Southern Nuclear

Regulatory Affairs

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

Edwin I. Hatch Nuclear Plant Units 1&2
Annual Radioactive Effluent Release Report and Annual Non-Radiological Environmental Operating Report for 2024

Ladies and Gentlemen:

In accordance with section 5.6.3 of the Edwin I. Hatch Nuclear Plant (HNP) – Units 1&2 Technical Specifications (TS), Southern Nuclear Operating Company submits the enclosed Annual Radioactive Effluent Release Report for 2024.

Please note that there were no Offsite Dose Calculation Manual (ODCM) revisions during the 2024 reporting period.

Additionally, in accordance with subsection 5.4.1 of the HNP Units 1&2 Environmental Protection Plan (Appendix B to the operating licenses), Southern Nuclear Operating Company submits the Annual Non-Radiological Environmental Operating Report for 2024, also enclosed with this letter.

This letter contains no NRC commitments. If you have any questions, please contact Ryan Joyce at 205.992.6468.

Respectfully submitted,

Jamie Coleman

Jamie M. Coleman
Regulatory Affairs Director

JMC/btr/cbg

Enclosure:
1. HNP - Units 1&2 Annual Radioactive Effluent Release Report for 2024
2. HNP - Units 1&2 Annual Non-Radiological Environmental Operating Report for 2024

Cc: Regional Administrator, Region II
NRR Project Manager – Hatch
Senior Resident Inspector – Hatch
RTYPE: CGA02.001

Edwin I. Hatch Nuclear Plant Unit 1 and 2

Enclosure 1

Annual Radioactive Effluent Release Report for 2024

Southern Nuclear

E. I. Hatch Nuclear Plant

2024

Annual Radioactive Effluent Release Report

Docket Number: 50-321 & 50-366

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1.0 LIST OF ACRONYMS AND DEFINITIONS

1. Airborne Activity Sampling: Sampling of air through the collection of particulates and radionuclides on filter media, collection of noble gases in a container, and collection of water vapor containing tritium.
2. Alpha Particle (α): A charged particle emitted from the nucleus of an atom having a mass and charge equal in magnitude of a helium nucleus.
3. BWR: Boiling Water Reactor
4. Composite Sample: A series of single collected portions (aliquots) analyzed as one sample. The aliquots making up the sample are collected at time intervals that are very short compared to the composite period.
5. Control: A sampling station in a location not likely to be affected by plant effluents due to its distance and/or direction from the Plant.
6. Counting Error: An estimate of the two-sigma uncertainty associated with the sample results based on total counts accumulated.
7. Curie (Ci): A measure of radioactivity; equal to 3.7×10^{10} disintegrations per second, or 2.22×10^{12} disintegrations per minute.
8. Direct Radiation Monitoring: The measurement of radiation dose at various distances from the plant is assessed using thermoluminescent dosimeters (TLDs), optically stimulated luminescent dosimeters (OSLDs), and/or pressurized ionization chambers.
9. ECL: Effluent Concentration Limit from 10 CFR 20, Appendix B, Table 2 Columns 2.
10. Grab Sample: A single discrete sample drawn at one point in time.
11. Indicator: A sampling location that is likely to be affected by plant effluents due to its proximity and/or direction from the plant.
12. Ingestion Pathway: The ingestion pathway includes milk, fish, and garden produce. Meat or other food products may also be included.
13. ISFSI: Independent Spent Fuel Storage Installation
14. Lower Limit of Detection (LLD): The smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability with a 5% probability of a false conclusion that a blank observation represents "real" signal.
15. MDA: Minimum Detectable Activity. - For radiochemistry instruments, the MDA is the a posteriori minimum concentration that a counting system detects. The smallest concentration or activity of radioactive material in a sample that will yield a net count above instrument background and that is detected with 95% probability, with only five % probability of falsely concluding that a blank observation represents a true signal.
16. MDC: Minimum Detectable Concentration, essentially synonymous with MDA for the purposes of radiological monitoring.

17. Mean: The average, i.e., the sum of results divided by the number of results.
18. Microcurie (µCi): 3.7 x 10^4 disintegrations per second, or 2.22 x10^6 disintegrations per minute.
19. millirem (mrem): 1/1000 rem; a unit of radiation dose equivalent in tissue.
20. Milliroentgen (mR): 1/1000 Roentgen; a unit of exposure to X- or gamma radiation.
21. MWe: Megawatts Electric
22. MWTh: Megawatts Thermal
23. NA: Not Applicable
24. NDM: No Detectable Measurement
25. NEI: Nuclear Energy Institute
26. NS: Not Sampled
27. NRC: Nuclear Regulatory Commission
28. ODCM: Offsite Dose Calculation Manual
29. OSLD: Optically Stimulated Luminescence Dosimeter
30. Protected Area: The fenced area immediately surrounding the Plant. Access to the protected area requires a security badge or escort.
31. PWR: Pressurized Water Reactor
32. REC: Radiological Effluent Control
33. REMP: Radiological Environmental Monitoring Program
34. Restricted Area: Any area where access is controlled for the purpose of protecting individuals from exposure to radiation or radioactive materials.
35. SLCs: Selected Licensee Commitments
36. TEDE: Total Effective Dose Equivalent (TEDE) means the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures).
37. TLD: Thermoluminescent Dosimeter
38. TRM: Technical Requirements Manual
39. TS: Technical Specification

2.0 EXECUTIVE SUMMARY

E. I. Hatch Nuclear Plant (HNP) Radiological Effluent Control (REC) Program was established to limit the quantities of radioactive material that may be released based on calculated radiation doses or dose rates. Dose to Members of the Public due to radioactive materials released from the plant is limited by Appendix I of 10 CFR 50 and by 40 CFR 190. Operational doses to the public during 2024 were calculated to be very small compared to the limits required by regulation and compared to other sources of radiation dose and pose no health hazard. These doses are summarized and compared to the regulatory limits in Section 2.1, Comparison to Regulatory Limits, below.

The Annual Radioactive Effluent Release Report (ARERR) is published per REC requirements and provides data related to plant operation, including: quantities of radioactive materials released in liquid and gaseous effluents; radiation doses to members of the public; solid radioactive waste shipped offsite for disposal; and other information as required by site licensing documents.

In 2024 the Land Use Census dose assessments due to radioactive gaseous effluents showed that the critical receptor for E. I. Hatch Nuclear Plant is the Child, due to the Inhalation Pathway, at the Site Boundary. The maximum Annual Organ Doses calculated for this receptor were 1.03E-02 and 1.83E-02 mrem, to the thyroid from Unit 1 and Unit 2, respectively. This annual dose is a small fraction (6.86E-02% and 1.22E-01%), respectively of the 10 CFR 50, Appendix I guideline of 15 mrem to the Maximum Organ per reactor unit.

Doses from liquid releases to the critical receptor for E. I. Hatch Nuclear Plant is the Adult due to the Potable Water and Fish Pathways. The maximum Annual Total Body Doses calculated for this receptor were 1.37E-03 mrem and 1.14E-04 mrem for Unit 1 and Unit 2, respectively. The maximum Organ Doses calculated to the Adult GiLLi were 3.17E-03 and 5.20E-04 mrem for Unit 1 and Unit 2, respectively. These doses were also a very small percentage of the Appendix I limits of 3 mrem total body and 10 mrem organ. The above data was obtained from Table 1, E. I. Hatch Nuclear Plant Unit 1 Dose Summary and Table 2, E. I. Hatch Nuclear Plant Unit 2 Dose Summary.

Accounting for the C-14 released from HNP, the total gaseous, liquid and nearby facilities dose for the total body, thyroid, and organ was 3.74E-01%, 1.24E-01%, and 1.29E+00%, respectively of the 40 CFR 190 limits of 25 mrem (total body), 75 mrem (thyroid), and 25 mrem (organ).

Solid radioactive waste shipped offsite for disposal included 21,208 Curies and 1,229 m^3, shipped in 53 shipments. There were 0 shipments of irradiated fuel from the E. I. Hatch Nuclear Plant.

The Radiological Groundwater Protection Program made no voluntary notifications in 2024.

In addition to monitoring radioactive effluents, HNP has a Radiological Environmental Monitoring Program (REMP) that monitors for buildup of radioactivity in the offsite environment. Data from the REMP is published in the Annual Radiological Environmental Operating Report (AREOR).

2.1 Comparison to Regulatory Limits

During 2024 all liquid, and gaseous radioactive effluents from E. I. Hatch Nuclear Plant were well below regulatory limits, as summarized in Table 1, Table 2, and Table 3.

Table 1, E. I. Hatch Nuclear Plant Unit 1 Dose Summary[1]

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Liquid Effluents					
Limit	**1.5 mrem**	**1.5 mrem**	**1.5 mrem**	**1.5 mrem**	**3 mrem**
Total Body Dose	6.07E-04	1.43E-04	3.18E-04	2.98E-04	1.37E-03
% of Limit	4.05E-02	9.55E-03	2.12E-02	1.99E-02	4.55E-02
Limit	**5 mrem**	**5 mrem**	**5 mrem**	**5 mrem**	**10 mrem**
Max Organ Dose	2.39E-03	2.60E-04	3.84E-04	1.38E-04	3.17E-03
% of Limit	4.77E-02	5.21E-03	7.67E-03	2.76E-03	3.17E-02
Gaseous Effluent					
Limit	**5 mrad**	**5 mrad**	**5 mrad**	**5 mrad**	**10 mrad**
Gamma Air Dose	1.88E-05	1.82E-05	1.16E-05	9.38E-06	5.79E-05
% of Limit	3.75E-04	3.64E-04	2.31E-04	1.88E-04	5.79E-04
Limit	**10 mrad**	**10 mrad**	**10 mrad**	**10 mrad**	**20 mrad**
Beta Air Dose	5.21E-06	6.06E-06	3.21E-06	2.99E-06	1.75E-05
% of Limit	5.21E-05	6.06E-05	3.21E-05	2.99E-05	8.73E-05
Limit	**7.5 mrem**	**7.5 mrem**	**7.5 mrem**	**7.5 mrem**	**15 mrem**
Max Organ Dose	1.77E-03	3.00E-03	2.39E-03	3.13E-03	1.03E-02
% of Limit	2.36E-02	4.00E-02	3.19E-02	4.17E-02	6.86E-02

[1] Table 1 demonstrates compliance with 10 CFR Part 50, App. I Limits.

Table 2, E. I. Hatch Nuclear Plant Unit 2 Dose Summary[1]

		Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
Liquid Effluents						
	Limit	**1.5 mrem**	**1.5 mrem**	**1.5 mrem**	**1.5 mrem**	**3 mrem**
	Total Body Dose	1.86E-05	5.51E-06	6.68E-05	2.36E-05	1.14E-04
	% of Limit	1.24E-03	3.68E-04	4.45E-03	1.57E-03	3.82E-03
	Limit	**5 mrem**	**5 mrem**	**5 mrem**	**5 mrem**	**10 mrem**
	Max Organ Dose	2.15E-05	5.51E-06	3.75E-04	1.18E-04	5.20E-04
	% of Limit	4.30E-04	1.10E-04	7.51E-03	2.36E-03	5.20E-03
Gaseous Effluent						
	Limit	**5 mrad**	**5 mrad**	**5 mrad**	**5 mrad**	**10 mrad**
	Gamma Air Dose	3.30E-05	1.65E-05	1.20E-05	7.50E-06	6.91E-05
	% of Limit	6.61E-04	3.31E-04	2.41E-04	1.50E-04	6.91E-04
	Limit	**10 mrad**	**10 mrad**	**10 mrad**	**10 mrad**	**20 mrad**
	Beta Air Dose	9.17E-06	4.59E-06	3.34E-06	2.08E-06	1.92E-05
	% of Limit	9.17E-05	4.59E-05	3.34E-05	2.08E-05	9.59E-05
	Limit	**7.5 mrem**	**7.5 mrem**	**7.5 mrem**	**7.5 mrem**	**15 mrem**
	Max Organ Dose	4.63E-03	5.62E-03	3.64E-03	4.38E-03	1.83E-02
	% of Limit	6.17E-02	7.50E-02	4.85E-02	5.84E-02	1.22E-01

[1] Table 2 demonstrates compliance with 10 CFR Part 50, App. I Limits.

Table 3, Total Annual Offsite-Dose Comparison to 40 CFR 190 Limits for HNP[1]

	Whole Body	**Thyroid**	**Max Other Organ**
Gaseous[2]	2.84E-02	2.91E-02	1.58E-04
C-14	6.36E-02	6.36E-02	3.18E-01
Liquid	1.48E-03	5.13E-04	3.69E-03
Other Nearby Facility[3]	NA	NA	NA
Total Site Dose	**9.35E-02**	**9.32E-02**	**3.22E-01**
Limit	**25 mrem**	**75 mrem**	**25 mrem**
% of Limit	3.74E-01	1.24E-01	1.29E+00

[1] Table 3 is a summation of Units to show compliance with 40 CFR Part 190 Limits.
[2] Gaseous dose values in Table 3 include organ dose from Iodine, Tritium, and Particulates.
[3] Other fuel cycle sources within 5 miles of the site are considered in this analysis.

3.0 INTRODUCTION

3.1 About Nuclear Power

Commercial nuclear power plants are generally classified as either Boiling Water Reactors (BWRs) or Pressurized Water Reactors (PWRs), based on their design. A BWR includes a single coolant system where water used as reactor coolant boils as it passes through the core and the steam generated is used to turn the turbine generator for power production. A PWR, in contrast, includes two separate water systems: radioactive reactor coolant and a secondary system. Reactor coolant is maintained under high pressure, preventing boiling. The high-pressure coolant is passed through a heat exchanger called a steam generator where the secondary system water is boiled, and the steam is used to turn the turbine generator for power production.

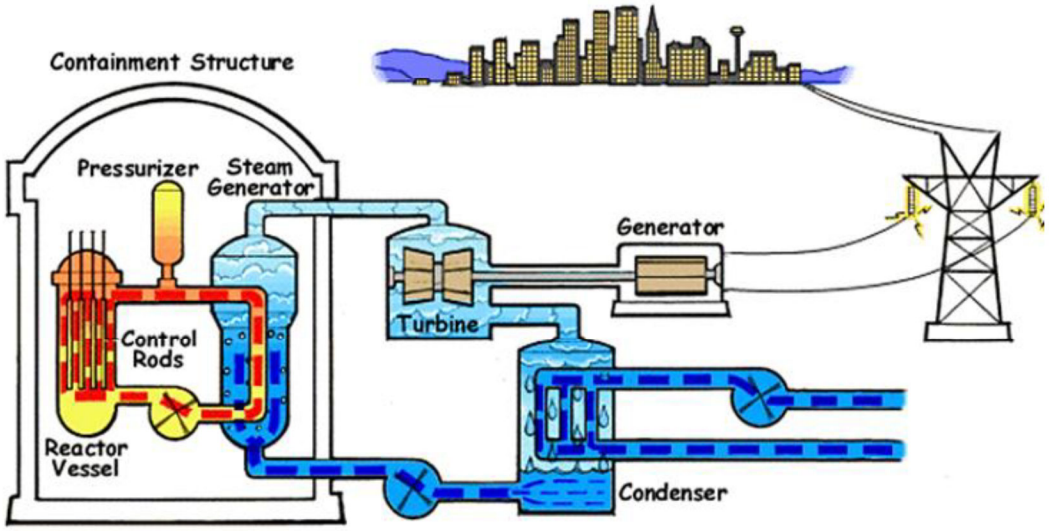

Figure 1, Pressurized Water Reactor (PWR) [1]

Electricity is generated by a nuclear power plant similarly to the way that electricity is generated at other conventional types of power plants, such as those driven by coal or natural gas. Water is boiled to generate steam; the steam spins a turbine that is attached to a generator and the steam is condensed back into water to be returned to the boiler.

