Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

April 25, 2019
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Attention: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498 & 50-499
2018 Radioactive Effluent Release Report

Pursuant to the South Texas Project Technical Specification 6.9.1.4 and 10 CFR 50.36a, STP Nuclear Operating Company provides the attached 2018 Radioactive Effluent Release Report. The report covers the period from January 1, 2018 to December 31, 2018.

There are no commitments included in this report.

If there are any questions on this report, please contact me at (361) 972-7172.

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RG

Attachment: 2018 Radioactive Effluent Release Report

STI: 34838544

cc:

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ATTACHMENT

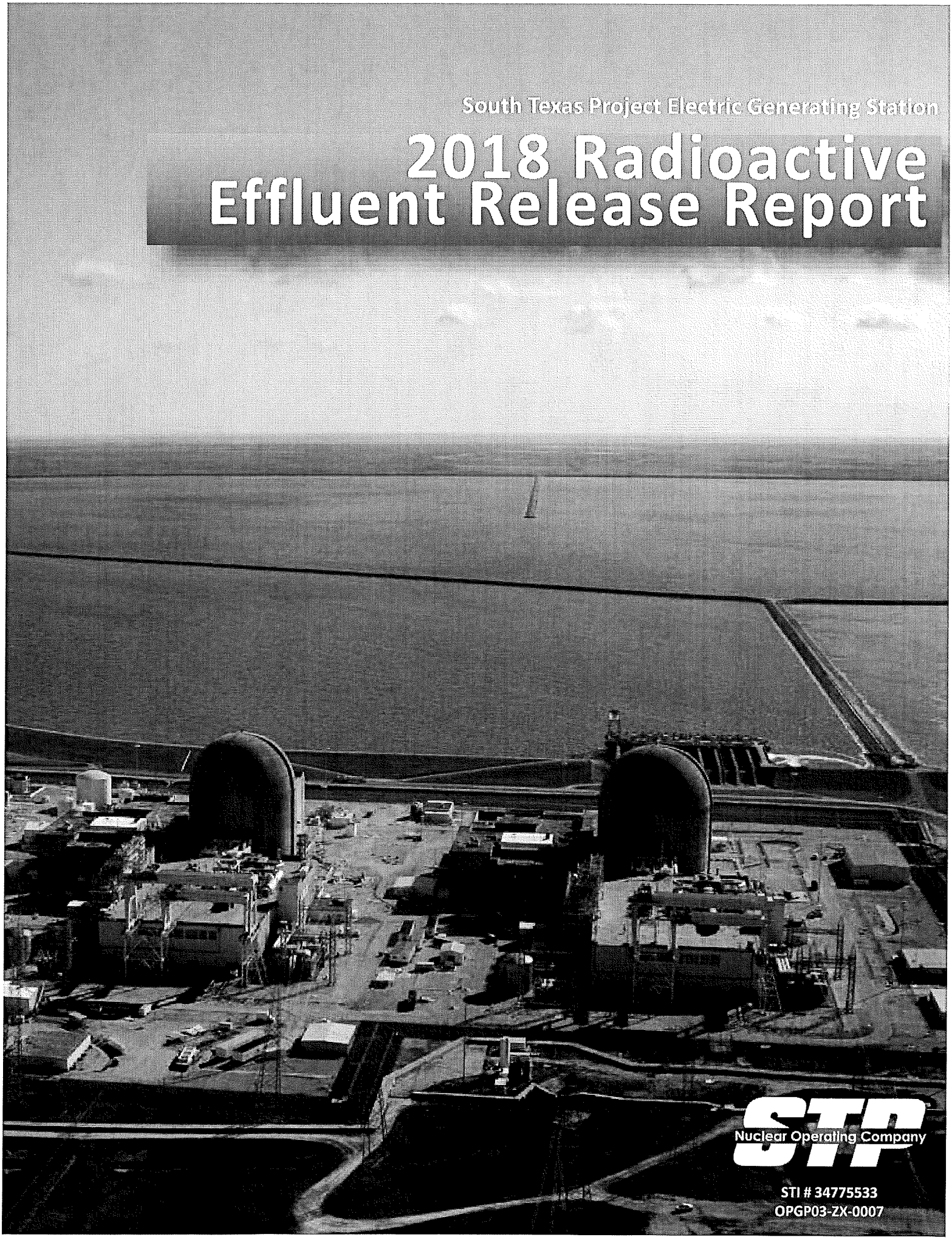
South Texas Project

Units 1 and 2

2018 Radioactive Effluent Release Report

South Texas Project Electric Generating Station

2018 Radioactive Effluent Release Report



STP Nuclear Operating Company

STI # 34775533
OPGP03-ZX-0007

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2018

Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

Completed by
Generation in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
Renewed Facility Operating License Nos.
NPF-76 & NPF-80
April 2019

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0PGP03ZX0007, Preparation of the Radioactive Effluent Release Report
South Texas Identification (STI): 34775533

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Summary Tab

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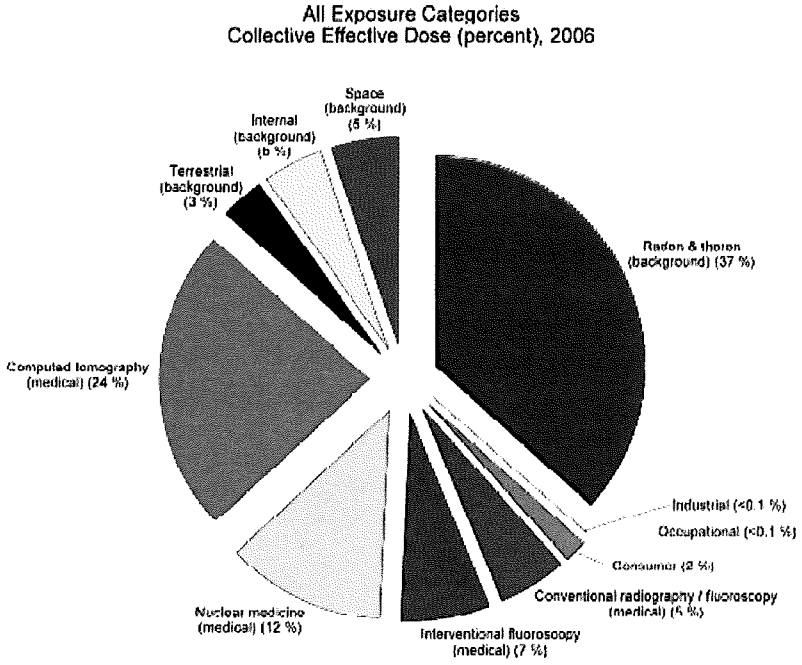
Report Summary

During 2018, as in previous years, operation of the South Texas Project (STP) created no adverse effects or health risks. The maximum radiation exposure calculated for a hypothetical person living at the boundary of STP during 2018 due to operation of STP was less than one millirem. For reference, this dose may be compared to the average annual radiation exposure of 620 millirem to people in the United States from all sources, as shown in Figure 1-1. Of that 620 millirem, natural radiation sources in the environment accounted for 50% of the radiation exposure, whilst 48% of the exposure occurred from medical procedures. Nuclear power operations contributed less than one millirem.

