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United States Nuclear Regulatory Commission
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Byron Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: 2021 Annual Radioactive Effluent Release Report (ARERR)

Enclosed is the Annual Radioactive Effluent Release Report for Byron Station. This report is being submitted in accordance with 10 CFR 50.36 a(2), "Technical specifications on effluents from nuclear power reactors," and includes a summary of radiological liquid and gaseous effluents and solid waste released from the site from January 2021 through December 2021.

If you have any questions regarding this information, please contact Ms. Zoe Cox, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

A handwritten signature in black ink, appearing to read "JJK", with a long horizontal flourish extending to the right.

John J. Kowalski
Site Vice President
Byron Station

JJK/AH/ZC/sg

Enclosures

cc: Regional Administrator – NRC Region III

**BYRON NUCLEAR POWER STATION
ANNUAL RADIOLOGICAL EFFLUENT RELEASE REPORT (ARERR)
2021**



INTRODUCTION

Liquid effluents from Byron Station are released to the Rock River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere and are calculated on the basis of analyses of weekly grab samples and grab samples of batch releases prior to the release of noble gases as well as continuously collected composite samples of iodine and particulate radioactivity sampled during the course of the year. The results of effluent analyses are summarized on a monthly basis. Airborne concentrations of noble gases, I-131, and particulate radioactivity in offsite areas are calculated using isotopic composition of effluents and meteorological data. C-14 concentration in offsite areas is calculated based on industry-approved methodology for estimation of the amount released and meteorological data.

Environmental monitoring is conducted by sampling at indicator and control (background) locations in the vicinity of Byron Station to measure changes in radiation or radioactivity levels that may be attributable to station operation. If significant changes attributable to Byron Station are measured, these changes are correlated with effluent releases. An environmental monitoring program is conducted which also includes all potential pathways at the site. Gaseous pathways include ground plane (direct), inhalation, vegetation, meat, and milk.

BYRON NUCLEAR POWER STATION
UNIT 1/2 DOCKET NUMBER STN-50-454/455
RADIOACTIVE EFFLUENT RELEASE REPORT
January 2021 - December 2021
Supplemental Information

1. Regulatory Limits

a. Fission and activation products:

Tech Spec Whole Body	=	500 mrem/year
Skin	=	3000 mrem/year
10CFR50 Gamma	=	5 mrad/quarter; 10 mrad/year
Beta	=	10 mrad/quarter; 20 mrad/year

b. Iodine: (summed with particulate, see below)

c. Particulates with half-lives > 8 days:

Tech Spec Organ	=	1500 mrem/year
10CFR50 Organ	=	7.5 mrem/quarter; 15 mrem/year

d. Liquid Effluents:

10CFR50 Whole Body	=	1.5 mrem/quarter; 3 mrem/year
Organ	=	5 mrem/quarter; 10 mrem/year

2. Maximum Permissible Concentration

- a. Fission and Activation Products: 10CFR20 Appendix B Table 2
- b. Iodine: 10CFR20 Appendix B Table 2
- c. Particulates: 10CFR20 Appendix B Table 2
- d. Liquid Effluents: 10 X 10CFR20 Appendix B Table 2

3. Average Energy: This item is not applicable. The ODCM limits the dose equivalent rates due to the release of noble gases to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin.

4. Measurements and Approximations of Total Radioactivity

- a. Fission and activation products: Prior to release, the isotopic content is determined. Released activity is calculated using volume of release, which is determined by the change in tank level, containment pressure, or containment purge fan flow rates.
- b. Particulate and iodine sampling media for the plant vent stacks are continuously collected and analyzed weekly. Tritium and noble gas analysis for the plant vent stacks are obtained and analyzed weekly.
- c. Liquid effluents: Isotopic analysis is performed on each batch liquid release tank prior to its release. Total release activity is calculated using volume of release. Total tritium activity released is calculated from the highest of a monthly circulating water blowdown composite activity or a sum of the effluent input composite activities.

d. All positive results (i.e. higher than the lower limit of detection (LLD)) are reported in units of $\mu\text{Ci/cc}$ or $\mu\text{Ci/ml}$ unless otherwise noted. All LLD values and the associated LLD requirements are listed in Attachment A.

5. Batch Releases:

a. Liquid:

1. Number of batch releases = 88
2. Total time period for batch releases = 14,234 minutes
3. Maximum time period for a batch release = 514 minutes
4. Average time period for a batch release = 162 minutes
5. Minimum time period for a batch release = 39 minutes
6. Average Rock River stream flow during periods of release of effluent into a flowing stream = $134 \text{ m}^3/\text{sec}$, based on information from the U.S. Geological Survey Byron Gauging Station.

b. Gaseous:

1. Number of batch releases = 313
2. Total time period for batch releases = 36,307 minutes
3. Maximum time period for a batch release = 3,095 minutes
4. Average time period for batch releases = 116 minutes
5. Minimum time period for a batch release = 27 minutes

6. Abnormal Releases:

a. Liquid – None

b. Gaseous – None

7. There was no revision to the Offsite Dose Calculation Manual (ODCM) in 2021.

8. Errata Data

In 2020's ARERR it was stated that 6 additional casks were added to the ISFSI pad in 2020 and that was incorrect. No casks were added to the ISFSI pad in 2020.

9. 2021 Radiological Groundwater Protection Program (RGPP) Results Summary:

In 2021, Radiological Groundwater Protection Program (RGPP) monitoring well designations and sampling frequencies were modified to align with an update to the Nuclear Energy Institute (NEI) 07-07, Groundwater Protection Initiative. In 2021, fourteen (14) monitoring wells were sampled in total. Groundwater samples were obtained in March, June, September, and November for tritium. In addition, gamma isotopic analyses were performed on all wells and Sr-89 and Sr-90 analyses were performed on select wells for the samples obtained in June in accordance with site procedures and the Nuclear Energy Institute (NEI) 07-07, Groundwater Protection Initiative. None of these samples showed detectable concentrations of gamma activity or Sr-89/Sr-90. Three wells contained levels of tritium above the lower limit of detection (LLD) of 200 pCi/L. They were AR-4 (201 pCi/L in March), AR-7 (234 pCi/L in March, 228 pCi/L in June, 230 pCi/L in November), and AR-11 (397 pCi/L in June, 444 pCi/L in November). Wells AR-4 and AR-11 are near the Circulating Water Blowdown piping, where historical leakage through vacuum breakers was known to have occurred. These wells have exhibited an overall decreasing trend since 2006. Tritium in Well AR-7, located on-site just west of plant structures, has been measured in this well slightly above detection limits on an intermittent basis since the well was first drilled in 2006. The tritium present in this well is likely due to legacy tritium prior to 2006 or precipitation recapture and is not believed to be the result of new leaks. The tritium measured in this well has been at or below tritium levels

that have been historically measured in rainwater as a result of precipitation recapture from permitted gaseous releases. In August 2014, a break in the well piping was discovered about six feet below the surface that may have served as the entry point for tritium in the recapture water. Tritium present in well AR-7 has exhibited an overall decrease since 2014. None of these wells are used for drinking water, however, should any of the water in these aquifers migrate to off-site wells used for drinking, the off-site dose consequence from tritium present in these wells would be negligible. All groundwater well sample results are well below the drinking water standard of 20,000 pCi/L tritium. AMO Environmental Decisions, a nuclear utility groundwater consultant, has reviewed the 2021 RGPP data and concluded there is no evidence of new or ongoing tritium leak(s) at the site.

SUMMARY

Calculations based on gaseous and liquid effluents and meteorological data indicate that public dose due to radioactive material attributable to Byron Station during the period did not exceed any regulatory or Offsite Dose Calculation Manual (ODCM) limits.

The Total Effective Dose Equivalent (TEDE) due to licensed activities at Byron Station calculated for the maximum exposed individual for the period is 5.02E-01 mrem. The annual limit on TEDE is 100 mrem.

The assessment of radiation doses to the public is performed in accordance with the ODCM. The results of these analyses confirm that the station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

There were no additional operational controls implemented in 2021 that affected radiological effluents.

There were no measurements which exceeded the reporting levels, including any that would not have been attributable to station effluents.

The results of the current radiological environmental monitoring program are approximately the same as those found during the pre-operational studies conducted at Byron Station.

RELEASES

Gaseous Effluents to the Atmosphere

A total of 1.41E+00 curies of fission and activation gases were released with a maximum average quarterly release rate of 5.00E-02 μ Ci/sec.

Activity associated with I-131 was below detectable limits during each quarter of the year.

Airborne particulate matter activity was below detectable limits during each quarter of the year.

A total of 8.79E+00 curies of other (C-14) radioisotopes were released with a maximum average quarterly release rate of 1.49E-01 μ Ci/sec.

A total of 9.72E+01 curies of tritium were released with a maximum average quarterly release rate of 3.29E+00 μ Ci/sec.

Gross alpha-emitting radionuclides were below detectable limits during each quarter of the year.

Liquids Released to Rock River

A total of 3.12E+10 liters of radioactive liquid wastes containing 4.14E-02 curies of fission and activation

products were discharged with a maximum quarterly average concentration of $1.87\text{E-}09$ $\mu\text{Ci/ml}$.

A total of $2.52\text{E}+03$ curies of tritium were discharged with a maximum quarterly average concentration of $1.49\text{E-}04$ $\mu\text{Ci/ml}$.

A total of $1.13\text{E-}03$ curies of dissolved and entrained gases were discharged with a maximum quarterly average concentration of $1.31\text{E-}10$ $\mu\text{Ci/ml}$.

A total of $1.13\text{E-}03$ curies of Gross alpha-emitting radionuclides were discharged with a maximum quarterly average concentration of $5.14\text{E-}04$ $\mu\text{Ci/ml}$.

DOSE TO HUMAN

GASEOUS EFFLUENT PATHWAYS

Noble Gas - Gamma Dose Rates

Offsite Gamma air and whole body dose rates for the period were calculated based on measured release rates, isotopic composition of the noble gases, and average meteorological data. The maximum gamma air dose was $2.27\text{E-}04$ mrad based on measured effluents and average meteorological data, and $4.00\text{E-}05$ mrad based on measured effluents and concurrent meteorological data.