What makes nuclear power different from these other types of power plants is that the heat is generated by fission and decay reactions occurring within and around the core containing fissionable uranium (U-235). Nuclear fission occurs when certain nuclides (primarily U-233, U-235, or Pu-239) absorb a neutron and break into several smaller nuclides (called fission products) as well as some additional neutrons.

3.1 (Continued)

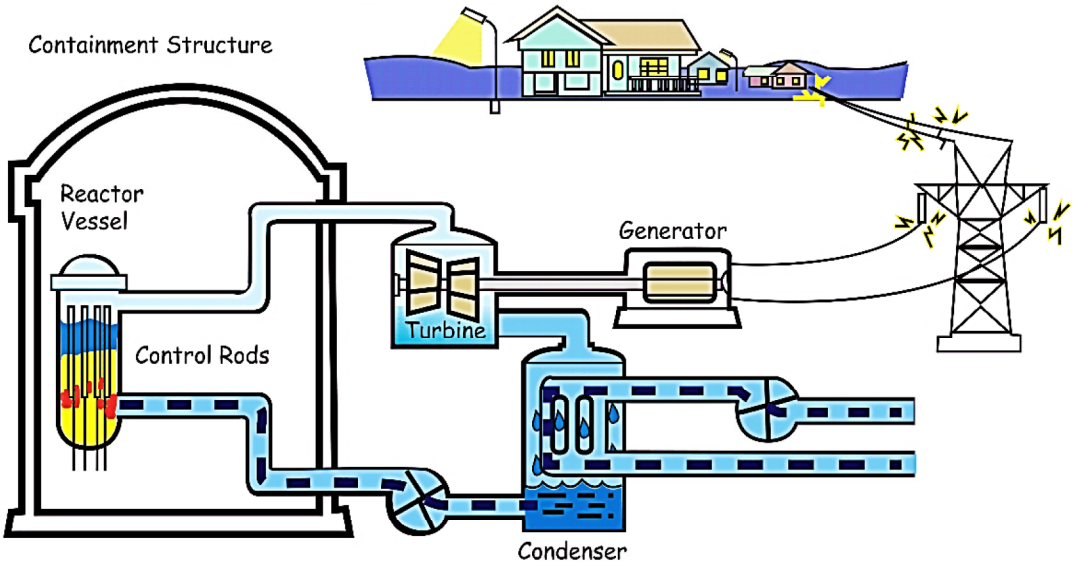

Figure 2, Boiling Water Reactor (BWR) [2]

Fission results in production of radioactive materials including gases and solids that must be contained to prevent release or treated prior to release. These effluents are generally treated by filtration and/or hold-up prior to release. Releases are generally monitored by sampling and by continuously indicating radiation monitors. The effluent release data is used to calculate doses to ensure that dose to the public due to plant operation remains within required limits.

3.2 About Radiation Dose

Ionizing radiation, including alpha, beta, and gamma radiation from radioactive decay, has enough energy to break chemical bonds in tissues and result in damage to tissue or genetic material. The amount of ionization that will be generated by a given exposure to ionizing radiation is quantified as dose. Radiation dose is generally reported in units of millirem (mrem) in the US.

The National Council on Radiation Protection (NCRP) has evaluated the population dose for the US and determined that the average individual is exposed to approximately 620 mrem per year [3]. There are many sources for radiation dose, ranging from natural background sources to medical procedures, air travel, and industrial processes. Approximately half (310 mrem) of the average exposure is due to natural sources of radiation including exposure to Radon, cosmic radiation, and internal radiation and terrestrial due to naturally occurring radionuclides. The remaining 310 mrem of exposure is due to man-made sources of exposure, with the most significant contributors being medical (48%) due to radiation used in various types of medical scans and treatments. Of the remaining 2% of dose, most is due to consumer activities such as air travel, smoking cigarettes, and building materials. A small fraction of this 2% is due to industrial activities including the generation of nuclear power.

3.2 (Continued)

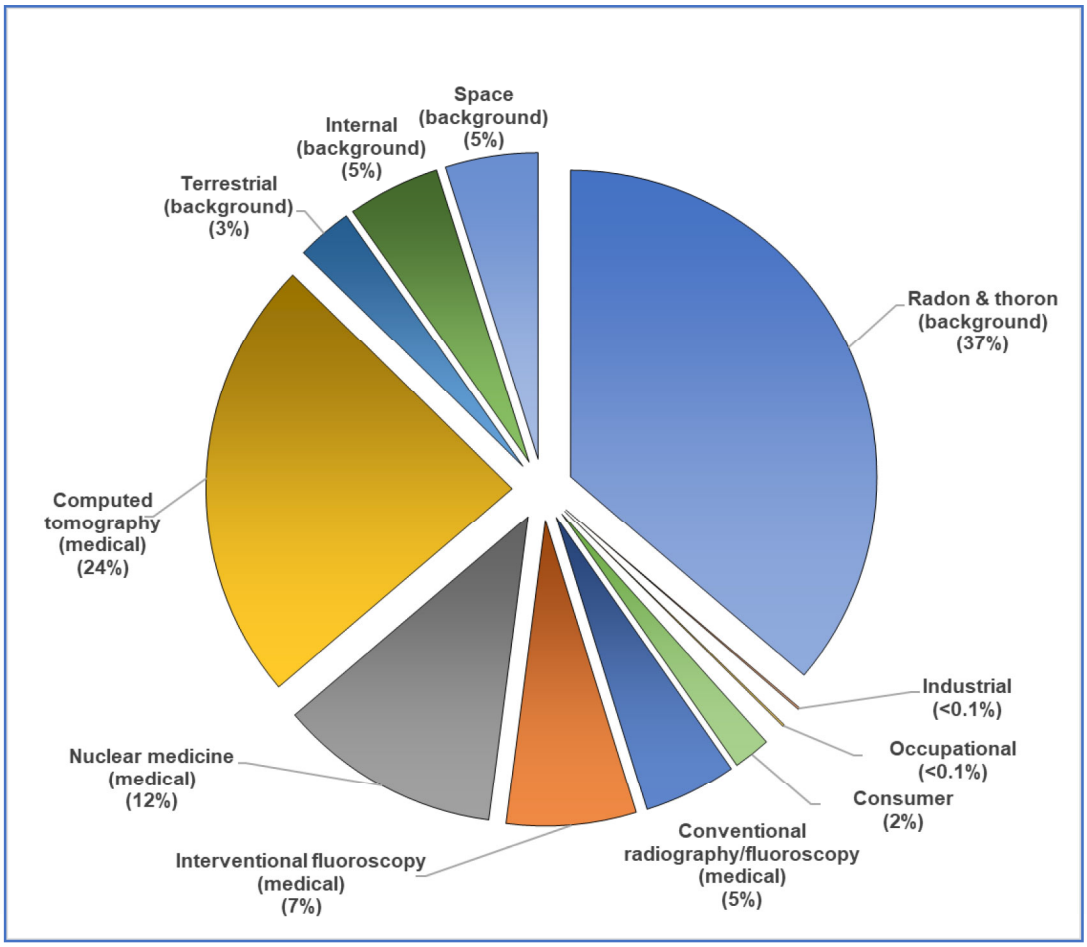

Figure 3, Sources of Radiation Exposure [3]

Readers that are curious about common sources and effects of radiation dose that they may encounter can find excellent sources of information from the Health Physics Society, including the Radiation Fact Sheets [4], and from the US Nuclear Regulatory Commission website [5].

3.3 About Dose Calculation

The concentrations of radioactive material in the environment resulting from plant operations are very small and it is not possible to determine doses directly using measured activities of environmental samples. To overcome this, Dose Calculations based on measured activities of effluent streams are used to model the dose impact for Members of the Public due to plant operation and effluents. There are several mechanisms that can result in dose to Members of the Public, including: Ingestion of radionuclides in food or water; Inhalation of radionuclides in air; Immersion in a plume of noble gases; and Direct Radiation from the ground, the plant or from an elevated plume.

3.3 (Continued)

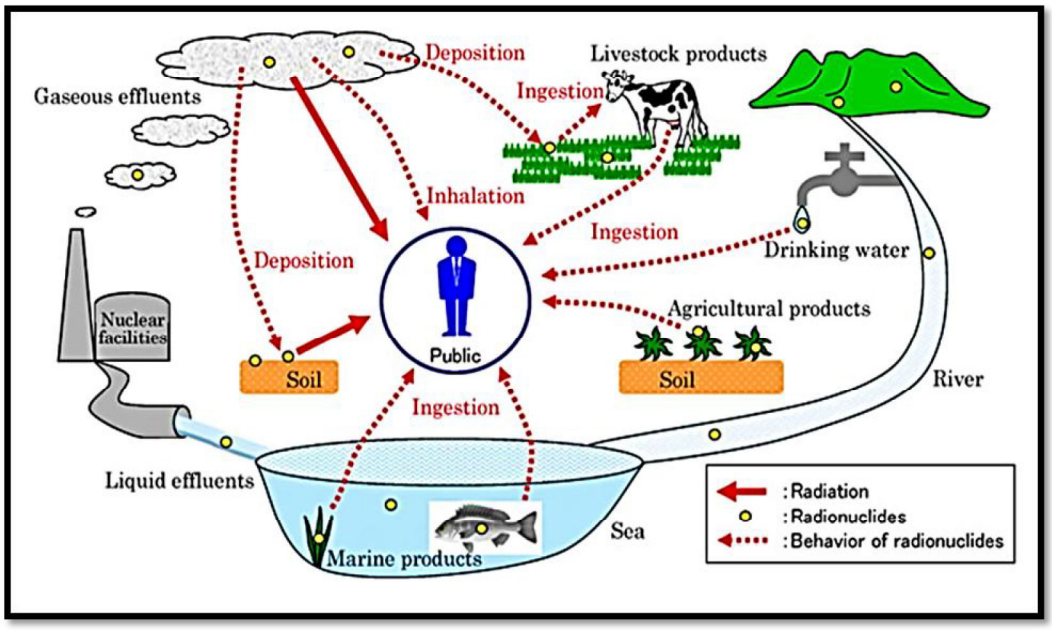

Figure 4, Potential exposure pathways to Members of the Public due to Plant Operations [6]

The Offsite Dose Calculation Manual (ODCM) specifies the methodology used to obtain the doses in the Dose Assessment section of this report. The methodology in the ODCM is based on NRC Regulatory Guide 1.109 [7] and NUREG-0133 [8]. Doses are calculated by determining what the nuclide concentration will be in air, water, on the ground, or in food products based on plant effluent releases. Release points are continuously monitored to quantify what concentrations of nuclides are being released. For gaseous releases meteorological data is used to determine how much of the released activity will be present at a given location outside of the plant either deposited onto the ground or in gaseous form. Intake patterns and nuclide bio-concentration factors are used to determine how much activity will be transferred into animal milk or meat. Finally, human ingestion factors and dose factors are used to determine how much activity will be consumed and how much dose the consumer will receive. Inhalation dose is calculated by determining the concentration of nuclides and how much air is breathed by the individual.

For liquid releases, dilution and mixing factors are used to model the environmental concentrations in water. Drinking water pathways are modeled by determining the concentration of nuclides in the water at the point where the drinking water is sourced. Fish and invertebrate pathways are determined by using concentration at the release point, bioaccumulation factors for the fish or invertebrate and an estimate of the quantity of fish consumed.

Each year a Land Use Census is performed to determine what potential dose pathways currently exist within a five-mile radius around the plant, the area most affected by plant operations. The Annual Land Use Census identifies the locations of

3.3 (Continued)

vegetable gardens, nearest residences, milk animals and meat animals. The data from the census is used to determine who is the likely to be most exposed to radiation dose because of plant operation.

There is significant uncertainty in dose calculation results, due to modeling dispersion of material released and bioaccumulation factors, as well as assumptions associated with consumption and land-use patterns. Even with these sources of uncertainty, the calculations do provide a reasonable estimate of the order of magnitude of the exposure. Conservative assumptions are made in the calculation inputs such as the number of various foods and water consumed, the amount of air inhaled, and the amount of direct radiation exposure from the ground or plume, such that the actual dose received are likely lower than the calculated dose. Even with the built-in conservatism, doses calculated for the highest hypothetical exposed individual due to plant operation are a very small fraction of the annual dose that is received due to other sources. The low calculated doses due to plant effluents, along with REMP results, serve to provide assurance that the site is not having a negative impact on the environment or people living near the plant.

4.0 DOSE ASSESSMENT FOR PLANT OPERATIONS

4.1 Regulatory Limits

Regulatory limits are detailed in Station Licensing documents such as the Offsite Dose Calculation Manual (ODCM) and Technical Specifications 5.5.4. These documents contain the limits to which HNP must adhere. HNP drives to maintain the philosophy to keep dose "as low as reasonably achievable" (ALARA) and actions are taken to reduce the amount of radiation released to the environment. Liquid and gaseous release data show that the dose from HNP is well below the ODCM limits. The concentration of liquid radioactive material released shall be limited to ten times the concentration specified in 10 CFR 20, Appendix B, Table 2, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the total concentration released shall be limited to 2.0×10^{-4} microcuries/ml. For gross alpha in liquid radwaste, the ECL is 2E-09 µCi/ml. This data reveals that radioactive effluents have an overall minimal dose contribution to the surrounding environment.

The annual whole body, skin and organ dose was computed using the 2024 source term with the dose calculation methodology provided in the ODCM. The calculated doses due to gaseous effluents to demonstrate compliance with offsite dose limits are presented in Table 1, E. I. Hatch Nuclear Plant Unit 1 Dose Summary, Table 2, E. I. Hatch Nuclear Plant Unit 2 Dose Summary, and Table 3, Total Annual Offsite-Dose Comparison to 40 CFR 190 Limits for HNP.