Figure 1-1



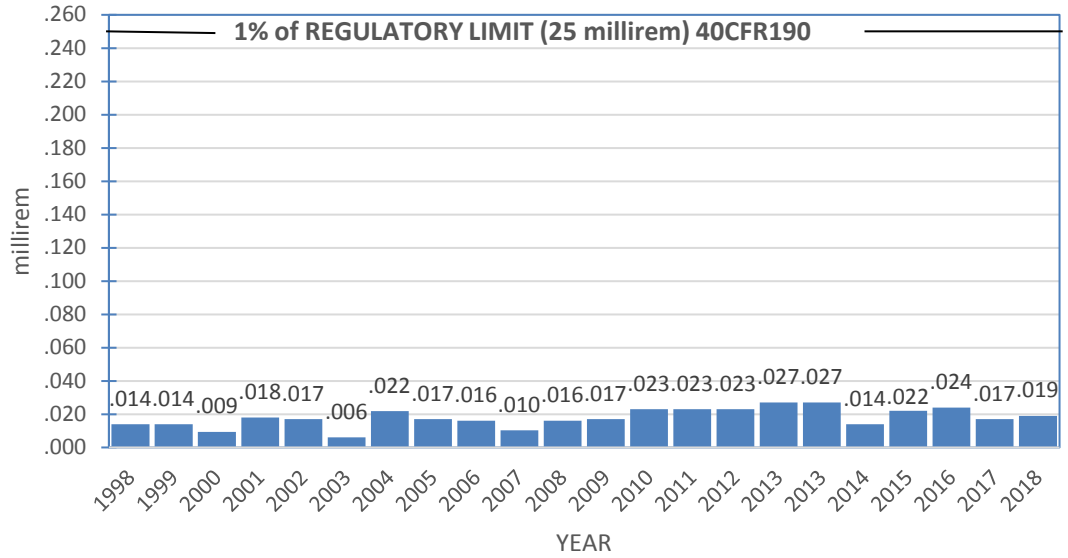
*NCRP (2006). National Council on Radiation Protection and Measurements, *Ionizing Radiation Exposure of the Population of the United States*, (Bethesda, Maryland), NCRP Report No. 160.

During 2018, the estimated total body dose to a hypothetical Member of the Public with the highest probability for exposure from radioactive effluents and direct radiation was 0.019 millirem. This total represents approximately 0.1% of the limits of 40 CFR 190. Based on our 2018 Land Use Census, real individuals reside in the West by Southwest Sector, approximately 4,000 meters (2.5 miles) from the site. For dose calculation purposes, the residents at this location are characterized as the theoretically highest exposed individual with regard to food consumption, occupancy and other uses of the areas in the plant vicinity. Our dose model assumes that this theoretically highest exposed individual may consume the

maximum amount of food with all the food being grown or grazed at the residence. This individual receives shoreline exposure from Little Robbins Slough for 12 hours per year and consumes 21 kilograms (46 pounds) of fish taken from Little Robbins Slough. This individual receives a submersion dose from noble gases and dose from inhaled radioactive particulates, radioiodines, carbon-14, and tritium. This hypothetical adult is assumed to consume 64 kilograms (140 pounds) of leafy vegetables grown at the residence and consumes 110 kilograms (240 pounds) of meat from livestock grazed at the residence. This estimated total body dose is calculated using models and exposure pathways described in our Offsite Dose Calculation Manual for a hypothetical individual offsite. Other dose estimates for Members of the Public onsite are listed in the report using exposure pathways not addressed by standard dose calculation methods.

Doses from releases to the environment at STP have historically been and continue to be well below regulatory limits, as shown in Figure 1-2. Carbon-14 accounted for a majority of the Total Body Dose reported in gaseous effluents. Members of the Public received negligible additional radiation due to the operation of STP. This Radioactive Effluent Release Report summarizes the data describing the radioactive liquid and gaseous releases from STP during 2018. The radioactive effluents from STP are effectively monitored and controlled in accordance with regulatory requirements.

FIGURE 1-2 THEORETICAL TOTAL BODY DOSE FOR ALL PATHWAYS



Liquid and gaseous discharges from STP are continuously monitored for radioactive content. Samples are also collected from ventilation systems and liquid discharges and analyzed for radioactivity. The sample and analysis methods are verified and augmented using an environmental laboratory. Radioactivity monitors continuously sample the ventilation exhaust systems. On the liquid discharge lines, radioactivity monitors automatically divert or isolate liquid effluents if the radioactivity is higher than expected. These monitors are also equipped with remote alarm indications in the control rooms and health physics offices.

Prior to and during power operation, STP is required to evaluate radioactive material in the environment. We are committed to sampling and analyzing environmental samples for radioactivity to support our Radiological Environmental Monitoring Program (REMP). The results of these environmental samples are listed in our 2018 Annual Environmental Operating Report. These environmental measurements affirm the accuracy of our sampling and analysis program, a subset of our Radioactive Effluent Control Program. These measurements are categorized into four pathways. The sampled pathways include airborne, waterborne, ingestion, and direct radiation. Based on these environmental measurements and the radioactivity released to the environment (included in this report), STP continues to operate with no negative effect on the population or the environment.

The radiation monitors and the sampling and analysis program, provide an accurate determination of the type and quantity of radioactive materials released in plant effluents. Liquid effluents are directed to the Main Cooling Reservoir (MCR) that is located entirely within the site boundary. STP continues to aggressively pursue the reduction of radioactive material in liquid effluents consistent with prudent industry practices.

Each year, the effluent monitoring results are summarized in this report and a hypothetical radiation dose to the population in the surrounding area is calculated based on gaseous radioactive effluents, meteorological conditions and liquid radioactive effluents. The hypothetical dose assumes credible paths for radioactive material to reach a Member of the Public, such as consumption of leafy vegetables from a garden, fish from the river, inhalation and direct exposure. The highest potential hypothetical dose to an individual at the site boundary was calculated to be less than one millirem or approximately an additional day of radiation exposure from natural radiation sources. The information presented in this report demonstrates that plant operation is consistently controlled to make certain that radioactive effluents remain below regulatory limits and to ensure protection of the public and the environment.

INTRODUCTION

This Radioactive Effluent Release Report is submitted for the period January 1, 2018, through December 31, 2018, in accordance with Appendix A of Renewed Facility Operating License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 2018. Liquid effluents are discharged to the onsite Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. Table 1-1 lists a brief summary of the radioactive effluents and solid waste attributable to the station.

Table 1-1

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	5.2E+09[(2)]	4.1E+00
PARTICULATE AND IODINES	GAS	OFFSITE	5.2E+09[(2)]	3.2E-04
TRITIUM & CARBON-14	GAS	OFFSITE	5.2E+09[(2)]	1.5E+02
TRITIUM	LIQUID	OFFSITE	4.8E+06[(3)]	2.5E+02 [(5)]
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06[(3)]	2.2E-04[(5)]
TRITIUM	LIQUID	ON-SITE	6.0E+04[(4)]	2.0E+03
FISSION AND ACTIVATION PRODUCTS[(1)]	LIQUID	ON-SITE	6.0E+04[(4)]	1.1E-02
SPENT RESINS AND FILTERS	SOLID	FOR DISPOSAL	2.5E+01	3.5E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR DISPOSAL	7.3E+02	7.4E-01
Low Level Exempt Quantities of sewage sludge, resin and oily sludge	SOLID	FOR DISPOSAL	1.5E+01	2.9E-07

[(1)]Excludes dissolved and entrained gases.
[(2)]Unit Vent Release Volume for Units 1 and 2.
[(3)]Estimated MCR seepage to identified receptors.
[(4)]Total volume of liquid radioactive effluents discharged to the MCR.
[(5)]Reference ODCM, Table B4-1 for Matagorda Bay.

