side of county road access to the south portion of the CNS site, SW¼, S32, T5N, R16E, Nemaha County, Nebraska.
No. 3	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	Located in Brownville, Nebraska, south of Hwy 136 but north Main Street, near Brownville State Recreation Park, SE¼, S18, T5N, R16E, Nemaha County, Nebraska.
No. 4	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	Located ½ mile south of Phelps City, Missouri, on west side of Highway "U," NE¼, S2, T64N, R42W, Atchison County, Missouri.
No. 5	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	One-fourth mile south and ¼ mile east of Langdon, Missouri, on north side of road, west of railroad tracks, SW¼, S18, T64N, R41W, Atchison County, Missouri.
No. 6	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	One mile west of the end of Missouri State Highway "U," SW corner of the intersection, NW¼, S34, T64N, R42W, Atchison County, Missouri.

Sample Station	Sample Description - Type and Location	
No. 7	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	One-quarter mile east of Highway 67 at Nemaha on north side of road, SW¼, S6, T4N, R16E, Nemaha County, Nebraska.
No. 8	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	One-half mile north, ¾ mile west and ¾ mile north of Nemaha on west side of road adjacent to the transmission line, NE¼, S35, T5N, R15E, Nemaha County, Nebraska.
No. 9	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	Four miles north of Highway No. 136 on Highway No. 67. One mile east of Highway No. 67 and ½ mile north on west side of road, SW¼, S26, T6N, R15E, Nemaha County, Nebraska.
No. 10	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	One mile north of Barada, Nebraska, in SW corner of intersection, NE¼, S14, T3N, R16E, Richardson County, Nebraska.
No. 11	Type: (1)	Water - Ground
	Location:	Plant well water supply header at well pits, NW¼, S32, T5N, R16E, Nemaha County, Nebraska.
No. 12	Type: (1)	Water - River
	Location:	Sample (1) will be taken from the Missouri River immediately upstream from the Plant Intake Structure (River Mile 532.5). During periods when conditions warrant, Station 35 may be used as an alternate to Station 12 (upstream collection site) for sample type (1).
No. 20	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	On NNW boundary of NPPD property, east side of county road, SE¼, S30, T5N, R16E, Nemaha County, Nebraska.

Sample Station	Sample Description - Type and Location	
No. 28	Type: (1) (2) (3)	Water - River Fish Sediment from Shoreline
	Location:	Samples (1) and (3) are taken from the Missouri River or its shore, downstream, near River Mile 530. Sample (2) is taken from the Missouri river ½ to 3 miles downstream from the plant site.
No. 35	Type: (1) (2) (3)	Fish Water - River (Alternate Site) Food Products - Broadleaf Vegetation
	Location:	Sample (1) is taken from the Missouri River about one to three miles above CNS intake structure. During periods when conditions warrant, Station 35 may be used as an alternate to Station 12 (upstream collection site) for sample type (2). Samples (2) and (3) are taken about ¼ mile south of the Brownville State Recreation Area in Sector A.
No. 44	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One-quarter mile south of Auburn Country Club on Highway No. 75, ½ mile east of Highway No. 75 at fence line north of county road, SE¼, S27, T5N, R14E, Nemaha County, Nebraska.
No. 47	Type: (1)	Water - Ground
	Location:	At Falls City Municipal Water Supply Wells approximately 2 miles south of Rulo, Nebraska (out of Main Header Flow Meter), east side of road, SW¼, S20, T1N, R18E, Richardson County, Nebraska.
No. 56	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One and one-fourth mile SW of Langdon, Missouri, on Highway "U", on the right side of the highway, NW¼, S23, T64N, R42W, Atchison County, Missouri.
No. 58	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Three miles south of Brownville, Nebraska, on county road, at the SE corner of the intersection, with the farm road leading to Sample Station No. 2, SE¼, S31, T5N, R16E, Nemaha County, Nebraska.
No. 59	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile SSE of the CNS Elevated Release Point, in the vicinity of the levee at the south boundary of NPPD property, SE¼, S32, T5N, R16E, Nemaha County, Nebraska.

Sample Station	Sample Description - Type and Location	
No. 66	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles south of Nemaha, Nebraska, on Highway No. 67 - east side of highway, NW¼, S19, T4N, R16E, Nemaha County, Nebraska.
No. 67	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles west of Brownville, Nebraska, on Highway No. 136, then north 1½ miles on county road, and east ½ mile, on north side of road, NE¼, S11, T5N, R15E, Nemaha County, Nebraska.
No. 71	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles east of Phelps City, Missouri, on Highway No. 136, then south 1½ miles on county road, and west ¼ mile, SE¼, S6, T64N, R41W, Atchison County, Missouri.
No. 79	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One and ⅞ miles south of Brownville, Nebraska, on the east side of the paved road, NPPD property, SE¼, S30, T5N, R16E, Nemaha County, Nebraska.
No. 80	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two and ⅛ miles south of Brownville, Nebraska, on the east side of the paved road, NPPD property, NE¼, S31, T5N, R16E, Nemaha County, Nebraska.
No. 81	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two and ⅜ miles south of Brownville, Nebraska, in the NE corner of the intersection of the paved county road and the CNS access road, NPPD property, NE¼, S31, T5N, R16E, Nemaha County, Nebraska.
No. 82	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Seven eighths mile south of Cooper Nuclear Station in field, about ½ mile east of farm buildings on NPPD property, SW¼, S32, T5N, R16E, Nemaha County, Nebraska.
No. 83	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two and ¼ miles south of Nemaha, Nebraska, on Highway No. 67, then east one mile to the junction of the driveway and county road on the east side of the driveway, NE¼, S19, T4N, R16E, Nemaha County, Nebraska.

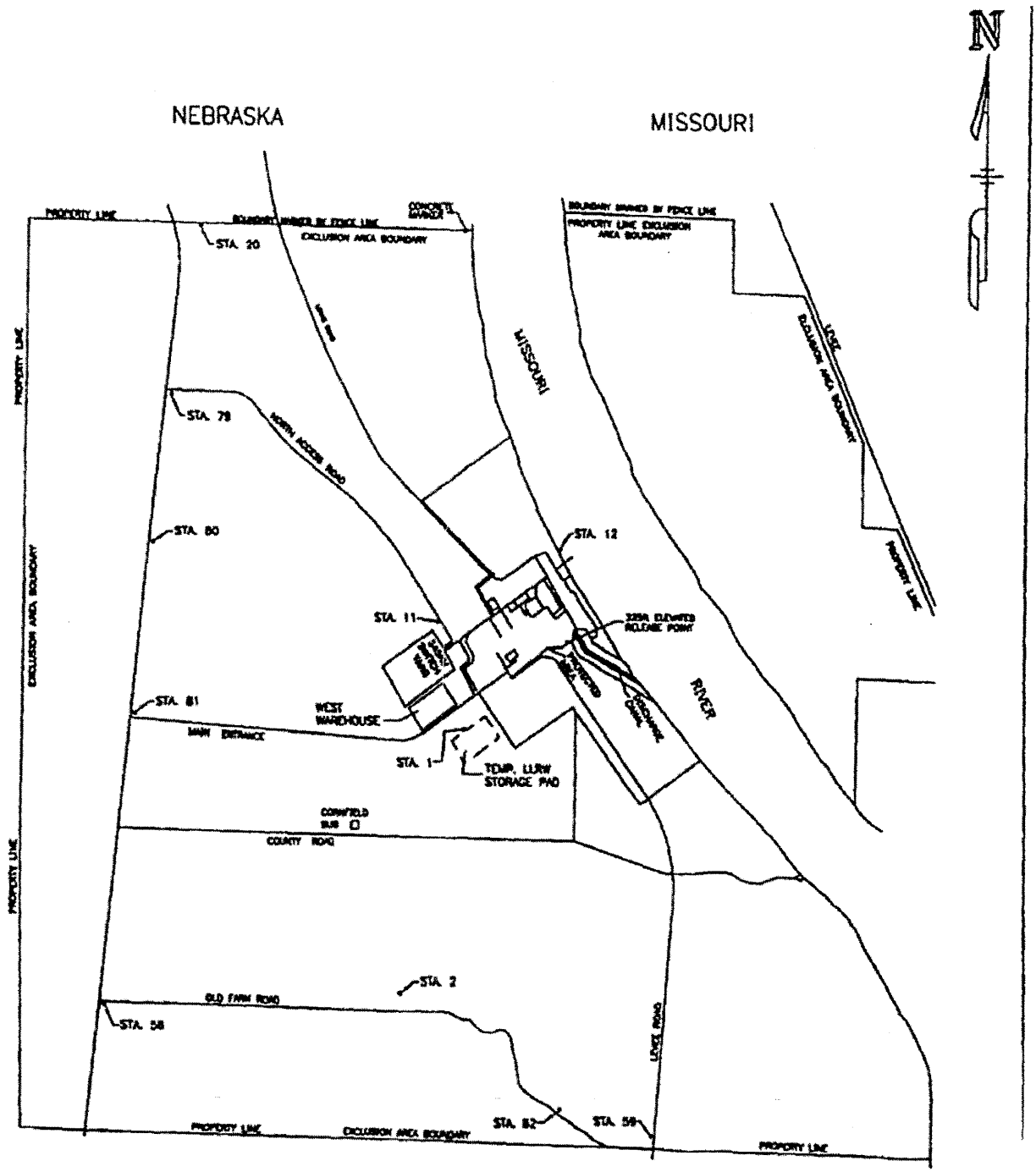
Sample Station	Sample Description - Type and Location	
No. 84	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two and ½ miles west of Brownville, Nebraska, on the south side of Highway No. 136, west of school, NW¼, S22, T5N, R15E, Nemaha County, Nebraska.
No. 85	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile east of Brownville, Nebraska, on Highway No. 136, then north ¼ mile on the east side of the county road, NE¼, S33, T65N, R42W, Atchison County, Missouri.
No. 86	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Phelps City, Missouri, on Highway No. 136, then north 1½ miles on Highway "D" - on the west side of road, SE¼, S22, T65N, R42W, Atchison County, Missouri.
No. 87	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Phelps City, Missouri, on Highway No. 136, then south ½ mile on county road and ¾ mile west on county road to the end of the road, NW¼, S3, T64N, R42W, Atchison County, Missouri.
No. 88	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Phelps City, Missouri, on Highway No. 136, then south 2 miles, west side of road, NW¼, S11, T64N, R42W, Atchison County, Missouri.
No. 89	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two and ½ miles south of Phelps City, Missouri, on Highway "U", then ½ mile west in the SE corner of the county road intersection, NE¼, S14, T64N, R42W, Atchison County, Missouri.
No. 90	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One and ½ miles west and ¾ mile south of Langdon, Missouri, on Highway "U", then ¼ mile west, SW¼, S23, T64N, R42W, Atchison County, Missouri.

Sample Station	Sample Description - Type and Location	
No. 91	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One half mile west of Rock Port, Missouri, on the south side of the intersection of Highway No. 136 and Highway No. 275 at the south side of the water tower, NW3, S28, T65N, R41W, Atchison County, Missouri.
No. 94	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One quarter mile south of Langdon, Missouri, on the west side of the road, NE3, S24, T64N, R42W, Atchison County, Missouri.
No. 96	Type: (1)	Food Products - Broadleaf Vegetation
	Location:	Approximately 1 mile south of Brownville, Nebraska, along paved road in the road ditch in Sector R, SW3, S19, T5N, R16E, Nemaha County, Nebraska.
No. 101	Type: (1)	Food Products - Broadleaf Vegetation
	Location:	Five and 2 miles east and 2 mile north of Rock Port, Missouri, near the junction of Highway No. 136 and Highway No. 59, in Sector D. Encompasses portions of several sections, T65N, R40W, Atchison County, Missouri.
No. 111	Type: (1) (2)	Air Particulate and Charcoal Filters Environmental Thermoluminescent Dosimetry
	Location:	Five miles south of Auburn, Nebraska, at junction of Hwy 75 and Howe Rd. In northwest corner of intersection. (40.3196, -95.84167)
No. N01	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Phelps City, Missouri, on Highway 136, then 2.5 miles north on Highway D, then 0.7 miles west on 200th St. (40.4406, -95.62873)
No. N02	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	From junction of Main St. and N 4th St. in Brownville, Nebraska, then north 0.25 miles. In parking lot on east side. (40.40062, -95.65980)

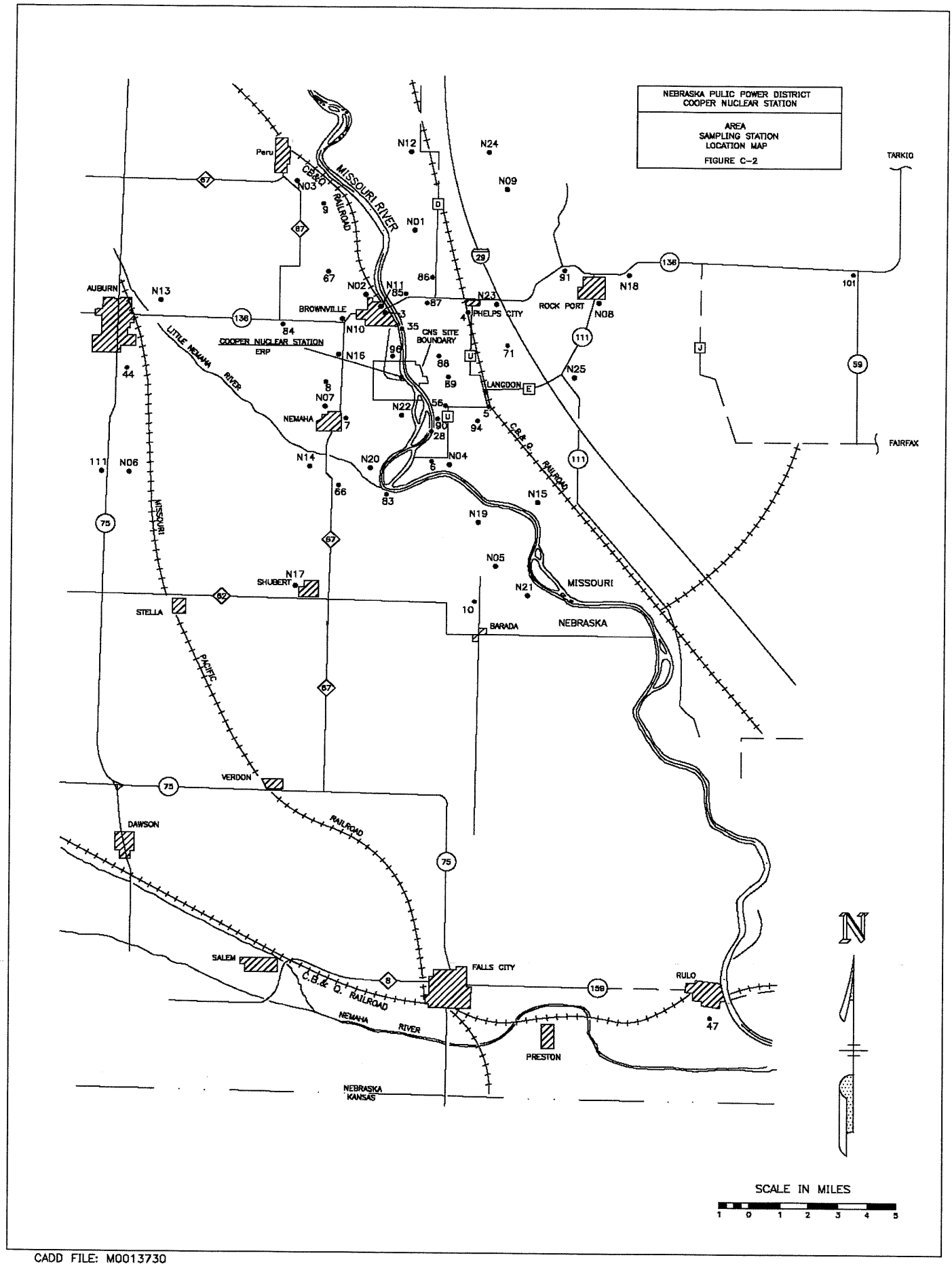
Sample Station	Sample Description - Type and Location	
No. N03	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	1.25 miles southeast of Peru, Nebraska, On Hwy 67, then north on county road 645A Avenue 0.75 miles. On west side of road. (40.47236, -95.71675)
No. N04	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Five and 1/2 miles South of Phelps City, Missouri, on Hwy U, then 0.5 miles west on 280th St., then 0.4 miles south on D Ave. (40.31793, -95.61650)
No. N05	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	At the entrance to Indian Cave State Park, located approximately 50 yards west of Main Office. (40.26555, -95.57936)
No. N06	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Five miles south of Auburn, Nebraska, then 1.25 miles east on Howe Rd. Site is on west side of resident's driveway, north side of road. (40.31975, -95.81673)
No. N07	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 0.75 miles north of Nemaha, Nebraska, on Hwy 67, then 0.75 miles west on 726 Rd. On north side of road. (40.34936, -95.68569)
No. N08	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	From junction of Hwy 136 and Hwy 111 in Rock Port, Missouri, then south 1.0 mile on Hwy 111. On east side of Hwy 111. (40.40224, -95.51313)
No. N09	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles west of Rock Port, Missouri, on Hwy 136, then 3.6 miles north on Outer Rd. On west side of road. (40.45553, -95.58272)
No. N10	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Brownville, Nebraska, at junction of Hwy 136 and Main Street. In northwest corner of junction. (40.39283, -95.67590)