4.2 Regulatory Limits for Gaseous Effluent Doses:

1. Fission and activation gases:
   a. Noble gases dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to the following:
      1) Less than or equal to 500 mrem/year to the total body
      2) Less than or equal to 3000 mrem/year to the skin
   b. Noble gas air dose due to noble gases released in gaseous effluents, from each reactor unit to areas at and beyond the site boundary shall be limited to the following:
      1) Quarterly
         a) Less than or equal to 5 mrads gamma
         b) Less than or equal to 10 mrads beta
      2) Yearly
         a) Less than or equal to 10 mrads gamma
         b) Less than or equal to 20 mrads beta
2. Iodine, tritium, and all radionuclides in particulate form with half-lives greater than 8 days.
   a. The dose rate for iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from the site to areas at and beyond the site boundary shall be limited to the following:
      1) Less than or equal to 1500 mrem/yr to any organ
   b. The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 DAYS in gaseous effluents released, from each reactor unit to areas at and beyond the site boundary shall be limited to the following:
      1) Quarterly
         a) Less than or equal to 7.5 mrem to any organ
      2) Yearly
         a) Less than or equal to 15 mrem to any organ

4.3 Regulatory Limits for Liquid Effluent Doses

1. The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit to unrestricted areas shall be limited to the following:
   a. Quarterly
      1) Less than or equal to 1.5 mrem total body
      2) Less than or equal to 5 mrem critical organ

b. Yearly

1) Less than or equal to 3 mrem total body

2) Less than or equal to 10 mrem critical organ

4.4 40 CFR 190 Regulatory Dose Limits for a Member of the Public

1. Total Dose (40 CFR 190)

a. The annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC in the unrestricted area due to releases of radioactivity and to radiation from uranium fuel-cycle sources shall be limited to the following:

1) Less than or equal to 25 mrem, Total Body or any Organ except Thyroid.

2) Less than or equal to 75 mrem, Thyroid.

4.5 Onsite Doses (Within Site Boundary)

This section evaluates the dose to non-occupationally exposed workers and members of the public that may be onsite for various reasons. The report must include any other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases as required by 10 CFR 50.36a(a)(2). While within controlled or restricted areas, the limits from Sections 4.1 through 4.4 do not apply; however, 10 CFR 20.1301 dose limit of 100 mrem per year TEDE and dose rate limit of 2 mrem per hour from external sources continue to apply. Occupancy times within the controlled areas are generally sufficiently low to compensate for the increase in the atmospheric dispersion factor above the site boundary. Groups of concern include Visitors to the several recreational areas near the HNP site. Use of a conservative assumption of between 2 hours and 208 hours per year spent inside the site boundary by these groups conservatively represents the most-exposed individual.

Table 4, Onsite Doses (Within Site Boundary)

Location	Sector	Occupancy Hours	Approx. Distance (Meters)	Whole Body (mrem)	CDE Organ (mrem)	TEDE (mrem)
Roadside Park	WNW	2	1180	3.12E-08	3.19E-08	6.31E-08
Camping Area	WNW	48	1270	6.73E-07	6.89E-07	1.36E-06
Recreation Area	SSE	208	1030	2.66E-06	2.72E-06	5.38E-06
Visitor Center	WSW	4	694	1.54E-07	1.57E-07	3.11E-07

5.0 SUPPLEMENTAL INFORMATION

5.1 Gaseous Batch Releases

5.1.1 HNP Unit 1

	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
1. Number of Batch Releases		0	0	0	0	0
2. Total duration of batch releases	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Maximum batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Average batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5. Minimum batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

5.1.2 HNP Unit 2

	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
1. Number of Batch Releases		0	0	0	0	0
2. Total duration of batch releases	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Maximum batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Average batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5. Minimum batch release duration	minutes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

5.2 Liquid Batch Releases

5.2.1 HNP Unit1

	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
1. Number of Batch Releases		147	52	134	53	386
2. Total duration of batch releases	minutes	2.01E+04	7.92E+03	1.97E+04	8.46E+03	5.63E+04
3. Maximum batch release duration	minutes	1.88E+02	1.77E+02	1.93E+02	1.90E+02	1.93E+02
4. Average batch release duration	minutes	1.37E+02	1.52E+02	1.47E+02	1.60E+02	1.46E+02
5. Minimum batch release duration	minutes	9.00E+01	6.60E+01	2.00E+00	9.00E+01	2.00E+00
6. Avg stream flow during periods of release of liquid effluent into a flowing stream[1]	Ft^3/sec	2.57E+04	2.12E+03	3.72E+04	7.81E+03	1.82E+04

[1] Data obtained from United States Geological Survey (USGS) website

5.2.2 HNP Unit 2

	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual
1. Number of Batch Releases		11	1	88	16	116
2. Total duration of batch releases	minutes	1.25E+03	1.15E+02	1.03E+04	1.85E+03	1.35E+04
3. Maximum batch release duration	minutes	1.23E+02	1.15E+02	1.52E+02	1.22E+02	1.52E+02
4. Average batch release duration	minutes	1.14E+02	1.15E+02	1.17E+02	1.16E+02	1.17E+02
5. Minimum batch release duration	minutes	1.09E+02	1.15E+02	7.50E+01	1.10E+02	7.50E+01
6. Avg stream flow during periods of release of liquid effluent into a flowing stream[1]	Ft^3/sec	2.57E+04	2.12E+03	3.72E+04	7.81E+03	1.82E+04

5.3 Abnormal Releases

5.3.1 Gaseous Abnormal Releases

There were no abnormal gaseous releases during this period.

5.3.2 Liquid Abnormal Releases

There were no abnormal liquid releases during this period.

5.4 Land Use Census Changes

There were no changes in the Land Use Census that impacted Radiological Controls Program.

5.5 Meteorological Data

The wind direction at 60m, 100m, and 45m failed to achieve the 90% recovery rate. All the delta temperatures parameters failed to achieve 90% along with the 45m temperature on the backup tower (see Table 44, Attachment 3). During 2024 the instrumentation on the meteorological tower was upgraded.

Using the data from the backup tower and the Savannah National Weather Service station to replace the missing data the 2024 meteorological monitoring program met the 90% NRC requirements for the required parameters.

The annual summary of hourly meteorological data collected over the previous year may be either in the form of an hour-by-hour listing of wind speed, wind direction, atmospheric stability, and precipitation (if measured), on magnetic tape, or in the form of joint frequency distributions of wind speed, wind direction and atmospheric stability. In lieu of submission with the Radioactive Effluent Release Report, the licensee has retained this summary of required meteorological data on site in a file. It will be provided to the NRC upon request.

5.6 Effluent Radiation Monitors Out of Service Greater Than 30 Days

5.6.1 HNP Unit 1

None

5.6.2 HNP Unit 2

None

5.7 Offsite Dose Calculation Manual (ODCM) Changes

There were no changes to the ODCM in 2024

5.8 Process Control Program (PCP) Changes

There were no changes to the PCP in 2024.

5.9 Radioactive Waste Treatment System Changes

The Radioactive Effluent Release Report shall include any major change to liquid, gaseous, or solid radwaste treatment systems pursuant to ODCM Chapter 7, Section 7.2.2.7.

There were no major changes to the gaseous radwaste, solid radwaste or liquid radwaste systems during this reporting period.

5.10 Independent Spent Fuel Storage Installation (ISFSI) Monitoring Program

The annual report on radioactive releases is submitted as a separate report.

5.11 Carbon-14

Carbon-14 (C-14) is a naturally occurring radionuclide with a 5730-year half-life. Nuclear weapons testing in the 1950s and 1960s significantly increased the amount of C-14 in the atmosphere. Nuclear power plants also produce C-14, but the amount is infinitesimal compared to what has been distributed in the environment due to weapons testing and what is produced by natural cosmic ray interactions.

As nuclear plants have improved gaseous waste processing systems and improved fuel performance, the percentages of "principal radionuclides" in gaseous effluents have changed, and C-14 has become a larger percentage. "Principal radionuclides" are determined based on public dose contribution, or the amount of activity discharged compared to other radionuclides of the same effluent type. In Revision 2 (June 2009) of Regulatory Guide 1.21 (RG 1.21), "Measuring, Evaluating, and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste," the NRC recommended re-evaluating "principal radionuclides" and reporting C-14 as appropriate. In 2010 Radioactive Effluent Release Reports, virtually all U. S. nuclear power plants will report C-14 amounts released and resulting doses to the maximally exposed member of the public.

Because C-14 is considered a hard-to-detect radionuclide which must be chemically separated from the effluent stream before it can be measured, RG 1.21 provides the option of calculating the C-14 source term based on power generation. The Electric Power Research Institute (EPRI) developed an accepted methodology for calculating C-14 and published the results in Technical Report 1021106 (December 2010), "Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents." [9] Evaluation of C-14 in radioactive liquid effluents is not required because the quantity and dose contribution has been determined to be insignificant.

At Plant Hatch, the quantity of C-14 released in gaseous effluents in 2010 was estimated to be 14.16 Curies (per unit). Approximately 95% of the C-14 released is in the form of $^{14}CO_2$ and is incorporated into plants through photosynthesis. Ingestion dose from this pathway. The remaining 5% is estimated to be organic. Both the organic and inorganic forms of C-14 contribute to inhalation dose. A child is the maximally exposed individual, and bone dose is the highest organ dose. Using the dose calculation methodology from the Hatch ODCM, the resulting bone dose to a child located at the controlling receptor location would be 1.59E-01 mrem per unit (3.18E-1 mrem total) in a year which is 1.27% of the 40 CFR 190 regulatory limit of 25 mrem per year (all units) to any organ except the thyroid due to gaseous effluents. The resulting total body dose to a child located at the controlling receptor location would be 6.36E-02 mrem in a year which is 0.25% of the regulatory limit of 25 mrem per year) total body dose due to gaseous effluents. C-14 dose is not included in the dose calculation results in Table 1 and Table 2 but is included in Table 3.

5.12 Errata/Corrections to Previous ARERRs

None

5.13 Other Supplemental Information

5.13.1 Minimal Detectable Concentrations

The values in this table represent a priori Minimum Detectable Concentrations (MDC) that are typically achieved in laboratory analyses of liquid radwaste samples.

Table 5, 2024 Liquid Effluents – Minimum Detectable Concentration

Radionuclide	MDC	Units
Mn-54	1.97E-08	µCi/ml
Fe-59	3.94E-08	µCi/ml
Co-58	1.59E-08	µCi/ml
Co-60	1.72E-08	µCi/ml
Zn-65	2.92E-08	µCi/ml
Mo-99	1.20E-07	µCi/ml
Cs-134	1.75E-08	µCi/ml
Cs-137	1.62E-08	µCi/ml
Ce-141	1.92E-08	µCi/ml
Ce-144	8.83E-08	µCi/ml
I-131	1.43E-08	µCi/ml

Table 5, 2024 Liquid Effluents – Minimum Detectable Concentration

Xe-135	1.03E-08	µCi/ml
Fe-55	2.34E-08	µCi/ml
Sr-89	1.44E-08	µCi/ml
Sr-90	8.50E-09	µCi/ml
H-3	6.00E-07	µCi/ml

The values in this table represent a priori Minimum Detectable Concentrations (MDC) that are typically achieved in laboratory analyses of gaseous radwaste samples.

Table 6, 2024 Gaseous Effluents – Minimum Detectable Concentration

Radionuclide	MDC	Units
Kr-87	2.94E-08	µCi/cc
Kr-88	3.22E-08	µCi/cc
Xe-133	2.30E-08	µCi/cc
Xe-133m	7.30E-08	µCi/cc
Xe-135	8.73E-09	µCi/cc
Xe-138	1.99E-07	µCi/cc
I-131	1.34E-13*	µCi/cc
I-133	1.53E-13*	µCi/cc
Mn-54	1.62E-13*	µCi/cc
Fe-59	3.42E-13*	µCi/cc
Co-58	1.30E-13*	µCi/cc
Co-60	1.54E-13*	µCi/cc
Zn-65	2.54E-13*	µCi/cc
Mo-99	9.61E-13*	µCi/cc
Cs-134	1.42E-13*	µCi/cc
Cs-137	1.28E-13*	µCi/cc
Ce-141	1.26E-13*	µCi/cc
Ce-144	5.64E-13*	µCi/cc
Sr-89	1.10E-16	µCi/cc
Sr-90	6.70E-16	µCi/cc
H-3	4.00E-07	µCi/cc

* Based on an estimated sample quantity of 4.078E+07 cc.

5.13.2 Total Error Estimation

1. Liquid Releases:

   The maximum error associated with volume and flow measurements, based upon plant calibration practice, is estimated to be + or - 10%. The average error associated with counting is estimated to be less than + or - 15%. Therefore, the total error estimation is + or - 18%.

2. Gaseous Releases:

The total or maximum error associated with the effluent measurement will include the cumulative errors resulting from the total process of sampling and measurement. Due to the difficulty with assigning error terms for each parameter affecting the final measurement, detailed statistical evaluation of error is not suggested. The objective is to obtain an overall estimate of the error associated with measurements of radioactive materials released in liquid and gaseous effluents and solid waste. Estimated errors are associated with counting equipment calibration, counting statistics, vent-flow rates, vent sample flow rates, non-steady release rates, chemical yield factors and sample losses for such items as charcoal cartridges.

Fission and activation total release was calculated from sample analysis results and release point flow rates.

Statistical error	60%
Counting equipment calibration	10%
Vent flow rates	10%
Non-steady release rates	20%
TOTAL ERROR	65%

I-131 releases were calculated from each weekly sample.

Statistical error	60%
Counting equipment calibration	10%
Vent flow rates	10%
Vent sample flow rates	10%
Non-steady release rates	10%
Losses from charcoal cartridges	10%
TOTAL ERROR	64%

Particulates with half-lives greater than 8 days releases were calculated from sample analysis results and release point flow rates.

Statistical error	60%
Counting equipment calibration	10%
Vent flow rates	10%
Vent sample flow rates	10%
Non-steady release rates	10%
TOTAL ERROR	63%

Total tritium releases were calculated from sample analysis results and release point flow rates.

Water vapor in sample stream determination	20%
Vent flow rates	10%
Counting calibration and statistics	10%
Non-steady release rates	50%
TOTAL ERROR	56%

Gross Alpha radioactivity was calculated from sample analysis results and release point flow rates.

Statistical error	60%
Counting equipment calibration	10%
Vent flow rates	10%
Vent sample flow rates	10%
Non-steady release rates	10%
TOTAL ERROR	63%

5.13.3 Outside Temporary Tanks

There were no outside temporary tanks, for liquids, that exceeded the limit of Technical Specification 5.5.8.b during this reporting period.

6.0 NEI 07-07 ONSITE RADIOLOGICAL GROUNDWATER MONITORING PROGRAM

E. I. Hatch Nuclear Plant has developed a Groundwater Protection Initiative (GPI) program in accordance with NEI 07-07, Industry Ground Water Protection Initiative – Final Guidance Document [10]. The purpose of the GPI is to ensure timely detection and an effective response to situations involving inadvertent radiological releases to groundwater to prevent migration of licensed radioactive material off-site and to quantify impacts on decommissioning. The summary of results for 2024, HNP GPI is located in Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program.