Tritium was the largest contributor to the offsite doses from radioactive liquid effluents. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (620 millirem), from NCRP (2006). National Council on Radiation Protection and Measurements, *Ionizing Radiation Exposure of the Population of the United States*, (Bethesda, Maryland), NCRP Report No. 160.

Effluent Program Tab

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Supplemental Information for Effluent and Waste Disposal

Supplemental Information for Effluent and Waste Disposal

The South Texas Project is located on 12,220 acres in Matagorda County, Texas, approximately 15 miles southwest of Bay City along the west bank of the Colorado River. The South Texas Project is owned by NRG South Texas LP, City of Austin, and City Public Service Board of San Antonio as tenants in common. Houston Lighting & Power Company was the original project manager of the South Texas Project and was responsible for the engineering, design, licensing, construction, startup, and initial commercial operation of the two-unit facility. In 1997, the STP Nuclear Operating Company assumed operational control of the South Texas Project and responsibility for implementation of associated environmental programs.

The South Texas Project has two Westinghouse pressurized water reactors. The rated core thermal power of each unit is 3,853 megawatts-thermal (MWt). Each unit was originally designed for a net electrical power output of 1,250 megawatts-electric (MWe). Unit 1 received a low-power testing license on August 21, 1987, achieved initial criticality on March 8, 1988, and was declared commercially operational on August 25, 1988. Unit 2 received a low-power testing license on December 16, 1988, achieved initial criticality on March 12, 1989, and was declared commercially operational on June 19, 1989. On September 28, 2017, the United States Nuclear Regulatory Commission approved the South Texas Project's request to extend the operating licenses an additional twenty years through 2047 and 2048.

The combined units currently produce enough electricity to serve more than two million homes and businesses throughout Texas. With nearly 1,200 baseline employees, the STP Nuclear Operating Company is the largest employer and source of revenue for Matagorda County. Nuclear energy continues to provide long-term cost stability and promote energy independence. It is our nation's largest source of carbon-free energy. As we work collectively to secure our state's long-term energy future, nuclear energy will continue to play an important role as a safe and reliable supply of clean baseload electricity.

Regulatory Limits

Fission and Activation Gases

The **air dose** due to noble gases released in gaseous effluents, from each unit, to areas at and beyond the Site Boundary shall be limited to the following:

During any calendar quarter: Less than or equal to 5 millirads for gamma radiation and less than or equal to 10 millirads for beta radiation, and

During any calendar year: Less than or equal to 10 millirads for gamma radiation and less than or equal to 20 millirads for beta radiation.

Iodines and Particulates, Half-Lives > 8 days

The **dose** to a Member of the Public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released, from each unit, to areas at and beyond the Site Boundary shall be limited to the following:

During any calendar quarter: Less than or equal to 7.5 millirems to any organ; and

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

Liquid Effluents

The **dose or dose commitment** to a Member of the Public from radioactive materials in liquid effluents released, from each unit, to Unrestricted Areas shall be limited to:

During any calendar quarter: Less than or equal to 1.5 millirems to the whole body and to less than or equal to 5 millirems to any organ; and

During any calendar year: Less than or equal to 3 millirems to the whole body and to less than or equal to 10 millirems to any organ.

Effluent Concentrations Limits

Gaseous Effluents

The **dose rate** due to radioactive materials released in gaseous effluents from the site to areas at and beyond the Site Boundary shall be limited to the following:

For noble gases: Less than or equal to 500 millirems/year to the whole body and less than or equal to 3000 millirems/year to the skin, and

For Iodine-131, Iodine-133, tritium and all radionuclides in particulate form with half-lives greater than eight days: Less than or equal to 1500 millirems/year to any organ.

Liquid Effluents

The concentration of radioactive material released in liquid effluents to Unrestricted Areas shall be limited to 10 times the concentrations specified in 10CFR, Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2.0E-04 microcurie/milliliter total activity.

Average Energy (Million Electron Volts/Disintegration)

The **Average Energy** (or E-bar) shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration for the isotopes, other than Iodines, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant. The following average energy values are based on grab sample analyses from each reactor coolant system. The Unit 1 sample was collected during the month of August 2017 and the Unit 2 sample was collected during the month of July 2018.

Reactor Coolant Liquid including tritium, fission products (excluding radioiodines), and corrosion and activation products

E-bar (Million Electron Volts/Disintegration)	0.079	Unit 1
	0.095	Unit 2

The average energy (E-bar) values of the radionuclide mixture in gaseous releases of fission and activation gases are based on noble gases released during the reporting period.

Gaseous Effluents only Noble Gases

E-bar (Million Electron Volts/Disintegration)	1.33	Unit 1
	1.09	Unit 2

Measurement and Approximations of Total Activity

The following discussions detail the methods used to measure and approximate total activity for the following:

Gaseous Effluents: Fission and Activation Gases, Tritium, Iodines and Particulates

Liquid Effluents: Fission and Activation Products, Tritium, Dissolved and Entrained Gases

Tables A3-1 and A4-1 of the Offsite Dose Calculation Manual give sampling frequencies and lower limit of detection requirements for the analysis of liquid and gaseous effluent streams.

Gaseous Effluents

Analytical Methods For Gaseous Releases from the Reactor Containment Building

Monthly pre-release grab samples are collected from the plant Reactor Containment Building atmosphere. These samples are analyzed on a Gamma Spectroscopy System utilizing high purity germanium detectors for noble gas, iodine and particulate activity. Tritium specific radioactivity is measured using Liquid Scintillation Counting techniques.

The radionuclide concentrations obtained are used in conjunction with the gross noble gas release rate monitoring data collected by the radiation monitoring system to estimate the release rate of each radionuclide in the effluent streams. The noble gas release rate data collected by the unit vent radiation monitor is quantified and reported as continuous mode of release. The data from the unit vent radiation monitor in conjunction with the grab sample results of the Reactor Containment Building atmosphere are used to quantify the radioactive material released.

Analytical Methods For Continuous Gaseous Releases

Periodic noble gas and tritium grab samples are taken from the continuous release points such as the Unit Vent. Continuous sampling for particulates and iodine is also performed on effluent streams. These samples are analyzed for tritium and gamma radionuclides, as described above for gaseous releases. Strontium-89, strontium-90, and gross alpha analyses is performed by the on-site Radiological Services Laboratory.

Noble gas quantification is performed by the plant radiation monitoring system using noble gas grab sample results and the gross noble gas release rate monitor.

The methodology used for estimating the quantity of carbon-14 released to the environment is described in the following section Dose to Member of the Public from Radioactive Effluents Including Carbon-14.

Secondary system liquid grab samples in conjunction with the mass of the secondary coolant lost are used for quantifying secondary steam releases. The radioactive material in the steam is based on grab sample results of the secondary liquid. The secondary liquid is analyzed for gamma emitters and tritium.