Noble Gas - Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less). Consequently, plumes of gaseous effluents may be considered "semi-infinite" for the purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin, and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor of 1.0 is used. The maximum skin dose was $3.15\text{E-}04$ mrem based on measured effluents and average meteorological data, and $4.53\text{E-}05$ mrem based on measured effluents and concurrent meteorological data.

The maximum offsite beta air dose for the year based on measured effluents and average meteorological data was $1.08\text{E-}06$ mrad and $2.44\text{E-}05$ mrad based on measured effluents and concurrent meteorological data.

Radioactive Iodine & Particulate

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. I-131 released during routine operation of the station may be made available to man resulting in dose to the thyroid. C-14 is also included in this category. C-14 exhibits a capacity to concentrate in bone. C-14 is released in gaseous form and is absorbed into vegetation through photosynthesis. The principal pathways of interest for C-14 are the consumption of vegetation by humans and milk from which animals have ingested C-14 through the consumption of vegetation. With the requirement to begin reporting C-14 dose in 2011 and the addition of C-14 to plant effluents, human dose in this category is primarily driven by the release of C-14 from the plant.

The hypothetical dose to the maximum exposed individual living near the station via ingestion of milk and vegetation was calculated. The source of milk and vegetation was assumed to be at the nearest site boundary with the cows pastured and vegetation grown from May through October. The maximum organ dose from radioactive iodine and particulate (including C-14) to any organ was $2.29\text{E}+00$ mrem (child/bone) based on measured effluents and average meteorological data, and $6.76\text{E-}01$ mrem (child/bone) based on measured effluents and concurrent meteorological data. The maximum dose from

radioactive iodine and particulate (including C-14) to the whole body was 4.77E-01 mrem (child) based on measured effluents and average meteorological data, and 1.41E-01 mrem (child) based on measured effluents and concurrent meteorological data.

Gaseous Total Dose

The maximum total dose from gaseous releases to any organ was 2.29E+00 mrem (child/bone) based on measured effluents and average meteorological data, and 6.76E-01 mrem (child/bone) based on measured effluents and concurrent meteorological data. The maximum total dose from gaseous releases to the whole body was 4.77E-01 mrem (child) based on measured effluents and average meteorological data, and 1.41E-01 mrem (child) based on measured effluents and concurrent meteorological data.

LIQUID EFFLUENT PATHWAYS

The principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water and eating aquatic foods. Liquid dose was calculated based on the ingestion of potable water and sport fish. It should be noted, however, there are currently no communities within 10 km downstream of the plant using the Rock River for drinking water. NRC-developed equations are used to calculate the doses to the whole body, bone, liver, thyroid, kidney, lung, lower GI tract, and skin. Specific parameters for use in the equations are given in the Exelon Offsite Dose Calculation Manual (ODCM).

The maximum dose from liquid releases to any organ was 3.00E-02 mrem (adult/GI-LLI). The maximum dose from liquid releases to the whole body was 2.52E-02 mrem (child).

GASEOUS + LIQUID TOTAL DOSE

The maximum total dose to any organ via both gaseous and liquid effluents is 2.33E+00 mrem (child/bone). The maximum dose to the whole body via both gaseous and liquid effluents is 5.02E-01 mrem (adult).

Dose Limits to Members of the Public

Byron Station did not exceed any of the dose limits as shown below based on concurrent or historical meteorological data:

- The limits on dose or dose commitment to a member of the public due to radioactive materials in liquid effluents from each reactor is 1.5 mrem to the whole body or 5 mrem to any organ during any calendar quarter and 3 mrem to the whole body or 10 mrem to any organ during a calendar year.
- The limits on air dose due to noble gases released in gaseous effluents to a member of the public from each reactor is 5 mrad for gamma radiation or 10 mrad for beta radiation during any calendar quarter and 10 mrad for gamma radiation or 20 mrad for beta radiation during a calendar year.
- The limits on dose to a member of the public due to radioactive iodine & particulate with half-lives greater than eight days in gaseous effluents released from each reactor is 7.5 mrem to any organ during any calendar quarter and 15 mrem to any organ during a calendar year.
- The annual 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public is 100 mrem.

- The 40CFR190 limits on individual members of the public is 25 mrem to the whole body, 25 mrem to any organ (except thyroid), and 75 mrem to the thyroid.

SITE METEOROLOGY

Detailed records of the site meteorological measurements taken during each calendar quarter of the year are maintained by the meteorological vendor, retained on site, and are available upon request. The data are presented as cumulative joint frequency distributions of the wind direction for the 250' level and wind speed class by atmospheric stability class determined from the temperature difference between the 250' and 30' levels. Data recovery for all measurements on the meteorological tower was 99.6% during 2021.

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

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission & Activation Gases						
1. Total Release	Ci	9.31E-02	1.28E-01	2.37E-01	3.98E-01	8.56E-01
2. Avg. Release Rate	μCi/sec	1.20E-02	1.63E-02	2.98E-02	5.00E-02	
Iodine-131						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	
Particulates Half Life >= 8 days						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	
Carbon-14						
1. Total Release	Ci	1.10E+00	1.11E+00	8.75E-01	1.10E+00	4.18E+00
2. Avg. Release Rate	μCi/sec	1.41E-01	1.41E-01	1.10E-01	1.38E-01	
Tritium						
1. Total Release	Ci	6.34E+00	2.65E+00	2.51E+00	5.31E+00	1.68E+01
2. Avg. Release Rate	μCi/sec	8.16E-01	3.37E-01	3.16E-01	6.68E-01	
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 2

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission & Activation Gases						
1. Total Release	Ci	3.22E-02	6.10E-02	9.44E-02	3.68E-01	5.56E-01
2. Avg. Release Rate	μCi/sec	4.14E-03	7.76E-03	1.19E-02	4.63E-02	
Iodine-131						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	
Particulates Half Life >= 8 days						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	
Carbon-14						
1. Total Release	Ci	1.16E+00	1.12E+00	1.16E+00	1.17E+00	4.61E+00
2. Avg. Release Rate	μCi/sec	1.49E-01	1.43E-01	1.46E-01	1.47E-01	
Tritium						
1. Total Release	Ci	1.02E+01	1.81E+01	2.60E+01	2.61E+01	8.04E+01
2. Avg. Release Rate	μCi/sec	1.31E+00	2.30E+00	3.27E+00	3.29E+00	
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	μCi/sec	(1)	(1)	(1)	(1)	

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - MIXED MODE RELEASES - CONTINUOUS MODE
Unit 1

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
Xe-133	Ci	(1)	4.21E-02	1.33E-02	3.21E-01	3.76E-01
Totals for	Ci	(1)	4.21E-02	1.33E-02	3.21E-01	3.76E-01
Iodines						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Particulates Half Life >= 8 days						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Carbon-14						
C-14	Ci	1.10E+00	1.11E+00	8.75E-01	1.10E+00	4.18E+00
Totals for	Ci	1.10E+00	1.11E+00	8.75E-01	1.10E+00	4.18E+00
Tritium						
H-3	Ci	6.16E+00	2.44E+00	2.33E+00	5.24E+00	1.62E+01
Totals for	Ci	6.16E+00	2.44E+00	2.33E+00	5.24E+00	1.62E+01
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - MIXED MODE RELEASES - BATCH MODE
Unit 1

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
Ar-41	Ci	7.02E-02	7.52E-02	7.29E-02	7.04E-02	2.89E-01
Kr-85m	Ci	(1)	(1)	1.35E-04	(1)	1.35E-04
Kr-88	Ci	(1)	(1)	1.73E-05	(1)	1.73E-05
Xe-131m	Ci	(1)	(1)	4.73E-04	(1)	4.73E-04
Xe-133m	Ci	(1)	(1)	1.41E-03	3.72E-05	1.44E-03
Xe-133	Ci	2.29E-02	1.11E-02	1.38E-01	6.48E-03	1.78E-01
Xe-135	Ci	(1)	5.79E-05	1.05E-02	1.83E-05	1.06E-02
Totals for	Ci	9.31E-02	8.63E-02	2.23E-01	7.69E-02	4.80E-01
Iodines						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Particulates Half Life >= 8 days						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Carbon-14						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Tritium						
H-3	Ci	1.77E-01	2.11E-01	1.86E-01	6.90E-02	6.43E-01
Totals for	Ci	1.77E-01	2.11E-01	1.86E-01	6.90E-02	6.43E-01
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - MIXED MODE RELEASES - CONTINUOUS MODE
Unit 2

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
Xe-133	Ci	(1)	4.21E-02	1.33E-02	3.21E-01	3.76E-01
Totals for	Ci	(1)	4.21E-02	1.33E-02	3.21E-01	3.76E-01
Iodines						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Particulates Half Life >= 8 days						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Carbon-14						
C-14	Ci	1.16E+00	1.12E+00	1.16E+00	1.17E+00	4.61E+00
Totals for	Ci	1.16E+00	1.12E+00	1.16E+00	1.17E+00	4.61E+00
Tritium						
H-3	Ci	1.02E+01	1.80E+01	2.59E+01	2.60E+01	8.02E+01
Totals for	Ci	1.02E+01	1.80E+01	2.59E+01	2.60E+01	8.02E+01
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - MIXED MODE RELEASES - BATCH MODE
Unit 2

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
Ar-41	Ci	2.23E-02	1.41E-02	2.44E-02	2.92E-02	9.00E-02
Kr-85m	Ci	(1)	(1)	1.35E-04	(1)	1.35E-04
Kr-88	Ci	(1)	(1)	1.73E-05	(1)	1.73E-05
Xe-131m	Ci	(1)	(1)	4.73E-04	(1)	4.73E-04
Xe-133m	Ci	(1)	(1)	1.41E-03	3.72E-05	1.44E-03
Xe-133	Ci	9.87E-03	4.80E-03	4.41E-02	1.80E-02	7.67E-02
Xe-135	Ci	(1)	5.79E-05	1.05E-02	1.83E-05	1.06E-02
Totals for	Ci	3.22E-02	1.90E-02	8.11E-02	4.72E-02	1.79E-01
Iodines						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Particulates Half Life >= 8 days						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Carbon-14						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Tritium						
H-3	Ci	3.38E-02	4.15E-02	9.92E-02	1.14E-01	2.88E-01
Totals for	Ci	3.38E-02	4.15E-02	9.92E-02	1.14E-01	2.88E-01
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 1