6.1 Voluntary Notification

During 2024, E. I. Hatch Nuclear Plant did not make any voluntary NEI 07-07 notification to State/Local officials, NRC, or other stakeholders required by site procedures.

7.0 BIBLIOGRAPHY

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Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

1.0 GASEOUS EFFLUENTS

Table 7, Gaseous Effluents Summation of All Releases for Unit 1[1]

A. Fission & Activation Gases	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	7.67E-01	6.87E-01	4.72E-01	3.10E-01	2.24E+00	6.50E+01
2. Average release rate for the period	µCi/sec	9.72E-02	8.72E-02	5.99E-02	3.93E-02	7.09E-02	
B. Iodine							
1. Total Iodine – 131	Ci	2.90E-06	1.46E-06	4.46E-06	6.44E-07	9.46E-06	6.40E+01
2. Average release rate for the period	µCi/sec	3.68E-07	1.85E-07	5.65E-07	8.17E-08	3.00E-07	
C. Particulates							
1. Particulates with half-lives > 8 days	Ci	9.23E-07	1.87E-06	3.55E-06	1.98E-06	8.32E-06	6.30E+01
2. Average release rate for the period	µCi/sec	1.17E-07	2.38E-07	4.51E-07	2.51E-07	2.64E-07	
D. Tritium							
1. Total Release	Ci	3.56E+00	5.99E+00	4.76E+00	6.36E+00	2.07E+01	5.60E+01
2. Average release rate for the period	µCi/sec	4.51E-01	7.59E-01	6.04E-01	8.06E-01	6.55E-01	
E. Gross Alpha							
1. Total Release	Ci	5.04E-07	5.01E-07	2.95E-07	6.52E-07	1.95E-06	6.3E+01
2. Average release rate for the period	µCi/sec	6.40E-08	6.36E-08	3.74E-08	8.27E-08	6.19E-08	

[1] Percent of Limit is on Table 1, E. I. Hatch Nuclear Plant Unit 1 Dose Summary. C-14 is not part of the Appendix I dose limits and therefore, not included in Table 1. However, C-14 is reported in Table 3, Total Annual Offsite-Dose Comparison to 40 CFR 190 Limits for HNP.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 8, Gaseous Effluents – Elevated Level Release Continuous Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Ar-41	Ci	7.67E-01	6.75E-01	4.72E-01	3.06E-01	2.22E+00
Total for Period	**Ci**	**7.67E-01**	**6.75E-01**	**4.72E-01**	**3.06E-01**	**2.22E+00**
Iodines						
I-131	Ci	7.87E-07	1.46E-06	3.19E-06	6.44E-07	6.08E-06
I-133	Ci	1.83E-06	3.70E-06	3.60E-06	9.10E-07	1.00E-05
Total for Period	**Ci**	**2.62E-06**	**5.16E-06**	**6.78E-06**	**1.55E-06**	**1.61E-05**
Particulates						
Mn-54	Ci	2.42E-08	0.00E+00	0.00E+00	2.15E-08	4.57E-08
Co-58	Ci	2.19E-08	0.00E+00	0.00E+00	0.00E+00	2.19E-08
Co-60	Ci	6.24E-08	2.55E-08	7.72E-08	5.10E-08	2.16E-07
Sr-89	Ci	3.78E-07	1.57E-06	1.79E-06	1.63E-06	5.37E-06
Sr-90	Ci	0.00E+00	1.25E-08	6.76E-09	0.00E+00	1.93E-08
Te-125m	Ci	0.00E+00	0.00E+00	1.68E-06	0.00E+00	1.68E-06
Cs-137	Ci	0.00E+00	5.53E-09	0.00E+00	0.00E+00	5.53E-09
Total for Period	**Ci**	**4.86E-07**	**1.62E-06**	**3.55E-06**	**1.70E-06**	**7.36E-06**
Tritium						
H-3	**Ci**	**2.09E-01**	**2.06E-01**	**1.94E-01**	**3.29E-01**	**9.38E-01**
Gross Alpha						
Alpha	**Ci**	**1.54E-08**	**4.09E-08**	**3.36E-08**	**5.57E-08**	**1.46E-07**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 9, Gaseous Effluents – Elevated Level Releases Batch Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 1.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 10, Gaseous Effluents – Ground Level Release Continuous Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Xe-133	Ci	0.00E+00	1.09E-02	0.00E+00	0.00E+00	1.09E-02
Xe-135	Ci	0.00E+00	1.30E-03	0.00E+00	3.69E-03	4.99E-03
Total for Period	**Ci**	**0.00E+00**	**1.21E-02**	**0.00E+00**	**3.69E-03**	**1.58E-02**
Iodines						
I-131	Ci	2.11E-06	0.00E+00	1.27E-06	0.00E+00	3.38E-06
Total for Period	**Ci**	**2.11E-06**	**0.00E+00**	**1.27E-06**	**0.00E+00**	**3.38E-06**
Particulates						
Mn-54	Ci	0.00E+00	2.56E-07	0.00E+00	0.00E+00	2.56E-07
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	2.79E-07	2.79E-07
Sr-90	Ci	6.63E-08	0.00E+00	0.00E+00	0.00E+00	6.63E-08
Sb-124	Ci	2.07E-07	0.00E+00	0.00E+00	0.00E+00	2.07E-07
Te-125m	Ci	1.63E-07	0.00E+00	0.00E+00	0.00E+00	1.63E-07
Total for Period	**Ci**	**4.37E-07**	**2.56E-07**	**0.00E+00**	**2.79E-07**	**9.72E-07**
Tritium						
H-3	**Ci**	**3.35E+00**	**5.78E+00**	**4.57E+00**	**6.03E+00**	**1.97E+01**
Gross Alpha						
Alpha	**Ci**	**4.89E-07**	**4.60E-07**	**2.61E-07**	**5.96E-07**	**1.81E-06**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 11, Gaseous Effluents – Ground Level Releases Batch Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 1.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 12, Gaseous Effluents Summation of All Releases for Unit 2[1]

A. Fission & Activation Gases	**Units**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Est. Total Error %**
1. Total Release	Ci	1.35E+00	6.75E-01	4.92E-01	3.06E-01	2.82E+00	6.50E+01
2. Average release rate for the period	µCi/sec	1.71E-01	8.56E-02	6.24E-02	3.88E-02	8.95E-02	
B. Iodine							
1. Total Iodine – 131	Ci	1.06E-05	1.06E-05	1.60E-05	8.33E-06	4.55E-05	6.40E+01
2. Average release rate for the period	µCi/sec	1.35E-06	1.34E-06	2.03E-06	1.06E-06	1.45E-06	
C. Particulates							
1. Particulates with half-lives > 8 days	Ci	3.20E-06	2.83E-06	5.31E-06	3.38E-06	1.47E-05	6.30E+01
2. Average release rate for the period	µCi/sec	4.06E-07	3.58E-07	6.74E-07	4.29E-07	4.67E-07	
D. Tritium							
1. Total Release	Ci	8.95E+00	1.07E+01	6.80E+00	8.50E+00	3.50E+01	5.60E+01
2. Average release rate for the period	µCi/sec	1.13E+00	1.36E+00	8.63E-01	1.08E+00	1.11E+00	
E. Gross Alpha							
1. Total Release	Ci	2.79E-07	3.76E-07	4.11E-07	4.56E-07	1.52E-06	6.30E+01
2. Average release rate for the period	µCi/sec	3.54E-08	4.77E-08	5.21E-08	5.79E-08	4.83E-08	

[1] Percent of Limit is on Table 2, E. I. Hatch Nuclear Plant Unit 2 Dose Summary. C-14 is not part of the Appendix I dose limits and therefore, not included in Table 2. However, C-14 is reported in Table 3, Total Annual Offsite-Dose Comparison to 40 CFR 190 Limits for HNP.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 13, Gaseous Effluents – Elevated Level Release Continuous Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Ar-41	Ci	1.35E+00	6.75E-01	4.92E-01	3.06E-01	2.82E+00
Total for Period	**Ci**	**1.35E+00**	**6.75E-01**	**4.92E-01**	**3.06E-01**	**2.82E+00**
Iodines						
I-131	Ci	2.38E-06	1.46E-06	4.20E-06	6.44E-07	8.68E-06
I-133	Ci	8.25E-06	3.70E-06	4.33E-06	9.10E-07	1.72E-05
Total for Period	**Ci**	**1.06E-05**	**5.16E-06**	**8.53E-06**	**1.55E-06**	**2.58E-05**
Particulates						
Mn-54	Ci	3.06E-07	0.00E+00	0.00E+00	2.15E-08	3.28E-07
Co-58	Ci	1.23E-07	0.00E+00	0.00E+00	0.00E+00	1.23E-07
Co-60	Ci	6.17E-07	2.55E-08	7.72E-08	5.10E-08	7.71E-07
Zn-65	Ci	1.79E-07	0.00E+00	0.00E+00	0.00E+00	1.79E-07
Sr-89	Ci	9.29E-07	1.57E-06	1.90E-06	1.63E-06	6.03E-06
Sr-90	Ci	0.00E+00	1.25E-08	7.20E-09	0.00E+00	1.97E-08
Te-125m	Ci	0.00E+00	0.00E+00	1.68E-06	0.00E+00	1.68E-06
Cs-137	Ci	0.00E+00	5.53E-09	0.00E+00	0.00E+00	5.53E-09
Total for Period	**Ci**	**2.15E-06**	**1.62E-06**	**3.67E-06**	**1.70E-06**	**9.14E-06**
Tritium						
H-3	**Ci**	**3.08E-01**	**2.06E-01**	**2.07E-01**	**3.29E-01**	**1.05E+00**
Gross Alpha						
Alpha	**Ci**	**3.21E-08**	**4.09E-08**	**3.54E-08**	**5.57E-08**	**1.64E-07**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 14, Gaseous Effluents – Elevated Level Releases Batch Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 2.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 15, Gaseous Effluents – Ground Level Releases Continuous Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
I-131	Ci	8.26E-06	9.14E-06	1.18E-05	7.68E-06	3.69E-05
I-133	Ci	3.95E-05	4.92E-05	5.05E-05	5.19E-05	1.91E-04
Total for Period	**Ci**	**4.78E-05**	**5.84E-05**	**6.24E-05**	**5.96E-05**	**2.28E-04**
Particulates						
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	1.50E-07	1.50E-07
Co-60	Ci	0.00E+00	0.00E+00	4.43E-07	0.00E+00	4.43E-07
Sr-89	Ci	9.93E-07	1.21E-06	1.14E-06	1.50E-06	4.84E-06
Sr-90	Ci	5.20E-08	0.00E+00	6.10E-08	3.45E-08	1.48E-07
Total for Period	**Ci**	**1.05E-06**	**1.21E-06**	**1.64E-06**	**1.68E-06**	**5.58E-06**
Tritium						
H-3	**Ci**	**8.64E+00**	**1.05E+01**	**6.59E+00**	**8.17E+00**	**3.39E+01**
Gross Alpha						
Alpha	**Ci**	**2.47E-07**	**3.35E-07**	**3.75E-07**	**4.01E-07**	**1.36E-06**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 16, Gaseous Effluents – Ground Level Release Batch Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 2.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 17, Gaseous Effluents Summation of All Releases for the Site

A. Fission & Activation Gases	**Units**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Est. Total Error %**
1. Total Release	Ci	2.12E+00	1.36E+00	9.64E-01	6.16E-01	5.06E+00	6.50E+01
2. Average release rate for the period	µCi/sec	2.68E-01	1.73E-01	1.22E-01	7.81E-02	1.60E-01	
B. Iodine							
1. Total Iodine – 131	Ci	1.35E-05	1.21E-05	2.12E-05	8.97E-06	5.58E-05	6.40E+01
2. Average release rate for the period	µCi/sec	1.72E-06	1.53E-06	2.69E-06	1.14E-06	1.77E-06	
C. Particulates							
1. Particulates with half-lives > 8 days	Ci	4.12E-06	4.70E-06	8.97E-06	5.36E-06	2.32E-05	6.30E+01
2. Average release rate for the period	µCi/sec	5.23E-07	5.96E-07	1.14E-06	6.80E-07	7.35E-07	
D. Tritium							
1. Total Release	Ci	1.25E+01	1.67E+01	1.26E+01	1.49E+01	5.67E+01	5.60E+01
2. Average release rate for the period	µCi/sec	1.59E+00	2.12E+00	1.60E+00	1.88E+00	1.80E+00	
E. Gross Alpha							
1. Total Release	Ci	7.83E-07	8.77E-07	7.30E-07	1.11E-06	3.50E-06	6.30E+01
2. Average release rate for the period	µCi/sec	9.93E-08	1.11E-07	9.26E-08	1.41E-07	1.11E-07	

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 18, Gaseous Effluents – Elevated Level Release Continuous Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Ar-41	Ci	2.12E+00	1.35E+00	9.64E-01	6.12E-01	5.05E+00
Total for Period	**Ci**	2.12E+00	1.35E+00	9.64E-01	6.12E-01	5.05E+00
Iodines						
I-131	Ci	3.17E-06	2.92E-06	7.39E-06	1.29E-06	1.48E-05
I-133	Ci	1.01E-05	7.40E-06	7.93E-06	1.82E-06	2.73E-05
Total for Period	**Ci**	1.32E-05	1.03E-05	1.53E-05	3.11E-06	4.19E-05
Particulates						
Mn-54	Ci	3.31E-07	0.00E+00	0.00E+00	4.29E-08	3.74E-07
Co-58	Ci	1.45E-07	0.00E+00	0.00E+00	0.00E+00	1.45E-07
Co-60	Ci	6.80E-07	5.09E-08	1.54E-07	1.02E-07	9.87E-07
Zn-65	Ci	1.79E-07	0.00E+00	0.00E+00	0.00E+00	1.79E-07
Sr-89	Ci	1.31E-06	3.15E-06	3.69E-06	3.26E-06	1.14E-05
Sr-90	Ci	0.00E+00	2.51E-08	1.40E-08	0.00E+00	3.91E-08
Te-125m	Ci	0.00E+00	0.00E+00	3.36E-06	0.00E+00	3.36E-06
Cs-137	Ci	0.00E+00	1.11E-08	0.00E+00	0.00E+00	1.11E-08
Total for Period	**Ci**	**2.64E-06**	**3.23E-06**	**7.22E-06**	**3.40E-06**	**1.65E-05**
Tritium						
H-3	**Ci**	**5.16E-01**	**4.12E-01**	**4.02E-01**	**6.59E-01**	**1.99E+00**
Gross Alpha						
Alpha	**Ci**	**4.75E-08**	**8.18E-08**	**6.90E-08**	**1.11E-07**	**3.09E-07**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 19, Gaseous Effluents – Elevated Level Release Batch Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 1 or Unit 2.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 20, Gaseous Effluents – Ground Level Release Continuous Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Xe-133	Ci	0.00E+00	1.09E-02	0.00E+00	0.00E+00	1.09E-02
Xe-135	Ci	0.00E+00	1.30E-03	0.00E+00	3.69E-03	4.99E-03
Total for Period	**Ci**	**0.00E+00**	**1.21E-02**	**0.00E+00**	**3.69E-03**	**1.58E-02**
Iodines						
I-131	Ci	1.04E-05	9.14E-06	1.38E-05	7.68E-06	4.10E-05
I-133	Ci	3.95E-05	4.92E-05	5.59E-05	5.19E-05	1.97E-04
Total for Period	**Ci**	**4.99E-05**	**5.84E-05**	**6.97E-05**	**5.96E-05**	**2.38E-04**
Particulates						
Mn-54	Ci	0.00E+00	2.56E-07	0.00E+00	1.50E-07	4.06E-07
Co-60	Ci	0.00E+00	0.00E+00	4.43E-07	0.00E+00	4.43E-07
Sr-89	Ci	9.93E-07	1.21E-06	1.23E-06	1.78E-06	5.21E-06
Sr-90	Ci	1.18E-07	0.00E+00	6.61E-08	3.45E-08	2.19E-07
Sb-124	Ci	2.07E-07	0.00E+00	0.00E+00	0.00E+00	2.07E-07
Te-125m	Ci	1.63E-07	0.00E+00	0.00E+00	0.00E+00	1.63E-07
Total for Period	**Ci**	**1.48E-06**	**1.46E-06**	**1.74E-06**	**1.96E-06**	**6.64E-06**
Tritium						
H-3	**Ci**	**1.20E+01**	**1.63E+01**	**1.22E+01**	**1.42E+01**	**5.47E+01**
Gross Alpha						
Alpha	**Ci**	**7.36E-07**	**7.95E-07**	**6.61E-07**	**9.97E-07**	**3.19E-06**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 21, Gaseous Effluents – Ground Level Releases Batch Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission Gases						
Total for Period	**Ci**	**No Nuclides Found**				
Iodines						
Total for Period	**Ci**	**No Nuclides Found**				
Particulates						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