Sample Station	Sample Description - Type and Location	
No. N11	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Located in Brownville, Nebraska, at the junction of Nebraska St. and N 1st St. In the southwest corner of junction. (40.40055, -95.65518)
No. N12	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 0.3 miles west of Watson, Missouri, near the junction of Highway A and C Ave. Located west of junction. (40.47706, -95.62920)
No. N13	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles east of Auburn, Nebraska, on Hwy 136, then 0.6 miles north on 641 Ave. On east side of road. (40.40208, -95.80033)
No. N14	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 1.25 miles south of Nemaha, Nebraska, on Hwy 67, then 0.6 miles west on 724 Rd, then 0.1 miles west on 647 Ave. Located on Jarvis Creek levee. (40.31998, -95.68995)
No. N15	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 4.1 miles northwest of Corning, Missouri, on Hwy 111, then 2 miles west on Route Z, then 0.3 miles north on Golden Ave., then 0.5 miles west on 297th street to levee. (40.29750, -95.55442)
No. N16	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of Brownville, Nebraska, on Hwy 136, then 1.25 miles south on Hwy 67. Located on west side of highway. (40.37526, -95.67331)
No. N17	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 0.4 miles west of Shubert, Nebraska, on Hwy 62, then north 0.5 miles on 647 Ave. (40.24026, -95.69086)
No. N18	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Approximately 0.75 miles east of Rock Port, Missouri, on Hwy 136, then 350 feet on Burke Rd. On southwest side of Burke Rd. (40.41705, -95.50112)

Sample Station	Sample Description - Type and Location	
No. N19	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile west of entrance to Indian Cave State Park on Hwy 64E, then 1.5 miles north on 652 Ave., then 0.1 miles west on 721A Rd. Located east of residence. (40.28341, -95.60014)
No. N20	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	One mile south of Nemaha, Nebraska, on Hwy 67, then 0.9 miles east on the levee. On north side of levee. (40.32331, -95.66007)
No. N21	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	From entrance to Indian Cave State Park, follow Indian Cave Recreation Road for 2.5 miles. Located on east side of road on siren pole. (40.25270, -95.55357)
No. N22	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	1.5 miles southwest of CNS on 648A Ave., follow access road into Langdon Bend Wildlife Management Area 1.5 miles to levee. In southeast corner of parking lot. (40.34198, -95.63790)
No. N23	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	2.1 miles east of Phelps City, Missouri, on Hwy 136 at the former City of Rock Port Water Treatment Plant. South side of Hwy 136. (40.40330, -95.55858)
No. N24	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Two miles east of Watson, Missouri, at Charity Lake. Located on the southwest corner of the lake near the boat ramp. (40.47547, -95.58370)
No. N25	Type: (1)	Environmental Thermoluminescent Dosimetry
	Location:	Three miles south of Rock Port, Missouri, on Hwy 111, then 0.6 miles south on Outer Rd. Located on west side of road, across from Hunter Cemetery. (40.36291, -95.52197)



NEBRASKA PUBLIC POWER DISTRICT COOPER NUCLEAR STATION
Site Sampling Station Location Map
FIGURE C-1



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APPENDIX D

ODAM SPECIFICATIONS

OFFSITE DOSE ASSESSMENT MANUAL
APPENDIX D

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D 1.0 USE AND APPLICATION

The Offsite Dose Assessment Manual (ODAM) Specifications are contained in Section 3.0 of this appendix. They contain operational requirements, Surveillance Requirements, and reporting requirements. Additionally, the Required Actions and associated Completion Times for degraded Conditions are specified.

The definitions and rules of usage for the ODAM Specifications are contained in Section 1.0. Defined terms are shown in all capital letters, consistent with the Technical Specifications.

The ODAM Specifications are a part of the USAR per USAR Appendix E and are reported per Technical Specifications 5.5.1.c.3.

Changes to the ODAM are governed by applicable Station procedures.

D 1.0 USE AND APPLICATION

D 1.1 Definitions

----------NOTE----------

The defined terms of this section appear in capitalized type and are applicable throughout the ODAM.

Term	Definition
ACTIONS	ACTIONS shall be that part of a DLCO that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel FUNCTIONALITY. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an in place qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.
CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify FUNCTIONALITY of all devices in the channel required for channel FUNCTIONALITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.

(continued)

1.1 Definitions (continued)

FUNCTIONAL/FUNCTIONALITY	A system, structure, or component (SSC) is FUNCTIONAL or has FUNCTIONALITY when it is capable of performing its function(s) as described in the design and licensing basis. FUNCTIONALITY includes the ability of required support systems to perform their related support function(s) for equipment required to be OPERABLE by the TS.
IMMEDIATELY	When IMMEDIATELY is used as a Completion Time, the ACTIONS should be pursued without delay and in a controlled manner.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for FUNCTIONALITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify FUNCTIONALITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MODE	A MODE shall correspond to any one of the operating conditions specified in Table 1.1-1 of the TS with fuel in the reactor vessel.
ODAM LIMITING CONDITION FOR OPERATION (DLCO)	A DLCO is a requirement specified or assumed in the design or licensing basis.
ODAM SURVEILLANCE REQUIREMENT (DSR)	A DSR is a test or verification required by the design or licensing basis.
OPERABLE/OPERABILITY	A system, subsystem, or component (SSC) is OPERABLE or has OPERABILITY when a TS Limiting Condition for Operation requires it to be OPERABLE and the TS OPERABLITY requirements are met. The terms OPERABLE and OPERABILITY do not apply to SSCs that are not required to be OPERABLE by a TS Limiting Condition for Operation.
SITE AND EXCLUSION AREA BOUNDARY	The SITE AND EXCLUSION AREA BOUNDARY around Cooper Nuclear Station are defined in Figure D2.a-1.

(continued)

1.1 Definitions (continued)

SOURCE CHECK	A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of radioactivity.
TECHNICAL SPECIFICATIONS (TS)	The TS are those requirements which satisfy 10 CFR 50.36 and which are issued as an appendix to the plant's license.

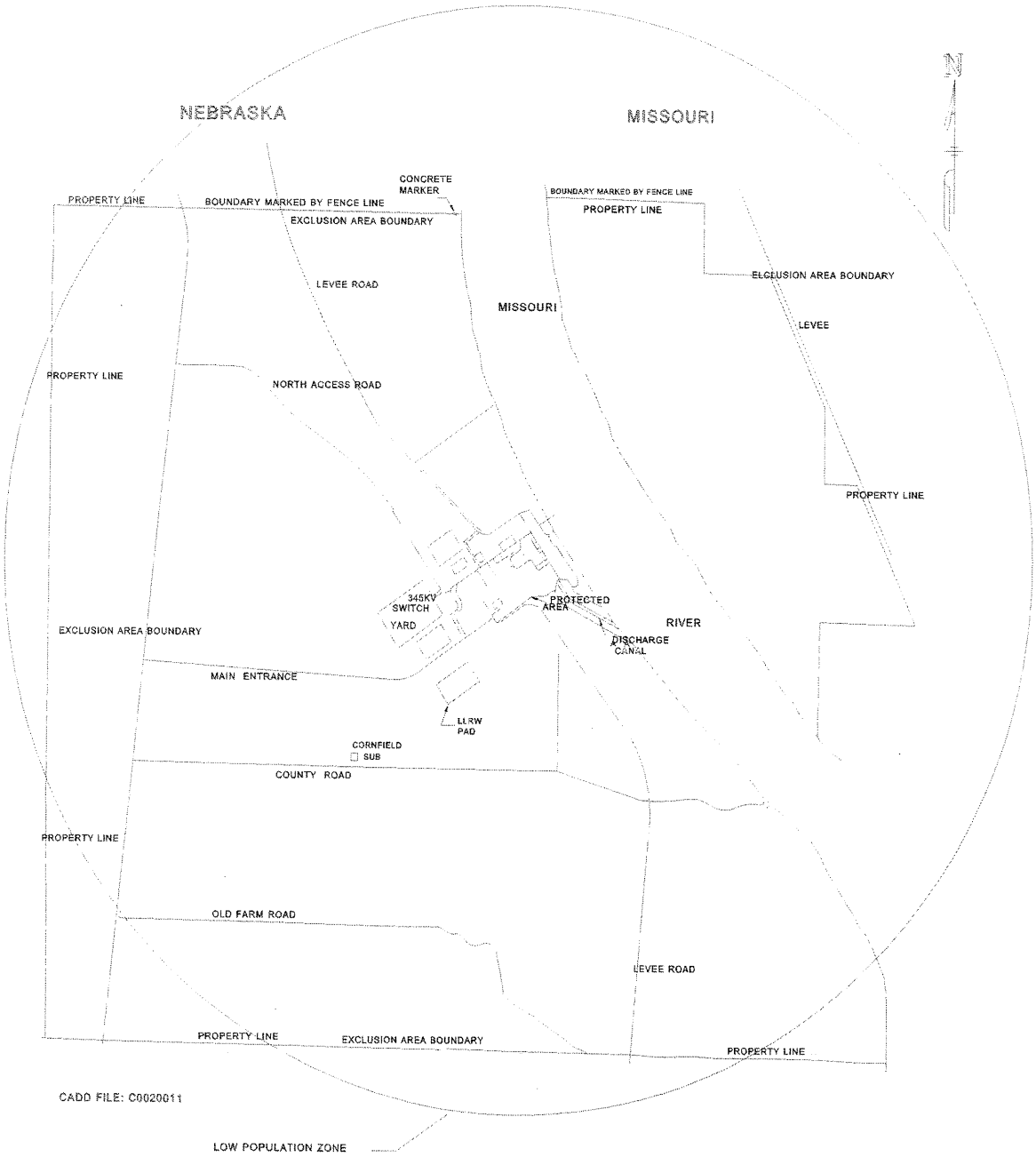

Figure D2.a-1
SITE AND EXCLUSION AREA BOUNDARY

D 1.0 USE AND APPLICATION

1.2 Logical Connectors

The guidance provided for the use and application of logical connectors in Section 1.2, "Logical Connectors" of the TS is also applicable to logical connectors in DLCOs, ACTIONS, and DSRs contained in the manual.

1.3 Completion Times

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the discovery of a situation (e.g., DLCO not met) unless otherwise specified.

Once an ACTION has been entered, subsequent trains, subsystems, components, or variables expressed in the DLCO discovered to be not FUNCTIONAL or not within limits, will not result in separate entry into the ACTION, unless specifically stated. The Completion Times are based on initial entry into the ACTION, unless otherwise specified.

1.4 Frequency

Each DSR has a specified Frequency that must be met while in the MODE or other specified conditions of the Applicability or the corresponding DLCO is not met. The "specified Frequency" consists of the requirements of the Frequency column of each DSR as modified by DSR 3.0.2, as well as certain Notes in the test column that modify performance requirements.

The use of "met" or "performed" conveys specific meanings. A DSR is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a DSR, even without a DSR specifically being "performed," constitutes a DSR not "met." "Performance" refers only to the requirements to specifically determine the ability to meet the acceptance criteria.

If the specified Frequency for a DSR is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the associate DSR, it must be performed prior to entry into the MODE or other specified condition or the DSR is considered not met.

D 3.0 ODAM Specifications Applicability

DLCO 3.0.1 DLCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in DLCO 3.0.2.

DLCO 3.0.2 Upon discovery of a failure to meet a DLCO, the ACTIONS of the associated Conditions shall be met, with the exceptions specified below:

a. If the DLCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the ACTION(S) is not required, unless otherwise stated.

b. Administrative controls may be employed in lieu of the specified Required Actions if necessary to perform testing to verify the FUNCTIONALITY of equipment.

DLCO 3.0.3 When a DLCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTION, initiate a Condition Report in accordance with the Corrective Action Program.

D 3.0 ODAM Specifications Applicability

DSR 3.0.1 DSRs shall be met during the MODES or other specified conditions in the Applicability for individual DLCOs, unless otherwise stated in the DSR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the DLCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the DLCO except as provided in DSR 3.0.3. Surveillances do not have to be performed on nonfunctional equipment or variables outside specified limits.

DSR 3.0.2 The specified Frequency for each DSR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

Should a DSR not be performed within the specified Frequency, a Condition Report shall be initiated to determine if the associated DLCO is met. The DSR shall be performed at the next reasonable opportunity.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

D 3.1 LIQUID EFFLUENTS

D 3.1.1 Liquid Effluents Concentration

DLCO 3.1.1 The concentration of radioactive material in water beyond the SITE AND EXCLUSION AREA BOUNDARY (Figure D2.a-1) due to radioactive liquid effluent shall not exceed:

a. The concentration specified in 10 CFR Part 20.1302 for radionuclides other than dissolved or entrained noble gases; and

b. 2×10^{-4} µCi/ml total activity concentration for dissolved or entrained noble gases.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Concentration of radioactive material beyond the SITE AND EXCLUSION AREA BOUNDARY due to radioactive liquid effluent exceeds limits.	A.1 Initiate action to restore concentration to within limits.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.1.1.1	Perform radioactive liquid waste sampling and activity analysis.	In accordance with Table D3.1.1-1
DSR 3.1.1.2	The analytical results shall be used with methods in the ODAM to verify that the average concentration beyond the SITE AND EXCLUSION AREA BOUNDARY does not exceed DLCO 3.1.1 when SR-89, SR-90, and Fe-55 concentrations are averaged over no more than 3 months and other radionuclide concentrations are averaged over no more than 31 days.	In accordance with ODAM Section 2.4

Table D3.1.1-1 (Page 1 of 2)
Radioactive Liquid Waste Sampling and Analysis

LIQUID RELEASE TYPE	SAMPLE TYPE	SAMPLE FREQUENCY	ANALYSIS FREQUENCY	SAMPLE ANALYSIS	SAMPLE LOWER LIMIT OF DETECTION (LLD)(h)
Batch Waste Release Tanks (c)	Grab sample	Each batch (a)	Each batch (a)	Principal Gamma Emmitters (j)(k)	5×10^{-7} µCi/ml (i)
				I-131	1×10^{-6} µCi/ml
	Grab sample	One batch/ 31 days (a)	31 days (b)	Dissolved and Entrained Gases (gamma emitters)	1×10^{-5} µCi/ml
	Proportional Composite of grab samples (f)	Each batch (a)	31 days (b)	H-3	1×10^{-5} µCi/ml
			31 days (b) (l)	Gross Alpha	1×10^{-7} µCi/ml
			92 days (b) (l)	Sr-89	5×10^{-8} µCi/ml
				Sr-90	5×10^{-8} µCi/ml
				Fe-55	1×10^{-6} µCi/ml
Plant Service Water Effluent (d)	Grab Sample	7 days	7 days (b)	Principal Gamma Emitters (j)(k)	5×10^{-7} µCi/ml (i)
Plant Continuous Discharge (e)	Proportional Composite of grab Samples (g)	24 hours	7 days (b)	Principal Gamma Emitters (j) (k)	5×10^{-7} µCi/ml (i)
				I-131	1×10^{-6} µCi/ml
	Grab Sample	31 days	31 days (b)	Dissolved and Entrained Gases (gamma emitters)	1×10^{-5} µCi/ml
	Proportional Composite of Grab Samples (g)	24 hours	31 days (b)	H-3	1×10^{-5} µCi/ml
			31 days (b) (l)	Gross Alpha	1×10^{-7} µCi/ml
			92 days (b) (l)	Sr-89	5×10^{-8} µCi/ml
				Sr-90	5×10^{-8} µCi/ml
				Fe-55	1×10^{-6} µCi/ml

(a) Complete prior to each release.

(b) Analysis may be performed after release.

(c) A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated and then thoroughly mixed.

(d) A grab sample of plant service water effluent shall be analyzed at least once each week in accordance with Table D3.1.1-1, Plant Service Water Effluent. In the event the radioactivity concentration in a sample exceeds 3×10^{-6} µCi/ml, or in the event the plant service water effluent monitor indicates the presence of an activity concentration greater than 3×10^{-6} µCi/ml, sampling and analysis according to Table D3.1.1-1, Plant Continuous Discharge, shall commence and shall be performed as long as the condition persists.