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
2. Avg. Diluted Conc.	μCi/ml	1.11E-09	1.15E-09	1.87E-09	1.08E-09	1.31E-09
Tritium						
1. Total Release	Ci	7.11E+01	3.51E+02	5.87E+02	2.56E+02	1.26E+03
2. Avg. Diluted Conc.	μCi/ml	1.82E-05	9.17E-05	1.49E-04	6.53E-05	8.11E-05
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	1.31E-10	1.25E-11	3.61E-11
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Volume of liquid waste	Liters	3.92E+09	3.83E+09	3.93E+09	3.91E+09	1.56E+10
Volume of dil. water	Liters	7.83E+09	7.65E+09	7.86E+09	7.83E+09	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Batch
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 1

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
2. Avg. Diluted Conc.	μCi/ml	6.97E-06	4.29E-06	5.80E-06	5.56E-06	5.53E-06
Tritium						
1. Total Release	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
2. Avg. Diluted Conc.	μCi/ml	8.44E-02	3.31E-01	3.91E-01	2.94E-01	3.02E-01
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	4.06E-07	6.40E-08	1.53E-07
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Volume of liquid waste	Liters	6.26E+05	1.02E+06	1.27E+06	7.64E+05	3.68E+06
Volume of dil. water	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Continuous
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 1

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	N/A	N/A	N/A
Tritium						
1. Total Release	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
2. Avg. Diluted Conc.	μCi/ml	4.67E-06	3.21E-06	2.31E-05	7.99E-06	9.78E-06
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	N/A	N/A	N/A
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	Liters	3.91E+09	3.83E+09	3.93E+09	3.91E+09	1.56E+10
Volume of dil. water	Liters	7.83E+09	7.65E+09	7.86E+09	7.83E+09	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

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

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
2. Avg. Diluted Conc.	μCi/ml	1.11E-09	1.15E-09	1.87E-09	1.08E-09	1.31E-09
Tritium						
1. Total Release	Ci	7.11E+01	3.51E+02	5.87E+02	2.56E+02	1.26E+03
2. Avg. Diluted Conc.	μCi/ml	1.82E-05	9.17E-05	1.49E-04	6.53E-05	8.11E-05
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	1.31E-10	1.25E-11	3.61E-11
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Volume of liquid waste	Liters	3.92E+09	3.83E+09	3.93E+09	3.91E+09	1.56E+10
Volume of dil. water	Liters	7.83E+09	7.65E+09	7.86E+09	7.83E+09	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Batch
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 2

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
2. Avg. Diluted Conc.	µCi/ml	6.97E-06	4.29E-06	5.80E-06	5.56E-06	5.53E-06
Tritium						
1. Total Release	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
2. Avg. Diluted Conc.	µCi/ml	8.44E-02	3.31E-01	3.91E-01	2.94E-01	3.02E-01
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
2. Avg. Diluted Conc.	µCi/ml	N/A	N/A	4.06E-07	6.40E-08	1.53E-07
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Volume of liquid waste	Liters	6.26E+05	1.02E+06	1.27E+06	7.64E+05	3.68E+06
Volume of dil. water	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Continuous
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 2

REPORT FOR 2021 -----	Units -----	QTR 1 -----	QTR 2 -----	QTR 3 -----	QTR 4 -----	YEAR -----
Fission and Activation Products						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	N/A	N/A	N/A
Tritium						
1. Total Release	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
2. Avg. Diluted Conc.	μCi/ml	4.67E-06	3.21E-06	2.31E-05	7.99E-06	9.78E-06
Dissolved & Entrained Gases						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	μCi/ml	N/A	N/A	N/A	N/A	N/A
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	Liters	3.91E+09	3.83E+09	3.93E+09	3.91E+09	1.56E+10
Volume of dil. water	Liters	7.83E+09	7.65E+09	7.86E+09	7.83E+09	3.12E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - BATCH MODE
Unit 1

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
Te-123m	Ci	1.78E-06	(1)	4.26E-05	5.52E-05	9.96E-05
Cr-51	Ci	(1)	(1)	2.48E-03	1.24E-03	3.73E-03
Mn-54	Ci	1.75E-05	3.44E-06	4.48E-05	3.25E-05	9.83E-05
Fe-59	Ci	(1)	(1)	1.82E-05	(1)	1.82E-05
Co-57	Ci	5.54E-06	2.26E-05	2.90E-05	(1)	5.72E-05
Co-58	Ci	1.58E-03	2.00E-03	1.77E-03	7.53E-04	6.10E-03
Co-60	Ci	4.86E-04	5.92E-04	1.58E-03	6.98E-04	3.36E-03
Ni-63	Ci	4.38E-04	1.36E-03	9.57E-04	(1)	2.76E-03
Zr-95	Ci	(1)	(1)	6.78E-05	1.71E-05	8.49E-05
Nb-95	Ci	8.71E-06	(1)	1.05E-04	6.99E-05	1.84E-04
Sb-124	Ci	(1)	(1)	1.76E-05	7.19E-05	8.94E-05
Sb-125	Ci	2.36E-05	1.96E-04	8.17E-05	5.32E-04	8.34E-04
Te-125m	Ci	1.80E-03	2.10E-04	(1)	7.74E-04	2.79E-03
Te-132	Ci	(1)	(1)	7.32E-05	(1)	7.32E-05
I-132	Ci	(1)	(1)	8.34E-05	(1)	8.34E-05
Totals for	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
Tritium						
H-3	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
Totals for	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
Dissolved and Entrained Gases						
Ar-41	Ci	(1)	(1)	(1)	1.63E-06	1.63E-06
Xe-133	Ci	(1)	(1)	5.12E-04	4.73E-05	5.59E-04
Xe-135	Ci	(1)	(1)	2.22E-06	(1)	2.22E-06
Totals for	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - CONTINUOUS MODE
Unit 1

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Tritium						
H-3	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
Totals for	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
Dissolved and Entrained Gases						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - BATCH MODE
Unit 2

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
Te-123m	Ci	1.78E-06	(1)	4.26E-05	5.52E-05	9.96E-05
Cr-51	Ci	(1)	(1)	2.48E-03	1.24E-03	3.73E-03
Mn-54	Ci	1.75E-05	3.44E-06	4.48E-05	3.25E-05	9.83E-05
Fe-59	Ci	(1)	(1)	1.82E-05	(1)	1.82E-05
Co-57	Ci	5.54E-06	2.26E-05	2.90E-05	(1)	5.72E-05
Co-58	Ci	1.58E-03	2.00E-03	1.77E-03	7.53E-04	6.10E-03
Co-60	Ci	4.86E-04	5.92E-04	1.58E-03	6.98E-04	3.36E-03
Ni-63	Ci	4.38E-04	1.36E-03	9.57E-04	(1)	2.76E-03
Zr-95	Ci	(1)	(1)	6.78E-05	1.71E-05	8.49E-05
Nb-95	Ci	8.71E-06	(1)	1.05E-04	6.99E-05	1.84E-04
Sb-124	Ci	(1)	(1)	1.76E-05	7.19E-05	8.94E-05
Sb-125	Ci	2.36E-05	1.96E-04	8.17E-05	5.32E-04	8.34E-04
Te-125m	Ci	1.80E-03	2.10E-04	(1)	7.74E-04	2.79E-03
Te-132	Ci	(1)	(1)	7.32E-05	(1)	7.32E-05
I-132	Ci	(1)	(1)	8.34E-05	(1)	8.34E-05
Totals for	Ci	4.36E-03	4.39E-03	7.36E-03	4.25E-03	2.04E-02
Tritium						
H-3	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
Totals for	Ci	5.29E+01	3.39E+02	4.96E+02	2.24E+02	1.11E+03
Dissolved and Entrained Gases						
Ar-41	Ci	(1)	(1)	(1)	1.63E-06	1.63E-06
Xe-133	Ci	(1)	(1)	5.12E-04	4.73E-05	5.59E-04
Xe-135	Ci	(1)	(1)	2.22E-06	(1)	2.22E-06
Totals for	Ci	(1)	(1)	5.14E-04	4.89E-05	5.63E-04
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

**EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - CONTINUOUS MODE
Unit 2**

REPORT FOR	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Tritium						
H-3	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
Totals for	Ci	1.83E+01	1.23E+01	9.06E+01	3.13E+01	1.52E+02
Dissolved and Entrained Gases						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
Summary of Gaseous and Liquid Effluents Doses to Members of the Public
at the Highest Dose Receptors vs 10CFR50 Design Objectives

Unit 1

Noble Gas	Applicable Dose	Estimated Dose	Age Group	% of Applicable Limit	Design Objective Limit (per year, combined)	Unit
Maximum Location	Gamma Air Dose	1.68E-04	All	1.68E-03	10	mrad
Maximum Location	Beta Air Dose	7.12E-05	All	3.56E-04	20	mrad
Maximum Location	Total Body	1.59E-04	All	3.17E-03	5	mrem
Maximum Location	Skin	2.31E-04	All	1.54E-03	15	mrem
Non-Noble Gas						
Maximum Individual	Bone	1.09E+00	Child	7.28E+00	15	mrem
Liquid						
Maximum Individual	Total Body	1.26E-02	Child	4.19E-01	3	mrem
Maximum Individual	GI-Lli	1.50E-02	Adult	1.50E-01	10	mrem

EFFLUENT AND WASTE DISPOSAL REPORT
Summary of Gaseous and Liquid Effluents Doses to Members of the Public
at the Highest Dose Receptors vs 10CFR50 Design Objectives

Unit 2

Noble Gas	Applicable Dose	Estimated Dose	Age Group	% of Applicable Limit	Design Objective Limit (per year, combined)	Unit
Maximum Location	Gamma Air Dose	5.91E-05	All	5.91E-04	10	mrad
Maximum Location	Beta Air Dose	3.65E-05	All	1.83E-04	20	mrad
Maximum Location	Total Body	5.51E-05	All	1.10E-03	5	mrem
Maximum Location	Skin	8.40E-05	All	5.60E-04	15	mrem
Non-Noble Gas						
Maximum Individual	Bone	1.20E+00	Child	8.03E+00	15	mrem
Liquid						
Maximum Individual	Total Body	1.26E-02	Child	4.19E-01	3	mrem
Maximum Individual	GI-Lli	1.50E-02	Adult	1.50E-01	10	mrem