Liquid Effluents

Analytical Methods For Liquid Releases

Liquid batch releases include waste liquid treated by the liquid waste processing system and secondary system chemical regeneration waste. Liquid effluents resulting from primary to secondary leakage or other plant operations are continuously monitored and are tracked as continuous releases. For batch releases, representative pre-release grab samples are taken and analyzed in accordance with Table A3-1 of the Offsite Dose Calculation Manual. For continuous releases, representative samples are collected weekly and analyzed. Radionuclide analyses are performed using a Gamma Spectroscopy System. Aliquots of each pre-release batch sample are composited in accordance with the requirements in Table A3-1 of the Offsite Dose Calculation Manual. Tritium concentrations are determined using Liquid Scintillation Counting techniques. Dissolved and entrained gas concentrations are determined by counting grab samples on the Gamma Spectroscopy System. Strontium-89, strontium-90, gross alpha, iron-55, and nickel-63 determinations are performed by the on-site Radiological Environmental Monitoring Laboratory. The radionuclide concentrations obtained are used with the total volume for each batch release.

Batch Releases

Liquid and gaseous summaries are compiled from permits generated using a computer-based effluent management system and plant procedures. Liquid batch releases are accounted for by individual permits. Gaseous batch releases are accounted for by monthly permits and consist of reactor containment purges for the purpose of reducing radioactive material concentrations. Batch times represent the actual period of releases and the periods that the purge valves were open.

Liquid (Unit 1)

Liquid (Unit 1)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	9	21	32	14
b. Total time period for batch releases (minutes)	554	1293	1947	841
c. Maximum time period for a batch release (minutes)	64	65	65	65
d. Average time period for batch releases (minutes)	62	62	61	60
e. Minimum time period for a batch release (minutes)	60	57	59	47

Gaseous (Unit 1)

Gaseous (Unit 1)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	0	0	1	4
b. Total time period for batch releases (minutes)	0	0	120	34620
c. Maximum time period for a batch release (minutes)	0	0	120	26040
d. Average time period for batch releases (minutes)	0	0	120	8655
e. Minimum time period for a batch release (minutes)	0	0	120	720

Liquid (Unit 2)

Liquid (Unit 2)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	32	18	6	3
b. Total time period for batch releases (minutes)	1930	1098	363	185
c. Maximum time period for a batch release (minutes)	63	64	62	63
d. Average time period for batch releases (minutes)	60	61	61	62
e. Minimum time period for a batch release (minutes)	57	59	58	61

Gaseous (Unit 2)

Gaseous (Unit 2)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	2	3	1	0
b. Total time period for batch releases (minutes)	15840	28680	120	0
c. Maximum time period for a batch release (minutes)	8880	22560	120	0
d. Average time period for batch releases (minutes)	7920	9560	120	0
e. Minimum time period for a batch release (minutes)	6960	360	120	0

Abnormal (Unplanned) Releases

No abnormal releases occurred during this reporting period.

Estimate of Total Error

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence interval.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence interval for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The potential error associated with solid radioactive waste shipments is estimated to be +/- 20%. This is based on waste stream sampling uncertainty and an industry standard of +/- 20% for calibration of instrumentation.

Solid Waste Shipments

A total of 23 shipments of radioactive filter media, spent resins, dry active waste, irradiated components and other wastes were made during the reporting period. Additionally, 1 shipment of exempt quantities were made to an industrial landfill in Texas. A summary of the data is provided in Section 6, Solid Waste and Irradiated Fuel Shipments. This data is based upon waste generated from Units 1 and 2.

Radiological Impact on Man

The data for the period January 1, 2018, through December 31, 2018, is provided in the Dose Accumulation (Section 7) and the Summary of Direct Radiation Table 8-1 (Section 8). The following dilution factors and dilution water flows were used for assessing the radiation doses due to radioactive liquid effluents released to unrestricted areas.

Receptor Location	ODCM[(1)] Dilution Factor	Dilution Water Flow Cubic Feet/Second	Dilution Water Flow Liters/Year	Dilution Water Flow Liters/Quarter
Colorado River	1.00E+00	6.00E+02	5.36E+11	1.34E+11
Matagorda Bay	1.63E+02	9.78E+04	8.73E+13	2.18E+13
Little Robbins Slough Area	3.05E-02	1.83E+01	1.63E+10	4.08E+09

(1) Offsite Dose Calculation Manual factor (Table B4-3).

The dilution water flow used to estimate the individual dose due to ingestion of saltwater fish and saltwater invertebrates (shrimp) harvested from the Colorado River was 5.36E+11 liters per year for the years of 1989 through 2018. The dilution water flow used to estimate the individual dose due to ingestion of saltwater fish and saltwater invertebrates harvested from the Matagorda Bay was 8.73E+13 liters per year for the years of 1993 through 2018 as the result of a diversion channel that routes the Colorado River into Matagorda Bay. The dilution water flow used to estimate the individual dose due to ingestion of freshwater fish from the Little Robbins Slough Area was 1.63E+10 liters per year for the years 1989 through 2018. These dilution water flows were also used for estimating individual dose due to shoreline deposits. The radioactive material reported in the Liquid Effluent tables is the amount released to the Main Cooling Reservoir and does not contribute to dose until the radioactive material is released to unrestricted areas. In order to estimate the doses due to liquid effluents, the radioactive material reported must be adjusted by the values listed in the Offsite Dose Calculation Manual, Table B4-1, “Radionuclide Fractions N(i), Reaching Off-site Bodies of Water”.

Meteorological Data

The **2018 meteorological data** is presented in the form of joint frequency tables. Each quarter contains eight tables, one for each stability class and one for all classes combined.

A second set of joint frequency tables is provided for time periods when the reactor containment building fans were operating to remove radioactive material from the containment for personnel protection reasons. These containment purges are classified as batch releases.

Lower Limit of Detection

The **Lower Limit of Detection** (an a priori limit) is defined as the smallest concentration of radioactive material in a sample that will yield a net count above system background that will be detected with 95% probability, and only a 5% probability of falsely concluding that a blank observation represents a "real" signal. A zero (0) value in the attached tables indicates no activity detected.

Dose to Member of the Public

Dose to Member of the Public from Direct Radiation Outside the Site Boundary

The Offsite Dose Calculation Manual includes the direct radiation from plant structures as a component to the dose to a hypothetical, highest exposed Member of the Public located off site due to plant operations. The Offsite Dose Calculation Manual allows measurements made near the plant structures to be used in these calculations following suitable adjustments for distance and exposure time. In 2018, Thermoluminescent Dosimeters (TLD) were placed along the protected area fence or the concrete intrusion barriers surrounding Units 1 and 2 of the South Texas Project, around the Old Steam Generator Storage Facility, Low Level Rad Waste Storage Area, and around the Independent Spent Fuel Storage Installation (ISFSI) pad as pictured in Figure 8-1 of Section 8. The results of these measurements are summarized in Table 8-1 of Section 8. The table shows that in 2018, TLD measurements were typical of previous year's readings.

In accordance with the Offsite Dose Calculation Manual, the dose due to direct radiation can be estimated taking the highest TLD measurement, minus the background, and correcting for the distance to the site boundary using

$$Dose_{direct} = TLD * (PA)^2 / (RD)^2$$

Where

TLD = background corrected TLD annual dose, mR/yr
PA = distance from source of radiation to the TLD location, meters
RD = distance from the source of radiation to the closest site boundary, meters

The TLD average dose rate is the average of the four quarterly values for the highest location less the quarterly average background at the site boundary. The highest average TLD dose rate was 17 mR/quarter for station #35 which is located in the vicinity of the Low Level Rad Waste Storage Area, as shown in Figure 8-1. The value for TLD may be calculated as shown below where the historical site boundary background of 15.4 mR/quarter is used to find the net rate attributable to waste stored onsite.