(e) A continuous release is the discharge of liquid wastes of a nondiscrete volume; e.g., from a volume of system that has an input flow during the continuous release.

(f) A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.

(g) To be representative of the quantities and concentrations of radioactive materials in liquid effluents, daily grab samples shall be collected in proportion to the rate of flow of the effluent stream. Prior to analysis, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.

(h) The LLD is the smallest concentration of the radioactive material in a sample that will be detected with 95% probability (5% probability of falsely concluding that a blank observation represents a "real" signal).

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{(4.66)(S_b)}{(E)(V)(2.22)(Y)e^{-\lambda \Delta t}}$$

Where:

LLD is the "a priori" lower limit of detection as described above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units of mass or volume),

2.22 is the number of transformations per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between midpoint of sample collection and time of counting (for plant effluents, not environmental samples).

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples. Typical values of E, V, Y and Δt shall be used in the calculation.

(i) For certain radionuclides with low gamma yield or low energies, or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the LLD. Under these circumstances, the LLD may be increased inversely proportionally to the magnitude of the gamma yield (i.e., $5 \times 10^{-7}/I$, where I is the photon abundance expressed as a decimal fraction), but in no case shall the LLD, as calculated in this manner for a specific radionuclide, be greater than 10% of the value specified in 10 CFR 20, Appendix B, Table 2, Column 2.

(j) The principal gamma emmitters for which the LLD specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analysis should not be reported as being present at the LLD level. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the Radioactive Effluent Release Report.

(k) If an isotopic analysis is unavailable, batch releases may be made for up to 14 days provided the gross beta/gamma concentration to the unrestricted area is $\leq 1 \times 10^{-8}$ µc/ml and the sample is analyzed when the instrumentation is once again available.

(l) Analysis to be completed within 92 days of the composite sample end date.

D 3.1 LIQUID EFFLUENTS

D 3.1.2 Liquid Waste Concentration

DLCO 3.1.2 The concentration of radioactive materials in liquid wastes from pre-release analysis shall be ≤ 0.01 µCi/ml, excluding tritium and noble gases.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Concentration of radioactive materials in liquid wastes from pre-release analysis > 0.01 µCi/ml, excluding tritium and noble gases.	A.1 Appropriate parts of the liquid radwaste treatment system shall be used to reduce the concentration.	Prior to liquid waste discharge
B. Required Action and associated Completion Time not met. AND Radioactive liquid waste being discharged without treatment in excess of 0.01 µCi/ml, excluding tritium and noble gases.	B.1 Prepare and submit a Special Report to the NRC pursuant to Specification D 5.4 that identifies equipment or subsystems not FUNCTIONAL and the reason for the non-functionality, action(s) taken to restore the non-functional equipment to FUNCTIONAL status and a summary description of the action(s) taken to prevent a recurrence.	31 days following the end of the quarter in which the limit was exceeded

D 3.1 LIQUID EFFLUENTS

D 3.1.3 Liquid Effluents Dose

DLCO 3.1.3 The dose to a Member of the Public due to radioactive material in liquid effluents beyond the SITE AND EXCLUSION AREA BOUNDARY (Figure D2.a-1) shall be limited to:

a. $\leq$ 1.5 mrem to the total body or $\leq$ 5.0 mrem to any body organ during any calender quarter; and

b. $\leq$ 3.0 mrem to the total body or $\leq$ 10.0 mrem to any body organ during any calender year.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Calculated dose due to radioactive material in liquid effluents beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds the limit.	A.1 Prepare and submit a Special Report, in lieu of any other report, pursuant to Specification D 5.4 to the NRC which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken.	31 days following the end of the quarter in which the limit was exceeded

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Calculated dose due to radioactive material in liquid effluents beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds two times the limit.	B.1 Prepare and submit a Special Report, in lieu of any other report, pursuant to Specification D 5.4 to the NRC which: 1) defines actions to be taken to reduce releases and prevent recurrence, and 2) results of an exposure analysis including effluent pathways and direct radiation to determine whether the dose or dose commitment to a Member of the Public due to radiation and radioactive releases from Cooper Station during the calender year through the period covered by the calculation was $\leq$ 75 mrem to the thyroid and $\leq$ 25 mrem to the total body and all other body organs.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.1.3.1	Perform an assessment of compliance with DLCO 3.1.3.	31 days
DSR 3.1.3.2	Project a prospect of compliance with DLCO 3.1.3 for radioactive liquid releases without radwaste system in operation.	In any quarter in which Radioactive liquid releases are made and the radwaste system is not operated

D 3.1 LIQUID EFFLUENTS

D 3.1.4 Outside Temporary Storage of Radioactive Liquid

DLCO 3.1.4 Radioactive liquid contained in unprotected outdoor temporary liquid storage tanks shall conform to the requirements of Technical Specification (TS) 5.5.8.b.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Level of radioactivity exceeds the limits of TS 5.5.8.b.	A.1 Suspend addition of radioactive material. AND	Immediately
	A.2 Begin measures to reduce content to within the limits of TS 5.5.8.b. AND	Immediately
	A.3 Describe the events leading to the condition in the Radioactive Effluent Release Report.	In accordance with the Radioactive Effluent Release Report frequency

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.1.4.1	Sample and analyze radioactive liquid located in unprotected outdoor temporary liquid storage tanks for level of radioactivity.	7 days during addition of radioactive liquid to the tanks

D 3.2 GASEOUS EFFLUENTS

D 3.2.1 Gaseous Effluents Concentration

DLCO 3.2.1 The dose rate beyond the SITE AND EXCLUSION AREA BOUNDARY (Figure D2.a-1) due to radioactive gaseous effluents shall be limited to the following:

a. For noble gases, ≤ 500 mrem per year to the total body and ≤ 3000 mrem per year to the skin; and

b. For H-3, I-131, I-133, and radioactive material in particulate form with half lives ≥ 8 days, ≤ 1500 mrem per year to any organ when;

1. The dose rate due to H-3, Sr-89, Sr-90, and alpha emitting radionuclides is averaged over ≤ 3 months and;

2. The dose rate due to other radionuclides is averaged over ≤ 31 days.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Dose rates beyond the SITE AND EXCLUSION AREA BOUNDARY due to radioactive gaseous effluents exceeds limits.	A.1 Decrease release rate to comply with the limits.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.1.1	Perform an assessment of compliance for DLCO 3.2.1(b).	31 days

D 3.2 GASEOUS EFFLUENTS

D 3.2.2 Noble Gases Dose

DLCO 3.2.2 The air dose beyond the SITE AND EXCLUSION AREA BOUNDARY (Figure D2.a-1) due to noble gases released in gaseous effluents shall be limited to the following:

a. For gamma radiation, ≤ 5 mrad during any calendar quarter and ≤ 10 mrad during any calendar year; and

b. For beta radiation, ≤ 10 mrad during any calendar quarter and ≤ 20 mrad during any calendar year.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Calculated air dose due to radioactive noble gases beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds the limit.	A.1 Prepare and submit a Special Report pursuant to Specification D 5.4 to the NRC in lieu of any other report which identifies the cause(s) and defines the corrective actions taken.	31 days following the end of the quarter in which the limit was exceeded

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Calculated air dose due to radioactive noble gases beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds two times the limit.	B.1 Prepare and submit a Special Report, in lieu of any other report, pursuant to Specification D 5.4 to the NRC which: 1) defines actions to be taken to reduce releases and prevent recurrence, and 2) results of an exposure analysis including effluent pathways and direct radiation to determine whether the dose or dose commitment to a Member of the Public due to radiation and radioactive releases from Cooper Station during the calendar year through the period covered by the calculation was ≤ 75 mrem to the thyroid and ≤ 25 mrem to the total body or any other body organ.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.2.1	Perform an assessment of compliance for DLCO 3.2.2	31 days

D 3.2 GASEOUS EFFLUENTS

D 3.2.3 Iodine and Particulates

DLCO 3.2.3 The dose to a Member of the Public due to I-131, I-133 and radioactive material in particulate form having a half-life > 8 days in gaseous effluents beyond the SITE AND EXCLUSION AREA BOUNDARY (Figure D2.a-1) shall be limited to:

a. ≤ 7.5 mrem to any organ during any calendar quarter; and

b. ≤ 15 mrem to any organ during any calendar year.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Calculated dose due to I-131, I-133 and radioactive material in particulate form having a half-life > 8 days beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds the limit.	A.1 Prepare and submit a Special Report, in lieu of any other report, pursuant to Specification D 5.4 to the NRC which identifies the cause(s) for exceeding the limit(s) and describes the corrective action taken.	31 days following the end of the quarter in which the limit was exceeded.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Calculated dose due to I-131, I-133 and radioactive material in particulate form having a half-life > 8 days beyond the SITE AND EXCLUSION AREA BOUNDARY exceeds two times the limit.	B.1 Prepare and submit a Special Report, in lieu of any other report, pursuant to Specification D 5.4 to the NRC which: 1) defines actions to be taken to reduce releases and prevent recurrence, and 2) results of an exposure analysis including effluent pathways and direct radiation to determine whether the dose or dose commitment to a Member of the Public due to radiation and radioactive releases from Cooper Station was $\leq$ 75 mrem to the thyroid and $\leq$ 25 mrem to the total body or any other body organ.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.3.1	Perform radioactive gaseous waste sampling and activity analysis on effluents other than noble gases.	In accordance with Table D3.2.3-1
DSR 3.2.3.2	Perform a dose assessment to determine compliance with DLCO 3.2.3.	31 days

Table D3.2.3-1 (Page 1 of 3)
Radioactive Gaseous Waste Sampling and Analysis

GASEOUS RELEASE TYPE	SAMPLE TYPE	SAMPLE FREQUENCY	ANALYSIS FREQUENCY	SAMPLE ANALYSIS	SAMPLE LOWER LIMIT OF DETECTION(LLD) (h)
1. Elevated Release Point (ERP)	Grab Sample	31 days (c)	31 days (c)	Principal Gamma Emitters (f)	1×10^{-4} µCi/ml (i)
	Grab Sample	92 days (a)	92 days	H-3	1×10^{-6} µCi/ml
	Charcoal Sample	Continuous (b)	7 days (d)	I-131	1×10^{-12} µCi/ml
				I-133	1×10^{-10} µCi/ml
	Particulate Sample	Continuous (b)	7 days (d)	Principal Gamma Emitters (f) (I-131, Others)	1×10^{-11} µCi/ml (i)
	Composite Particulate Sample (e)	Continuous (b)	92 days (j)	Sr-89	1×10^{-11} µCi/ml
				Sr-90	1×10^{-11} µCi/ml
				Gross Alpha	1×10^{-11} µCi/ml
	Noble Gas Monitor	Continuous (b)	Continuous	Gross Noble Gases (g) (Beta, Gamma)	1×10^{-6} µCi/ml
2. Reactor Building Vent	Grab Sample	31 days (c)	31 days (c)	Principal Gamma Emitters (f)	1×10^{-4} µCi/ml (i)
	Grab Sample	92 days (a)	92 days	H-3	1×10^{-6} µCi/ml
	Charcoal Sample	Continuous (b)	7 days (d)	I-131	1×10^{-12} µCi/ml
				I-133	1×10^{-10} µCi/ml
	Particulate Sample	Continuous (b)	7 days (d)	Principal Gamma Emitters (f) (I-131, Others)	1×10^{-11} µCi/ml (i)
	Composite Particulate Sample (e)	Continuous (b)	92 days (j)	Sr-89	1×10^{-11} µCi/ml
				Sr-90	1×10^{-11} µCi/ml
				Gross Alpha	1×10^{-11} µCi/ml
	Noble Gas Monitor	Continuous (b)	Continuous	Gross Noble Gases (g) (Beta, Gamma)	1×10^{-6} µCi/ml
3. Augmented Radwaste Building Vent	Grab Sample	31 days (c)	31 days (c)	Principal Gamma Emitters (f)	1×10^{-4} µCi/ml (i)
	Grab Sample	92 days (a)	92 days	H-3	1×10^{-6} µCi/ml
	Charcoal Sample	Continuous (b)	7 days (d)	I-131	1×10^{-12} µCi/ml

(continued)

Table D3.2.3-1 (Page 2 of 3)
Radioactive Gaseous Waste Sampling and Analysis

GASEOUS RELEASE TYPE	SAMPLE TYPE	SAMPLE FREQUENCY	ANALYSIS FREQUENCY	SAMPLE ANALYSIS	SAMPLE LOWER LIMIT OF DETECTION (LLD)(h)
3. (continued)	Charcoal Sample	Continuous (b)	7 days (d)	I-133	1×10^{-10} µCi/ml
	Particulate Sample	Continuous (b)	7 days (d)	Principal Gamma Emitters (f) (I-131, Others)	1×10^{-11} µCi/ml (i)
	Composite Particulate Sample (e)	Continuous (b)	92 days (j)	Sr-89	1×10^{-11} µCi/ml
				Sr-90	1×10^{-11} µCi/ml
				Gross Alpha	1×10^{-11} µCi/ml
	Noble Gas Monitor	Continuous (b)	Continuous	Gross Noble Gases (g) (Beta, Gamma)	1×10^{-6} µCi/ml
4. Turbine Building Vent (Gaseous)	Grab Sample	31 days (c)	31 days (c)	Principal Gamma Emitters (f)	1×10^{-4} µCi/ml (i)
	Grab Sample	92 days (a)	92 days	H-3	1×10^{-6} µCi/ml
	Charcoal Sample	Continuous (b)	7 days (d)	I-131	1×10^{-12} µCi/ml
				I-133	1×10^{-10} µCi/ml
	Particulate Sample	Continuous (b)	7 days (d)	Principal Gamma Emitters (f) (I-131, Others)	1×10^{-11} µCi/ml (i)
	Composite Particulate Sample (e)	Continuous (b)	92 days (j)	Sr-89	1×10^{-11} µCi/ml
				Sr-90	1×10^{-11} µCi/ml
				Gross Alpha	1×10^{-11} µCi/ml
	Noble Gas Monitor	Continuous (b)	Continuous	Gross Noble Gases (g) (Beta, Gamma)	1×10^{-6} µCi/ml
5. Multi Purpose Facility (MPF) Building Vent (Gaseous)	Charcoal Sample	Continuous (b)	7 days (d)	I-131	1×10^{-12} µCi/ml
				I-133	1×10^{-10} µCi/ml
	Particulate Sample	Continuous (b)	7 days (d)	Principal Gamma Emitters (f) (I-131, Others)	1×10^{-11} µCi/ml (i)
	Composite Particulate Sample (e)	Continuous (b)	92 days (j)	Sr-89	1×10^{-11} µCi/ml
				Sr-90	1×10^{-11} µCi/ml
				Gross Alpha	1×10^{-11} µCi/ml

(a) A H-3 grab sample will also be taken when the reactor vessel head is removed. This sample will be taken at the ERP or Reactor Building Vent whichever will be representative dependent upon the head removal vacuum procedure.

(b) The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications D 3.2.1, D 3.2.2 and D 3.2.3.

(continued)

Table D3.2.3-1 (Page 3 of 3)
Radioactive Gaseous Waste Sampling and Analysis

(c) Analyses shall also be performed following an increase as indicated by the gaseous release monitor of greater than 50% in the steady state release, after factoring out increases due to power changes or other operational occurrences, which could alter the mixture of radionuclides.

(d) Analysis shall also be performed following an increase as indicated by the gaseous release monitor of greater than 50% in the steady state release, after factoring out increases due to power changes or other operational occurrences, which could alter the mixture of radionuclides. When samples collected for 24 hours or less are analyzed, the corresponding LLD's may be increased by a factor of 10.

(e) A quarterly composite particulate sample shall include a portion of each week's particulate samples collected during the quarter.

(f) The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for the gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level for that nuclide. When unusual circumstances cause LLD's higher than required for more than 31 days, the reasons shall be documented in the Radioactive Effluent Release Report.

(g) The noble gas continuous monitor shall be calibrated using laboratory analysis of the grab samples from Table D3.2.3-1 or using reference sources.

(h) The LLD is the smallest concentration of radioactive material in sample that will be detected with 95% probability (5% probability of falsely concluding that a blank observation represents a "real" signal.)

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{(4.66)(s_b)}{(E)(V)(2.22)\ (Y)e^{-\lambda\Delta t}}$$

Where:

LLD is the "a priori" lower limit of detection as described above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units of mass or volume),

2.22 is the number of transformations per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between midpoint of sample collection and time of counting (for plant effluents, not environmental samples).

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples. Typical values of E, V, Y and Δt shall be used in the calculation.