EFFLUENT AND WASTE DISPOSAL REPORT
Summary of Doses to Members of the Public
at the Highest Dose Receptors for 40CFR190 and 10CFR72.104 Compliance

Highest Dose Receptors	Noble Gas	Non-Noble Gas	Liquid	On-Site Storage Facilities	Total	% of Applicable Limit	Limit	Unit
Total Body	2.14E-04	4.77E-01	2.52E-02	0.00E+00	5.02E-01	2.01E+00	25	mrem
Organ Dose	N/A	2.30E+00	3.00E-02	0.00E+00	2.33E+00	9.30E+00	25	mrem
Thyroid Dose	N/A	4.77E-01	2.50E-02	0.00E+00	5.02E-01	6.69E-01	75	mrem

SOLID RADIOACTIVE WASTE FOR BURIAL 1ST QUARTER 2021

DATE Shipment # Description	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT/ CARRIER	DESTINATION	VOLUME (m ³) PER SHIPMENT	CURIES* PER SHIPMENT
1/20/21 RW S21-01 DAW	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Energy Solutions Bear Creek Facility Oak Ridge, TN	1.74E+01	2.96E-01
Quarterly Totals		Number of Shipments:	1	1.74E+01	2.96E-01
*Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 2ND QUARTER 2021

DATE Shipment # Description	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT/ CARRIER	DESTINATION	VOLUME (m ³) PER SHIPMENT	CURIES* PER SHIPMENT
4/6/21 RWS21-02 DEWATERED RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL CASK(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Energy Solutions Clive, UT	4.53E+00	2.24E+00
4/13/21 RWS21-03 DEWATERED RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL CASK(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Energy Solutions Clive, UT	4.81E+00	2.52E+00
4/20/21 RWS21-04 DEWATERED RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL CASK(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Energy Solutions Clive, UT	4.53E+00	3.03E+00
4/27/21 RWS21-05 DEWATERED RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL CASK(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Energy Solutions Clive, UT	4.53E+00	8.19E+00
5/18/21 SR-2256-0016 DEWATERED BEAD RESIN	UN2916, RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, 7 FISSILE EXCEPTED, RQ-RADIONUCLIDES, TYPE B CASK	Highway Hittman Transport EXCLUSIVE-USE	Waste Control Specialist LLC Andrews, TX	3.37E+00	2.36E+02
5/25/21 SR-2256-0017 DEWATERED BEAD RESIN	UN2916, RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, 7 FISSILE EXCEPTED, RQ-RADIONUCLIDES, TYPE B CASK	Highway Hittman Transport EXCLUSIVE-USE	Waste Control Specialist LLC Andrews, TX	3.37E+00	1.41E+02
6/3/21 SR-2256-0018 DEWATERED BEAD RESIN	UN2916, RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, 7 FISSILE EXCEPTED, RQ-RADIONUCLIDES, TYPE B CASK	Highway Hittman Transport EXCLUSIVE-USE	Waste Control Specialist LLC Andrews, TX	3.37E+00	6.29E+01
Quarterly Totals		Number of Shipments:	7	2.85E+01	4.56E+02
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 3RD QUARTER 2021

DATE Shipment # Description	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT/ CARRIER	DESTINATION	VOLUME (m ³) PER SHIPMENT	CURIES* PER SHIPMENT
8/4/21 RWS21-09 DAW	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Bear Creek Oak Ridge, TN	6.80E+01	1.28E-02
8/23/21 RWS21-010 DAW	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Bear Creek Oak Ridge, TN	6.80E+01	8.89E-02
9/28/21 RWS21-13 RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Gallaher Road Processing Facility Kingston, TN	1.78E+01	9.21E-03
9/30/21 RWS21-11 DAW	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Bear Creek Oak Ridge, TN	6.71E+01	8.54E-02
Quarterly Totals		Number of Shipments:	4	2.21E+02	1.96E-01
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 4TH QUARTER 2021

DATE Shipment # Description	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT/ CARRIER	DESTINATION	VOLUME(m ³) PER SHIPMENT	CURIES* PER SHIPMENT
10/1/21 RWS21-12 RADWASTE RESIN	UN3321, RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, METAL BOX(1), CLASS A, NONE	Highway Hittman Transport EXCLUSIVE-USE	Gallaher Road Processing Facility Kingston, TN	1.53E+01	9.51E-03
Quarterly Totals		Number of Shipments:	1	1.53E+01	9.51E-03
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL
Estimated Solid Waste Composition
2021

Resins, Filters, Evap Bottoms			
2021			
Volume (m3)	5.15E+01		
Class	A		
Nuclide	% Abund	Curies	uCi/ml
H-3	50.63	8.12E+00	1.58E-01
C-14	1.61	2.58E-01	5.01E-03
Mn-54	0.68	1.10E-01	2.14E-03
Fe-55	0.96	1.54E-01	2.99E-03
Co-57	0.28	4.51E-02	8.76E-04
Co-58	29.4	4.72E+00	9.17E-02
Co-60	7.28	1.17E+00	2.27E-02
Ni-59	0.04	6.93E-03	1.35E-04
Ni-63	7.77	1.25E+00	2.43E-02
Sr-89	0.00	7.66E-05	1.49E-06
Nb-95	0.06	9.25E-03	1.80E-04
Tc-99	0.00	4.95E-04	9.61E-06
Sb-125	1.23	1.98E-01	3.84E-03
Cs-137	0.05	7.70E-03	1.50E-04
Ce-144	0.00	2.48E-04	4.82E-06
Am-241	0.00	1.84E-05	3.57E-07

Resins, Filters, Evap Bottoms			
2021			
Volume (m3)	1.01E+01		
Class	B		
Nuclide	% Abund	Curies	uCi/ml
H-3	1.02	4.49E+00	4.45E-01
C-14	0.04	1.67E+01	1.65E+00
Mn-54	2.67	1.18E+01	1.17E+00
Fe-55	11.75	5.18E+01	5.13E+00
Co-57	0.24	1.06E+00	1.05E-01
Co-58	2.59	1.14E+01	1.13E+00
Co-60	27.02	1.19E+02	1.18E+01
Ni-59	0.39	1.73E+00	1.71E-01
Ni-63	52.66	2.32E+02	2.30E+01
Zn-65	0.37	1.64E+00	1.62E-01
Sr-90	0.01	4.50E-02	4.46E-03
Sb-125	0.68	2.99E+00	2.96E-01
Cs-137	0.53	2.32E+00	2.30E-01
Ce-144	0.00	2.75E-03	2.72E-04
Pu-238	0.00	2.07E-04	2.05E-05

Dry Active Waste			
2021			
Volume (m3)	2.20E+02		
Class	A		
Nuclide	% Abund	Curies	uCi/ml
H-3	0.63	3.06E-03	1.39E-05
Mn-54	1.54	7.47E-03	3.40E-05
Fe-55	41.10	1.99E-01	9.05E-04
Co-57	0.13	6.28E-04	2.85E-06
Co-58	7.49	3.62E-02	1.65E-04
Co-60	30.53	1.48E-01	6.73E-04
Ni-63	13.44	6.50E-02	2.95E-04
Zr-95	0.69	3.35E-03	1.52E-05
Nb-95	1.40	6.78E-03	3.08E-05
Sb-125	2.30	1.11E-02	5.05E-05
Cs-137	0.52	2.54E-03	1.15E-05
Ce-144	0.21	1.03E-03	4.68E-06
Pu-238	0.00	1.57E-05	7.14E-08
Am-241	0.00	2.14E-05	9.73E-08

Irradiated Components	
2021	
Volume (m3)	0.00E+00
Class	N/A
No Shipments	

Other Waste	
2021	
Volume (m3)	0.00E+00
Class	A
No Shipments	

SOLID RADIOACTIVE WASTE FOR BURIAL
Estimated Solid Waste Composition
2021

Sum of All Categories			
2021			
Volume (m3)	2.72E+02		
Class	A		
Nuclide	% Abund	Curies	uCi/ml
H-3	49.17	8.13E+00	2.99E-02
Be-7			0.00E+00
C-14	1.56	2.58E-01	9.49E-04
Cr-51			0.00E+00
Mn-54	0.71	1.17E-01	4.30E-04
Fe-55	2.13	3.52E-01	1.29E-03
Co-57	0.28	4.57E-02	1.68E-04
Co-58	28.76	4.75E+00	1.75E-02
Co-60	7.96	1.32E+00	4.85E-03
Ni-59	0.04	6.93E-03	2.55E-05
Ni-63	7.94	1.31E+00	4.82E-03
Sr-89	0.00	7.66E-05	2.82E-07
Zr-95	0.02	3.35E-03	1.23E-05
Nb-95	0.10	1.60E-02	5.88E-05
Tc-99	0.00	4.95E-04	1.82E-06
Sb-125	1.26	2.09E-01	7.68E-04
Cs-137	0.06	1.02E-02	3.75E-05
Ce-144	0.01	1.27E-03	4.67E-06
Pu-238	0.00	1.57E-05	5.77E-08
Am-241	0.00	3.97E-05	1.46E-07

Sum of All Categories			
2021			
Volume (m3)	1.01E+01		
Class	B		
Nuclide	% Abund	Curies	uCi/ml
H-3	1.02	4.49E+00	4.45E-01
C-14	0.04	1.67E+01	1.65E+00
Mn-54	2.67	1.18E+01	1.17E+00
Fe-55	11.75	5.18E+01	5.13E+00
Co-57	0.24	1.06E+00	1.05E-01
Co-58	2.59	1.14E+01	1.13E+00
Co-60	27.02	1.19E+02	1.18E+01
Ni-59	0.39	1.73E+00	1.71E-01
Ni-63	52.66	2.32E+02	2.30E+01
Zn-65	0.37	1.64E+00	1.62E-01
Sr-90	0.01	4.50E-02	4.46E-03
Sb-125	0.68	2.99E+00	2.96E-01
Cs-137	0.53	2.32E+00	2.30E-01
Ce-144	0.00	2.75E-03	2.72E-04
Pu-238	0.00	2.07E-04	2.05E-05