TLD = 17 – 15.4 = 1.6 mR/quarter

or

TLD = (1.6 mR/quarter) * (4 quarters/yr) = 6.4 mrem/yr assuming a mR is about equal to a mrem

The approximate distances PA and RD are estimated using field measurements and global positioning satellite technology. The total dose to a hypothetical member of the public at the site boundary could be calculated as below:

$Dose_{direct}$ = (6.4 mrem/yr) * (40 meters)^2 / (683 meters)^2 = 0.022 mrem/yr

This assumes someone is positioned permanently at the fence east of the Units. A real person might traverse this area twice daily (to and from work) for a total exposure time of

Exposure time (hypothetical person) = (250 work days per year) * (4 minutes per trip) * (2 trips per day)

Exposure time (hypothetical person) = 2000 minutes = 0.00381 yr

$Dose_{direct}$ = 0.022 mrem/yr * 0.00381 yr = 0.00008 mrem in 2018

In summary, a realistic dose of 0.00008 mrem was possible to a Member of the Public offsite in 2018 although a hypothetical maximum annual dose rate of 0.022 mrem/yr was calculated at the nearest offsite location.

Dose to Member of the Public from Direct Radiation Inside the Site Boundary

A hypothetical Member of the Public inside the site boundary but outside the protected area fence could receive less than one millirem from direct radiation. The most exposed employee on site who is also a Member of the Public would be a grounds keeper whose job required him to work in the vicinity east of the Low Level Rad Waste Storage Area. If such an individual worked 10 hours once a quarter at the fence where the dose rate was highest, their direct radiation dose could be calculated as follows:

Dose (mrem) = 40 x [(15-15.4)*+(19-15.4)+(17-15.4)+(17-15.4)] / 365 / 24 = 0.031 mrem
where
40 = 10 hours per quarter times four quarters
15 = average dose rate in first quarter, mrem/quarter;
19 = average dose rate in second quarter, mrem/quarter
17 = average dose rate in third quarter, mrem/quarter
17 = average dose rate in fourth quarter, mrem/quarter
15.4 = average pre-operation dose rate, mrem/quarter

365 = days in a year
24 = hours per day

***** - since first quarter value is below pre-operational dose rate value, zero is used in calculation

Hence, in 2018 a hypothetical Member of the public with the highest exposure to direct radiation received about 0.031 mrem from direct radiation.

Dose to Member of the Public from Direct Radiation and Radioactive Effluents Inside the Site Boundary

A hypothetical Member of the Public outside the protected area fence but inside the site boundary could receive approximately 3.34 millirem from radioactive effluents due to inhalation and immersion. This dose plus the direct radiation dose would yield 3.37 millirem, a small fraction of the 10 CFR 20.1301 annual limit.

Dose to Member of the Public from Radioactive Effluents Outside the Site Boundary using ODCM Exposure Pathways

During 2018, the estimated total body dose to a hypothetical Member of the Public with the highest probability for exposure from radioactive effluents and direct radiation was 0.019 millirem. This total represents approximately 0.1% of the limits of 40 CFR 190. Based on our 2018 Land Use Census, real individuals reside in the West by Southwest Sector, approximately 4,000 meters (2.5 miles) from the site. For dose calculation purposes, the residents at this location are characterized as the theoretically highest exposed individual with regard to food consumption, occupancy, and other uses of the areas in the plant vicinity. Our dose model assumes that this theoretically highest exposed individual may consume the maximum amount of food with all the food being grown or grazed at the residence. This individual receives shoreline exposure from Little Robbins Slough for 12 hours per year and consumes 21 kilograms (46 pounds) of fish taken from Little Robbins Slough. This individual receives a submersion dose from noble gases and dose from inhaled radioactive particulates, radioiodines, carbon-14, and tritium. This hypothetical adult is assumed to consume 64 kilograms (140 pounds) of leafy vegetables grown at the residence and consumes 110 kilograms (240 pounds) of meat from livestock grazed at the residence. This estimated total body dose is calculated using models and exposure pathways described in our ODCM for a hypothetical individual offsite. Other dose estimates for Members of the Public onsite are listed in the report using exposure pathways not addressed by standard dose calculation methods.

Dose to Member of the Public from Radioactive Effluents Outside the Site Boundary using Liquid to Gaseous Receptor Exposure Pathways

Consistent with normal operation of the units, approximately two thousand Curies of tritium were released to the Main Cooling Reservoir during 2018. Since some portion of the tritium released in liquid effluents evaporates from the Main Cooling Reservoir, this section is included to provide an estimate of offsite dose from that gaseous source per section 4.10 of the ODCM. The Main Cooling Reservoir, with a surface area of about 28,300,000 square meters (7000 acres), is an area source and contributes tritium to the atmosphere. The atmospheric dispersion factor for the WSW sector at 4000 meters was estimated to be 4.01E-07 seconds per cubic meter using the EPA code Iclt3 and 2004 meteorological data.

The product of X/Q, tritium released to the MCR, and the dose factor for a population age group (87.9, 91.7, 114.2 or 20.5 millirem-cubic meter per second-curie for age groups adult, teen, child and infant, respectively) generated an estimated whole body dose of 0.09 millirem for the highest exposed population group, a small fraction of the limits of 40 CFR 190.

Dose to Member of the Public from Radioactive Effluents including Carbon-14

Carbon-14 was reported as a radioactive effluent in 2010 for the first time. Carbon-14 is a naturally occurring isotope of carbon. Carbon-14 is formed naturally in the upper atmosphere and is also formed in an operating nuclear reactor, primarily through activation of oxygen molecules. The quantity of carbon-14 produced by operating nuclear reactors is significantly less than that produced naturally or from weapons testing.

The NRC published *Regulatory Guide 1.21 Revision 1, Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants* in 1974. This regulatory guidance recommends the content and format of this report. This report follows the recommendations of Regulatory Guide 1.21, Revision 1. In 2009 the NRC published revision 2 of Regulatory Guide 1.21 based on a risk-informed perspective for reporting principal radionuclides . This document recommended methods for estimating and reporting the quantity of carbon-14 released in gaseous effluents. The quantity of carbon-14 released from each unit was estimated using *NUREG-0017, Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors PWR-GALE Code,* April 1985. A value of 7.3 curies of carbon-14 was used for each unit. The Semiannual Summation of All Releases by Quarter for All Airborne Effluents found in section 4-2 of this report lists carbon-14 in a similar manner as tritium.

ODCM dose factors were used for estimating doses to Members of the Public and the doses due to carbon-14 are included in the Dose Accumulations, Section 7-1 of this report. *EPRI Report TR-105715, Characterization of Carbon-14 Generated by the Nuclear Power Industry*, November 1995 concluded that the molecular form of carbon-14 produced in gaseous effluent is 75 to 90 percent hydrocarbons (primarily methane) with the remainder in inorganic form (carbon dioxide or carbon monoxide in gas or carbonates in liquid). This report listed the measured molecular forms of carbon-14 in gaseous effluents from two U.S. and six German commercial pressurized water reactors. The average fraction of inorganic carbon-14 was determined to be 20 percent and the average organic fraction was determined to be 80 percent. The pathway doses were calculated using the average ratio of 1:5 for ingestion pathways, as carbon in the form of hydrocarbons is not absorbed by plants. The radiation doses from STP to the public (including carbon-14) are much lower than regulatory limits and are a very small contributor to the total radiation dose the American public receives each year from natural and manmade sources.