(i) For certain radionuclides with low gamma yield or low energies, or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the LLD. Under these circumstances, the LLD may be increased inversely proportional to the magnitude of the gamma yield (i.e., $1 \times 10^{-4}/I$, where I is the photon abundance expressed as a decimal fraction), but in no case shall the LLD, as calculated in this manner for a specific radionuclide, be greater than 10% of the values specified in 10 CFR 20, Appendix B, Table 2, Column 1.

(j) Analysis to be completed within 92 days of the composite sample end date.

D 3.2 GASEOUS EFFLUENTS

D 3.2.4 Offgas Treatment System

DLCO 3.2.4 Gaseous releases discharged through the Offgas Treatment System shall have at least one train of charcoal adsorbers in service.

APPLICABILITY: Main condenser air ejector in service, except during startup or shutdown with reactor < 10% rated power or when system cannot function due to low offgas flow.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gaseous releases discharged without either train of charcoal adsorbers in service.	A.1 Restore release of gaseous discharge via charcoal adsorbers.	7 days
B. Required Action and associated Completion Time not met.	B.1 Prepare and submit a Special Report pursuant to Specification D 5.4 to the NRC which identifies the non-functional equipment and describes the corrective action taken.	31 days following the end of the quarter in which the release occurred

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.4.1	Verify operation of the Offgas Treatment System charcoal adsorbers by using the gaseous effluent monitoring program in D 3.3.2, Gaseous Effluent Monitoring.	In accordance with the DSR frequencies of D 3.3.2.
DSR 3.2.4.2	Project the prospect of compliance with DLCO 3.2.5, Condition B.	Every 31 days when radioactive material in gaseous effluent is released without treatment.

D 3.2 GASEOUS EFFLUENTS

D 3.2.5 Exhaust Ventilation Treatment Systems (EVTS)

DLCO 3.2.5 The Exhaust Ventilation Treatment Systems (EVTS) shall be operated to treat radioactive materials in effluent air.

APPLICABILITY: When radioactive material in gaseous effluent is being released via the associated pathway.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Radioactive material in gaseous effluent released without treatment.	A.1 Ensure DSR 3.2.5.1 is met.	31 days
B. Air is discharged without treatment for > 31 days. AND The projected dose to a Member of the Public due to activity in air effluent via that pathway exceeds 0.3 mrem to any body organ.	B.1 Prepare and submit a Special Report pursuant to Specification D 5.4 to the NRC which identifies the nonfunctional equipment and describes the corrective action taken.	31 days following the end of the quarter in which the release occurred

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DSR 3.2.5.1	Project the prospect of compliance with DLCO 3.2.5.	Every 31 days when radioactive material in gaseous effluent is released without treatment.

D 3.2 GASEOUS EFFLUENTS

D 3.2.6 Hydrogen Concentration

DLCO 3.2.6 The concentration of hydrogen in the augmented offgas treatment system downstream of the recombiners shall be limited to $\leq$ 2% by volume.

APPLICABILITY: During augmented offgas treatment system operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Concentration of hydrogen exceeds limits.	A.1 Restore concentration to within limits.	48 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.6.1	Verify Hydrogen concentration in the augmented offgas treatment system downstream of the recombiners is within limits.	24 hours

D 3.2 GASEOUS RELEASES

D 3.2.7 Primary Containment Venting and Purging

DLCO 3.2.7 Venting and purging of the primary containment shall be through the Standby Gas Treatment System.

----------NOTES----------

1. This specification does not apply to Normal Ventilation.

2. This specification does not apply during startup while performing primary containment inerting in accordance with Technical Specification 3.6.3.1, Primary Containment Oxygen Concentration, following a shutdown of > 24 hours or while performing primary containment de-inerting providing one channel of the drywell atmospheric particulate and gaseous monitoring system is OPERABLE and not in the alarm state.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirement not met.	A.1 Suspend all venting and purging of the primary containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.2.7.1	The primary containment shall be determined to be aligned for venting or purging through the Standby Gas Treatment System.	Once within 4 hours prior to venting or purging of the primary containment AND 12 hours thereafter during venting or purging of the primary containment.

D 3.3 INSTRUMENTATION

D 3.3.1 Liquid Effluent Monitoring

DLCO 3.3.1 The liquid effluent radiation monitoring instrumentation channels shown on Table D3.3.1-1 shall be FUNCTIONAL with:

a. The minimum FUNCTIONAL channel(s)in service.

b. The alarm and trip setpoints set to ensure that the limits of DLCO 3.1.1 are not exceeded.

APPLICABILITY: According to Table D3.3.1-1.

ACTIONS

----------NOTE----------
Separate condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Liquid effluent radiation monitoring instrumentation channel alarm and trip setpoint less conservative than required.	A.1 Suspend liquid effluent radiation release monitored by the nonfunctional channel. OR A.2 Declare channel nonfunctional.	Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more channels nonfunctional.	B.1 Enter the Condition referenced in Table D3.3.1-1 for the channel. AND	Immediately
	B.2.1 Restore nonfunctional channel(s) to FUNCTIONAL status. OR	31 days
	B.2.2 In lieu of any other report, explain in the Radioactive Effluent Release Report why the instrument was not repaired in a timely manner.	In accordance with the Radioactive Effluent Release Report frequency.

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. As required by Required Action B.1 and referenced in Table D3.3.1-1.	C.1 Analyze a minimum of 2 independent samples in accordance with Table D3.1.1-1. AND C.2 ----------NOTE---------- Determination Action and Verification Action will be performed by two separate technically qualified members of the Facility Staff. ---------- Determine and independently verify the release rate calculations and discharge valving.	Prior to initiating a release Prior to initiating a release
D. As required by Required Action B.1 and referenced in Table D3.3.1-1.	D.1 Collect and analyze a grab sample for gross beta radioactivity or gross gamma radioactivity (as applicable) at a lower limit of detection $\leq 10^{-6}$ µCi/ml.	24 hours AND Once per 24 hours thereafter
E. As required by Required Action B.1 and referenced in Table D3.3.1-1.	E.1 Estimate flow rate during actual release.	4 hours AND Once per 4 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time for Condition C or E not met.	F.1 Suspend liquid effluent releases monitored by the nonfunctional channel(s).	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DSR 3.3.1.1	Perform CHANNEL CHECK.	24 hours
DSR 3.3.1.2	Perform CHANNEL CHECK for each channel to demonstrate FUNCTIONALITY by verifying indication of flow during periods of release.	24 hours on any day on which continuous, periodic, or batch releases are made
DSR 3.3.1.3	Perform SOURCE CHECK.	Completed prior to each release
DSR 3.3.1.4	Perform SOURCE CHECK.	31 days
DSR 3.3.1.5	Perform CHANNEL CALIBRATION	18 months
DSR 3.3.1.6	Perform CHANNEL FUNCTIONAL TEST. The CHANNEL FUNCTIONAL TEST shall also demonstrate automatic isolation of the pathway for instrument indication levels measured above the alarm/trip setpoint and circuit failure; and control room alarm annunciation for instrument indication levels measured above the alarm/trip setpoint, circuit failure and instrument indicating downscale failure.	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.3.1.7	Perform CHANNEL FUNCTIONAL TEST. The CHANNEL FUNCTIONAL TEST shall also demonstrate control room alarm annunciation for instrument indication levels measured above the alarm/trip setpoint, circuit failure, instrument indicating downscale failure, and instrument controls not set in operate mode.	92 days
DSR 3.3.1.8	Perform CHANNEL FUNCTIONAL TEST.	184 days
DSR 3.3.1.9	Perform LOGIC SYSTEM FUNCTIONAL TEST	184 days

Table D3.3.1-1
Radioactive Liquid Effluent Monitoring Instrumentation

INSTRUMENT	APPLICABILITY OR OTHER SPECIAL CONDITIONS	MINIMUM CHANNELS FUNCTIONAL	CONDITION REFERENCED FROM ACTION B.1	SURVEILLANCE REQUIREMENTS
1. Gross Beta or Gamma Radioactivity Monitors Providing Automatic Isolation				
a. Liquid Radwaste Effluent Line	(a)	1(b)	C	DSR 3.3.1.1 DSR 3.3.1.3 DSR 3.3.1.5 DSR 3.3.1.6 DSR 3.3.1.9
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm but not Providing Automatic Isolation				
a. Service Water System Effluent Line	(a)	1	D	DSR 3.3.1.1 DSR 3.3.1.4 DSR 3.3.1.5 DSR 3.3.1.7
3. Flow Rate Measurement Devices				
a. Liquid Radwaste Effluent Line	(a)	1	E	DSR 3.3.1.2 DSR 3.3.1.5 DSR 3.3.1.8

(a) During releases via this pathway.

(b) Set to alarm and automatically close the waste discharge valve prior to exceeding the limits of DLCO 3.1.1.

D 3.3 INSTRUMENTATION

D 3.3.2 Gaseous Effluent Monitoring

DLCO 3.3.2 The gaseous effluent radiation monitoring instrumentation channel(s) shown in Table D3.3.2-1 shall be FUNCTIONAL with:

a. The minimum FUNCTIONAL channel(s) in service.

b. The alarm and trip setpoints set to ensure that the limits of DLCO 3.2.1 are not exceeded.

APPLICABILITY: According to Table D3.3.2-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gaseous effluent radiation monitoring instrumentation channel alarm and trip setpoint less conservative than required.	A.1 Suspend gaseous effluent radiation release monitored by nonfunctional channel. OR A.2 Declare channel nonfunctional.	Immediately Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One or more channels non-functional.	B.1	Enter the Condition referenced in Table D3.3.2-1 for the channel.	Immediately
	AND		
	B.2.1	Restore nonfunctional channel(s) to FUNCTIONAL status.	31 days
		OR	
	B.2.2	In lieu of any other report, explain in the Radioactive Effluent Release Report why the instrument was not repaired in a timely manner.	In accordance with the Radioactive Effluent Release Report frequency
C As required by Required Action B.1 and referenced in Table D3.3.2-1.	C.1.1	Ensure the offgas delay system is not bypassed.	Immediately
		AND	
	C.1.2	Ensure the Elevated Release Point Monitoring noble gas activity monitor is FUNCTIONAL.	Immediately
		AND	
	C.1.3	Restore nonfunctional channels to FUNCTIONAL status.	72 hours
	OR		
	C.2	Place channel in trip.	12 hours
D. Required Action and associated Completion Time for Condition C not met.	D.1	Be in MODE 2.	12 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. As required by Required Action B.1 and referenced in Table D3.3.2-1.	E.1 Estimate flowrate.	24 hours AND Once per 24 hours thereafter
F. As required by Required Action B.1 and referenced in Table D3.3.2-1.	F.1 Take grab samples. AND F.2 Analyze for gross activity.	24 hours AND Once per 24 hours thereafter 24 hours from time of sampling completion

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. As required by Required Action B.1 and referenced in Table D3.3.2-1.	G.1.1	Verify one Function 2.a monitor FUNCTIONAL. AND	Immediately
	G.1.2	Verify recombiner exhaust temperature change less than 10°F over a 24 hour period.	Immediately AND Once per 24 hours thereafter.
	OR		
	G.2.1	Verify one Function 2.a monitor FUNCTIONAL. AND	Immediately
	G.2.2	Collect gas sample.	24 hours AND Once per 24 hours thereafter
		AND	
	G.2.3	Analyze gas sample and ensure within the limit of DLCO 3.2.6.	4 hours from time of sampling completion
	OR		
	G.3.1	Verify recombiner exhaust temperature change less than 10°F over a 24 hour period.	Immediately AND Once per 24 hours thereafter.
		AND	
	G.3.2	Collect gas sample. AND	24 hours AND

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
(continued)			Once per 24 hours thereafter.
	G.3.3	Analyze gas sample and ensure within the limit of DLCO 3.2.6.	4 hours from time of sampling completion.
H. Required Action and associated Completion Time for Condition G not met.	H.1	Discontinue operation of the augmented offgas treatment system.	Immediately
I. As required by Required Action B.1 and referenced in Table D3.3.2-1.	I.1	-------NOTE------- When the primary monitoring system is nonfunctional and the auxiliary sampling equipment is in service, sampling may be discontinued for up to 30 minutes only for changing particulate filters and iodine cartridges. ---------- Sample with auxiliary sampling equipment as required in Table D3.2.3 1.	4 Hours to establish sampling AND Continuously thereafter
	OR		
	I.2.1	If auxiliary sampling equipment cannot be established within the specified completion time, or continuous auxiliary sampling interrupted, then enter the problem into the Corrective Action Program to evaluate particulate and iodine effluent releases. AND	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
(continued)	I.2.2	Report this event in the Radioactive Effluent Release Report.	In accordance with the Radioactive Effluent Release Report Frequency
J. Required Action and associated Completion Time for Condition E or F not met.	J.1	Discontinue effluent releases via this pathway.	Immediately
K. Function 1.a trip capability not maintained. AND Radiation level exceeds 1.0 ci/sec (prior to 30 min. delay line) for > 15 consecutive minutes.	K.1 AND K.2 AND K.3	Close the offgas isolation valve. Initiate reactor shutdown. Be in MODE 4.	Immediately Immediately 24 hours

SURVEILLANCE REQUIREMENTS

----------NOTES----------

1. Refer to Table D3.3.2-1 to determine which DSRs apply for each instrument.

2. When a channel is placed in a nonfunctional status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function is maintained.

SURVEILLANCE		FREQUENCY
DSR 3.3.2.1	Perform CHANNEL CHECK.	24 hours
DSR 3.3.2.2	Perform CHANNEL CHECK.	7 days
DSR 3.3.2.3	Perform SOURCE CHECK.	31 days
DSR 3.3.2.4	Perform CHANNEL FUNCTIONAL TEST.	31 days
DSR 3.3.2.5	Perform SOURCE CHECK.	92 days
DSR 3.3.2.6	Perform CHANNEL CALIBRATION. The CHANNEL CALIBRATION shall include the use of a standard gas sample containing a percentage of hydrogen to verify accuracy of the monitoring channel in its operating range.	92 days
DSR 3.3.2.7	Perform CHANNEL FUNCTIONAL TEST.	92 days
DSR 3.3.2.8	Perform CHANNEL FUNCTIONAL TEST. The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if; the instrument indicates measured levels above the alarm/trip setpoint, circuit failure, instrument indicates a downscale failure, or instrument controls not set in operate mode.	92 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.3.2.9	Perform CHANNEL FUNCTIONAL TEST. The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if; the instrument indicates measured levels above the alarm/trip setpoint or circuit failure.	92 days
DSR 3.3.2.10	Perform CHANNEL CALIBRATION. For Function 1.a, the time delay setting for closure of the steam jet air ejector isolation valves shall be ≤ 15 minutes and trip settings shall correspond to Technical Specification 3.7.5.	24 months
DSR 3.3.2.11	Perform CHANNEL FUNCTIONAL TEST. The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if; the instrument indicates measured levels above the alarm/trip setpoint, circuit failure, instrument indicates a downscale failure, or instrument controls not set in operate mode.	24 months
DSR 3.3.2.12	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
DSR 3.3.2.13	Perform CHANNEL CALIBRATION	18 months

Table D3.3.2-1 (Page 1 of 3)
Radioactive Gaseous Effluent Monitoring Instrumentation

	INSTRUMENT	APPLICABILITY OR OTHER SPECIAL CONDITIONS	MINIMUM CHANNELS FUNCTIONAL	CONDITION REFERENCED FROM ACTION B.1	SURVEILLANCE REQUIREMENTS
1.	Steam Jet Air Ejector				
	a. Noble Gas Activity Monitor	(a)	2	C	DSR 3.3.2.1 DSR 3.3.2.3 DSR 3.3.2.8 DSR 3.3.2.10 DSR 3.3.2.11 DSR 3.3.2.12
	b. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
2.	Augmented Offgas Treatment System Explosive Gas Monitoring System				
	a. Hydrogen Monitor (2% monitor)	(c)	2	G	DSR 3.3.2.1 DSR 3.3.2.4 DSR 3.3.2.6
3.	Reactor Building Ventilation Monitoring System				
	a. Noble Gas Activity Monitor	(b) (f)	1	F	DSR 3.3.2.1 DSR 3.3.2.3 DSR 3.3.2.9 DSR 3.3.2.13
	b. Iodine Sampler Cartridge	(b) (f)	1	I	DSR 3.3.2.2
	c. Particulate Sampler Filter	(b) (f)	1	I	DSR 3.3.2.2
	d. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
	e. Sampler Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
	f. Isolation Monitor	(d)	(d)	(d)	DSR 3.3.2.5 DSR 3.3.2.11

(continued)

(a) During operation of the steam jet air ejector

(b) During releases via this pathway

(c) During augmented offgas treatment system operation

(d) See Technical Specification 3.3.6.2

(e) Not used.