Total Combined			
2021			
Volume (m3)	2.82E+02		
Class	A & B		
Nuclide	% Abund	Curies	uCi/ml
H-3	2.76	1.26E+01	4.47E-02
C-14	0.09	4.24E-01	1.50E-03
Mn-54	2.60	1.19E+01	4.22E-02
Fe-55	11.41	5.22E+01	1.85E-01
Zr-95	0.00	3.35E-03	1.19E-05
Co-57	0.24	1.11E+00	3.94E-03
Co-58	3.54	1.62E+01	5.74E-02
Co-60	26.33	1.20E+02	4.26E-01
Ni-59	0.38	1.74E+00	6.17E-03
Ni-63	51.05	2.34E+02	8.30E-01
Zn-65	0.36	1.64E+00	5.82E-03
Sr-89	0.00	7.66E-05	2.72E-07
Sr-90	0.01	4.50E-02	1.60E-04
Nb-95	0.00	1.60E-02	5.67E-05
Tc-99	0.00	4.95E-04	1.76E-06
Pu-238	0.00	2.23E-04	7.91E-07
Pu-239	0.00	6.14E-05	2.18E-07
Sb-125	0.70	3.20E+00	1.13E-02
Cs-137	0.51	2.33E+00	8.26E-03
Ce-144	0.00	4.03E-03	1.43E-05
Pu-241	0.02	1.12E-01	3.97E-04
Am-241	0.00	2.49E-04	8.83E-07
Cm-242	0.00	3.06E-06	1.09E-08
Cm-244	0.00	2.57E-04	9.11E-07

Process Control Program (PCP) for Radioactive Wastes

There were no changes to RW-AA-100, Process Control Program (PCP) for Radioactive Waste, in 2021.

Error Analysis

The following is an estimate of the errors associated with effluent monitoring and analysis. The estimate is calculated using the square root of the sum of the squares methodology.

1. Gaseous Effluents

Qme=3.33%
RM=N/A
ECe=5%
Stdce/Smpcse=5%
qme=N/A

Total error = 7.8%

2. Liquid Effluents

Qme=3.33%
RM=N/A
ECe=N/A
Stdce/Smpcse=5%
qme=2.22%

Total error = 6.4%

3. Waste Resin

Qme=10.0%
RM=N/A
ECe=5%
Stdce/Smpcse=5%
qme=1.0%

Total error = 12.3%

4. DAW, Mechanical Filters, and Contaminated Metal

Qme=10.0%
RM=N/A
ECe=N/A
Stdce/Smpcse=5%
qme=N/A

Instrument calibration error = 10%
Total error = 11.2%

Qme = the process quantity measurement error associated with the release point (e.g. flow, level measurements)

RM = error associated with the radiation monitor used in quantifying releases through the release point

ECe = error associated with the collection efficiency of the sample media

Stdce = one-sigma counting error associated with the counting instrument of interest

Smpcse = one-sigma counting error associated with a sample of a given geometry that is used for the release point of interest

qme = sample quantity measurement error associated with the sample of interest

Miscellaneous Information

- A. As required by Technical Specification 5.6.2, meteorological and environmental impact information is reported in the 2021 Annual Radiological Environmental Operating Report (AREOR) or is retained on file to be provided upon request.
- B. No limits were exceeded during the 2021 reporting period in liquid hold up tanks or waste gas decay tanks as stated in Technical Specification 5.5.12.
- C. There were no irradiated fuel shipments during the 2021 reporting period. An Independent Spent Fuel Storage Installation (ISFSI) campaign began in 2010 when used fuel was removed from the Spent Fuel Pool (SFP), placed into six (6) casks, each containing 32 fuel bundles, and transferred to an outdoor storage pad. No additional casks were placed on the pad in 2011. In 2012, eight (8) additional casks were placed on the pad for a total of fourteen (14) casks. No additional casks were placed on the pad in 2013 or 2014. In 2015, six (6) additional casks were placed on the pad for a total of twenty (20) casks. In 2016, six (6) additional casks were placed on the pad. No additional casks were placed on the pad in 2017. In 2018, five (5) additional casks were placed on the pad. In 2019, six (6) additional cask were placed on the pad. In 2020, no additional cask were added. In 2021, six (6) additional cask were placed on the pad for a total of forty-three (43) Prior to the first ISFSI campaign, additional dosimeters were placed at the site boundary nearest to the storage pad (in between the pad and the nearest resident) for the purpose of measuring any potential offsite dose to the public from the storage pad. Since the dosimeters were placed, data from the dosimeters, when compared to the existing environmental dosimeters in the surrounding area, have shown no statistical difference. As a result, there is currently no offsite dose contribution from the ISFSI facility or any other on-site storage facility, including the Dry Active Waste (DAW) Building and the Old Steam Generator (OSG) Storage Building, as evidenced by dosimetry data that is indistinguishable from the existing environmental dosimeters.
- D. There were no effluent releases or offsite dose calculations that exceeded technical specification or TRM limits during the 2021 reporting period. There were no REMP sample results that exceeded TRM or analytical result investigation levels.
- E. There were no elevated releases during the 2021 reporting period. All planned gaseous releases are considered mixed mode releases and were discharged by way of the plant vent stacks.
- F. On 1/30/2021 the 1PR03J went in to LOCAR due to a loss of flow alarm. The skid would not restart. Compensatory sampling started with 1x per every 8 hrs. It was determined that the worked to fix the monitor could not take place while the unit was online and would have to be repaired during B1R24 in September. The skid was repaired and returned to service in Oct 2021 which exceeded the TRM 3.11.b operability time
- G. There were no unplanned gaseous or liquid releases to unrestricted areas during the 2021 reporting period.
- H. All Rock River flow measurements during liquid effluent discharges were obtained from the U.S. Geological Survey Byron Gauging Station for the Rock River with the following exceptions. Due to icing conditions near the Byron gauging stations 2/18/21, 2/23/21, 2/25/21, 3/1/21, flow was obtained from the Dixon flow gauge, located approximately 30 miles downstream of the Byron flow gauge.
- I. Attached are offsite dose calculation reports for January through December of 2021.

The following are the maximum annual calculated cumulative offsite doses resulting from Bryon airborne releases in 2021 based on concurrent meteorological data:

Unit 1:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	2.960 x 10 ⁻⁵ mrad	North-Northwest
beta air ⁽²⁾	1.610 x 10 ⁻⁵ mrad	North-Northwest
whole body ⁽³⁾	6.530 x 10 ⁻² mrem	North-Northwest
skin ⁽⁴⁾	3.300 x 10 ⁻⁵ mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	3.210 x 10 ⁻¹ mrem	North-Northwest

Unit 1 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.31
skin	15.0	mrem	0.00
organ	15.0	mrem	2.14

Unit 2:

<u>Dose</u>	<u>Maximum Value</u>	<u>Sector Affected</u>
gamma air ⁽¹⁾	1.040 x 10 ⁻⁵ mrad	North-Northwest
beta air ⁽²⁾	8.320 x 10 ⁻⁶ mrad	North-Northwest
whole body ⁽³⁾	7.570 x 10 ⁻² mrem	North-Northwest
skin ⁽⁴⁾	1.230 x 10 ⁻⁵ mrem	North-Northwest
organ ⁽⁵⁾ (child-bone)	3.550 x 10 ⁻¹ mrem	North-Northwest

Unit 2 Compliance Status

10 CFR 50 Appendix I	Yearly Objective		% of Appendix I
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.51
skin	15.0	mrem	0.00
organ	15.0	mrem	2.37

- ⁽¹⁾ Gamma Air Dose - GASPAR II, NUREG-0597
- ⁽²⁾ Beta Air Dose - GASPAR II, NUREG-0597
- ⁽³⁾ Whole Body Dose - GASPAR II, NUREG-0597
- ⁽⁴⁾ Skin Dose - GASPAR II, NUREG-0597
- ⁽⁵⁾ Inhalation and Food Pathways Dose - GASPAR II, NUREG-0597

Attachment A, 2021 Radioactive Effluent Release Report
2021 Lower Limits of Detection (LLD's)

Nuclide	Gaseous LLD (uCi/cc)	Required Gaseous LLD (uCi/cc)	Nuclide	Liquid LLD (uCi/ml)	Required Liquid LLD (uCi/cc)
H3	4.26E-08	1.00E-07	H3	1.70E-06	1.00E-05
Mn54	3.86E-14	1.00E-11	Mn54	1.33E-08	5.00E-07
Co58	3.54E-14	1.00E-11	Fe55	7.25E-07	1.00E-06
Fe59	9.09E-14	1.00E-11	Co58	1.12E-08	5.00E-07
Co60	4.56E-14	1.00E-11	Fe59	2.37E-08	5.00E-07
Zn65	6.28E-14	1.00E-11	Co60	1.90E-08	5.00E-07
Kr87	2.69E-08	1.00E-04	Zn65	2.81E-08	5.00E-07
Kr88	4.77E-08	1.00E-04	Kr85m	1.49E-08	1.00E-05
Sr89	1.79E-14	1.00E-11	Kr87	3.31E-08	1.00E-05
Sr-90	2.87E-15	1.00E-11	Kr88	5.75E-08	1.00E-05
Mo99	6.85E-14	1.00E-11	Sr89	4.12E-08	5.00E-08
I131	6.25E-14	1.00E-12	Sr90	1.17E-08	5.00E-08
I133	2.86E-13	1.00E-10	Mo99	1.18E-07	5.00E-07
Xe133	3.00E-08	1.00E-04	Xe131m	5.76E-07	1.00E-05
Xe133m	1.17E-07	1.00E-04	I131	1.36E-08	1.00E-06
Cs134	4.09E-14	1.00E-11	Xe133	3.07E-08	1.00E-05
Xe135	1.12E-08	1.00E-04	Xe133m	1.08E-07	1.00E-05
Cs137	4.24E-14	1.00E-11	Cs134	1.36E-08	5.00E-07
Xe138	5.16E-08	1.00E-04	Xe135	1.89E-08	1.00E-05
Ce141	6.70E-14	1.00E-11	Cs137	1.35E-08	5.00E-07
Ce144	2.91E-13	1.00E-11	Xe138	9.72E-08	1.00E-05
Gross Alpha	2.67E-15	1.00E-11	Ce141	2.26E-08	5.00E-07
			Ce144	9.01E-08	5.00E-06
			Gross Alpha	3.10E-08	1.00E-07
			Gross Beta	7.69E-08	