Technical Specifications and Offsite Dose Calculation Manual Controls Reporting Requirements

Offsite Dose Calculation Manual Changes (reference, Technical Specifications, 6.13)

The ODCM was not revised since issuance of the 2017 Radioactive Effluent Release Report.

Annual Land Use Census (reference, Offsite Dose Calculation Manual Controls, 3.12.2.a)

The Land Use Census verified current nearest residents within five miles. No new residents or receptors were identified within five miles of the site.

Radioactive Waste Treatment System Design Modification Description (reference, Offsite Dose Calculation Manual Controls, 6.15)

A review of the work history for 2018 for the solid, liquid and gaseous waste processing systems revealed that no major modifications were installed on these systems in 2018.

Inoperable Effluent Monitoring Instrumentation Explanation (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

For 2018, inoperable liquid effluent monitoring instruments were corrected within the time specified in sections 3.3.3.10 of Offsite Dose Calculation Manual Controls.

For 2018, inoperable gaseous effluent monitoring instruments were corrected within the time specified in Sections 3.3.3.11 of Offsite Dose Calculation Manual Controls.

Gas Storage Tank Curie Limit Violation Description (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

The Reactor Coolant System Vacuum Degassing System was not used during this reporting period. Therefore, the quantity of radioactive material in the Reactor Coolant System Vacuum Degassing System Storage Tanks did not exceed the limits set forth in Section 3.11.2.6 of Technical Specifications.

Unprotected Outdoor Tank Curie Limit Violation Description (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

There are no Unprotected Outdoor Tanks at South Texas Project. Therefore the quantity of radioactive material in any unprotected outdoor tank did not exceed the limit set forth in Section 3.11.1.4 of Technical Specifications.

Abnormal (Unplanned) Release Description (reference, Offsite Dose Calculation Manual, 6.9.1.4)

No abnormal (unplanned) releases occurred during this reporting period.

Radioactive Waste Process Control Program Changes (reference, Technical Specifications, 6.13)

There were no changes made to the Radioactive Waste Process Control Program during this reporting period.

Radiological Data Tab

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Gaseous Effluents

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 1
Starting: 1-Jan-2018 Ending: 30-Jun-2018

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CURIES	4.03E-01	3.55E-01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	5.19E-02	4.52E-02	
3. PERCENT OF LIMIT (9.60E+04 uCi/sec)	%	5.40E-05	4.71E-05	
B. RADIOIODINES				
1. IODINE-131	CURIES	0.00E+00	0.00E+00	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	0.00E+00	0.00E+00	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	0.00E+00	0.00E+00	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	2.25E-06	1.82E-05	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.89E-07	2.31E-06	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	9.65E-05	7.72E-04	
4. GROSS ALPHA RADIOACTIVITY	CURIES	3.99E-07	1.44E-07	25
D. TRITIUM				
1. TOTAL RELEASE	CURIES	2.31E+01	1.91E+01	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.97E+00	2.42E+00	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	1.65E-03	1.35E-03	
E. CARBON-14				
1. TOTAL RELEASE	CURIES	1.80E+00	1.82E+00	None
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.31E-01	2.31E-01	
3. PERCENT OF LIMIT (7.8E+03 uCi/sec)	%	2.97E-03	2.97E-03	

STP NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 2018

		CONTINUOUS MODE		**BATCH MODE**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
FISSION GASES					
Argon-41	CURIES	2.38E-01	1.87E-01	0.00E+00	0.00E+00
Xenon-133	CURIES	1.66E-01	1.68E-01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	4.03E-01	3.55E-01	0.00E+00	0.00E+00
IODINES					
Iodine-131	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iodine-133	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATES					
Silver-110M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Beryllium-7	CURIES	2.25E-06	1.82E-05	0.00E+00	0.00E+00
Cobalt-58	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt-60	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury-203	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese-54	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Molybdenum-99	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Niobium-95	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium-75	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Technetium-99M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zirconium-95	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	2.25E-06	1.82E-05	0.00E+00	0.00E+00
OTHER					
Carbon-14	CURIES	1.80E+00	1.82E+00	0.00E+00	0.00E+00
Gross Alpha	CURIES	3.99E-07	1.44E-07	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	2.31E+01	1.91E+01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	2.49E+01	2.09E+01	0.00E+00	0.00E+00

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 1
Starting: 1-Jul-2018 Ending: 31-Dec-2018

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CURIES	3.48E-01	6.67E-01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	4.38E-02	8.40E-02	
3. PERCENT OF LIMIT (9.60E+04 uCi/sec)	%	4.56E-05	8.75E-05	
B. RADIOIODINES				
1. IODINE-131	CURIES	0.00E+00	0.00E+00	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	0.00E+00	0.00E+00	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	0.00E+00	0.00E+00	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	0.00E+00	2.10E-04	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	0.00E+00	2.65E-05	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	0.00E+00	8.83E-03	
4. GROSS ALPHA RADIOACTIVITY	CURIES	1.50E-07	1.07E-06	25
D. TRITIUM				
1. TOTAL RELEASE	CURIES	1.89E+01	1.18E+01	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.38E+00	1.49E+00	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	1.32E-03	8.27E-04	
E. CARBON-14				
1. TOTAL RELEASE	CURIES	1.84E+00	1.84E+00	None
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.32E-01	2.31E-01	
3. PERCENT OF LIMIT (7.8E+03 uCi/sec)	%	2.97E-03	2.96E-03	

STP NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 2018

		CONTINUOUS MODE		**BATCH MODE**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
FISSION GASES					
Argon-41	CURIES	1.73E-01	1.04E-01	7.20E-03	3.92E-01
Xenon-133	CURIES	1.68E-01	1.32E-01	0.00E+00	3.84E-02
TOTAL FOR PERIOD	CURIES	3.41E-01	2.37E-01	7.20E-03	4.31E-01
IODINES					
Iodine-131	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iodine-133	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PARTICULATES					
Silver-110M	CURIES	0.00E+00	2.76E-07	0.00E+00	4.86E-06
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Beryllium-7	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt-58	CURIES	0.00E+00	1.96E-07	0.00E+00	3.73E-06
Cobalt-60	CURIES	0.00E+00	8.27E-08	0.00E+00	1.69E-06
Chromium-51	CURIES	0.00E+00	2.22E-07	0.00E+00	6.20E-06
Mercury-203	CURIES	0.00E+00	2.90E-11	0.00E+00	1.03E-08
Manganese-54	CURIES	0.00E+00	1.53E-08	0.00E+00	2.08E-07
Molybdenum-99	CURIES	0.00E+00	9.18E-09	0.00E+00	1.24E-07
Niobium-95	CURIES	0.00E+00	5.30E-08	0.00E+00	1.01E-06
Selenium-75	CURIES	0.00E+00	3.64E-08	0.00E+00	4.69E-07
Strontium-92	CURIES	0.00E+00	5.37E-07	0.00E+00	1.90E-04
Technetium-99M	CURIES	0.00E+00	9.18E-09	0.00E+00	1.24E-07
Zirconium-95	CURIES	0.00E+00	2.40E-08	0.00E+00	3.26E-07
TOTAL FOR PERIOD	CURIES	0.00E+00	1.46E-06	0.00E+00	2.09E-04
OTHER					
Carbon-14	CURIES	1.84E+00	1.35E+00	1.67E-03	4.88E-01
Gross Alpha	CURIES	1.50E-07	9.44E-07	0.00E+00	1.25E-07
Hydrogen-3 (Tritium)	CURIES	1.89E+01	8.42E+00	1.52E-02	3.42E+00
TOTAL FOR PERIOD	CURIES	2.08E+01	9.77E+00	1.68E-02	3.91E+00