(f) A channel may be removed from service for up to 30 minutes for changing particulate filters or iodine cartridges or for low flow alarm check without entering Conditions or Required Actions.

Table D3.3.2-1 (Page 2 of 3)
Radioactive Gaseous Effluent Monitoring Instrumentation

	INSTRUMENT	APPLICABILITY OR OTHER SPECIAL CONDITIONS	MINIMUM CHANNELS FUNCTIONAL	CONDITION REFERENCED FROM ACTION B.1	SURVEILLANCE REQUIREMENTS
4.	Elevated Release Point Monitoring System				
	a. Noble Gas Activity Monitor	(b) (f)	1	F	DSR 3.3.2.1 DSR 3.3.2.3 DSR 3.3.2.9 DSR 3.3.2.13
	b. Iodine Sampler Cartridge	(b) (f)	1	I	DSR 3.3.2.2
	c. Particulate Sampler Filter	(b) (f)	1	I	DSR 3.3.2.2
	d. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
	e. Sampler Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
5.	Radwaste Building Ventilation Monitoring System				
	a. Noble Gas Activity Monitor	(b) (f)	1	F	DSR 3.3.2.1 DSR 3.3.2.3 DSR 3.3.2.9 DSR 3.3.2.13
	b. Iodine Sampler Cartridge	(b) (f)	1	I	DSR 3.3.2.2
	c. Particulate Sampler Filter	(b) (f)	1	I	DSR 3.3.2.2
	d. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
	e. Sampler Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
6.	Turbine Building Ventilation Monitoring System				
	a. Noble Gas Activity Monitor	(b) (f)	1	F	DSR 3.3.2.1 DSR 3.3.2.3 DSR 3.3.2.9 DSR 3.3.2.13
	b. Iodine Sampler Cartridge	(b) (f)	1	I	DSR 3.3.2.2

(continued)

(b) During releases via this pathway

(f) A channel may be removed from service for up to 30 minutes for changing particulate filters or iodine cartridges or for low flow alarm check without entering Conditions or Required Actions.

Table D3.3.2-1 (Page 3 of 3)
Radioactive Gaseous Effluent Monitoring Instrumentation

INSTRUMENT	APPLICABILITY OR OTHER SPECIAL CONDITIONS	MINIMUM CHANNELS FUNCTIONAL	CONDITION REFERENCED FROM ACTION B.1	SURVEILLANCE REQUIREMENTS
6. (continued)				
c. Particulate Sampler Filter	(b) (f)	1	I	DSR 3.3.2.2
d. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
e. Sampler Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
7. Multi Purpose Facility (MPF) Building Ventilation Monitoring System				
a. Iodine Sampler Cartridge	(b) (f)	1	I	DSR 3.3.2.2
b. Particulate Sampler Filter	(b) (f)	1	I	DSR 3.3.2.2
c. Effluent System Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13
d. Sampler Flow Rate Measuring Device	(b)	1	E	DSR 3.3.2.1 DSR 3.3.2.7 DSR 3.3.2.13

(b) During releases via this pathway

(f) A channel may be removed from service for up to 30 minutes for changing particulate filters or iodine cartridges or for low flow alarm check without entering Conditions or Required Actions.

D 3.4 LIQUID/GASEOUS DOSE

D 3.4.1 Liquid/Gaseous Effluents Dose

DLCO 3.4.1 The dose or dose commitment to an actual Member of the Public due to radiation and radioactive releases from Cooper Station shall be limited to ≤ 75 mrem to the thyroid and ≤ 25 mrem to the total body or any other body organ during a calender year.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Estimated dose or dose commitment due to radiation and radioactive releases exceeds limits.	A.1 Verify the condition resulting in doses exceeding these limits is corrected.	Immediately
B. Required Action and associated Completion Time not met.	B.1 ----------NOTE---------- This is the Special Report required by D 3.1.2, D 3.1.3, or D 3.2.3 supplemented with the following. ---------- Submit a Special Report pursuant to Specification D 5.4, including information specified in 40 CFR Part 190.11(b). This submission shall be deemed a timely request for variance in accord with provisions of 40 CFR Part 190. The variance is granted until NRC staff action on the item is complete.	31 days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 3.4.1.1	Perform a cumulative dose calculation due to radioactive material in gaseous and liquid effluents to determine compliance with DLCO 3.4.1.	12 months

D 3.5 SOLID RADIOACTIVE WASTE

D 3.5.1 Solid Radioactive Waste

DLCO 3.5.1 The appropriate equipment of the solid radwaste system shall be FUNCTIONAL to process radioactive waste containing liquid and liquid destined for disposal subject to 10 CFR Part 61 to a form that meets applicable requirements of 10 CFR Part 61.56 before the waste is shipped from the site.

APPLICABILITY: During solid radwaste processing.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Container of waste does not comply with 10 CFR Part 61.56.	A.1 Suspend delivery to a carrier for transport.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DSR 3.5.1.1	Deleted	Deleted
DSR 3.5.1.2	Inspect solidified or dewatered radioactive waste to insure that there is no free standing liquid on top of the solid waste.	Prior to capping each drum or High Integrity Container (HIC)
DSR 3.5.1.3	The following information should be reported for shipments of radioactive solid waste (radioactive material destined for waste processing or direct burial) and irradiated fuel transported from the site during the report period for the Radioactive Effluent Release Report per the Reporting Requirements in Technical Specification 5.6.3; a) The total quantity in cubic meters and the total radioactivity in curies for the categories or types of waste for the following: 1) Spent resins, filter sludges, evaporator bottoms. 2) Dry compressible waste, contaminated equipment, etc. 3) Irradiated components, control rods, etc. 4) Other (furnish description).	In accordance with 10 CFR 50.36a (continued)

SURVEILLANCE REQUIREMNTS (continued)

SURVEILLANCE			FREQUENCY
DSR 3.5.1.3 (continued)	b)	An estimate of the major nuclide composition in the categories of waste in 3.5.1.3 a above.	
	c)	The disposition of solid waste shipments. (Identify the number of shipments, the mode of transport, and the destination.)	
	d)	The disposition of irradiated fuel shipments. (Identify the number of shipments, the mode of transport, and the destination.)	
	e)	Estimates of the total error associated with certain total values should be provided in each report. These error values should be the best effort of an overall estimate of the errors associated with the totals in the report.	

D 4.0 MONITORING PROGRAM

D 4.1 Monitoring Program Compliance

DLCO 4.1 The radiological environmental monitoring program shall be conducted as specified in Table D4.1-1, using analytical techniques such that the detection capabilities in Table D4.1-2 are achieved.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Radiological environmental monitoring program not conducted as specified in Table D4.1-1.	A.1 Prepare and submit to the NRC in the Annual Radiological Environmental Report the reasons for not conducting the program in accordance with Table D4.1-1 and the plans for preventing recurrence.	May 15th following the end of the year
B. Environmental sampling medium is not available from a sampling location as specified in Table D4.1-1.	B.1 Report in the Annual Radiological Environmental Report the cause and location where replacement samples were obtained.	May 15th following the end of the year

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
DSR 4.1.1	Perform radiological environmental sampling and analysis.	In accordance with Table D4.1-1
DSR 4.1.2	Conduct a land use census to identify the location of the nearest garden that is greater than 500 square feet in area and that yields edible leafy vegetables, the location of the nearest milk animal, and the location of the nearest resident in each of the 16 meteorological sectors within 3 miles of the Station.	12 months
DSR 4.1.3	Summarize results of radiological environmental analysis in the Annual Radiological Environmental Report.	May 15th following the end of the year
DSR 4.1.4	Submit results of the land use census in the Annual Radiological Environmental Report.	May 15th following the end of the year

Table D4.1-1 (Page 1 of 2)
Radiological Environmental Monitoring Program

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLE STATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. Airborne			
a. Radioiodine and Particulate	At least 5 locations	Continuous operation of sampler with sample collection as required by dust loading but at least once per 7 days.	Radioiodine canister: Analyze at least once per 7 days for I-131. Particulate sample: Analyze for gross beta radioactivity ≥ 24 hours following filter change. Perform gamma isotopic[a] analysis on each sample in which gross beta activity is >10 times the yearly mean of control samples. Perform gamma isotopic[a] analysis on composite (by location) sample at least once per 92 days.
2. Direct Radiation	At least 32 locations	Thermoluminescent Dosimeters (TLD)[b] exchange and read-out at least once per 92 days.	Gamma dose: At least once per 92 days.
3. Waterborne			
a. River Water	At least 2 locations	Collect a one (1) gallon grab sample at least once per 31 days.	Gamma isotopic[a] analysis of each sample. Composite grab sample for tritium analysis at least once per 92 days.
b.Ground Water	At least 2 locations	Collect a one (1) gallon grab sample at least once per 92 days.	Gamma isotopic[a] and tritium analysis of each sample.
c. Sediment from Shoreline	At least 1 location	Two (2) times a year, once in the spring and once in the fall.	Gamma isotopic[a] analysis of each sample.
4. Ingestion			
a. Milk (nearest producer)	At least 1 location	At least once per 15 days during Peak Pasture Period[c]; at least once per 31 days at other times.	Gamma isotopic[a] and I-131 analysis of each sample.
b. Milk (other producers)	At least 2 locations	At least once per 92 days.	Gamma isotopic[a] and I-131 analysis of each sample.
c. Fish	At least 2 locations	Two times per year (once in the summer and once in the fall). Attempt to include the following: 1. Bottom feeding species 2. Middle-Top feeding species	Gamma isotopic[a] analysis on edible portions.

(continued)

Table D4.1-1 (Page 2 of 2)
Radiological Environmental Monitoring Program

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF SAMPLE STATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. (continued)			
d. Food Products	Samples of three different kinds of broad leaf vegetation grown nearest each of two different offsite locations of highest predicted annual average ground-level D/Q if milk sampling is not performed.	Monthly when available.	Gamma isotopic[(a)] and I-131 analysis
	One sample of each of the similar broad leaf vegetation grown 15-30 km distant in the least prevalent wind direction if milk sampling is not performed.	Monthly when available.	Gamma isotopic[(a)] and I-131 analysis

(a) Gamma isotopic analysis refers to high resolution gamma spectrum analysis as follows: the sample is scanned for gamma-ray activity. If no activity is found for a selected nuclide, the detection sensitivity for that nuclide will be calculated using the counting time, detector efficiency, gamma energy, geometry, and detector background appropriate to the particular sample in question. The following nineteen (19) nuclides shall be analyzed routinely:

BaLa-140	Cs-137	Ra-226
Be-7	Fe-59	Ru-103
Ce-141	I-131	Ru-106
Ce-144	K-40	Th-228
Co-58	Nb-95	Zn-65
Co-60	Mn-54	Zr-95
Cs-134		

Any radionuclide detected, i.e., having a measured concentration greater than the LLD, whether or not it is one of the 19 nuclides listed above, shall be regarded as present in the sample.

(b) Thermoluminescent Dosimeters (TLD) is a single phosphore. Two or more phosphores in one package are considered to be two or more dosimeters.

(c) Peak Pasture Period is June 1 through September 30 of each year.

Table D4.1-2 (Page 1 of 2)
Detection Capabilities for Environmental Sample Analysis

	LOWER LIMIT OF DETECTION[a] (LLD) [b]					
ANALYSIS	WATER (pCi/l)	AIRBORNE PARTICULATE OR GAS (pCi/m^3)	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
gross beta	4	1×10^{-2}				
H-3	2000					
Mn-54	15		130			
Fe-59	30		260			
Co-58	15		130			
Co-60	15		130			
Zn-65	30		260			
Zr-95	30					
Nb-95	15					
I-131	1 [c]	7×10^{-2}		1	60	
Cs-134	15	5×10^{-2}	130	15	60	150
Cs-137	18	6×10^{-2}	150	18	80	180
Ba-140	60			60		
La-140	15			15		

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

Table D4.1-2 (Page 2 of 2)
Detection Capabilities for Environmental Sample Analysis

(b) The LLD is the "a priori" smallest concentration of radioactive material in a sample that will be detected with 95% probability (5% probability of falsely concluding that a blank observation represents a "real" signal).

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{(4.66)(s_b)}{(E)(V)(2.22)\ (Y)\ (e^{-\lambda\Delta t})}$$

Where:

LLD is the "a priori" lower limit of detection as described above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units of mass or volume),

2.22 is the number of transformations per minute per picocurie,

Y is the fractional radiochemical yield (when applicable)

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between sample collection (or midpoint of the sample collection period) and time of counting.

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples (e.g., potassium-40 in milk samples).

Analysis shall be performed in such a manner that the stated LLD's will be achieved under routine conditions. Occasionally background fluctuations, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLD's unachievable. In such cases, the contributing factors will be identified and described in the Annual Radiological Environmental Report.

(c) LLD for drinking water.

D 4.0 MONITORING PROGRAM

D 4.2 Monitoring Program Concentration

DLCO 4.2 Radioactivity concentrations in sampled medium from the radiological environmental monitoring program shall not exceed values specified in Table D5.4-1 when averaged over a calender quarter.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Radioactivity concentrations of sampled medium from the radiological environmental monitoring program exceeds values specified in Table D5.4-1, averaged over a calender quarter which is attributable to release(s) from the Station.	A.1 Prepare and submit to the NRC a Special Report in accordance with Specification D 5.4 which includes an evaluation of any release conditions, environmental factors or other conditions which caused the value(s) to be exceeded.	31 days following the end of the quarter
B. Radioactivity concentrations of sampled medium from the radiological environmental monitoring program exceeds values specified in Table D5.4-1, averaged over a calender quarter which is not attributable to release(s) from the Station.	B.1 Report and explain in the Annual Radiological Environmental Report the results of the sample(s).	May 15th following the end of the year

D 4.0 MONITORING PROGRAM

D 4.3 Monitoring Program Dose

DLCO 4.3 The calculated personal dose associated with sampled exposure pathway(s) shall not exceed 120% of the calculated dose at the maximum dose location associated with like pathways at a location where sampling is conducted as specified in Table D4.1-1.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Location(s) identified at which the calculated dose associated with the exposure pathway(s) exceeds 120% of the calculated dose at the maximum dose location associated with like pathways at a location where sampling is conducted as specified in Table D4.1-1.	A.1	----------NOTE---------- Only applicable if samples are reasonably attainable at the new location. ---------- Add new sampling location(s) identified having maximum exposure potential to the radiological environmental monitoring program and Table D4.1-1.	92 days
	AND		
	A.2	Describe change made to Table D4.1-1 in the Annual Radiological Environmental Report.	May 15th following the end of the year

D 5.0 MISCELLANEOUS PROGRAMS/REPORTS

D 5.1 Interlaboratory Comparison Program

DLCO 5.1 Analyses shall be performed on radioactive materials supplied as part of the Interlaboratory Comparison Program.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Analyses not performed.	A.1 Report to the NRC in the Annual Radiological Environmental Report the corrective actions taken to prevent recurrence.	May 15th following the end of the year

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
DSR 5.1.1	Submit a brief summary of the results obtained from the Interlaboratory Comparison Program in the Annual Radiological Environmental Report pursuant to Technical Specification 5.6.2.	May 15th following the end of the year

D 5.0 MISCELLANEOUS PROGRAMS/REPORTS

D 5.2 Annual Radiological Environmental Report

The Annual Radiological Environmental Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Assessment Manual (ODAM), and in 10 CFR50, Appendix I, Section IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODAM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in Regulatory Guide 4.8, December 1975. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

Details of the report shall include the following:

a. A summary of doses to a Member of the Public beyond the SITE AND EXCLUSION AREA BOUNDARY due to Cooper Nuclear Station aqueous and airborne radioactive effluents, calculated in accordance with methods compatible with the ODAM.

b. A summary of the results of the land use census required in DSR 4.1.2.

c. Summarized and tabulated results in the format of Table D5.2-1 of analysis of samples required by the radiological environmental monitoring program, and taken during the report period.

d. A summary description of the radiological environmental monitoring program including any changes; a map of all sampling locations keyed to a table giving distances and directions from the reactor; and, the results of participation in the Interlaboratory Comparison Program, required by D 5.1.

e. Summaries, interpretations, and analysis of trends of the results of the radiological environmental monitoring program for the reporting period.

Table D5.2-1
Environmental Radiological Monitoring Program Summary

Name of Facility Cooper Nuclear Station Docket No. 50-298

Location of Facility Nemaha, Nebraska (County, State) Reporting Period _____

Medium of Pathways Sampled (Unit of Measurement)	Type & Total No. of Analyses Performed	Lower Limit of Detection (1) (LLD)	All Indicator Locations Mean [ ] (2) Range (2)	Location with Highest Annual Mean		Control Locations Mean [ ] (2) Range (2)	No. of Reportable Occurrences
				Name Distance & Direction	Mean [ ] (2) Range (2)		

Table Notes:

(1) Nominal Lower Limit of Detection (LLD).
(2) Mean and Range based upon detectable measurements only. Fraction of detectable measurements at specified location indicated in brackets [ ].