Wind Direction and Stability Class

Byron Generating Station

Period of Record: January - March 2021
Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	6	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	0	0	9	0	0	0	9

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021

Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)

Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	1	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	1	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	1	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	1	2	2	0	0	5

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	5	0	0	0	6
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	2	1	0	3
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	1	0	0	1
W	0	0	0	1	0	0	1
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	1	7	4	2	0	14

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	13	42	27	0	0	86
NNE	5	11	15	13	3	0	47
NE	2	8	14	12	9	4	49
ENE	3	11	8	12	0	0	34
E	6	19	19	10	0	0	54
ESE	0	9	11	3	0	0	23
SE	1	9	28	7	1	0	46
SSE	3	10	17	23	0	0	53
S	3	3	24	14	6	2	52
SSW	1	15	18	9	0	0	43
SW	2	20	14	7	0	0	43
WSW	3	21	14	15	10	0	63
W	5	47	37	34	6	0	129
WNW	9	24	27	24	7	0	91
NW	5	35	44	22	9	0	115
NNW	5	38	84	18	0	0	145
Variable	0	0	0	0	0	0	0
Total	57	293	416	250	51	6	1073

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	16	12	0	0	0	32
NNE	4	13	15	2	1	0	35
NE	1	6	6	0	0	0	13
ENE	1	12	3	4	0	0	20
E	7	8	6	1	0	0	22
ESE	2	16	25	18	8	0	69
SE	1	13	28	10	0	0	52
SSE	2	8	23	22	0	0	55
S	0	11	15	20	5	1	52
SSW	0	9	11	10	2	0	32
SW	1	26	8	8	0	0	43
WSW	3	13	4	14	0	0	34
W	15	49	42	10	0	0	116
WNW	3	30	23	9	1	0	66
NW	9	24	16	4	0	0	53
NNW	4	24	12	0	0	0	40
Variable	0	0	0	0	0	0	0
Total	57	278	249	132	17	1	734

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	2	0	0	0	0	3
NNE	1	1	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	1	0	1	0	0	0	2
E	1	2	0	0	0	0	3
ESE	0	9	18	0	0	0	27
SE	3	13	18	1	0	0	35
SSE	0	6	14	2	0	0	22
S	3	6	4	5	0	0	18
SSW	3	0	0	0	0	0	3
SW	5	1	0	0	0	0	6
WSW	4	0	0	0	0	0	4
W	10	11	0	0	0	0	21
WNW	14	4	0	0	0	0	18
NW	11	12	0	0	0	0	23
NNW	3	16	0	0	0	0	19
Variable	0	0	0	0	0	0	0
Total	60	84	55	8	0	0	207

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	0	0	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	2	1	1	0	0	0	4
ESE	2	3	7	0	0	0	12
SE	4	10	2	0	0	0	16
SSE	0	13	6	0	0	0	19
S	4	3	1	0	0	0	8
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	7	0	0	0	0	0	7
W	8	0	0	0	0	0	8
WNW	13	0	0	0	0	0	13
NW	13	4	0	0	0	0	17
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	63	34	17	0	0	0	114

Hours of calm in this stability class: 1
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	5	0	0	6
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	0	2	7	0	0	9

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021

Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	2	0	0	2
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	1	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	1	3	1	0	5

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	4	3	0	0	7
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	2	1	3
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	1	0	0	1
W	0	0	0	0	1	0	1
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	5	4	4	1	14

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	14	40	57	18	0	130
NNE	1	8	12	11	13	5	50
NE	2	4	12	7	13	15	53
ENE	2	9	4	9	10	1	35
E	1	10	22	10	4	6	53
ESE	0	1	5	5	2	2	15
SE	2	0	6	15	2	2	27
SSE	0	5	10	25	9	3	52
S	0	2	9	13	19	10	53
SSW	1	4	4	19	4	0	32
SW	0	6	13	12	6	1	38
WSW	0	6	8	12	14	9	49
W	2	28	39	27	25	7	128
WNW	3	16	22	9	26	6	82
NW	3	18	19	30	12	6	88
NNW	0	16	41	53	1	0	111
Variable	0	0	0	0	0	0	0
Total	18	147	266	314	178	73	996

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 77
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	3	11	11	1	0	28
NNE	0	5	7	13	8	1	34
NE	0	2	9	7	3	1	22
ENE	2	3	7	2	2	2	18
E	0	2	9	1	2	0	14
ESE	0	2	3	12	11	13	41
SE	2	2	7	16	15	6	48
SSE	1	4	11	15	22	7	60
S	0	1	2	10	20	21	54
SSW	1	0	8	10	16	7	42
SW	0	1	7	23	13	3	47
WSW	1	1	6	15	13	0	36
W	1	2	20	43	13	0	79
WNW	0	7	20	30	8	1	66
NW	0	9	13	24	3	0	49
NNW	1	2	6	21	0	0	30
Variable	0	0	0	0	0	0	0
Total	11	46	146	253	150	62	668

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 66
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	8	7	0	0	16
NNE	0	1	2	6	0	0	9
NE	1	0	0	0	0	0	1
ENE	1	0	1	0	0	0	2
E	0	1	4	1	0	0	6
ESE	0	0	1	2	0	0	3
SE	2	0	3	6	13	2	26
SSE	0	0	6	10	12	5	33
S	0	1	2	9	9	7	28
SSW	0	1	1	3	1	3	9
SW	0	1	0	0	0	0	1
WSW	2	2	1	0	0	0	5
W	1	0	4	4	0	0	9
WNW	0	1	10	7	0	0	18
NW	0	2	12	8	0	0	22
NNW	0	1	6	12	0	0	19
Variable	0	0	0	0	0	0	0
Total	7	12	61	75	35	17	207

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: January - March 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	4	5	0	0	11
NNE	0	0	0	0	0	0	0
NE	1	4	0	0	0	0	5
ENE	2	5	0	0	0	0	7
E	0	2	0	0	0	0	2
ESE	0	1	3	0	0	0	4
SE	0	1	2	3	7	0	13
SSE	0	2	5	5	3	2	17
S	0	0	1	8	4	0	13
SSW	0	0	1	7	1	0	9
SW	1	0	0	0	0	0	1
WSW	0	0	1	0	0	0	1
W	0	1	3	1	0	0	5
WNW	0	4	2	2	0	0	8
NW	1	2	4	4	0	0	11
NNW	1	2	4	1	0	0	8
Variable	0	0	0	0	0	0	0
Total	6	26	30	36	15	2	115

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	1	2	1	0	0	0	4
S	0	0	1	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	0	0	1	0	0	1
WSW	0	0	0	3	0	0	3
W	0	1	0	0	0	0	1
WNW	1	2	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	3	6	3	4	0	0	16

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)

Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	3	4	0	0	7
SSW	0	0	3	1	1	0	5
SW	0	0	7	3	0	0	10
WSW	0	0	4	2	0	0	6
W	0	0	6	1	0	0	7
WNW	0	0	1	0	0	0	1
NW	0	1	1	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	2	27	11	1	0	41

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	1	3	0	0	5
NNE	0	0	2	0	0	0	2
NE	0	0	2	0	0	0	2
ENE	0	3	1	0	0	0	4
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	2	3	1	6
S	0	2	1	6	0	0	9
SSW	0	2	6	1	0	0	9
SW	0	0	6	4	1	0	11
WSW	0	1	3	3	0	0	7
W	0	1	4	5	0	0	10
WNW	0	0	2	1	0	0	3
NW	1	0	2	1	0	0	4
NNW	0	2	6	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	1	13	36	26	4	1	81

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	14	34	13	0	0	63
NNE	3	23	29	14	0	0	69
NE	2	7	5	18	0	0	32
ENE	0	20	10	7	0	0	37
E	3	14	12	2	0	0	31
ESE	5	15	8	7	1	0	36
SE	0	12	15	14	0	0	41
SSE	1	11	30	7	0	0	49
S	6	30	42	38	2	0	118
SSW	1	38	67	23	1	0	130
SW	4	25	43	13	2	0	87
WSW	2	14	31	6	1	1	55
W	4	20	22	20	3	0	69
WNW	1	20	19	26	0	0	66
NW	5	26	45	33	0	0	109
NNW	3	24	43	7	0	0	77
Variable	0	0	0	0	0	0	0
Total	42	313	455	248	10	1	1069

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	11	4	0	0	0	19
NNE	3	10	3	0	0	0	16
NE	1	6	1	0	0	0	8
ENE	4	6	8	2	0	0	20
E	6	26	4	0	0	0	36
ESE	7	17	16	5	0	0	45
SE	9	13	14	2	0	0	38
SSE	8	17	59	3	0	0	87
S	4	42	29	11	0	0	86
SSW	5	30	27	9	0	0	71
SW	5	21	20	8	0	0	54
WSW	4	13	16	0	1	0	34
W	15	15	11	1	0	0	42
WNW	6	15	7	0	0	0	28
NW	0	20	6	4	0	0	30
NNW	1	16	11	0	0	0	28
Variable	0	0	0	0	0	0	0
Total	82	278	236	45	1	0	642

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	1	0	0	0	0	5
NNE	1	0	0	0	0	0	1
NE	2	1	0	0	0	0	3
ENE	3	4	0	0	0	0	7
E	6	14	3	0	0	0	23
ESE	6	22	2	0	0	0	30
SE	1	17	3	0	0	0	21
SSE	7	28	16	0	0	0	51
S	5	10	12	0	0	0	27
SSW	9	6	1	0	0	0	16
SW	14	3	0	0	0	0	17
WSW	9	1	0	0	0	0	10
W	13	3	0	0	0	0	16
WNW	9	2	0	0	0	0	11
NW	5	4	0	0	0	0	9
NNW	3	9	0	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	97	125	37	0	0	0	259