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 2
Starting: 1-Jan-2018 Ending: 30-Jun-2018

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CURIES	9.64E-01	3.93E-01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.24E-01	5.00E-02	
3. PERCENT OF LIMIT (9.60E+04 uCi/sec)	%	1.29E-04	5.21E-05	
B. RADIOIODINES				
1. IODINE-131	CURIES	2.07E-06	3.17E-06	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.66E-07	4.04E-07	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	6.64E-04	1.01E-03	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	6.74E-05	9.04E-06	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	8.67E-06	1.15E-06	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	2.89E-03	3.83E-04	
4. GROSS ALPHA RADIOACTIVITY	CURIES	4.34E-07	0.00E+00	25
D. TRITIUM				
1. TOTAL RELEASE	CURIES	7.93E+00	1.07E+01	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.02E+00	1.36E+00	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	5.66E-04	7.58E-04	
E. CARBON-14				
1. TOTAL RELEASE	CURIES	1.80E+00	1.82E+00	None
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.31E-01	2.31E-01	
3. PERCENT OF LIMIT (7.8E+03 uCi/sec)	%	2.96E-03	2.96E-03	

STP NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 2018

		CONTINUOUS MODE		**BATCH MODE**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
FISSION GASES					
Argon-41	CURIES	2.48E-01	2.05E-01	2.52E-02	0.00E+00
Xenon-133	CURIES	1.52E-01	1.36E-01	5.39E-01	5.21E-02
TOTAL FOR PERIOD	CURIES	4.01E-01	3.41E-01	5.64E-01	5.21E-02
IODINES					
Iodine-131	CURIES	9.25E-09	7.76E-09	2.06E-06	3.17E-06
Iodine-133	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	9.25E-09	7.76E-09	2.06E-06	3.17E-06
PARTICULATES					
Silver-110M	CURIES	0.00E+00	8.26E-09	0.00E+00	3.98E-07
Arsenic-76	CURIES	1.91E-07	0.00E+00	0.00E+00	0.00E+00
Beryllium-7	CURIES	3.06E-06	2.84E-06	0.00E+00	0.00E+00
Cobalt-58	CURIES	1.70E-07	9.80E-09	1.10E-05	1.19E-06
Cobalt-60	CURIES	1.00E-07	7.45E-09	6.41E-06	3.59E-07
Chromium-51	CURIES	6.45E-07	2.23E-08	4.17E-05	3.54E-06
Mercury-203	CURIES	0.00E+00	3.25E-10	0.00E+00	1.56E-08
Manganese-54	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Molybdenum-99	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Niobium-95	CURIES	6.01E-08	6.77E-09	3.84E-06	3.26E-07
Selenium-75	CURIES	7.48E-10	3.49E-09	1.66E-07	3.02E-07
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Technetium-99M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zirconium-95	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	4.23E-06	2.90E-06	6.32E-05	6.14E-06
OTHER					
Carbon-14	CURIES	1.64E+00	1.33E+00	1.57E-01	4.87E-01
Gross Alpha	CURIES	4.34E-07	0.00E+00	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	6.81E+00	6.75E+00	1.12E+00	3.98E+00
TOTAL FOR PERIOD	CURIES	8.45E+00	8.08E+00	1.27E+00	4.46E+00

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 2
Starting: 1-Jul-2018 Ending: 31-Dec-2018

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CURIES	5.04E-01	5.05E-01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	6.34E-02	6.35E-02	
3. PERCENT OF LIMIT (9.60E+04 uCi/sec)	%	6.60E-05	6.61E-05	
B. RADIOIODINES				
1. IODINE-131	CURIES	4.74E-08	0.00E+00	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	5.96E-09	0.00E+00	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	1.49E-05	0.00E+00	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	3.17E-06	4.15E-06	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	3.99E-07	5.22E-07	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	1.33E-04	1.74E-04	
4. GROSS ALPHA RADIOACTIVITY	CURIES	0.00E+00	8.25E-07	25
D. TRITIUM				
1. TOTAL RELEASE	CURIES	9.90E+00	3.77E+01	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.25E+00	4.74E+00	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	6.92E-04	2.64E-03	
E. CARBON-14				
1. TOTAL RELEASE	CURIES	1.84E+00	1.84E+00	None
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.31E-01	2.31E-01	
3. PERCENT OF LIMIT (7.8E+03 uCi/sec)	%	2.97E-03	2.97E-03	

STP NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 2018

		CONTINUOUS MODE		**BATCH MODE**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
FISSION GASES					
Argon-41	CURIES	3.13E-01	3.20E-01	0.00E+00	0.00E+00
Xenon-133	CURIES	1.91E-01	1.84E-01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	5.04E-01	5.05E-01	0.00E+00	0.00E+00
IODINES					
Iodine-131	CURIES	4.74E-08	0.00E+00	0.00E+00	0.00E+00
Iodine-133	CURIES	1.14E-07	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.61E-07	0.00E+00	0.00E+00	0.00E+00
PARTICULATES					
Silver-110M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Beryllium-7	CURIES	3.11E-06	4.15E-06	0.00E+00	0.00E+00
Cobalt-58	CURIES	5.22E-08	0.00E+00	0.00E+00	0.00E+00
Cobalt-60	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury-203	CURIES	4.10E-10	0.00E+00	0.00E+00	0.00E+00
Manganese-54	CURIES	5.38E-09	0.00E+00	0.00E+00	0.00E+00
Molybdenum-99	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Niobium-95	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium-75	CURIES	3.32E-11	0.00E+00	0.00E+00	0.00E+00
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Technetium-99M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zirconium-95	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	3.17E-06	4.15E-06	0.00E+00	0.00E+00
OTHER					
Carbon-14	CURIES	1.84E+00	1.84E+00	0.00E+00	0.00E+00
Gross Alpha	CURIES	0.00E+00	8.25E-07	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	9.90E+00	3.77E+01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.17E+01	3.95E+01	0.00E+00	0.00E+00