There were no batch mode releases from Unit 1 or Unit 2.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

1.0 LIQUID EFFLUENTS

Table 22, Liquid Effluents – Summation of All Releases for Unit 1[1]

A. Fission & Activation Products	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	8.60E-03	4.55E-04	8.70E-04	2.49E-04	1.02E-02	1.80E+01
2. Average diluted concentration	μCi/mL	7.12E-09	1.21E-09	7.49E-10	5.65E-10	3.18E-09	
B. Tritium							
1. Total Release	Ci	2.21E+01	8.86E+00	2.20E+01	7.43E+00	6.04E+01	1.80E+01
2. Average diluted concentration	μCi/mL	1.83E-05	2.35E-05	1.90E-05	1.68E-05	1.89E-05	
C. Dissolved & Entrained Gases							
1. Total Release	Ci	2.88E-05	1.24E-05	1.69E-05	2.36E-06	6.05E-05	1.80E+01
2. Average diluted concentration	μCi/mL	2.39E-11	3.28E-11	1.45E-11	5.36E-12	1.89E-11	
D. Gross Alpha Activity							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E+01
2. Average diluted concentration	μCi/mL	N/A	N/A	N/A	N/A	N/A	
E. Volume of Waste Released (prior to dilution)	Liters	5.22E+06	1.85E+06	4.78E+06	1.93E+06	1.38E+07	
F. Volume of Dilution Water Used During Period	Liters	1.21E+09	3.77E+08	1.16E+09	4.41E+08	3.19E+09	

Zeroes in this table indicate that no radioactivity was present at detectable levels.

[1] Percent of limit is on Table 1, E. I. Hatch Nuclear Plant Unit 1 Dose Summary.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 23, Liquid Effluents – Continuous Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**No Nuclides Found**				
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				
Entrained Gases						
Total for Period	**Ci**	**No Nuclides Found**				

There were no continuous releases from Unit 1.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 24, Liquid Effluents – Batch Mode for Unit 1

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
As-76	Ci	1.50E-05	0.00E+00	1.93E-06	0.00E+00	1.69E-05
Cs-137	Ci	3.11E-05	9.14E-06	4.63E-05	7.25E-05	1.59E-04
Fe-59	Ci	4.55E-06	0.00E+00	0.00E+00	0.00E+00	4.55E-06
Fe-55	Ci	6.58E-04	0.00E+00	1.70E-04	0.00E+00	8.28E-04
Nb-97	Ci	5.17E-07	0.00E+00	0.00E+00	0.00E+00	5.17E-07
Sb-122	Ci	2.79E-05	0.00E+00	0.00E+00	0.00E+00	2.79E-05
Zr-97	Ci	1.26E-06	0.00E+00	0.00E+00	0.00E+00	1.26E-06
La-140	Ci	1.94E-06	0.00E+00	0.00E+00	0.00E+00	1.94E-06
Sb-125	Ci	0.00E+00	0.00E+00	4.43E-06	0.00E+00	4.43E-06
Zn-65	Ci	1.32E-03	1.22E-04	1.06E-04	1.68E-05	1.56E-03
Co-60	Ci	2.21E-03	2.44E-04	4.19E-04	1.40E-04	3.01E-03
Y-91M	Ci	7.03E-07	0.00E+00	0.00E+00	0.00E+00	7.03E-07
Mn-54	Ci	2.33E-03	5.96E-05	8.33E-05	1.69E-05	2.49E-03
Co-58	Ci	6.44E-04	1.86E-05	2.95E-05	3.28E-06	6.95E-04
Sb-124	Ci	2.05E-04	8.70E-08	1.02E-06	0.00E+00	2.06E-04
Sn-117m	Ci	2.30E-06	0.00E+00	6.51E-07	0.00E+00	2.95E-06
Sr-92	Ci	8.03E-06	0.00E+00	0.00E+00	0.00E+00	8.03E-06
Cr-51	Ci	7.92E-04	0.00E+00	0.00E+00	0.00E+00	7.92E-04
Zn-69m	Ci	5.24E-06	0.00E+00	6.54E-07	0.00E+00	5.89E-06
Mn-56	Ci	4.80E-06	0.00E+00	0.00E+00	0.00E+00	4.80E-06
Au-199	Ci	1.82E-06	0.00E+00	1.54E-06	0.00E+00	3.36E-06
Na-24	Ci	2.76E-05	0.00E+00	0.00E+00	0.00E+00	2.76E-05
Ag-110m	Ci	3.08E-04	1.17E-06	5.38E-06	0.00E+00	3.15E-04
Total for Period	**Ci**	**8.60E-03**	**4.55E-04**	**8.70E-04**	**2.49E-04**	**1.02E-02**
Tritium						
H-3	**Ci**	**2.21E+01**	**8.86E+00**	**2.20E+01**	**7.43E+00**	**6.04E+01**
Gross Alpha						
Alpha	**Ci**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Entrained Gases						
Kr-87	Ci	0.00E+00	7.86E-07	6.10E-07	0.00E+00	1.40E-06
Xe-135	Ci	2.79E-05	0.00E+00	1.02E-05	1.56E-06	3.97E-05
Xe-131m	Ci	0.00E+00	1.01E-05	0.00E+00	0.00E+00	1.01E-05
Xe-133	Ci	9.31E-07	1.43E-06	6.04E-06	8.05E-07	9.21E-06
Total for Period	**Ci**	**2.88E-05**	**1.24E-05**	**1.69E-05**	**2.36E-06**	**6.05E-05**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 25, Liquid Effluents – Summation of All Releases for Unit 2[1]

A. Fission & Activation Products	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	2.57E-05	0.00E+00	4.59E-04	1.55E-04	6.40E-04	1.80E+01
2. Average diluted concentration	µCi/mL	4.53E-12	N/A	6.12E-11	3.13E-11	2.75E-11	
B. Tritium							
1. Total Release	Ci	2.39E+00	5.87E-01	8.36E+00	2.09E+00	1.34E+01	1.80E+01
2. Average diluted concentration	µCi/mL	4.21E-07	1.15E-07	1.11E-06	4.21E-07	5.77E-07	
C. Dissolved & Entrained Gases							
1. Total Release	Ci	1.22E-05	0.00E+00	1.39E-04	1.10E-05	1.62E-04	1.80E+01
2. Average diluted concentration	µCi/mL	2.16E-12	N/A	1.85E-11	2.22E-12	6.98E-12	
D. Gross Alpha Activity							
1. Total Release	Ci	0.00E+00	0.00E+00	6.64E-07	0.00E+00	6.64E-07	1.80E+01
2. Average diluted concentration	µCi/mL	N/A	N/A	8.83E-14	N/A	2.86E-14	
E. Volume of Waste Released (prior to dilution)	Liters	5.10E+06	4.72E+06	8.36E+06	4.18E+06	2.24E+07	
F. Volume of Dilution Water Used During Period	Liters	5.67E+09	5.10E+09	7.51E+09	4.95E+09	2.32E+10	
Zeroes in this table indicate that no radioactivity was present at detectable levels.							

[1] Percent of Limit is on Table 2, E. I. Hatch Nuclear Plant Unit 2 Dose Summary.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 26, Liquid Effluents – Continuous Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
Total for Period	Ci	No Nuclides Found				
Tritium						
H-3	Ci	1.10E-01	4.29E-01	3.10E-01	3.31E-01	1.18E+00
Gross Alpha						
Alpha	Ci	No Nuclides Found				
Entrained Gases						
Total for Period	Ci	No Nuclides Found				

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 27, Liquid Effluents – Batch Mode for Unit 2

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
Sb-124	Ci	4.04E-07	0.00E+00	2.29E-07	0.00E+00	6.33E-07
Y-91m	Ci	0.00E+00	0.00E+00	5.25E-07	0.00E+00	5.25E-07
Co-60	Ci	5.35E-06	0.00E+00	5.75E-05	5.84E-05	1.21E-04
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	3.50E-06	3.50E-06
Na-24	Ci	0.00E+00	0.00E+00	1.10E-04	1.23E-06	1.11E-04
Co-58	Ci	3.20E-06	0.00E+00	3.74E-05	1.37E-05	5.43E-05
Cs-137	Ci	0.00E+00	0.00E+00	8.62E-07	0.00E+00	8.62E-07
Mn-56	Ci	0.00E+00	0.00E+00	2.22E-05	1.26E-06	2.35E-05
Sr-92	Ci	0.00E+00	0.00E+00	5.78E-06	1.55E-06	7.33E-06
Zn-69m	Ci	6.83E-07	0.00E+00	1.14E-05	3.68E-07	1.25E-05
Sr-89	Ci	1.17E-05	0.00E+00	0.00E+00	0.00E+00	1.17E-05
Ag-110m	Ci	0.00E+00	0.00E+00	1.77E-04	4.04E-05	2.17E-04
Fe-55	Ci	3.87E-06	0.00E+00	0.00E+00	0.00E+00	3.87E-06
Zn-65	Ci	4.84E-07	0.00E+00	1.77E-05	1.41E-05	3.23E-05
Mn-54	Ci	0.00E+00	0.00E+00	1.71E-05	2.02E-05	3.73E-05
Sn-117m	Ci	0.00E+00	0.00E+00	8.12E-07	4.12E-07	1.22E-06
Total for Period	**Ci**	**2.57E-05**	**0.00E+00**	**4.59E-04**	**1.55E-04**	**6.40E-04**
Tritium						
H-3	**Ci**	**2.28E+00**	**1.58E-01**	**8.05E+00**	**1.76E+00**	**1.22E+01**
Gross Alpha						
Alpha	**Ci**	**0.00E+00**	**0.00E+00**	**6.64E-07**	**0.00E+00**	**6.64E-07**
Entrained Gases						
Xe-135	Ci	1.17E-05	0.00E+00	1.11E-04	1.10E-05	1.34E-04
Xe-133	Ci	5.12E-07	0.00E+00	2.75E-05	0.00E+00	2.80E-05
Total for Period	**Ci**	**1.22E-05**	**0.00E+00**	**1.39E-04**	**1.10E-05**	**1.62E-04**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 28, Liquid Effluents – Summation of All Releases for the Site

A. Fission & Activation Products	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	**Total**
1. Total Release	Ci	8.63E-03	4.55E-04	1.33E-03	4.04E-04	1.08E-02
2. Average diluted concentration	μCi/mL	1.25E-09	8.31E-11	1.53E-10	7.49E-11	4.09E-10
B. Tritium						
1. Total Release	Ci	2.45E+01	9.44E+00	3.04E+01	9.51E+00	7.39E+01
2. Average diluted concentration	μCi/mL	3.56E-06	1.72E-06	3.50E-06	1.76E-06	2.79E-06
C. Dissolved & Entrained Gases						
1. Total Release	Ci	4.11E-05	1.24E-05	1.56E-04	1.33E-05	2.23E-04
2. Average diluted concentration	μCi/mL	5.97E-12	2.26E-12	1.80E-11	2.47E-12	8.42E-12
D. Gross Alpha Activity						
1. Total Release	Ci	0.00E+00	0.00E+00	6.64E-07	0.00E+00	6.64E-07
2. Average diluted concentration	μCi/mL	N/A	N/A	7.65E-14	N/A	2.51E-14
E. Volume of Waste Released (prior to dilution)	Liters	1.03E+07	6.56E+06	1.31E+07	6.11E+06	3.61E+07
F. Volume of Dilution Water Used During Period	Liters	6.88E+09	5.48E+09	8.67E+09	5.40E+09	2.64E+10

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 29, Liquid Effluents – Continuous Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
Total for Period	**Ci**	**No Nuclides Found**				
Tritium						
H-3	**Ci**	**1.10E-01**	**4.29E-01**	**3.10E-01**	**3.31E-01**	**1.18E+00**
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				
Entrained Gases						
Total for Period	**Ci**	**No Nuclides Found**				

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 30, Liquid Effluents – Batch Mode for the Site