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	2	0	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	4	2	0	0	0	0	6
SE	3	6	0	0	0	0	9
SSE	1	2	0	0	0	0	3
S	6	3	0	0	0	0	9
SSW	4	1	0	0	0	0	5
SW	8	0	0	0	0	0	8
WSW	5	0	0	0	0	0	5
W	6	0	0	0	0	0	6
WNW	6	1	0	0	0	0	7
NW	7	2	0	0	0	0	9
NNW	1	2	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	53	20	0	0	0	0	73

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	0	1	2	1	0	0	4
S	0	0	0	0	0	0	0
SSW	0	0	0	1	0	0	1
SW	0	0	0	0	1	0	1
WSW	0	0	0	2	1	0	3
W	0	1	0	0	0	0	1
WNW	1	2	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	2	4	3	5	2	0	16

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	1	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	3	2	0	5
SSW	0	0	1	4	0	1	6
SW	0	0	2	5	3	1	11
WSW	0	0	1	3	2	0	6
W	0	0	3	4	0	0	7
WNW	0	0	0	1	0	0	1
NW	0	1	1	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	1	9	21	8	2	41

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	1	6	0	0	8
NNE	0	0	0	1	0	0	1
NE	0	0	3	2	0	0	5
ENE	0	1	1	0	0	0	2
E	0	2	0	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	1	1	4	6
S	0	0	2	4	2	0	8
SSW	0	1	4	2	1	0	8
SW	0	0	3	5	4	1	13
WSW	0	0	3	1	3	0	7
W	0	0	2	5	3	0	10
WNW	0	0	2	2	0	0	4
NW	1	0	1	1	0	0	3
NNW	0	1	0	3	0	0	4
Variable	0	0	0	0	0	0	0
Total	1	6	22	33	14	5	81

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	12	28	25	3	0	72
NNE	1	9	25	9	5	0	49
NE	2	10	9	9	17	9	56
ENE	0	8	8	6	5	2	29
E	2	12	5	12	3	1	35
ESE	3	12	3	9	6	1	34
SE	1	8	7	9	15	0	40
SSE	2	10	8	27	4	1	52
S	0	12	22	49	20	7	110
SSW	1	24	47	40	23	3	138
SW	1	8	26	33	13	4	85
WSW	2	4	22	21	4	2	55
W	3	17	18	20	17	1	76
WNW	2	14	15	27	7	0	65
NW	1	13	25	38	17	0	94
NNW	1	15	27	34	2	0	79
Variable	0	0	0	0	0	0	0
Total	26	188	295	368	161	31	1069

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	2	10	7	0	0	20
NNE	1	1	8	14	0	0	24
NE	2	2	1	2	0	0	7
ENE	3	3	3	4	7	0	20
E	0	4	10	6	1	0	21
ESE	2	5	14	19	8	0	48
SE	0	4	5	12	6	1	28
SSE	0	5	7	26	12	1	51
S	1	5	15	44	27	3	95
SSW	0	13	24	50	17	2	106
SW	1	2	6	24	18	6	57
WSW	2	6	9	18	3	1	39
W	0	6	10	19	2	0	37
WNW	1	4	14	4	0	0	23
NW	0	2	25	8	4	0	39
NNW	0	3	7	15	1	0	26
Variable	0	0	0	0	0	0	0
Total	14	67	168	272	106	14	641

Hours of calm in this stability class: 1
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	2	4	0	0	8
NNE	0	1	3	0	0	0	4
NE	0	0	3	0	0	0	3
ENE	0	5	0	1	0	0	6
E	0	3	5	4	0	0	12
ESE	1	3	9	10	2	0	25
SE	0	3	7	9	1	0	20
SSE	0	3	13	10	8	0	34
S	1	4	11	16	19	1	52
SSW	1	0	6	9	5	0	21
SW	0	2	6	5	1	0	14
WSW	0	1	7	6	0	0	14
W	0	3	8	6	0	0	17
WNW	0	2	7	0	0	0	9
NW	0	2	7	2	0	0	11
NNW	1	2	5	1	0	0	9
Variable	0	0	0	0	0	0	0
Total	4	36	99	83	36	1	259

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: April - June 2021

Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)

Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	3	0	0	3
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	0	3	0	0	0	0	3
ESE	0	2	0	0	0	0	2
SE	0	1	1	0	0	0	2
SSE	0	6	1	0	3	0	10
S	0	2	1	1	1	0	5
SSW	0	5	0	0	0	0	5
SW	0	3	7	0	1	0	11
WSW	0	2	6	5	0	0	13
W	1	3	3	1	0	0	8
WNW	1	1	3	0	0	0	5
NW	0	0	2	0	0	0	2
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	3	28	25	12	5	0	73

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 3

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	0	4	0	0	0	5
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	2	0	0	0	2
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	2	0	0	0	2
W	0	0	0	2	0	0	2
WNW	0	0	1	1	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	1	2	10	3	0	0	16

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021

Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)

Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	4	0	0	0	4
SSW	0	0	3	0	0	0	3
SW	0	0	3	0	0	0	3
WSW	0	0	3	6	0	0	9
W	0	3	4	1	0	0	8
WNW	0	1	0	2	0	0	3
NW	0	1	0	2	0	0	3
NNW	1	0	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	1	5	18	11	0	0	35

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	2	1	1	0	0	5
NNE	0	0	0	0	0	0	0
NE	0	0	1	0	0	0	1
ENE	0	3	0	0	0	0	3
E	0	1	0	0	0	0	1
ESE	0	1	3	0	0	0	4
SE	0	0	2	0	0	0	2
SSE	0	0	3	0	0	0	3
S	0	1	2	3	0	0	6
SSW	0	3	4	3	0	0	10
SW	0	0	7	2	0	0	9
WSW	0	0	8	1	0	0	9
W	0	2	3	1	0	0	6
WNW	0	1	3	3	0	0	7
NW	0	2	2	1	0	0	5
NNW	0	3	0	1	0	0	4
Variable	0	0	0	0	0	0	0
Total	1	19	39	16	0	0	75

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	22	22	8	0	0	55
NNE	1	12	20	0	0	0	33
NE	2	13	28	3	0	0	46
ENE	5	43	6	0	0	0	54
E	1	35	2	0	0	0	38
ESE	3	23	9	0	0	0	35
SE	3	33	7	0	0	0	43
SSE	2	21	26	1	0	0	50
S	1	18	35	7	0	0	61
SSW	2	22	52	12	1	0	89
SW	1	24	42	6	0	0	73
WSW	4	18	19	5	0	0	46
W	9	30	32	8	0	0	79
WNW	6	26	26	1	0	0	59
NW	3	20	22	8	0	0	53
NNW	4	25	20	2	0	0	51
Variable	0	0	0	0	0	0	0
Total	50	385	368	61	1	0	865

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	8	21	7	0	0	0	36
NNE	8	18	0	0	0	0	26
NE	3	18	19	0	0	0	40
ENE	8	19	8	0	0	0	35
E	9	38	0	0	0	0	47
ESE	2	17	2	0	1	0	22
SE	4	18	4	0	0	0	26
SSE	3	42	26	1	0	0	72
S	6	50	24	3	0	0	83
SSW	6	34	28	3	0	0	71
SW	9	34	15	3	0	0	61
WSW	6	14	2	0	0	0	22
W	5	16	4	0	0	0	25
WNW	10	16	3	1	0	0	30
NW	10	30	6	0	1	0	47
NNW	6	28	6	0	0	0	40
Variable	0	0	0	0	0	0	0
Total	103	413	154	11	2	0	683

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	4	0	0	0	0	6
NNE	4	3	0	0	0	0	7
NE	0	0	0	0	0	0	0
ENE	4	5	0	0	0	0	9
E	8	31	0	0	0	0	39
ESE	5	29	4	0	0	0	38
SE	6	26	2	0	0	0	34
SSE	8	31	6	0	0	0	45
S	6	23	4	0	0	0	33
SSW	7	6	0	0	0	0	13
SW	4	1	0	0	0	0	5
WSW	10	6	0	0	0	0	16
W	19	11	0	0	0	0	30
WNW	17	4	0	0	0	0	21
NW	18	11	0	0	0	0	29
NNW	4	10	0	0	0	0	14
Variable	0	0	0	0	0	0	0
Total	122	201	16	0	0	0	339

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	3	0	0	0	0	0	3
ENE	2	0	0	0	0	0	2
E	11	13	0	0	0	0	24
ESE	2	6	3	0	0	0	11
SE	4	11	0	0	0	0	15
SSE	4	8	3	0	0	0	15
S	11	7	1	0	0	0	19
SSW	9	4	0	0	0	0	13
SW	7	0	0	0	0	0	7
WSW	10	0	0	0	0	0	10
W	14	0	0	0	0	0	14
WNW	21	0	0	0	0	0	21
NW	18	0	0	0	0	0	18
NNW	4	2	0	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	122	51	7	0	0	0	180

Hours of calm in this stability class: 7
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	0	2	0	0	4
NNE	0	0	0	2	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	1	0	0	1
S	0	0	0	1	0	0	1
SSW	0	1	0	0	0	0	1
SW	0	0	0	1	0	0	1
WSW	0	0	0	2	0	0	2
W	0	2	0	0	0	0	2
WNW	0	1	0	1	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	6	0	10	0	0	16

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	3	0	0	3
SSW	0	0	3	0	0	0	3
SW	0	0	1	3	0	0	4
WSW	0	0	1	5	3	0	9
W	2	1	4	1	0	0	8
WNW	0	0	0	1	1	0	2
NW	0	1	0	1	1	0	3
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	4	10	14	5	0	35

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	1	1	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	1	0	0	0	3
E	0	1	1	0	0	0	2
ESE	0	0	3	1	0	0	4
SE	0	0	2	0	0	0	2
SSE	0	0	0	2	0	0	2
S	0	0	3	1	3	0	7
SSW	0	0	4	2	2	0	8
SW	0	0	3	5	3	0	11
WSW	0	0	4	5	1	0	10
W	0	2	2	2	0	0	6
WNW	1	0	2	2	2	0	7
NW	0	0	3	1	1	0	5
NNW	0	2	3	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	1	8	31	22	13	0	75