D 5.0 MISCELLANEOUS PROGRAMS/REPORTS

D 5.3 Radioactive Effluent Release Report

The Radioactive Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODAM and the Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

The Radioactive Effluent Release Report shall be submitted to the NRC by May 1 of each year and shall include the following:

a. A summary by calendar quarter of the quantities of radioactive liquid and gaseous effluents released from the Station, reported in the format recommended in Regulatory Guide 1.21, Appendix B, Tables 1 and 2.

b. A summary of radioactive solid waste shipped from CNS, including information provided in DSR 3.5.1.3.

c. A summary of meteorological data collected during the year.

d. A list and brief description of each unplanned release of gaseous or liquid radioactive effluent that causes a limit in DLCO 3.1.1, DLCO 3.1.3, DLCO 3.2.1, DLCO 3.2.2 or DLCO 3.2.3 to be exceeded.

e. Calculated offsite dose to humans resulting from the release of effluents and their subsequent dispersion on the atmosphere reported in accordance with Regulatory Guide 1.21.

f. A summary of changes made to the CNS Process Control Program. The summary shall contain sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information; a determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and documentation of the fact that the change has been reviewed and found acceptable by the SORC.

D 5.3 Radioactive Effluent Release Report (continued)

g. Changes made to the CNS Offsite Dose Assessment Manual shall be submitted to the NRC in the form of a complete, legible copy of the entire ODAM as part of, or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODAM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

D 5.0 MISCELLANEOUS PROGRAMS/REPORTS

D 5.4 Special Reports

Special reports shall be submitted to the Director, Nuclear Reactor Regulation, USNRC, Washington, D.C. 20555 and to the NRC Regional Administrator within the time period specified for each report.

Special reports (in lieu of Licensee Event Reports) may be required covering inspections, test and maintenance activities. These special reports are determined on an individual basis for each unit and their preparation and submittal are designated in the Offsite Dose Assessment Manual.

A special report is required if measured levels of radioactivity in an environmental sampling medium determined to exceed the reporting level values of Table D5.4-1 when averaged over any calendar quarter sampling period. When more than one of the radionuclides in Table D5.4-1 are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{Concentration (1)}}{\text{Limit Level (1)}} + \frac{\text{Concentration (2)}}{\text{Limit Level (2)}} + \ldots \geq 1.0$$

When radionuclides other than those in Table D5.4-1 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits of DLCO 3.1.3 and 3.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Report.

Table D5.4-1
Reporting Levels for Radioactivity Concentrations in Environmental Samples

	Reporting Levels				
ANALYSIS	WATER (pCi/1)	AIRBORNE PARTICULATE OR GASES (pCi/m^3)	FISH (pCi/Kg, Wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/Kg, Wet)
H-3	2E + 4(a) 3E + 4(c)				
Mn-54	1E + 3		3E + 4		
Fe-59	4E + 2		1E + 4		
Co-58	1E + 3		3E + 4		
Co-60	3E + 2		1E + 4		
Zn-65	3E + 2		2E + 4		
Zr-Nb-95	4E + 2(b)				
I-131	2	0.9		3	1E + 2
Cs-134	30	10	1E + 3	60	1E + 3
Cs-137	50	20	2E + 3	70	2E + 3
Ba-La-140	2E + 2(b)			3E + 2(b)	

(a) For drinking water samples. This is the 40 CFR 141 value.

(b) Concentration of parent or daughter.

(c) For samples of water not used as a source of drinking water.

D 5.0 MISCELLANEOUS PROGRAMS/REPORTS

D 5.5 Major Changes to Radioactive Waste Treatment Systems (Liquid, Gaseous, and Solid)

The radioactive waste treatment systems (liquid, gaseous, and solid) are those systems described in the facility Safety Analysis Report and amendments thereto, which are used to maintain that control over radioactive materials in gaseous and liquid effluents and in solid waste packaged for offsite shipment required to meet the DLCO's set forth in Specifications D 3.1.1, D 3.1.2, D 3.1.3, D 3.1.4, D 3.2.1, D 3.2.2, D 3.2.3, D 3.2.4, D 3.2.5, D 3.2.6, D 3.2.7, D 3.3.2, D 3.4.1, and D 3.5.1. The NRC is notified of major changes to these systems under the provisions of 10 CFR Part 50.59 and Part 50.71 (USAR revisions).

OFFSITE DOSE ASSESSMENT MANUAL
APPENDIX D

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B 3.0 ODAM Specification Applicability

BASES

DLCO 3.0.1

DLCO 3.0.1 establishes the Applicability statement within each individual requirement for when the DLCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of the requirement).

DLCO 3.0.2

DLCO 3.0.2 establishes that upon discovery of a failure to meet a DLCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered, unless otherwise specified. The Required Actions establish those remedial measures that must be taken with specified Completion Times when the requirements of a DLCO are not met. Completing the Required Actions is not required when a DLCO is met or is no longer applicable, unless otherwise stated in the individual requirement.

DLCO 3.0.2 provides an allowance for following administrative controls instead of the ACTIONS when necessary to allow the performance of required testing to demonstrate either the FUNCTIONALITY of the equipment that is nonfunctional in accordance with the associated TLCO or the FUNCTIONALITY of other equipment.

DLCO 3.0.3

DLCO 3.0.3 establishes the actions that must be implemented when a DLCO is not met and:

a. An associated Required Action and Completion Time is not met and no other Condition applies;

b. The condition of the unit is not specifically addressed by the associated ACTIONS; or

c. The DLCO directs entry into DLCO 3.0.3.

Under these conditions, as a minimum, a Condition Report must be initiated in accordance with the Corrective Action Program. Initiation of a Condition Report assures that the plant condition will be corrected as required by 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

(continued)

BASES (continued)

DSR 3.0.1

DSR 3.0.1 establishes the requirement that DSRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the DLCO apply, unless otherwise specified in the individual DSRs. This DSR is to ensure that tests are performed to verify the FUNCTIONALITY of systems and components, and that variables are within specified limits. DSRs may be performed by means of any series of sequential, overlapping, or total steps provided the entire DSR is performed within the specified Frequency.

DSRs do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated DLCO are not applicable, unless otherwise specified.

DSRs, including DSRs invoked by Required Actions, do not have to be performed on nonfunctional equipment or variable outside their limits because the ACTIONS define the remedial measures that apply. DSRs have to be met and performed in accordance with DSR 3.0.2 prior to returning equipment to FUNCTIONAL status.

DSR 3.0.2

DSR 3.0.2 establishes the requirements for meeting the specified Frequency for DSRs and for any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

DSR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates scheduling and considers plant operating conditions that may not be suitable for conducting the DSR (e.g. transient conditions or other ongoing testing or maintenance activities).

If a DSR is not performed within the specified Frequency, or it is determined that a DSR was not performed within the specified Frequency, a Condition Report shall be initiated to determine if the associated DLCO is met. The DSR shall be performed at the next reasonable opportunity.

BASES (continued)

(*Note that there currently are no identified ODAM DLCOs that support Technical Specification systems; however, this discussion is presented to address the philosophy that would be applied.*) An allowance similar to Technical Specification LCO 3.0.6 does not apply to the ODAM. When a Technical Specification supported system LCO is discovered to be not met solely due to a ODAM support system DLCO not met, appropriate Technical Specification ACTIONS are required to be entered immediately. This applies even in instances where the ODAM contains a delay prior to declaring a Technical Specification supported system inoperable. In this case, certain ODAM nonfunctionality may not directly impact the OPERABILITY of the Technical Specification supported system and delayed declaration of inoperability of the supported system is acceptable. In other cases, discovered support system nonfunctionality that directly result in supported system inability to perform the safety function, should result in immediate declaration of inoperability of the supported system.

Technical Specification LCO 3.0.7 has no parallel in the ODAM since it provides for explicit changes to specified Technical Specifications by the Section 3.10 Specifications. However, in the event that LCO 3.0.7 provides for changes to the Technical Specification MODE definitions by the Section 3.10 Specifications, the revised MODE definitions apply to all plant references, including ODAM references.

B 3.1 LIQUID EFFLUENTS

B 3.1.1 Liquid Effluents Concentration

BASES

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20.1302. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will result in exposures within (1) the Section IV.A guides on technical specifications in Appendix I, 10 CFR Part 50, for an individual and (2) the limits of 10 CFR Part 20.1301 and 20.1302(b)(2)(i) to the population. The concentration limit for noble gases is based upon the assumption that Xe-135 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

Since Service Water is not a normal or expected source of significant radioactive release, routine sampling and monitoring for radioactivity is precautionary. An activity concentration of 3×10^{-6} µCi/ml in Service Water effluent is diluted in the discharge canal to about 1.5% of the 10 CFR 20 Appendix B Table 2 Column 2 concentration with only one circulating water pump operating. During normal Station operation the dilution would be even greater. By monitoring Service Water effluent continuously for radioactivity and by confirmatory sampling weekly, reasonable assurance that its activity concentration can be kept to a small fraction of the 10 CFR Part 20.1302 limit and within the Specification D 3.1.3 limit is provided.

By monitoring Service Water continuously and liquid radwaste continuously during discharge with the monitor set to alarm or trip before the limit specified in 10 CFR 20.1302 is exceeded, reasonable assurance of compliance with Specification D 3.1.1 is provided. Verification that radioactivity in liquid effluent averaged only a small fraction of the concentration limit is provided by calculations demonstrating compliance with Specification D 3.1.3.

Compliance with 10 CFR Part 20.1302(b)(2)(i) implies that the concentration limit represented by 10 CFR Part 20, Appendix B, Table 2 will be met within a suitable and reasonable averaging time for assessing compliance. That averaging time is dependent upon the resolving time of the measurements or estimates which are used to evaluate compliance. Assessment of compliance is done by sampling and analysis according to DSR 3.1.1.2, by estimating or measuring the maximum release flow and the minimum dilution flow coincident during the period of release represented by the sample, and by computing the concentration as a fraction of the limit beyond the SITE AND EXCLUSION AREA BOUNDARY periodically on the basis of these data.

Reporting by Special Reports and other reports required by the ODAM and Section 5.6 of Technical Specifications is used in lieu of reporting per 10 CFR 50.73.

B 3.1 LIQUID EFFLUENTS

B 3.1.2 Liquid Waste Concentration

BASES

Specification D 3.1.2 implements the requirements of 10 CFR Part 50.36a(a)(1) that operating procedures be established and followed and that equipment be maintained and used to keep releases to the environment as low as is reasonably achievable. The FUNCTIONALITY of the liquid radwaste treatment system ensures that the appropriate portions will be available for use whenever liquid effluents require treatment prior to release to the environment. The specification that the portions of the system which were used to establish compliance with the design objectives in 10 CFR Part 50, Appendix I, Section II be used when specified provides reasonable assurance that releases of radioactive material in liquid effluent will be kept as low as is reasonably achievable. The activity concentration, 0.01 µCi/ml, below which liquid radwaste treatment would not be cost beneficial, and therefore not required, is demonstrated below:

The quantity of radioactive material in liquid effluent released annually from Cooper Station has been calculated to be[1]

total iodines		3.65 curies
total others (less H^3)		0.7
	total	4.35 curies

The population dose commitment resulting from the radioactive material in liquid effluent released annually has been calculated to be

thyroid		1.95 manrem
total body		0.56
	total	2.5 manrem

Therefore, population doses are about 0.5 manrem per curie of iodine released and about 0.8 manrem per curie of other radionuclides (less H^3) released in liquids. It would be conservative to assume one manrem committed per curie released in liquid effluent.

The volume of liquid waste processed and intended for discharge is estimated to be:

Low Purity Waste	5700 gal/day	1.8×10^6 gal/yr
Chem Waste + Demin Regenerant Waste	4000 gal/day	1.2×10^6 gal/yr

(continued)

BASES

(continued)

The annual costs to operate the radwaste processing equipment, neglecting credit for capital recovery, are estimated according to Regulatory Guide 1.110 to be:

Dirty Waste Ionex	$ 88,000/yr
Evaporator	$114,000/yr

Unit volume operating costs are about:

$$\text{Cost to ion exchanger} = \frac{\$\ 88,000}{1.8E+6\ \text{gal}} = \$0.05/\text{gal}$$

$$\text{Cost to evaporate} = \frac{\$114,000}{1.2E+6\ \text{gal}} = \$0.10/\text{gal}$$

Assuming the cost-benefit balance is $1,000 expenditure per manrem reduction and assuming treatment removes all radioactivity from the liquid, then

(1) the activity concentration in a batch below which treatment is not cost-beneficial is

$$C = \frac{\$88,000}{1.8E+6\ \text{gal} \times 3785\ \frac{\text{ml}}{\text{gal}}} \times \frac{1\ \text{curie}}{\text{manrem}} \times \frac{10^6\ \mu\text{Ci}}{\text{curie}} \times \frac{1\ \text{manrem}}{\$1,000}$$

$$C = 0.013\ \mu\text{Ci/ml}$$

(2) the activity concentration below which evaporation is not costbeneficial is

$$C = \frac{\$114,000}{1.2E+6\ \text{gal} \times 3785\ \frac{\text{ml}}{\text{gal}}} \times \frac{1\ \text{curie}}{\text{manrem}} \times \frac{10^6\ \mu\text{Ci}}{\text{curie}} \times \frac{1\ \text{manrem}}{\$1,000}$$

$$C = 0.025\ \mu\text{Ci/ml}$$

Therefore, to one significant digit, radwaste treatment of liquids containing less than 0.01 μCi/ml is not justified.

(continued)

BASES

(continued)

[1]Demonstration of Compliance with 10 CFR 50 Appendix I, Revision 1 and Supplement 2, Nebraska Public Power District, Cooper Nuclear Station, January 9, 1978.

B 3.1 LIQUID EFFLUENTS

B 3.1.3 Liquid Effluents Dose

BASES

Note: The Bases discussion refers to "technical specifications" and quotes the Staff's use of "technical specifications." The statements and opinions pre-date Generic Letter 89-01, Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the relocation of procedural details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program.

Generic Letter 89-01 provides the guidance and justification for relocation of these "technical specifications" to the Offsite Dose Assessment (ODAM) Manual and the Process Control Program (PCP). Therefore, "technical specifications" as used in this Bases refers to ODAM Specifications.

Specifications D 3.1.3, D 3.2.2 and D 3.2.3 implement the requirements of 10 CFR Part 50.36a and of 10 CFR Part 50, Appendix I, Section IV. These specifications state ODAM LIMITING CONDITIONS FOR OPERATION (DLCO) to keep levels of radioactive materials in LWR effluents as low as is reasonably achievable. Compliance with these specifications will also keep average releases of radioactive material in effluents at small percentages of the limits specified in 10 CFR Part 20.1301. Surveillance Requirements provide for the measurement of releases and calculation of doses to verify compliance with the Specifications. Action statements in these Specifications implement the requirements of 10 CFR Part 50.36(c)(2) and 10 CFR Part 50, Appendix I, Section IV.A in the event an LCO is not met. Annual dose limitations stated in Specifications D 3.1.3, D 3.2.2 and D 3.2.3 are not strict limits as used elsewhere in the Technical Specifications (are not an immediate safety concern) but do obligate NPPD to take the applicable Required Action in Specifications D 3.1.3, D 3.2.2 and D 3.2.3.

(continued)

(continued)

10 CFR Part 50 contains two distinctly separate statements of requirements pertaining to effluents from nuclear power reactors. The first concerns a description of equipment to maintain control over radioactive materials in effluents, determination of design objectives, and means to be employed to keep radioactivity in effluents ALARA. This requirement is stated in Part 50, Section 34a and Appendix I, Section II. Appendix I, Section III stipulates that conformance with the guidance on design objectives be demonstrated by calculations (since demonstration is expected to be prospective). The other is a requirement for developing limiting conditions for operation in technical specifications. It is stated in 10 CFR Part 50, Section 36a and Appendix I, Section IV. Both the intent of the Commission and the requirement are clearly stated in the Opinion of the Commission; [1] relevant paragraphs from that document follow:

> Section 50.36a(b) of 10 CFR Part 50 provides that licensees shall be guided by certain considerations in establishing and implementing operating procedures specified in technical specifications which take into account the need for operating flexibility and at the same time ensure that the licensee will exert his best efforts to keep levels of radioactive materials in effluents as low as practicable. The Appendix I that we adopt provides more specific guidance to licensees in this respect.
>
> A. The Rule
>
> Section IV of Appendix I specifies action levels for the licensee. If, for any individual light water cooled nuclear power reactor, the quantity of radioactive material actually released in effluents to unrestricted areas during any calendar quarter is such as to cause radiation exposure, calculated on the same basis as the design objective exposure, which would exceed one-half the annual design objective exposure, the licensee shall make an investigation to identify the causes of these high release rates, define and initiate a program of action to correct the situation, and report these actions to the Commission within 30 days of the end of the calendar quarter.