Radionuclide Released	Units	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total for year
Fission and Activation Products						
Na-24	Ci	2.76E-05	0.00E+00	1.10E-04	1.23E-06	1.39E-04
Co-58	Ci	6.48E-04	1.86E-05	6.69E-05	1.70E-05	7.51E-04
La-140	Ci	1.94E-06	0.00E+00	0.00E+00	0.00E+00	1.94E-06
Zn-65	Ci	1.32E-03	1.22E-04	1.24E-04	3.09E-05	1.60E-03
Au-199	Ci	1.82E-06	0.00E+00	1.54E-06	0.00E+00	3.36E-06
Y-91m	Ci	7.03E-07	0.00E+00	5.25E-07	0.00E+00	1.23E-06
Cr-51	Ci	7.92E-04	0.00E+00	0.00E+00	0.00E+00	7.92E-04
Sb-125	Ci	0.00E+00	0.00E+00	4.43E-06	0.00E+00	4.43E-06
As-76	Ci	1.50E-05	0.00E+00	1.93E-06	0.00E+00	1.69E-05
Fe-55	Ci	6.62E-04	0.00E+00	1.70E-04	0.00E+00	8.32E-04
Sn-117m	Ci	2.30E-06	0.00E+00	1.46E-06	4.12E-07	4.17E-06
Ag-110m	Ci	3.08E-04	1.17E-06	1.83E-04	4.04E-05	5.33E-04
Zr-97	Ci	1.26E-06	0.00E+00	0.00E+00	0.00E+00	1.26E-06
Sb-122	Ci	2.79E-05	0.00E+00	0.00E+00	0.00E+00	2.79E-05
Sr-92	Ci	8.03E-06	0.00E+00	5.78E-06	1.55E-06	1.54E-05
Co-60	Ci	2.21E-03	2.44E-04	4.76E-04	1.98E-04	3.13E-03
Mn-54	Ci	2.33E-03	5.96E-05	1.00E-04	3.71E-05	2.53E-03
Sb-124	Ci	2.05E-04	8.70E-08	1.24E-06	0.00E+00	2.06E-04
Zn-69m	Ci	5.92E-06	0.00E+00	1.20E-05	3.68E-07	1.83E-05
Cs-137	Ci	3.11E-05	9.14E-06	4.71E-05	7.25E-05	1.60E-04
Mn-56	Ci	4.80E-06	0.00E+00	2.22E-05	1.26E-06	2.83E-05
Sr-89	Ci	1.17E-05	0.00E+00	0.00E+00	0.00E+00	1.17E-05
Nb-97	Ci	5.17E-07	0.00E+00	0.00E+00	0.00E+00	5.17E-07
Fe-59		4.55E-06	0.00E+00	0.00E+00	3.50E-06	8.05E-06
Total for Period	**Ci**	**8.63E-03**	**4.55E-04**	**1.33E-03**	**4.04E-04**	**1.08E-02**
Tritium						
H-3	**Ci**	**2.44E+01**	**9.02E+00**	**3.01E+01**	**9.18E+00**	**7.27E+01**
Gross Alpha						
Alpha	**Ci**	**No Nuclides Found**				

Attachment 1, ARERR Release Summary Tables (RG-1.21 Tables)

Table 30, Liquid Effluents – Batch Mode for the Site

Entrained Gases						
Kr-87	Ci	0.00E+00	7.86E-07	6.10E-07	0.00E+00	1.40E-06
Xe-133	Ci	1.44E-06	1.43E-06	3.35E-05	8.05E-07	3.72E-05
Xe-135	Ci	3.96E-05	0.00E+00	1.22E-04	1.25E-05	1.74E-04
Xe-131m	Ci	0.00E+00	1.01E-05	0.00E+00	0.00E+00	1.01E-05
Total for Period	**Ci**	**4.11E-05**	**1.24E-05**	**1.56E-04**	**1.33E-05**	**2.23E-04**

Zeroes in this table indicate that no radioactivity was present at detectable levels.

Attachment 2, Solid Waste Disposal Information

1.0 SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

Table 31, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 01/01/2024 to 06/30/2024

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Activity)
A	2.41E+03	6.82E+01	1.01E+02	± 21
B	9.79E+01	2.77E+00	3.67E+02	+ 21
C	0.00E+00	0.00E+00	0.00E+00	
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	2.51E+03	7.10E+01	4.68E+02	+ 21

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Co-58, Co-60, Ni-63, Zn-65, Sr-90, Tc-99, I-129, I-131, Cs-137, Pu-238, Pu-239, Am-241, Cm-242, Cm-243

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.1%	9.61E-02
C-14	3.22%	3.25E+00
Cr-51	1.98%	2.00E+00
Mn-54	10.62%	1.07E+01
Fe-55	26.12%	2.63E+01
Fe-59	0.24%	2.42E-01
Co-57	0.05%	5.23E-02
Co-58	8.75%	8.83E+00
Co-60	30.71%	3.10E+01
Ni-63	2.92%	2.94E+00
Zn-65	13.41%	1.35E+01
Sr-89	0.07%	6.80E-02
Sr-90	0.08%	8.15E-02
Sr-92	0%	1.44E-19
Tc-99	0%	1.43E-03

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Table 31, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 01/01/2024 to 06/30/2024

Ag-110m	0.16%	1.57E-01
Sb-124	0.13%	1.33E-01
Sb-125	0.03%	2.87E-02
I-131	0.04%	3.85E-02
Cs-137	1.34%	1.35E+00
Ba-140	0.01%	1.22E-02
La-140	0%	1.24E-03
Ce-141	0.01%	9.93E-03
Ce-144	0%	1.82E-03
Hf-181	0.01%	5.62E-03
Pu-238	0%	2.49E-04
Pu-239	0%	1.80E-04
Am-241	0%	1.62E-04
Cm-243	0%	6.52E-05
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
C-14	0%	3.57E-03
Cr-51	0.11%	3.99E-01
Mn-54	8.05%	2.95E+01
Fe-55	34.71%	1.27E+02
Co-57	0.04%	1.47E-01
Co-58	4.68%	1.71E+01
Co-60	41.82%	1.53E+02
Ni-63	0.85%	3.10E+00
Zn-65	9.39%	3.44E+01
Sr-89	0.05%	1.78E-01
Sr-90	0.02%	5.98E-02
Tc-99	0.02%	6.23E-02
Ag-110m	0.23%	8.46E-01
I-133	0%	3.27E-05
Cs-137	0.02%	8.83E-02

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Table 31, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 01/01/2024 to 06/30/2024

Hf-181	0.02%	6.26E-02
Pu-238	0%	2.04E-04
Cm-242	0%	1.76E-04
Cm-243	0%	1.05E-04
Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.02%	9.61E-02
C-14	0.7%	3.25E+00
Cr-51	0.51%	2.40E+00
Mn-54	8.61%	4.02E+01
Fe-55	32.85%	1.53E+02
Fe-59	0.05%	2.42E-01
Co-57	0.04%	2.00E-01
Co-58	5.56%	2.60E+01
Co-60	39.43%	1.84E+02
Ni-63	1.29%	6.05E+00
Zn-65	10.26%	4.79E+01
Sr-89	0.05%	2.46E-01
Sr-90	0.03%	1.41E-01
Sr-92	0%	1.44E-19
Tc-99	0.01%	6.37E-02
Ag-110m	0.21%	1.00E+00
Sb-124	0.03%	1.33E-01
Sb-125	0.01%	2.87E-02
I-131	0.01%	3.85E-02
I-133	0%	3.27E-05
Cs-137	0.31%	1.44E+00
Ba-140	0%	1.22E-02

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Table 31, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 01/01/2024 to 06/30/2024

La-140	0%	1.24E-03
Ce-141	0%	9.93E-03
Ce-144	0%	1.82E-03
Hf-181	0.01%	6.82E-02
Pu-238	0%	4.53E-04
Pu-239	0%	1.80E-04
Am-241	0%	1.62E-04
Cm-242	0%	1.76E-04
Cm-243	0%	1.70E-04

Attachment 2, Solid Waste Disposal Information

Table 32, Dry Active Waste (DAW) Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**	**% Error (Activity)**
A	2.61E+04	7.40E+02	1.71E+00	± 1.3
B	0.00E+00	0.00E+00	0.00E+00	
C	0.00E+00	0.00E+00	0.00E+00	
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	2.61E+04	7.40E+02	1.71E+00	± 1.3

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Co-58, Co-60, Ni-63, Zn-65, Tc-99, I-129, Cs-137

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Cr-51	2.8%	4.80E-02
Mn-54	4.14%	7.08E-02
Fe-55	65.2%	1.12E+00
Fe-59	0.49%	8.45E-03
Co-58	1.78%	3.05E-02
Co-60	20.6%	3.53E-01
Ni-63	1.92%	3.29E-02
Zn-65	1.64%	2.81E-02
Ag-110m	0.31%	5.23E-03
Sb-124	0.06%	1.09E-03
Cs-137	0.92%	1.57E-02
Hf-181	0.15%	2.49E-03
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A
Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Attachment 2, Solid Waste Disposal Information

Table 32, Dry Active Waste (DAW) Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Cr-51	2.8%	4.80E-02
Mn-54	4.14%	7.08E-02
Fe-55	65.2%	1.12E+00
Fe-59	0.49%	8.45E-03
Co-58	1.78%	3.05E-02
Co-60	20.6%	3.53E-01
Ni-63	1.92%	3.29E-02
Zn-65	1.64%	2.81E-02
Ag-110m	0.31%	5.23E-03
Sb-124	0.06%	1.09E-03
Cs-137	0.92%	1.57E-02
Hf-181	0.15%	2.49E-03

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Table 33, Irradiated Components Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**	**% Error (Activity)**
A	0.00E+00	0.00E+00	0.00E+00	
B	0.00E+00	0.00E+00	0.00E+00	
C	0.00E+00	0.00E+00	0.00E+00	
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	0.00E+00	0.00E+00	0.00E+00	

Major Nuclides for Above Table:

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

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Table 34, Other Waste Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Activity)
A	0.00E+00	0.00E+00	0.00E+00	
B	0.00E+00	0.00E+00	0.00E+00	
C	0.00E+00	0.00E+00	0.00E+00	
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	0.00E+00	0.00E+00	0.00E+00	

Major Nuclides for Above Table:

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Attachment 2, Solid Waste Disposal Information

Table 35, All Low-Level Waste Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**
A	2.85E+04	8.08E+02	1.03E+02
B	9.79E+01	2.77E+00	3.67E+02
C	0.00E+00	0.00E+00	0.00E+00
Unclassified	0.00E+00	0.00E+00	0.00E+00
All	2.86E+04	8.11E+02	4.69E+02

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Co-58, Co-60, Ni-63, Zn-65, Sr-90, Tc-99, I-129, I-131, Cs-137, Pu-238, Pu-239, Am-241, Cm-242, Cm-243

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.09%	9.61E-02
C-14	3.17%	3.25E+00
Cr-51	2%	2.05E+00
Mn-54	10.52%	1.08E+01
Fe-55	26.77%	2.75E+01
Fe-59	0.24%	2.51E-01
Co-57	0.05%	5.23E-02
Co-58	8.64%	8.86E+00
Co-60	30.54%	3.13E+01
Ni-63	2.9%	2.98E+00
Zn-65	13.21%	1.36E+01
Sr-89	0.07%	6.80E-02
Sr-90	0.08%	8.15E-02
Sr-92	0%	1.44E-19
Tc-99	0%	1.43E-03
Ag-110m	0.16%	1.62E-01
Sb-124	0.13%	1.34E-01
Sb-125	0.03%	2.87E-02
I-131	0.04%	3.85E-02
Cs-137	1.33%	1.36E+00

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Table 35, All Low-Level Waste Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Ba-140	0.01%	1.22E-02
La-140	0%	1.24E-03
Ce-141	0.01%	9.93E-03
Ce-144	0%	1.82E-03
Hf-181	0.01%	8.11E-03
Pu-238	0%	2.49E-04
Pu-239	0%	1.80E-04
Am-241	0%	1.62E-04
Cm-243	0%	6.52E-05
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
C-14	0%	3.57E-03
Cr-51	0.11%	3.99E-01
Mn-54	8.05%	2.95E+01
Fe-55	34.71%	1.27E+02
Co-57	0.04%	1.47E-01
Co-58	4.68%	1.71E+01
Co-60	41.82%	1.53E+02
Ni-63	0.85%	3.10E+00
Zn-65	9.39%	3.44E+01
Sr-89	0.05%	1.78E-01
Sr-90	0.02%	5.98E-02
Tc-99	0.02%	6.23E-02
Ag-110m	0.23%	8.46E-01
I-133	0%	3.27E-05
Cs-137	0.02%	8.83E-02
Hf-181	0.02%	6.26E-02
Pu-238	0%	2.04E-04
Cm-242	0%	1.76E-04
Cm-243	0%	1.05E-04

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Table 35, All Low-Level Waste Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Mn-54	8.59%	4.03E+01
Fe-55	32.97%	1.55E+02
Fe-59	0.05%	2.51E-01
Co-57	0.04%	2.00E-01
Co-58	5.54%	2.60E+01
Co-60	39.36%	1.85E+02
Ni-63	1.3%	6.08E+00
Zn-65	10.22%	4.79E+01
Sr-89	0.05%	2.46E-01
Sr-90	0.03%	1.41E-01
Sr-92	0%	1.44E-19
Tc-99	0.01%	6.37E-02
Ag-110m	0.22%	1.01E+00
Sb-124	0.03%	1.34E-01
Sb-125	0.01%	2.87E-02
I-131	0.01%	3.85E-02
I-133	0%	3.27E-05
Cs-137	0.31%	1.45E+00
Ba-140	0%	1.22E-02
La-140	0%	1.24E-03
Ce-141	0%	9.93E-03
Ce-144	0%	1.82E-03
Hf-181	0.02%	7.07E-02
Pu-238	0%	4.53E-04
Pu-239	0%	1.80E-04

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Table 35, All Low-Level Waste Shipping Summary for the Hatch Site from 01/01/2024 to 06/30/2024

Am-241	0%	1.62E-04
Cm-242	0%	1.76E-04
Cm-243	0%	1.70E-04

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Table 36, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 07/01/2024 to 12/31/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**	**% Error (Activity)**
A	1.83E+03	5.17E+01	3.64E+01	± 8.6
B	0.00E+00	0.00E+00	0.00E+00	
C	3.53E+01	1.00E+00	3.52E+01	± 8.6
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	1.86E+03	5.27E+01	7.16E+01	± 8.6

Major Nuclides for Above Table: H-3, C-14, Mn-54, Fe-55, Co-58, Co-60, Ni-59, Ni-63, Zn-65, Sr-90, Nb-94, Tc-99, I-129, I-131, Cs-137, Ba-140, Pu-238, Pu-239, Pu-241, Am-241, Cm-242, Cm-243

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.3%	1.18E-01
C-14	3.38%	1.33E+00
Cr-51	0.32%	1.27E-01
Mn-54	9.02%	3.55E+00
Fe-55	28.34%	1.12E+01
Fe-59	0.12%	4.83E-02
Co-57	0.04%	1.54E-02
Co-58	4.42%	1.74E+00
Co-60	36.08%	1.42E+01
Ni-63	2.29%	9.01E-01
Zn-65	11.14%	4.38E+00
Kr-88	0%	5.84E-26
Sr-89	0.35%	1.39E-01
Sr-90	0.32%	1.24E-01
Sr-92	0%	1.86E-24
Ag-110m	0.19%	7.38E-02
Sb-124	0.05%	1.94E-02
Sb-125	0.02%	9.60E-03
I-131	0.15%	5.85E-02

Attachment 2, Solid Waste Disposal Information

Table 36, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 07/01/2024 to 12/31/2024