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	8	19	16	3	0	48
NNE	1	9	20	8	0	0	38
NE	1	6	13	21	2	0	43
ENE	2	12	27	8	2	0	51
E	1	18	23	2	0	0	44
ESE	1	16	16	0	0	0	33
SE	0	19	24	1	0	0	44
SSE	3	9	15	15	0	0	42
S	2	8	21	26	6	0	63
SSW	2	7	22	42	14	1	88
SW	3	11	22	38	8	2	84
WSW	4	13	11	15	3	0	46
W	5	15	37	13	5	0	75
WNW	8	10	27	7	1	0	53
NW	5	21	11	10	6	0	53
NNW	1	18	18	9	0	0	46
Variable	0	0	0	0	0	0	0
Total	41	200	326	231	50	3	851

Hours of calm in this stability class: 14
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	8	17	18	0	0	44
NNE	2	4	11	10	0	0	27
NE	4	7	13	14	0	0	38
ENE	0	7	20	24	1	0	52
E	0	10	17	11	1	0	39
ESE	0	3	7	9	1	0	20
SE	5	4	7	2	1	0	19
SSE	7	10	8	14	4	0	43
S	0	4	15	53	12	0	84
SSW	1	1	17	48	14	0	81
SW	2	5	9	52	7	3	78
WSW	2	4	12	4	0	0	22
W	0	5	14	6	1	0	26
WNW	3	4	12	1	1	0	21
NW	0	11	16	12	0	1	40
NNW	2	11	15	12	0	0	40
Variable	0	0	0	0	0	0	0
Total	29	98	210	290	43	4	674

Hours of calm in this stability class: 9
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	1	4	5	0	0	12
NNE	0	0	6	5	0	0	11
NE	0	3	4	1	0	0	8
ENE	0	0	2	2	0	0	4
E	0	6	6	7	3	0	22
ESE	0	1	11	15	9	0	36
SE	1	3	7	15	7	0	33
SSE	2	2	5	18	7	0	34
S	1	0	4	13	11	0	29
SSW	1	0	9	18	0	0	28
SW	1	2	7	8	0	0	18
WSW	1	1	4	2	0	0	8
W	1	2	1	4	0	0	8
WNW	8	2	7	10	0	0	27
NW	1	8	14	6	0	0	29
NNW	2	6	10	6	0	0	24
Variable	0	0	0	0	0	0	0
Total	21	37	101	135	37	0	331

Hours of calm in this stability class: 8
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: July - September 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	1	0	0	0	2
NNE	0	2	0	0	0	0	2
NE	0	3	4	0	0	0	7
ENE	3	3	2	0	0	0	8
E	1	2	1	0	0	0	4
ESE	0	0	4	9	2	0	15
SE	1	0	7	20	2	0	30
SSE	1	1	7	3	5	0	17
S	0	4	3	2	3	0	12
SSW	3	1	1	4	0	0	9
SW	0	1	8	5	0	0	14
WSW	0	2	4	4	0	0	10
W	2	4	0	4	0	0	10
WNW	0	2	2	1	0	0	5
NW	0	2	12	1	0	0	15
NNW	1	5	14	3	0	0	23
Variable	0	0	0	0	0	0	0
Total	12	33	70	56	12	0	183

Hours of calm in this stability class: 4
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

Byron Generating Station

Period of Record: October - December 2021

Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)

Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	5	2	0	0	7
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	0	1	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	1	6	2	0	0	9

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	0	1	0	0	2
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	1	0	0	0	1
WNW	0	0	2	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	2	3	2	0	0	7

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	1	0	0	2
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	1	0	1	0	0	0	2
S	0	0	1	0	0	0	1
SSW	0	0	1	0	0	0	1
SW	1	2	0	0	0	0	3
WSW	0	0	0	0	0	0	0
W	0	0	2	0	0	0	2
WNW	0	0	4	1	0	0	5
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	3	4	10	2	0	0	19

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	8	38	23	0	0	71
NNE	1	7	13	6	1	0	28
NE	1	10	12	4	0	0	27
ENE	3	28	28	9	1	0	69
E	0	21	22	6	0	0	49
ESE	1	9	8	11	0	0	29
SE	2	11	24	9	0	0	46
SSE	1	6	38	8	3	0	56
S	1	19	37	24	4	0	85
SSW	2	30	26	7	1	0	66
SW	2	15	18	12	0	0	47
WSW	2	11	17	14	12	3	59
W	1	10	29	19	12	2	73
WNW	4	19	47	44	17	2	133
NW	3	23	25	37	3	1	92
NNW	2	31	31	6	0	0	70
Variable	0	0	0	0	0	0	0
Total	28	258	413	239	54	8	1000

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	16	11	5	0	0	35
NNE	1	12	4	0	0	0	17
NE	4	8	4	0	0	0	16
ENE	4	23	12	2	1	0	42
E	3	23	11	3	0	0	40
ESE	1	8	15	9	0	0	33
SE	1	8	20	19	0	0	48
SSE	5	31	31	29	0	0	96
S	5	15	33	9	0	2	64
SSW	5	15	30	16	0	1	67
SW	8	20	20	6	0	2	56
WSW	12	10	19	6	2	3	52
W	3	46	22	12	0	0	83
WNW	8	37	20	8	4	0	77
NW	6	26	21	1	0	0	54
NNW	7	22	10	0	0	0	39
Variable	0	0	0	0	0	0	0
Total	76	320	283	125	7	8	819

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	3	0	0	0	0	5
NNE	1	0	0	0	0	0	1
NE	1	1	0	0	0	0	2
ENE	1	4	0	0	0	0	5
E	5	20	3	0	0	0	28
ESE	7	19	8	0	0	0	34
SE	2	14	6	0	0	0	22
SSE	4	24	6	0	0	0	34
S	6	16	1	0	0	0	23
SSW	2	5	0	0	0	0	7
SW	4	2	0	0	0	0	6
WSW	9	3	0	0	0	0	12
W	11	8	0	0	0	0	19
WNW	11	5	0	0	0	0	16
NW	7	7	0	0	0	0	14
NNW	4	4	0	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	77	135	24	0	0	0	236

Hours of calm in this stability class: 1
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	2	0	0	0	0	3
E	2	19	1	0	0	0	22
ESE	1	13	5	0	0	0	19
SE	2	3	2	0	0	0	7
SSE	0	10	0	0	0	0	10
S	5	8	0	0	0	0	13
SSW	3	1	0	0	0	0	4
SW	4	0	0	0	0	0	4
WSW	4	0	0	0	0	0	4
W	7	0	0	0	0	0	7
WNW	6	0	0	0	0	0	6
NW	12	1	0	0	0	0	13
NNW	4	0	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	51	57	8	0	0	0	116

Hours of calm in this stability class: 1
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Extremely Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	2	5	0	7
SSW	0	0	0	0	0	0	0
SW	0	0	1	0	0	0	1
WSW	0	0	0	1	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	1	3	5	0	9

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Moderately Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	1	0	1	0	2
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	2	0	0	2
WNW	0	0	0	1	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	1	1	4	1	0	7

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Slightly Unstable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	1	0	0	2
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	1	0	0	0	2
S	0	0	0	1	0	0	1
SSW	0	1	0	1	0	0	2
SW	0	0	1	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	0	0	3	0	0	3
WNW	0	0	1	2	1	0	4
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	1	4	5	8	1	0	19

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Neutral - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	9	7	28	14	0	58
NNE	1	4	14	12	8	4	43
NE	0	3	8	14	1	3	29
ENE	1	5	15	14	5	5	45
E	0	12	30	23	12	0	77
ESE	0	4	4	8	9	1	26
SE	1	5	10	17	6	1	40
SSE	1	5	9	26	5	1	47
S	1	7	23	39	15	7	92
SSW	1	9	28	25	7	3	73
SW	2	9	18	13	11	0	53
WSW	0	5	15	13	12	14	59
W	0	5	10	31	17	15	78
WNW	1	12	15	51	32	18	129
NW	3	13	27	21	24	2	90
NNW	2	11	29	15	4	0	61
Variable	0	0	0	0	0	0	0
Total	14	118	262	350	182	74	1000

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Slightly Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	5	9	13	4	0	32
NNE	1	3	10	16	1	0	31
NE	0	3	11	5	0	0	19
ENE	1	1	13	13	2	2	32
E	0	2	14	18	7	1	42
ESE	0	1	2	8	15	2	28
SE	2	1	2	11	15	9	40
SSE	1	2	4	19	32	7	65
S	0	1	14	35	17	12	79
SSW	2	8	9	35	41	1	96
SW	0	1	6	17	16	4	44
WSW	1	8	12	20	6	4	51
W	1	4	24	36	12	1	78
WNW	0	6	30	45	5	4	90
NW	0	7	29	23	8	0	67
NNW	0	3	15	6	1	0	25
Variable	0	0	0	0	0	0	0
Total	10	56	204	320	182	47	819

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Moderately Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	5	6	0	0	12
NNE	0	1	1	2	0	0	4
NE	1	1	1	0	0	0	3
ENE	1	0	1	0	0	0	2
E	0	1	6	5	0	0	12
ESE	0	5	5	7	10	1	28
SE	1	4	7	6	6	0	24
SSE	2	2	9	5	4	0	22
S	1	2	3	17	4	0	27
SSW	0	0	4	18	3	0	25
SW	1	2	2	4	0	0	9
WSW	1	1	8	3	0	0	13
W	1	4	6	6	0	0	17
WNW	1	2	10	8	0	0	21
NW	0	3	2	6	0	0	11
NNW	0	1	5	1	0	0	7
Variable	0	0	0	0	0	0	0
Total	10	30	75	94	27	1	237

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0

Byron Generating Station

Period of Record: October - December 2021
 Stability Class - Extremely Stable - 250Ft-30Ft Delta-T (F)
 Winds Measured at 250 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	0	2	0	0	6
NNE	3	2	2	0	0	0	7
NE	0	1	0	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	1	4	1	1	0	7
ESE	0	0	0	8	8	2	18
SE	0	0	3	6	4	0	13
SSE	1	1	3	4	1	0	10
S	0	0	1	4	0	0	5
SSW	0	3	3	3	1	0	10
SW	1	0	2	5	0	0	8
WSW	0	1	8	0	0	0	9
W	0	3	2	0	0	0	5
WNW	1	0	2	0	0	0	3
NW	0	3	0	0	0	0	3
NNW	2	4	4	1	0	0	11
Variable	0	0	0	0	0	0	0
Total	8	24	34	34	15	2	117

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 0