The conclusion of the NRC Staff in the Appendix I Rulemaking Hearing [2] agrees with that of the Commission. The Staff recommended, "...that the limiting conditions for operation described in Appendix I, Section IV be applicable upon publication to technical specifications included in any license authorizing operation of a light water cooled nuclear power reactor..." (p. 73).

(continued)

BASES

(continued)

The action to be taken by a licensee in the event a limiting condition is exceeded, is stated in Appendix I, Section IV.A and in the Opinion of the Commission. [3] ODAM Specifications D 3.1.3, D 3.2.2, D 3.2.3 and Surveillances DSR 3.1.3.1, 3.1.3.2, 3.2.2.1, 3.2.3.1 and 3.2.3.2 for Cooper Station conform to this requirement.

Guidance for developing limiting conditions for operation for surveillance and monitoring is included in Appendix I, Section IV.B.

Although "it is expected that the annual releases of radioactive material in effluents from light water cooled nuclear power reactors can generally be maintained within the levels set forth as numerical guides for design objectives in Section II" (Appendix I, Section IV), no recommendation was made by either the Staff in its Concluding Statement [4] or by the Commission in its Opinion [5] that design objective values should appear as technical specification limits. The Opinion of the Commission and the statement of Appendix I are clear. Limiting conditions of operation (LCO) related to the quantity of radioactive material in effluents released to an unrestricted area stated in technical specifications shall conform to Appendix I, Section IV.A. Licensee action in the event an LCO is exceeded should be in accord with Section IV.A. Finally, surveillance and monitoring of effluents and the environment should conform to Section IV.B.

With the implementation of Specification D 3.1.3 and Surveillances DSR 3.1.3.1 and 3.1.3.2, there is reasonable assurance that Station operation will not cause a radionuclide concentration in public drinking water taken from the River that exceeds the standard for anthropogenic radioactivity in community drinking water.

[1]NRC Commissioners, "Opinion of the Commission," in the Appendix I Rulemaking hearing, Docket Rm 502, p. 101-102, April 30, 1975.

[2]NRC Staff, "Concluding Statement of the Regulatory Staff," in the Appendix I Rule- making Hearing, Docket RM 502, pp. 17, 69, 73, 115, February, 1974.

[3]NRC Commissioners, p. 101

[4]NRC Staff, op. cit.

[5]NRC Commissioners, op. cit.

(continued)

BASES

(continued)

[6]Generic Letter 89-01, Implementation of Programmatic Controls for Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the relocation of procedural details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program.

B 3.1 LIQUID EFFLUENTS

B 3.1.4 Outside Temporary Storage of Radioactive Liquid

BASES

Custom Technical Specifications Bases did not exist.

B 3.2 GASEOUS EFFLUENTS

B 3.2.1 Gaseous Effluents Concentration

BASES

DLCO 3.2.1(a) is included to assure that a measure of control is provided over the concentration of radionuclides in air leaving the exclusion area. Radioactive noble gases are monitored by instruments that provide a measure of release rate and cause automatic alarm when the noble gas concentration beyond the SITE AND EXCLUSION AREA BOUNDARY is expected to exceed the dose rate specified in DLCO 3.2.1(a). With prompt action to reduce the radioactive noble gas concentration in effluent following alarm initiation, it can be maintained at a small fraction of the annual limit. The specified release rate limits restrict the corresponding gamma and beta dose rates above background to an individual at or beyond the SITE AND EXCLUSION AREA BOUNDARY to $\leq$ 500 mrem/year to the total body or to $\leq$ 3000 mrem/year to the skin.

Radioiodines and radionuclides in particulate form are sampled with integrating samplers that permit assessment of the average release rate during each sample collection period. By complying with DLCO 3.2.2 and 3.2.3 the average concentration beyond the SITE AND EXCLUSION AREA BOUNDARY will be maintained at a small fraction of the 10 CFR Part 20.1302(b)(2)(i) concentration limit.

B 3.2 GASEOUS EFFLUENTS

B 3.2.2 Noble Gases Dose

BASES

Assessments of dose required by Surveillances DSR 3.2.2.1 and DSR 3.2.3.2 to verify compliance with Appendix I, Section IV is based on measured radioactivity in gaseous effluent and on calculational methods stated in the ODAM. Pathways of exposure and location of individuals are selected such that the dose to a nearby resident is unlikely to be underestimated. Dose assessment methodology described in the ODAM for gaseous effluent will be consistent with the methodology in Regulatory Guides 1.109 and 1.111. Cumulative and projected assessments of dose made during a quarter are based on historical average, or reference (the same period of record used in the design objective Appendix I evaluation) atmospheric conditions. Assessments made for the Annual Radiological Environmental Report will be based on quarterly and annual averages of atmospheric conditions during the period of release.

The bases for Specification D 3.2.2 and Surveillance DSR 3.2.2.1 are also discussed in the bases for Specification D 3.1.3 and Surveillances DSR 3.1.3.1 and 3.1.3.2.

B 3.2 GASEOUS EFFLUENTS

B 3.2.3 Iodine and Particulates

BASES

This bases for Specification D 3.2.3 and Surveillances DSR 3.2.3.1 and 3.2.3.2 are discussed in the bases for Specification D 3.1.3 and Surveillances DSR 3.1.3.1 and 3.1.3.2.

B 3.2 GASEOUS EFFLUENT

B 3.2.4 Offgas Treatment System

BASES

The FUNCTIONALITY of the gaseous radwaste treatment system ensures that the system will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of this system be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and design objective Section IID of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of this system are specified as a suitable fraction of the dose design objectives set forth in Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

B 3.2 GASEOUS EFFLUENTS

B 3.2.5 Exhaust Ventilation Treatment Systems

BASES

An Exhaust Ventilation Treatment System (EVTS) is a system intended to remove radioiodine or radioactive material in particulate form from gaseous effluent by passing exhaust ventilation air through charcoal absorbers and/or HEPA filters before exhausting the air to the environment. An EVTS is not intended to affect noble gas in gaseous effluent. Engineered Safety Feature (ESF) gaseous treatment systems are not considered to be EVTS. The Standby Gas Treatment System is an ESF and not an EVTS. EVTS are specifically identified in ODAM Figure 3-1.

The FUNCTIONALITY of the exhaust ventilation treatment systems ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and design objective Section IID of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the system are specified as a suitable fraction of the dose design objectives set forth in Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

B 3.2 GASEOUS EFFLUENTS

B 3.2.6 Hydrogen Concentration

BASES

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen and oxygen. While the Augmented Treatment System is in service the hydrogen and oxygen concentrations are prevented from reaching the flammability limits. Maintaining the concentration of hydrogen below its flammability limit provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR 50.

For this specification, reporting by Special Reports and the other reports required by the ODAM and Section 5.6 of Technical Specifications is used in lieu of reporting per 10 CFR 50.73.

B 3.2 GASEOUS RELEASES

B 3.2.7 Primary Containment Venting and Purging

BASES

This specification provides reasonable assurance that releases of Iodine from primary containment purging during power operations, during startup while performing primary containment inerting within 24 hours after shutdown, and while de-inerting will not be excessively large, particularly due to Iodine spiking. The exemptions to using the SBGT system are intended to minimize the time the SBGT system is on line while coolant temperature is greater than 200°F, hence to decrease the probability of damage to the SBGT filters that could occur from overpressurization due to a LOCA and the main purge and vent valves open. The exception in Note 2 is restricted by a requirement that one channel of the drywell atmospheric particulate and gaseous monitoring system is OPERABLE and not in the alarm state. This restriction provides reasonable assurance that releases from primary containment purging operations will not exceed the annual dose limits of 10CFR20 for unrestricted use.

For this specification, reporting by Special Reports and the other reports required by the ODAM and Section 5.6 of Technical Specifications is used in lieu of reporting per 10 CFR 50.73.

B 3.3 INSTRUMENTATION

B 3.3.1 Liquid Effluent Monitoring

BASES

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the release of radioactive material in liquid effluents. The FUNCTIONALITY and use of these instruments implements the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 60, 63, and 64. The alarm and/or trip setpoints for these instruments are calculated in the manner described in the ODAM to assure that the alarm and/or trip will occur before the limit specified in 10 CFR Part 20.1302 is exceeded. Control of the normal liquid discharge pathway is assured by station procedures governing locked discharge valves and valve line-up verification.

The liquid radwaste monitor assures that all liquid discharged to the discharge canal does not exceed the limits of Specification D 3.1.1. Upon sensing a high discharge level, an isolation signal is generated which closes the radwaste discharge valve. The set point is adjustable to compensate for variable isotopic discharges and dilution flow rates.

For this specification, reporting by Special Reports and the other reports required by the ODAM and Section 5.6 of Technical Specifications is used in lieu of reporting per 10 CFR 50.73.

B 3.3 INSTRUMENTATION

B 3.3.2 Gaseous Effluent Monitoring

BASES

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The location of this instrumentation is indicated by a Figure in the ODAM (page 48). The simplified flow diagram shows the gaseous effluent treatment and monitoring equipment and defines the delay system (30 minute hold up line) and the treatment system (AOG charcoal beds). The alarm/trip setpoints for these instruments shall be calculated in accordance with methods in the ODAM, which have been reviewed by NRC, to ensure that the alarm will occur prior to exceeding the limits of 10 CFR Part 20. The process monitoring instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the augmented offgas treatment system. The FUNCTIONALITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Two air ejector off-gas monitors are provided and when their trip point is reached, cause an isolation of the air ejector off-gas line. Isolation is initiated when both instruments reach their high trip point or one has an upscale trip and the other a downscale trip. There is a fifteen minute delay accounted for by the 30-minute holdup time of the off-gas before it reaches the stack. Both instruments are required for trip but the instruments are so designed that any instrument failure gives a downscale trip. Radioactive sources ("bug-sources") may be installed. During periods of low power operation or reactor shutdown when process background levels are low and downscale trips may pose operational issues, the bug sources maintain on-scale indication and inhibit unnecessary isolations initiated by two downscale channels. This does not defeat the downscale nor nonfunctional alarm and trip functions which continue to function in the event of a failed instrument or open circuit. The trip setting of 1.0 ci/sec (prior to 30 min. delay) provides an improved capability to detect fuel pin cladding failures to allow prevention of serious degradation of fuel pin cladding integrity which might result from plant operation with a misoriented or misloaded fuel assembly. This limit is more restrictive than 0.39 ci/sec noble gas release rate at the air ejectors (after 30 min. delay) which was used as the source term for an accident analysis of the augmented off-gas system. Using the .39 ci/sec source term, the maximum off-site total body dose would be less than the .5 rem limit.

A footnote has been added to Table D3.3.2-1 to indicate that a channel of the Noble Gas Activity Monitor, the Iodine Sampler Cartridge, or the Particulate Sampler Filter, in the ventilation monitoring systems for the Reactor Building, Radwaste Building, Turbine Building, Elevated Release Point, and Multi Purpose Facility, may be removed from service for up to 30 minutes for changing particulate filters or iodine cartridges or for the low flow alarm check without entering the conditions and required actions. The channel will continue to be declared nonfunctional when removed from service, but the Conditions and Required Actions will not be entered due to the short duration that the channel is nonfunctional and the facts that the system must be

(continued)

BASES (continued)

removed from service to perform the required ODAM surveillance and is returned to a FUNCTIONAL condition prior to expiration of the Completion Time for initiating the Required Action.

A note has been added to Required Action I.1 stating that continuous monitoring may be discontinued for up to 30 minutes only for changing particulate filters and iodine cartridges when the backup monitoring system is in service. Replacement of these filters and cartridges is a normal activity, and not a condition that is appropriate for entry into the Corrective Action Program or for including in the Radioactivity Effluent Release Report. This allowance to discontinue the sampling is acceptable based on (1) four hours are allowed to begin the continuous collection of samples with auxiliary equipment when the primary monitoring system is nonfunctional, (2) occasions when the primary monitoring system is nonfunctional and the backup monitoring system is in service are expected to be rare, and (3) the short period of time (30 minutes) that the monitor is allowed to be out of service.

In the event no flow rate measurement device is FUNCTIONAL on a gaseous stream, alternative 24-hour estimates are adequate since the system design is constant flow and loss of flow is alarmed in the control room.

Required Action G.1.2 and G.3.1 requires monitoring of the recombiner exhaust temperature. This temperature is being monitored for changes rather than for any maximum temperature or range of temperatures. This temperature is affected by various plant parameters, including reactor power level, change of AOG dryer beds, air in-leakage into the main condenser, and the quantity and rate of hydrogen injection into reactor coolant for chemistry control. The recombiner exhaust temperature is expected to remain steady if none of these parameters are changing. If a temperature fluctuation greater than 10°F is observed, Condition H is entered and Required Action H.1 shall be performed unless the temperature fluctuation can be explained by changes in plant parameters.

For this specification, reporting by Special Reports and the other reports required by the ODAM and Section 5.6 of Technical Specifications is used in lieu of reporting per 10 CFR 50.73.

B 3.4 LIQUID/GASEOUS DOSE

B 3.4.1 Liquid/Gaseous Effluents Dose

BASES

This specification is provided to meet the reporting requirements of 40 CFR Part 190. In the event an analysis is required to determine compliance with 40 CFR 190, the dose to a member of the public due to radiation direct from the station will be estimated with the aid of environmental TLD, PIC, or similar environmental radiation dosimetry. A contribution from another fuel cycle facility is not added since there is no licensed fuel cycle facility within 50 miles of Cooper Station.

B 3.5 SOLID RADIOACTIVE WASTE

B 3.5.1 Solid Radioactive Waste

BASES

The FUNCTIONALITY of the solid radwaste system ensures that the system will be available for use whenever solid radwastes require materials processing and packaging prior to being shipped offsite. This specification implements the requirements of 10 CFR Part 50.36a and General Design Criteria 60 of Appendix A to 10 CFR Part 50.

B 4.0 MONITORING PROGRAM

B 4.1 Monitoring Program Compliance

BASES

The radiological environmental monitoring program, including the land use census, is conducted to satisfy the requirements of 10 CFR Part 50, Appendix I, Section IV.B.2 and 3. The radiological monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by verifying that the measureable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways.

The environmental monitoring program described in Table D4.1-1 is the minimum program which will be maintained. The Offsite Dose Assessment Manual(ODAM) describes in detail the actual monitoring program which is performed to ensure compliance with the specified minimum program.

The land use census is conducted annually to identify changes in use of the unrestricted area in order to recommend modifications in monitoring programs for evaluating individual doses from principal exposure pathways.

The need to adjust the program to current conditions and to assure that the integrity of the program is maintained are thereby provided. Restricting the census to gardens of greater than 500 square feet provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were used, 1) that 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) a vegetation yield of 2 kg/square meter.

B 4.0 MONITORING PROGRAM

B 4.2 Monitoring Program Concentration

BASES

Custom Technical Specifications Bases did not exist.

B 4.0 MONITORING PROGRAM

B 4.3 Monitoring Program Dose

BASES

Like pathways monitored (sampled) at a location, excluding the control station location(s), having the lowest associated calculated personnal dose may be deleted from Table D4.1-1 at the time the new pathway(s) and locations are added.

B 5.0 MISCELLANOUS PROGRAMS/REPORTS

B 5.1 Interlaboratory Comparison Program

BASES

The requirement for participation in a Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of a quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.

B 5.0 MISCELLANOUS PROGRAMS/REPORTS

B 5.2 Annual Radiological Environmental Report

BASES

Custom Technical Specifications Bases did not exist.

B 5.0 MISCELLANOUS PROGRAMS/REPORTS

B 5.3 Annual Radiological Effluent Release Report

BASES

Custom Technical Specifications Bases did not exist.

B 5.0 MISCELLANOUS PROGRAMS/REPORTS

B 5.4 Special Reports

BASES

Custom Technical Specifications Bases did not exist.

B 5.0 MISCELLANOUS PROGRAMS/REPORTS

B 5.5 Major Changes to Radioactive Waste Treatment Systems (Liquid, Gaseous, and Solid)

BASES

Custom Technical Specifications Bases did not exist.

ENCLOSURE 3

Process Control Program for Cooper Nuclear Station

PROCESS CONTROL PROGRAM

FOR

COOPER NUCLEAR STATION

Cooper Nuclear Station

Process Control Program

List of Effective Pages

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A. Purpose:

The Cooper Nuclear Station (CNS) Process Control Program (PCP) establishes the processing conditions for assuring the dewatering or stabilization of CNS radioactive waste streams produced from the CNS liquid radioactive waste treatment system and from activities producing radioactive waste requiring dewatering or stabilization such as decontamination system resins, irradiated components and highly contaminated equipment.