I-133	0%	6.10E-06
Cs-137	3.34%	1.32E+00
Ba-140	0.08%	3.03E-02
La-140	0.01%	3.37E-03
Ce-141	0.03%	1.11E-02
Pu-238	0%	1.79E-04
Pu-239	0%	1.56E-04
Am-241	0%	7.57E-05
Cm-243	0%	5.48E-05
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A
Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.28%	9.80E-02
C-14	0%	9.14E-04
Mn-54	0.03%	1.09E-02
Fe-55	41.67%	1.47E+01
Co-60	37.4%	1.32E+01
Ni-59	0.12%	4.13E-02
Ni-63	20.35%	7.16E+00
Sr-90	0%	1.32E-03
Cs-137	0.02%	8.47E-03
Ce-144	0.04%	1.24E-02
Pu-238	0%	1.13E-03
Pu-239	0%	8.18E-04
Pu-241	0.07%	2.41E-02
Pu-242	0%	3.80E-05
Am-241	0.01%	3.63E-03
Cm-242	0%	1.08E-05

Attachment 2, Solid Waste Disposal Information

Table 36, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 07/01/2024 to 12/31/2024

Cm-243	0%	8.17E-04
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.29%	2.16E-01
C-14	1.79%	1.33E+00
Cr-51	0.17%	1.27E-01
Mn-54	4.78%	3.56E+00
Fe-55	34.63%	2.58E+01
Fe-59	0.06%	4.83E-02
Co-57	0.02%	1.54E-02
Co-58	2.33%	1.74E+00
Co-60	36.7%	2.74E+01
Ni-59	0.06%	4.13E-02
Ni-63	10.81%	8.06E+00
Zn-65	5.88%	4.38E+00
Kr-88	0%	5.84E-26
Sr-89	0.19%	1.39E-01
Sr-90	0.17%	1.26E-01
Sr-92	0%	1.86E-24
Ag-110m	0.1%	7.38E-02
Sb-124	0.03%	1.94E-02
Sb-125	0.01%	9.60E-03
I-131	0.08%	5.85E-02
I-133	0%	6.10E-06
Cs-137	1.78%	1.32E+00
Ba-140	0.04%	3.03E-02
La-140	0%	3.37E-03
Ce-141	0.01%	1.11E-02
Ce-144	0.02%	1.24E-02
Pu-238	0%	1.31E-03
Pu-239	0%	9.74E-04

Attachment 2, Solid Waste Disposal Information

Table 36, Resins, Filters, and Evaporator Bottoms Shipping Summary for the Hatch Site
from 07/01/2024 to 12/31/2024

Pu-241	0.03%	2.41E-02
Pu-242	0%	3.80E-05
Am-241	0%	3.71E-03
Cm-242	0%	1.08E-05
Cm-243	0%	8.72E-04

Attachment 2, Solid Waste Disposal Information

Table 37, Dry Active Waste (DAW) Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Activity)
A	1.13E+04	3.21E+02	9.48E-02	± 0.33
B	0.00E+00	0.00E+00	0.00E+00	
C	1.60E-01	4.53E-03	1.43E-02	± 0.33
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	1.13E+04	3.21E+02	1.09E-01	± 0.33

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Co-58, Co-60, Ni-59, Ni-63, Zn-65, Sr-90, Nb-94, Tc-99, I-129, Cs-137, Pu-238, Pu-239, Pu-241, Am-241, Cm-242, Cm-243

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Cr-51	2.77%	2.63E-03
Mn-54	4.14%	3.92E-03
Fe-55	65.24%	6.19E-02
Fe-59	0.49%	4.66E-04
Co-58	1.78%	1.68E-03
Co-60	20.59%	1.95E-02
Ni-63	1.92%	1.82E-03
Zn-65	1.64%	1.55E-03
Ag-110m	0.31%	2.90E-04
Sb-124	0.06%	6.01E-05
Cs-137	0.92%	8.71E-04
Hf-181	0.14%	1.37E-04
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Attachment 2, Solid Waste Disposal Information

Table 37, Dry Active Waste (DAW) Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0%	3.02E-08
C-14	0.01%	1.82E-06
Cr-51	0%	2.73E-07
Mn-54	0.1%	1.38E-05
Fe-55	38.31%	5.49E-03
Fe-59	0%	4.85E-08
Co-58	0%	1.76E-07
Co-60	53.86%	7.72E-03
Ni-59	0.04%	5.97E-06
Ni-63	7.68%	1.10E-03
Zn-65	0%	1.70E-07
Nb-94	0%	1.94E-08
Tc-99	0%	1.23E-08
Ag-110m	0%	3.04E-08
Sb-124	0%	6.27E-09
Cs-137	0%	9.15E-08
Hf-181	0%	1.43E-08
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0%	3.02E-08
C-14	0%	1.82E-06
Cr-51	2.41%	2.63E-03
Mn-54	3.61%	3.94E-03
Fe-55	61.71%	6.74E-02
Fe-59	0.43%	4.66E-04
Co-58	1.54%	1.68E-03
Co-60	24.96%	2.73E-02
Ni-59	0.01%	5.97E-06
Ni-63	2.67%	2.92E-03

Attachment 2, Solid Waste Disposal Information

Table 37, Dry Active Waste (DAW) Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Zn-65	1.42%	1.55E-03
Nb-94	0%	1.94E-08
Tc-99	0%	1.23E-08
Ag-110m	0.27%	2.90E-04
Sb-124	0.06%	6.01E-05
Cs-137	0.8%	8.71E-04
Hf-181	0.13%	1.37E-04

Attachment 2, Solid Waste Disposal Information

Table 38, Irradiated Components Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**	**% Error (Activity)**
A	1.88E+02	5.33E+00	4.84E+00	± 144
B	0.00E+00	0.00E+00	0.00E+00	
C	1.43E+01	4.05E-01	2.06E+04	± 144
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	2.02E+02	5.73E+00	2.06E+04	± 144

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Fe-59, Co-58, Co-60, Ni-59, Ni-63, Zn-65, Sr-90, Nb-94, Tc-99, I-129, I-131, Cs-137, Ta-182, Pu-238, Pu-239, Pu-240, Pu-241, Am-241, Cm-242, Cm-243, Cm-244

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.01%	2.37E-04
C-14	0.03%	5.99E-04
Cr-51	0.01%	1.74E-04
Mn-54	0.07%	1.37E-03
Fe-55	19.48%	3.68E-01
Fe-59	0%	3.58E-05
Co-58	0.01%	1.41E-04
Co-60	39.7%	7.50E-01
Ni-59	0.18%	3.45E-03
Ni-63	40.48%	7.65E-01
Zn-65	0.01%	1.56E-04
Nb-94	0%	1.64E-05
Tc-99	0%	4.21E-06
Ag-110m	0%	2.71E-05
Sb-124	0%	4.91E-06
Cs-137	0%	8.50E-05
Hf-181	0%	1.04E-05
Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Attachment 2, Solid Waste Disposal Information

Table 38, Irradiated Components Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.01%	1.52E+00
C-14	0.01%	1.42E+00
Cr-51	0.37%	7.59E+01
Mn-54	2.55%	5.24E+02
Fe-55	59.08%	1.22E+04
Fe-59	0.06%	1.23E+01
Co-58	0.51%	1.04E+02
Co-60	32.26%	6.64E+03
Ni-59	0.02%	4.69E+00
Ni-63	4.6%	9.47E+02
Zn-65	0.04%	7.52E+00
Sr-90	0%	3.17E-01
Nb-94	0%	2.74E-02
Tc-99	0%	6.31E-03
Ag-110m	0%	2.95E-02
Sb-124	0%	2.32E-01
Cs-137	0%	3.34E-01
Ce-144	0%	2.55E-01
Hf-181	0.01%	1.06E+00
Ta-182	0.5%	1.03E+02
U-235	0%	5.96E-08
Np-237	0%	2.45E-06
Pu-238	0%	3.22E-02
Pu-239	0%	2.21E-05
Pu-240	0%	3.21E-05
Pu-241	0%	6.29E-03
Pu-242	0%	1.40E-07
Am-241	0%	5.32E-05

Attachment 2, Solid Waste Disposal Information

Table 38, Irradiated Components Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Am-243	0%	2.26E-06
Cm-242	0%	2.44E-04
Cm-243	0%	1.99E-06
Cm-244	0%	4.80E-04
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3	0.01%	1.52E+00
C-14	0.01%	1.42E+00
Cr-51	0.37%	7.59E+01
Mn-54	2.54%	5.24E+02
Fe-55	59.07%	1.22E+04
Fe-59	0.06%	1.23E+01
Co-58	0.51%	1.04E+02
Co-60	32.26%	6.64E+03
Ni-59	0.02%	4.69E+00
Ni-63	4.6%	9.48E+02
Zn-65	0.04%	7.52E+00
Sr-90	0%	3.17E-01
Nb-94	0%	2.74E-02
Tc-99	0%	6.32E-03
Ag-110m	0%	2.96E-02
Sb-124	0%	2.32E-01
Cs-137	0%	3.35E-01
Ce-144	0%	2.55E-01
Hf-181	0.01%	1.06E+00
Ta-182	0.5%	1.03E+02
U-235	0%	5.96E-08
Np-237	0%	2.45E-06
Pu-238	0%	3.22E-02
Pu-239	0%	2.21E-05

Attachment 2, Solid Waste Disposal Information

Table 38, Irradiated Components Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Pu-240	0%	3.21E-05
Pu-241	0%	6.29E-03
Pu-242	0%	1.40E-07
Cm-243	0%	1.99E-06
Cm-244	0%	4.80E-04

Attachment 2, Solid Waste Disposal Information

Table 39, Other Waste Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Activity)
A	0.00E+00	0.00E+00	0.00E+00	
B	0.00E+00	0.00E+00	0.00E+00	
C	0.00E+00	0.00E+00	0.00E+00	
Unclassified	0.00E+00	0.00E+00	0.00E+00	
All	0.00E+00	0.00E+00	0.00E+00	

Major Nuclides for Above Table:

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A

Attachment 2, Solid Waste Disposal Information

Table 40, All Low-Level Waste Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class	**Volume** ft^3	m^3	**Curies Shipped**
A	1.33E+04	3.78E+02	4.13E+01
B	0.00E+00	0.00E+00	0.00E+00
C	4.98E+01	1.41E+00	2.06E+04
Unclassified	0.00E+00	0.00E+00	0.00E+00
All	1.34E+04	3.79E+02	2.07E+04

Major Nuclides for Above Table: H-3, C-14, Cr-51, Mn-54, Fe-55, Fe-59, Co-58, Co-60, Ni-59, Ni-63, Zn-65, Sr-90, Nb-94, Tc-99, I-129, I-131, Cs-137, Ba-140, Ta-182, Pu-238, Pu-239, Pu-240, Pu-241, Am-241, Cm-242, Cm-243, Cm-244

Waste Class A		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
H-3		
Mn-54		
Fe-55		
Co-58		
Co-60		
Ni-63		
Sb-125		
Cs-137		

Waste Class B		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Mn-54		
Fe-55		
Co-60		
Ni-63		
Cs-137		

Attachment 2, Solid Waste Disposal Information

Table 40, All Low-Level Waste Shipping Summary for the Hatch Site from 07/01/2024 to 12/31/2024

Waste Class C		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
None	N/A	N/A
Total Combined		**Percent Abundance > 0.0%**
Nuclide Name	Percent Abundance	Curies
Mn-54		
Fe-55		
Co-60		
Ni-63		
Sb-125		
Cs-137		

Attachment 2, Solid Waste Disposal Information

2.0 SOLID WASTE DISPOSITION

Table 41, Solid Waste Disposition for the HNP Site

Number of Shipments	Period	Curies	m^3	Mode of Transportation	Destination
32	01/01/2024 to 06/30/2024	4.69E+02	8.11E+02	Highway	Energy Solutions, Tennessee
21	07/01/2024 to 12/31/2024	2.07E+04	3.79E+02	Highway	Energy Solutions, Tennessee Waste Control Specialist, Texas
Total 53		21,208	1,229		

3.0 IRRADIATED FUEL DISPOSITION

Table 42, Irradiated Fuel Shipments Disposition for the HNP Site

Number of Shipments	Mode of Transportation	Destination
0		
0		
Total 0		

Attachment 3, Meteorological Data

The data recovery for 2024 met the 90% NRC requirements for the following parameters after using the backup tower and the Savannah NWS station to replace the missing or bad data.

- Wind speed 10m
- Wind speed 60m
- Wind speed 100m
- Wind speed 45m (Backup)
- Wind direction 10m
- Temperature 10m
- Dew Point 10m
- Precipitation

The wind direction at 60m, 100m, and 45m failed to achieve the 90% recovery rate. All the delta temperatures parameters failed to achieve 90% along with the 45m temperature on the backup tower. The exact cause of these failures is not known. The joint frequency distributions showed good agreement when compared to the recent 5-year period. The peak wind direction sectors for 2024 were from the south-southwest at 10m, east-northeast at the 100m level, the north at 60m level on the primary tower and from the east-northeast at the 45m level on the backup tower. Temperatures were slightly above average for the year 2024. Rainfall was 57.11 inches, which was above average for the area and was possibly influenced by noise within the system and effects from Tropical Storm Debby that resulted in significantly higher rainfall values at random intervals.

Table 43, Occurrence of Stability Classes in Plant Hatch 10 Meter Meteorological Data

Stability Class	5-Year Average Percent Occurrence (2017-2021)	Percent Occurrence (2022)	Percent Occurrence (2023)	Percent Occurrence (2024)
A	13.30	31.93	11.38	9.92
B	6.16	4.65	3.49	6.37
C	5.61	4.45	4.43	5.39
D	22.94	17.21	24.16	28.43
E	30.04	17.26	30.95	19.92
F	11.11	8.36	13.62	7.70
G	10.83	16.14	11.97	22.27
Total Hours	8735.4	8760	8760	8784

Attachment 3, Meteorological Data

Table 44, HNP Meteorological Data Recovery, 2024

Parameter	5-Year Average Percent Recovery (2017-2021)	Percent Recovery (2022)	Percent Recovery (2023)	Percent Recovery (2024)
Wind Speed 10m	98.50	98.7	99.9	98.8
Wind Speed 60m	97.32	98.8	100.0	91.6
Wind Speed 100m	96.96	61.2	100.0	91.6
Wind Speed 45m (Backup)	96.24	62.7	99.6	91.6
Wind Direction 10m	92.56	24.8	100.0	93.2
Wind Direction 60m	88.96	96.4	100.0	75.3
Wind Direction 100m	94.98	49.4	100.0	22.8
Wind Direction 45m (Backup)	75.44	98.8	99.6	81.7
Delta Temperature 60-10m	9	40.9	100.0	27.7
Delta Temperature 100-10m	98.5	49.6	100.0	27.5
Delta Temperature 45-10m (Backup)	90.14	95.7	100.0	82.1
Temperature 10m (Primary)	98.74	24.6	100.0	99.9
Dew Point 10m	93.58	61.8	100.0	99.8
Temperature 45m (Backup)	90.00	96.4	100.0	82.4
Precipitation	99.00	98.8	100.0	100.0
Composite				
10m Wind Speed and Direction, Delta Temperature 60-10m	91.98	40.8	100.0	27.6
60m Wind Speed and Direction, Delta Temperature 60-10m	87.82	40.9	100.0	27.6
100m Wind Speed and Direction, Delta Temperature 100-10m	92.82	37.2	100.0	22.5
45m Wind Speed and Direction, Delta Temperature 45-10m	67.40	95.1	99.6	81.6

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

To ensure compliance with NEI 07-07 (Industry Ground Water Protection Initiative – Final Guidance Document), Southern Nuclear implemented a groundwater protection program which is proceduralized in Nuclear Management Procedure, Radiological Groundwater Protection Program. The procedure contains detailed site-specific monitoring plans, program technical bases, and communications protocol (to ensure that radioactive leaks and spills are addressed and communicated appropriately). To prevent future leaks of radioactive material to groundwater, SNC plants have established buried piping and tank inspection programs. No changes were made to the Plant Hatch Groundwater Protection Program in 2024.