The CNS PCP is comprised of the Dewatering Process Control Program (DPCP) and vendor Process Control Programs. The DPCP utilizes the CNS dewatering system to process solid wet waste streams from the CNS liquid radioactive waste treatment system or from chemical decontamination resins. Vendor Process Control Programs utilize NRC or Agreement State approved PCP's, stabilization processes, and approved shipping containers to process various forms of solid and liquid radioactive wastes from CNS.

B. Definitions:

1. Solidification, Solidify, Solidified - The conversion of radioactive wastes from liquid systems to a solid which is as uniformly distributed as reasonably achievable with definite volume and shape, bounded by a stable surface of distinct outline on all sides (free-standing).

2. Stability - Structural stability which ensures that the waste does not degrade and (a) promote slumping, collapse, or other failure of the cap or cover over a near-surface disposal facility and thereby lead to water infiltration, or (b) impart a substantial increase in surface area of the waste form that could lead to an increase in leach rate. Stability is also a factor in limiting exposure to an inadvertent intruder since it provides greater assurance that the waste form will be recognizable and non-dispersable during its hazardous lifetime. Structural stability of a waste form can be provided by the waste form itself (as with activated stainless steel components), by processing the waste to a stable form

(e.g., stabilization), or by placing the waste in a container or structure that provides stability.

C. Discussion:

The regulation, "Licensing Requirements for Land Disposal of Radioactive Waste," 10 CFR Part 61, establishes a waste classification system based on the radionuclide concentrations in the waste. All Class B and C wastes are required to be stabilized. Class A wastes have lower concentrations and may be segregated without stabilization. All Class A liquid wastes, however, require solidification or absorption to meet the free liquid requirements. Class A wastes may also be stabilized and disposed of with stabilized Class B and C wastes.

D. References:

1. CNS Operating Procedure 2.5.4.5, AVANTech Dewatering System.
2. CNS Operating Procedure 2.5.1.3, Radwaste Low Conductivity Liquid Waste Spent Resin Tank Fluid Transfer.
3. CNS Operating Procedure 2.5.2.1, Radwaste High Conductivity Liquid Waste and Waste Sludge Tank Fluid Transfer.
4. CNS Operating Procedure 2.5.1.2, Radwaste Low Conductivity Liquid Waste Condensate Phase Separator Fluid Transfer.
5. CNS Operating Procedure 2.5.1.7, RWCU Phase Separator Tank Transfer.
6. CNS Radiological Protection Procedure 9.RW.1, Radioactive Shipments.
7. CNS Radiological Protection Procedure 9.RW.2, Condensate Waste Resins, Spent Resins, RWCU Resins and Waste Sludge Classification and Listing.
8. CNS Radiological Protection Procedure 9.RW.7, Waste Stream Sampling.
9. Cooper Nuclear Station Offsite Dose Assessment Manual, D.3.5.1 - Solid Radioactive Waste.
10. Cooper Nuclear Station Technical Specifications, 5.6.3 - Radioactive Effluent Release Report.
11. Cooper Nuclear Station Updated Safety Analysis Report, XIII-13.0 - Process Control Program.

12. 10CFR61 Licensing Requirements for Land Disposal of Radioactive Waste.

13. Waste Form Technical Position, Revision 1, January 1991, U. S. NRC.

14. Cooper Nuclear Station Offsite Dose Assessment Manual, D.5.3. - Radioactive Effluent Release Report.

15. AVANTech Operations Procedure – OP-22206-01

16. AVANTech Engineering Standard – 22206-STD-01

17. NUREG-0800 Branch Technical Position 11-3

18. AVANTech Engineering Report TR-2C-1515-01

E. Dewatering:

a. General

The CNS Dewatering PCP (DPCP) utilizes dewatering equipment and disposable waste containers to dewater solid wet waste streams produced from the liquid radioactive waste treatment system or from chemical decontamination resins. Compliance with the DPCP ensures that the resultant waste meets the free standing liquid criteria set forth in 10CFR61. The DPCP is not intended to be a substitute for the CNS Operations Manual nor does the process meet the waste stability form requirements of 10CFR61. Stabilization of the dewatered waste is provided by approved shipping containers and/or Engineered Concrete Barriers. Stabilization of the dewatered waste can also be accomplished by dewatering the waste in metal liners.

Solid wet waste streams produced from the liquid radioactive waste treatment system and chemical decontamination resins can be dewatered utilizing the CNS DPCP. The liquid radioactive waste treatment streams include condensate resins, spent resins, reactor water cleanup resins and waste sludges. When regulations require solidification or stabilization, these waste streams can be dewatered in burial liners per DPCP requirements. The waste processing is performed with the AVANTech dewatering system equipment installed at CNS, under the direct supervision of CNS personnel utilizing CNS approved procedures. The design and arrangement of the CNS dewatering system

components are based on maintaining the operator radiation exposure ALARA. ALARA considerations and radiological controls are also incorporated into the system operating procedures. After the waste has been processed in its burial liner the waste classification and type are determined so that the waste may be shipped to a licensed burial site in accordance with appropriate NRC, DOT, state and burial site regulations.

b. Operation - General:

The solid wet radioactive waste dewatering process is operated on a batch basis. A batch consists of all the resulting dewatered liners processed from the contents of a waste source such as a phase separator. The batch is complete when the waste source is empty or the batch process is terminated due to radioactive waste system operational constraints. Solid wet waste sources which are typically dewatered on a batch basis include the spent resin tank, waste sludge tank, condensate phase separators, reactor water clean-up phase separators, decontamination resins, or a combination of these waste sources. Prior to dewatering the solid wet waste, verification is made that the waste being dewatered is characterized in accordance with the AVANTech Operations Procedure and the Daily Log. Selection of the approved shipping container utilized in the dewatering process is based upon the classification and type of waste being processed and the shipping cask requirements.

The CNS dewatering system consists of a dewatering waste container, influent waste sampler, gross dewatering pump, a HEPA filter vent unit, water separator tank with mist eliminator, condensate pump, venturi water chiller unit, rotary vacuum air blower, and a fill-head with camera and various instrumentation to monitor filling and dewatering operations, a control panel, and interconnecting piping and valves.

After wet radioactive waste is charged into a waste container, dewatering is achieved with continuous suction on the waste container by the gross dewatering pump. Various types, numbers, and configurations of filters are used within the waste container to retain spent resin and filter precoat materials. Water removed from the waste container is returned to the liquid radwaste system.

The gross dewatering pump is operated in accordance with CNS Operating Procedure 2.5.4.5 – reference 1. The minimum required pumping time is 2 hours for both Bead/Granular and Precoat/Powder/Ecodex resins. After most of the free water in the waste container has been removed, drying air is continuously recirculated in a loop from the air blower to the waste container through the water separator tank to remove any residual free water in the waste container. The dewatering system is provided with temperature instrumentation which is interlocked to automatically shut down the dewatering process on high air temperature due to the potential for exothermic reactions during ion exchange resin dewatering. Bead/Granular resin requires an additional 6 hours of media drying. The waste container filled with Bead/Granular media is considered dewatered when 2 hours of gross dewatering and 6 hours of media drying are complete for a total process time of 8 hours. Precoat/Powdex/Ecodex resin requires an additional 8 hours of media drying. The waste container filled with Precoat/Powdex/Ecodex media is considered dewatered when 2 hours of gross dewatering and 8 hours of media drying are complete for a total process time of 10 hours. Empirical data was used to establish the positive end point to the dewatering process and the point at which the free-standing liquid criteria of 10CFR61 is met. Filled waste containers which do not meet the dewatering end point criteria are retained until a satisfactory corrective disposition is determined. Stability of the waste is provided by the waste container and/or engineered barriers such as concrete vaults.

No airborne or liquid radwastes are released to the environment from the dewatering operation. The dewatered liquid radwastes are routed to the liquid radioactive waste treatment system and resin drying air is vented through a HEPA system. The dewatering system is designed to prevent the uncontrolled release of radioactive materials by monitoring liquid levels in the waste container by a level indicator. During the waste filling operation, the operator visually monitors the waste transfer process by observing the dewatering control panel video monitor and the local area radiation monitors. Potential inadvertent spills and overflows are contained in the Augmented Radioactive Waste Building and can be routed back to the liquid radioactive waste treatment system via floor drains.

c. Operation - Specific:

This section describes the AVANTech, LLC – Radwaste Resin Processing System (RRPS) designed and constructed for Cooper Nuclear Station (CNS). Detailed Operation is described in references 15 and 16. The AVANTech Radwaste Resin Processing System will consist of the Remote Disengaging (RDE™) Fill-Head (FH) & Ultra-Rapid Vacuum (URV™) Dewatering Systems.

The Dewatering System Fill-Head is installed on a waste container compatible with the dewatering fill-head. The waste container typically has four filter levels. The filters provide the flow path from the water container, through the fill-head, to the dewatering pump. The fill-head is fitted with connections to transfer solid wet waste from the Waste Transfer System to the waste container. The fill-head also contains a remote video camera for internal monitoring of the waste container, dewatering suction connections, electrical service connections for the waste container level indication system, a service air supply to provide cooling, a spray ring for flushing the camera lens, a pressure switch to monitor container pressure, and connections for the waste container temperature indicating system.

Once the fill-head is installed and a system valve line-up is complete, the suction valves for the upper two dewatering lateral zones are opened. At the point, solid wet waste from the Condensate Phase Separator, Spent Resin Tank, or Reactor Water Cleanup Phase Separator is transferred as a homogeneously mixed slurry to the waste container. During the waste transfer, the fill-head video monitor is used to verify that the waste container is being filled.

The dewatering pump is cycled on and off to remove excess water during resin transfer to liner. The inline auto sampler collects the resin sample during transfer. Waste slurry transfer is continued until the waste container is full. Demineralized water is then used to flush the residue in the waste transfer lines and fill-head connections to the waste container. Gross dewatering is accomplished by cycling valves during dewatering to remove excess water starting with the top lateral zone and working downward. Once the bottom lateral

zone is uncovered as evidenced by camera and loss of suction pressure, continue gross dewatering until the 2 hour requirement has elapsed.

After the temperature of the radioactive waste in the waste container is measured and recorded, the drying cycle is commenced. The drying cycle utilizes a blower to blow warm dry air through the waste to evaporate the residual water remaining in the waste container. The warm moist air which exits from the waste container is pumped through an entrainment separator tank where refrigeration coils and a heat exchanger condense the water vapor and the entrained water is removed. The water collected in the entrainment separator tank is pumped to the radioactive waste floor drain system. The dehumidified warm air is recirculated through the waste until the minimum recirculation dry time requirements of the AVANTech Engineering Report TR-2C-1515-01 are met.

Waste containers which have been successfully dewatered are classified and shipping to a licensed burial site in accordance with the applicable sections of 10CFR61, 10CFR71, and 49CFR Parts 171 through 178.

AVANTech Remote Disengaging (RDE™) Fill-Head (FH) System

The AVANTech Remote Disengaging (RDE™) Fill-Head (FH) System is a specially engineered fill-head that works in unison with the Ultra-Rapid Vacuum (URV™) Dewatering System to:

- Receive the spent resin from the plant (sluice) while dewatering the Disposal Container to remove access water; and

- Following the sluice, removes the Free-Standing Water (FSW) from the Disposal Container prior to shipment for disposal.

The AVANTech Remote Disengaging (RDE™) Fill-Head (FH) System allows for remote operations, which reduces exposure to personnel for ALARA purposes. Other features include:

- The Remote Disengaging (RDE™) Fill-Head (FH) System is integrated into the controls of the Ultra-Rapid Vacuum (URV™) Dewatering System making operations seamless between the two systems.

- The Remote Disengaging (RDE™) Fill-Head (FH) and Disposal Container Dewatering Internal System is designed to interface with the AVANTech Remote Disengaging (RDE™) Mating Plate standard on AVANTech Disposal Containers.

- The Remote Disengaging (RDE™) Fill-Head (FH) equipped with four fail open, pneumatically actuated, RDE™ Dewatering Lateral Isolation Valves that permit dewatering/drying of the Disposal Container at multiple levels throughout the container during the filling/dewatering/drying process.

- The Remote Disengaging (RDE™) Fill-Head (FH) is fitted with a CCTV and light sources for remote monitoring of disposal container internal conditions.

- The Remote Disengaging (RDE™) Fill-Head (FH) also utilizes redundant level monitoring instruments to ensure the disposal container is not overfilled during sluicing operations. If water/resin level increases to dangerous levels (as sensed by the level monitor instruments), the sluice isolation valve is automatically closed.

- The Remote Disengaging (RDE™) Fill-Head (FH) is equipped with a Pneumatic Motor and ACME Screw to attach itself remotely and securely to the AVANTech Remote Disengaging (RDE™) Mating Plate.

- The Remote Disengaging (RDE™) Fill-Head (FH) has Pressure and Temperature Transmitters for remote monitoring of disposal container pressure and temperature.

AVANTech Ultra-Rapid Vacuum (URV™) Dewatering System

The AVANTech Ultra-Rapid Vacuum (URV™) Dewatering System is a specially engineered Drying System that works in conjunction with the AVANTech Remote Disengaging (RDE™) Fill-Head (FH) System to perform the following:

- Dewater the AVANTech Disposal Container during Sluicing Evolutions, and
- Dry the contents of the AVANTech Disposal Container to meet Disposal Site FSW Criteria for Disposal.

The AVANTech Ultra-Rapid Vacuum (URV™) Dewatering System allows for remote operations, which reduces exposure to personnel for ALARA purposes. All essential operations may be conducted at the Common RRPS Remote Human Machine Interface (HMI) Computer Console located in the Drum Handling Control Room. Other features include:

- The Ultra-Rapid Vacuum (URV™) Dewatering and Remote Disengaging (RDE™) Fill-Head (FH) Systems are equipped with a Fail-Safe, Control and Monitoring Platform that is controlled by a Central (Common) Programmable Logic Controller (PLC). Interface with the PLC is provided:
  - Locally, at the URV™ Main Control Panel by a Panel-View, Operator Interface, and
  - Remotely, by the Common RRPS Remote Human Machine Interface (HMI) Computer Console located in the Drum Handling Control Room. The Common RRPS HMI allows both systems to be controlled and monitored from a low dose area for ALARA purposes.
- The Ultra-Rapid Vacuum (URV™) Dewatering System is designed with a local Main Control Panel for local control and monitoring of both systems.

The Central (Common) Programmable Logic Controller (PLC) is located in the URV™ Main Control Panel.

- The Ultra-Rapid Vacuum (URV™) Dewatering System is designed with a Central Power Distribution Panel for power distribution to both systems.

- The Ultra-Rapid Vacuum (URV™) Dewatering System is designed to Gross Dewater the Disposal Container with High-Capacity, Air Operated Diaphragm (AOD) Pump during Sluicing Operations.

- Following Sluicing Operations, the Ultra-Rapid Vacuum (URV™) Dewatering System is designed to dry the Spent Resin to FSW Limits using a High-Capacity Vacuum Pump and Venturi System that circulates conditioned air through the Disposal Container to dry the contents of the container.

- The Ultra-Rapid Vacuum (URV™) Dewatering System is equipped with a fail-closed, pneumatic actuated, Sluice Isolation Valve. The Sluice Isolation Valve is positioned to the Fail-Safe, Closed Position upon an Emergency Stop Activation, PLC Shutdown Activation, loss of service air, or electrical power.

d. Scaling Factors:

As permitted by 10CFR61.55, waste stream radionuclide scaling factors based on certain gamma emitting nuclides (e.g., Co-60, Cs-137) may be used to calculate the concentrations of difficult-to-measure radionuclides. Scaling factor determinations are made using a detailed radionuclide analysis of waste stream samples, by a CNS approved vendor.

e. Reports:

The volume, curie content, principal nuclides, and type of waste for the wet wastes dewatered at Cooper Nuclear Station are documented in the Cooper Nuclear Station Radioactive Effluent Release Report. This information is listed in the format outlined in Revision 1 of Regulatory Guide 1.21.

F. Vendor Process Control Programs, Stabilization Processes, and Approved Shipping Container Qualifications:

Vendor supplied Process Control Programs, stabilization processes and approved shipping containers which have NRC or Agreement State approved Topical Reports or, which are approved in Low-Level Radioactive Waste Disposal Facility licenses, can be utilized to process radioactive waste from CNS.

G. District Initiated Changes

1. Shall be submitted to the Commission by inclusion in the Radioactive Effluent Release Report for the period in which the change(s) was made effective and shall contain:

   a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;

   b. A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and

   c. Documentation of the fact that the change has been reviewed and found acceptable by the SORC.