Hatch Nuclear Plant groundwater protection program consists of 44 sample points listed in Table 45. The points are sampled at a frequency that satisfies the requirements of NEI 07-07. Table 46 contains the 2024 analytical results of the HNP groundwater protection program tritium results (in pCi/L). Figure 5 is a map of the monitoring network

Table 45, Groundwater Monitoring Locations

Sample Point*	Aquifer	Monitoring Purpose
R-1	Minor Confined Aquifer	Upgradient
R-2	Minor Confined Aquifer	Diesel Generator Bldg.
R-3	Minor Confined Aquifer	CST-1
R-4	Minor Confined Aquifer	Dilution Line Near River Water Discharge Structure
R-5	Unconfined Perched Aquifer	Between Subsurface Drain Lines Downgradient
R-6	Unconfined Perched Aquifer	Between Subsurface Drain Lines Downgradient
NW-2A	Unconfined Perched Aquifer	Water Table Near CST-2 Inside of Subsurface Drain
NW-2B	Unconfined Perched Aquifer	Water Table Outside of Subsurface Drain
NW-3A	Unconfined Perched Aquifer	Water Table Inside of Subsurface Drain
NW-4A	Unconfined Perched Aquifer	Water Table Upgradient Inside of Subsurface Drain
NW-5A	Unconfined Perched Aquifer	Water Table Upgradient Inside of Subsurface Drain
NW-5B	Unconfined Perched Aquifer	Water Table Upgradient Outside of Subsurface Drain
NW-6	Unconfined Perched Aquifer	Water Table Near Diesel Generator Bldg.
NW-8	Unconfined Perched Aquifer	Water Table Near Diesel Generator Bldg.
NW-9	Unconfined Perched Aquifer	Water Table Downgradient Inside of Subsurface Drain
NW-10	Unconfined Perched Aquifer	Water Table Near CST-2
T-3	Unconfined Perched Aquifer	Water Table Near Turbine Bldg.
T-7	Unconfined Perched Aquifer	Water Table Near Diesel Generator Bldg.
T-10	Unconfined Perched Aquifer	Water Table Near CST-1
T-11	Unconfined Perched Aquifer	Water Table Near CST-1
T-12	Unconfined Perched Aquifer	Water Table Near CST-1
T-13	Unconfined Perched Aquifer	Water Table Near CST-1

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Table 43, Groundwater Monitoring Locations

Sample Point*	Aquifer	Monitoring Purpose
T-14	Unconfined Perched Aquifer	Water Table Near CST-1
T-15	Unconfined Perched Aquifer	Water Table Near CST-1
T-16	Unconfined Perched Aquifer	Water Table Near CST-1
P-15A	Minor Confined Aquifer	Turbine Bldg.
P-15B	Unconfined Perched Aquifer	Turbine Bldg.
P-17A	Minor Confined Aquifer	Diesel Generator Bldg.
NU-1	Unconfined Perched Aquifer	CST-1
NU-2	Unconfined Perched Aquifer	CST-1
GW-1	Unconfined Perched Aquifer	Water Table downstream of CST-1 (outside CW tunnel boundary)
GW-2	Unconfined Perched Aquifer	Water Table downstream of CST-1 (inside CW tunnel boundary)
GW-3	Unconfined Perched Aquifer	Water Table downstream of CST-1 (outside CW tunnel boundary)
LD-1	Unconfined Perched Aquifer	Water Table Near CST-2
LD-2	Unconfined Perched Aquifer	Water Table Near CST-2
LD-3	Unconfined Perched Aquifer	Water Table Near CST-2
LD-4	Unconfined Perched Aquifer	Water Table Near CST-2
LD-5	Unconfined Perched Aquifer	Water Table Near CST-2
LD-6	Unconfined Perched Aquifer	Water Table Near CST-2
LD-7	Unconfined Perched Aquifer	Water Table Near CST-2
LD-8	Unconfined Perched Aquifer	Water Table Near CST-2
DW-1	Principal Artesian Aquifer	Area Monitoring – Service Water Supply Well
DW-2	Principal Artesian Aquifer	Area Monitoring – Service Water Supply Well
DW-3	Principal Artesian Aquifer	Area Monitoring – Service Water Supply Well
* The above wells were sampled in 2024 in support of tritium groundwater trending		

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Table 46, Groundwater Protection Program Tritium Results (pCi/L)

Sample Point	Sampling Period (pCi/L)			
	1Q2024	2Q2024	3Q2024	4Q2024
R-1	WL	NDM	WL	NDM
R-2	WL	NDM	WL	NDM
R-3	WL	1060	WL	NR
R-4	NDM	NDM	299	NDM
R-5	636 688 NDM NDM 633 1220 538 247 380 450	1321 335 537 NDM	NDM NDM NDM NDM	336 209 NDM 540
R-6	379 NDM 314 609	510 126 543 NDM	NDM NDM 112 NDM	569 94 NDM NDM
NW-2A	5171 10390 3750	19440 9540 8868 12980	17530 6774 7480 7134	6078 12000 13760 5123 6020
NW-2B	WL	NDM	WL	NDM
NW-3A	WL	NDM	WL	304
NW-4A	NR	NDM	NR	NDM
NW-5A	WL	NDM	WL	NDM
NW-5B	WL	NDM	WL	NDM
NW-6	WL	156	WL	NDM
NW-8	WL	380	WL	NR
NW-9	WL	1530	WL	146
NW-10	286600 241200 250300	188900 174000 171300 160000	158000 152800 148000 171300	165000 153000 153500 156700 170100
T-3	NR	2150	NR	1490

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Table 46, Groundwater Protection Program Tritium Results (pCi/L)

Sample Point	Sampling Period (pCi/L)			
	1Q2024	2Q2024	3Q2024	4Q2024
T-7	NR	744	NR	1410
T-10	29210 37110 29070 17950 15590 14710 15490 8168 7053	2997 7785 5290	6796 3068 3415	5034 19340 12760
T-11	58660 57980 51800 27570 16800 19870 24710 14670 10130	10900 32080 23470	51180 12140 50440	18630 15240 14240
T-12	NR	14870 13810 14970 20070 53340 67900 66390 63690 57310 60930 67300	80940 91470 94320 92500 99750 88370 71080 49230 39840	32580 16110 14390
T13	NDM NDM NDM NDM NDM 1884 219 280 NDM	NDM	NDM 417 744	1061 813 1782

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Table 46, Groundwater Protection Program Tritium Results (pCi/L)

Sample Point	Sampling Period (pCi/L)			
	1Q2024	2Q2024	3Q2024	4Q2024
T-14	NDM 1377 238	384 NDM	NDM NDM 394	440 NDM NDM
T-15	18600 7109 4492	11430 12600 6784	7589 6047 4059	4298 3755 5813
T-16	3302 3779 3411	4283 4434	5373 4113 4486	4298 3755 5813
P-15A	NR	NDM	NR	NR
P-15B	NR	418.0	NR	1070.0
P-17A	NR	NDM	NR	NDM
NU-1	381 NDM 600	742 764 NDM	NDM 462 1128	537 NDM 632
NU-2	15500	17300	19600	16400
GW-1	346	105	NDM	NDM
GW-2	NR	NR	NR	264
GW-3	212	159	125	167
LD-1	DRY DRY DRY	DRY DRY DRY	529 DRY DRY	DRY DRY DRY
LD-2	DRY DRY 9800	9910 7560 DRY	6870 10100 6830	5370 6560 6250
LD-3	DRY DRY DRY	DRY DRY DRY	DRY DRY DRY	DRY DRY DRY
LD-4	DRY DRY 1360	987 2670 DRY	DRY 696 DRY	2380 DRY DRY
LD-5	916 1080 548	903 947 682	739 655 907	572 517 NDM

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

Table 46, Groundwater Protection Program Tritium Results (pCi/L)

Sample Point	Sampling Period (pCi/L)			
	1Q2024	**2Q2024**	**3Q2024**	**4Q2024**
LD-6	1630 1980 865	1220 1130 1060	971 1150 1000	NDM NDM NDM
LD-7	851 835 623	898 965 702	683 660 1940	906 983 NDM
LD-8	NDM 472 326	537 793 DRY	642 NDM 3020	NDM NDM NDM
Notes	**WL:** Water Level Only. Not sampled for analysis **NR:** Not Required for sampling in accordance with GWPP **NDM**: No Detectable Measurement - Less than Minimal Detectable Activity **DRY:** No Water in Well Casing			

Attachment 4, NEI 07-07 Onsite Radiological Groundwater Monitoring Program

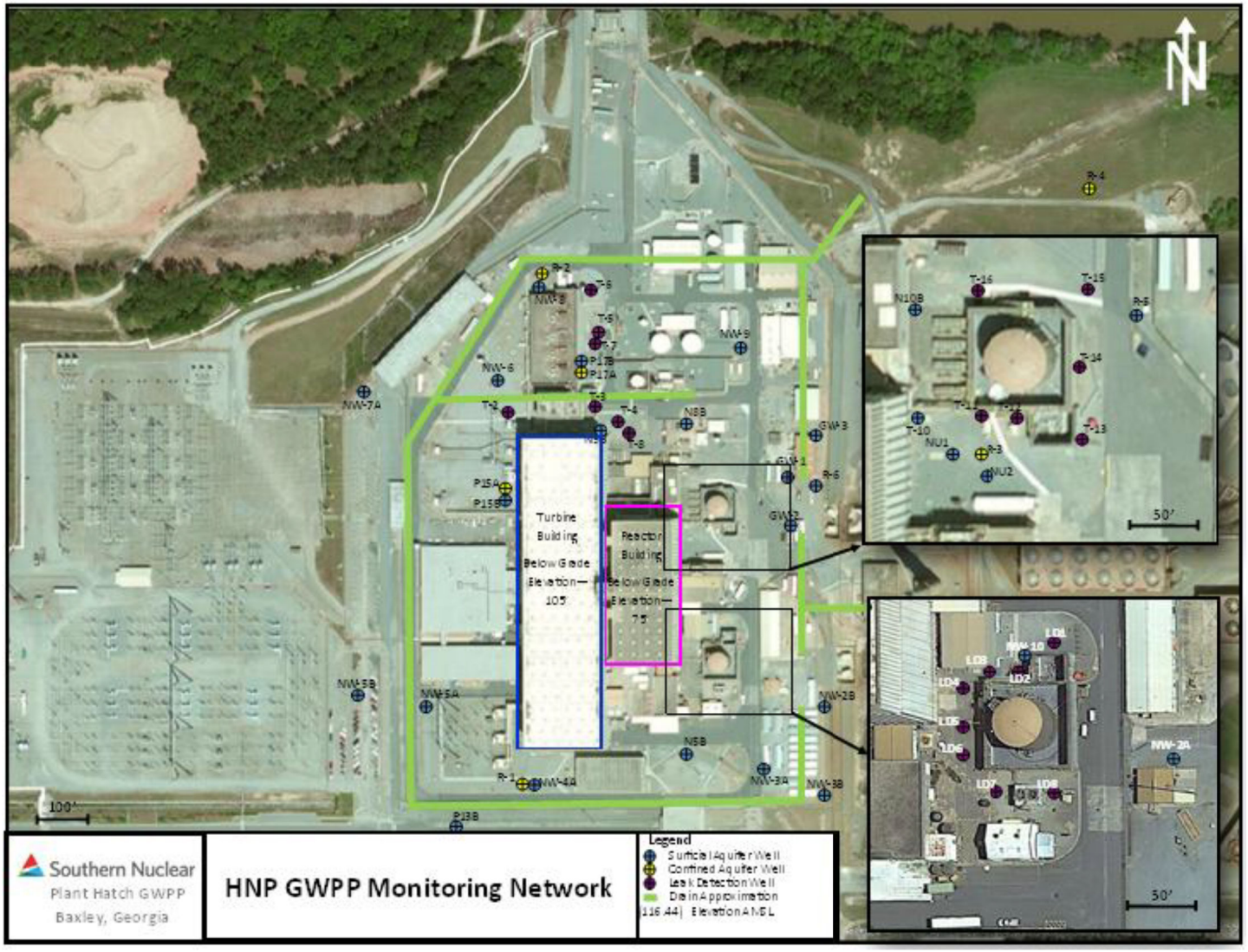

Figure 5, Hatch Nuclear Plant GWPP Monitoring Network

Edwin I. Hatch Nuclear Plant Unit 1 and 2

Enclosure 1

Annual Non-Radiological Environmental Operating Report for 2024

EDWIN I. HATCH NUCLEAR PLANT – UNITS 1 AND 2

I. Introduction

This report is submitted in accordance with Subsection 5.4.1 of the Edwin I. Hatch Nuclear Plant Environmental Protection Plan, Appendix B to Facility Operating Licenses DPR-57 and NPF-5. This report describes implementation of the Environmental Protection Plan for the calendar year 2024.

II. Reporting Requirements

A. Summaries and Analyses of Results of Environmental Protection Activities Required by Subsection 4.2 of the Environmental Protection Plan (EPP) for the Reporting Period

1. Aquatic Monitoring - Liquid effluent monitoring was performed in accordance with the State of Georgia National Pollutant Discharge Elimination System (NPDES) Permit GA0004120; there was no additional requirement for aquatic monitoring during the year.

2. Terrestrial Monitoring - Terrestrial monitoring is not required.

3. Maintenance of Transmission Line Corridors – There is no reporting requirement associated with this condition.

B. Comparisons of the Year's Monitoring Activities with Preoperational Studies, Operational Controls, and Previous Nonradiological Environmental Monitoring Reports

These comparisons were not required because no nonradiological environmental monitoring programs were conducted during the reporting period beyond those performed in accordance with NPDES Permit No. GA0004120.

C. Assessment of the Observed Impacts of Plant Operation on the Environment

There were no significant adverse environmental impacts associated with plant operation during the year.

D. EPP Noncompliance and Corrective Actions

There were no EPP noncompliances during the year.

E. Changes in Station Design or Operation, Tests, or Experiments Made in Accordance with EPP Subsection 3.1 Which Involved a Potentially Significant Unreviewed Environmental Question

There were no changes in station design or operation, tests, or experiments which involved a potentially significant, unreviewed environmental question.

F. Nonroutine Reports Submitted in Accordance with EPP Section 5.4.2

There were no nonroutine reports submitted during the year.