STP NUCLEAR OPERATING COMPANY

Unit 1 plus 2 Total

REPORT CATEGORY: ANNUAL AIRBORNE GROUND LEVEL RELEASES. TOTALS FOR EACH NUCLIDE RELEASED. FOR ALL OF 2018

NUCLIDES RELEASED	UNITS	UNIT 1 2018	UNIT 2 2018	TOTAL 2018
FISSION GASES				
Argon-41	CURIES	1.10E+00	1.11E+00	2.21E+00
Xenon-133	CURIES	6.72E-01	1.25E+00	1.93E+00
TOTAL FOR PERIOD	CURIES	1.77E+00	2.37E+00	4.14E+00
IODINES				
Iodine-131	CURIES	0.00E+00	5.29E-06	5.29E-06
Iodine-133	CURIES	0.00E+00	1.14E-07	1.14E-07
TOTAL FOR PERIOD	CURIES	0.00E+00	5.41E-06	5.41E-06
PARTICULATES				
Silver-110M	CURIES	5.14E-06	4.06E-07	5.54E-06
Arsenic-76	CURIES	0.00E+00	1.91E-07	1.91E-07
Beryllium-7	CURIES	2.05E-05	1.32E-05	3.36E-05
Cobalt-58	CURIES	3.93E-06	1.24E-05	1.63E-05
Cobalt-60	CURIES	1.77E-06	6.88E-06	8.65E-06
Chromium-51	CURIES	6.42E-06	4.59E-05	5.23E-05
Mercury-203	CURIES	1.03E-08	1.63E-08	2.67E-08
Manganese-54	CURIES	2.23E-07	5.38E-09	2.29E-07
Molybdenum-99	CURIES	1.33E-07	0.00E+00	1.33E-07
Niobium-95	CURIES	1.06E-06	4.23E-06	5.30E-06
Selenium-75	CURIES	5.05E-07	4.72E-07	9.78E-07
Strontium-92	CURIES	1.91E-04	0.00E+00	1.91E-04
Technetium-99M	CURIES	1.33E-07	0.00E+00	1.33E-07
Zirconium-95	CURIES	3.50E-07	0.00E+00	3.50E-07
TOTAL FOR PERIOD	CURIES	2.31E-04	8.38E-05	3.15E-04
OTHER				
Carbon-14	CURIES	7.30E+00	7.29E+00	1.46E+01
Gross Alpha	CURIES	1.76E-06	1.26E-06	3.02E-06
Hydrogen-3 (Tritium)	CURIES	7.30E+01	6.63E+01	1.39E+02
TOTAL FOR PERIOD	CURIES	8.03E+01	7.35E+01	1.54E+02

Liquid Effluents

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 1
Starting: 1-Jan-2018 Ending: 30-Jun-2018

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	1.08E-03	1.86E-03	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	3.93E-10	2.21E-10	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	1.55E-03	1.06E-03	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	5.22E+01	4.37E+02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.90E-05	5.20E-05	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	7.18E-01	1.97E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	1.94E-05	6.25E-05	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	7.06E-12	7.44E-12	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	1.34E-05	1.41E-05	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	1.58E+07	7.81E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	5.09E+05	1.19E+06	1
F. VOLUME OF DILUTION WATER USED**	LITERS	7.11E+08	2.21E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

STP NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 2018

		CONTINUOUS RELEASES		**BATCH RELEASES**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
ALL NUCLIDES					
Silver-110M	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt-58	CURIES	0.00E+00	0.00E+00	5.65E-05	0.00E+00
Cobalt-60	CURIES	0.00E+00	0.00E+00	2.87E-04	6.66E-04
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cesium-137	CURIES	0.00E+00	0.00E+00	4.58E-06	1.73E-06
Iron-55	CURIES	0.00E+00	0.00E+00	4.59E-05	1.13E-04
Tritium	CURIES	6.59E-02	4.17E-02	5.21E+01	4.37E+02
Manganese-54	CURIES	0.00E+00	0.00E+00	0.00E+00	4.91E-06
Nickel-63	CURIES	0.00E+00	0.00E+00	6.04E-04	1.05E-03
Antimony-122	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony-124	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony-125	CURIES	0.00E+00	0.00E+00	6.65E-05	9.09E-06
Tin-117m	CURIES	0.00E+00	0.00E+00	1.64E-05	9.85E-06
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon-133	CURIES	0.00E+00	0.00E+00	1.94E-05	6.25E-05
Xenon-135	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	6.59E-02	4.17E-02	5.21E+01	4.37E+02

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 1
Starting: 1-Jul-2018 Ending: 31-Dec-2018

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	2.37E-03	3.40E-04	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.88E-10	7.88E-11	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	1.19E-03	5.25E-04	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	7.06E+02	5.10E+01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	5.59E-05	1.19E-05	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	2.11E+00	4.48E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	1.35E-03	4.20E-04	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.07E-10	9.75E-11	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	2.02E-04	1.85E-04	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	7.53E+06	7.23E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	1.81E+06	7.76E+05	1
F. VOLUME OF DILUTION WATER USED**	LITERS	3.33E+09	1.13E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

STP NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 2018

		CONTINUOUS RELEASES		**BATCH RELEASES**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
ALL NUCLIDES					
Silver-110M	CURIES	0.00E+00	0.00E+00	2.87E-04	1.06E-04
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt-58	CURIES	0.00E+00	0.00E+00	8.09E-05	2.10E-05
Cobalt-60	CURIES	0.00E+00	0.00E+00	9.92E-04	1.10E-04
Chromium-51	CURIES	0.00E+00	0.00E+00	1.29E-05	0.00E+00
Cesium-137	CURIES	0.00E+00	0.00E+00	1.04E-06	0.00E+00
Iron-55	CURIES	0.00E+00	0.00E+00	1.69E-04	3.55E-05
Tritium	CURIES	7.55E-03	5.80E-03	7.06E+02	5.10E+01
Manganese-54	CURIES	0.00E+00	0.00E+00	2.56E-05	0.00E+00
Nickel-63	CURIES	0.00E+00	0.00E+00	7.46E-04	4.21E-05
Antimony-122	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony-124	CURIES	0.00E+00	0.00E+00	0.00E+00	2.54E-05
Antimony-125	CURIES	0.00E+00	0.00E+00	5.69E-05	0.00E+00
Tin-117m	CURIES	0.00E+00	0.00E+00	1.22E-06	0.00E+00
Strontium-92	CURIES	0.00E+00	0.00E+00	1.61E-06	0.00E+00
Xenon-133	CURIES	0.00E+00	0.00E+00	1.34E-03	4.02E-04
Xenon-135	CURIES	0.00E+00	0.00E+00	3.09E-06	1.78E-05
TOTAL FOR PERIOD	CURIES	7.55E-03	5.80E-03	7.06E+02	5.10E+01

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 2
Starting: 1-Jan-2018 Ending: 30-Jun-2018

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	4.20E-03	1.24E-03	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	3.97E-10	1.77E-10	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	1.04E-03	3.61E-04	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	6.49E+02	5.83E+01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	6.13E-05	8.29E-06	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	2.32E+00	3.14E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	1.76E-03	2.23E-05	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.66E-10	3.18E-12	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	3.14E-04	6.01E-06	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	5.86E+06	6.47E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	1.81E+06	1.02E+06	1
F. VOLUME OF DILUTION WATER USED**	LITERS	2.79E+09	1.85E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

STP NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 2018

		CONTINUOUS RELEASES		**BATCH RELEASES**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
ALL NUCLIDES					
Silver-110M	CURIES	0.00E+00	0.00E+00	0.00E+00	3.08E-06
Arsenic-76	CURIES	0.00E+00	0.00E+00	5.06E-04	0.00E+00
Cobalt-58	CURIES	0.00E+00	0.00E+00	4.50E-06	5.50E-05
Cobalt-60	CURIES	0.00E+00	0.00E+00	5.57E-04	3.95E-05
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cesium-137	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron-55	CURIES	0.00E+00	0.00E+00	1.63E-04	8.32E-05
Tritium	CURIES	1.03E-02	6.92E-03	6.48E+02	5.83E+01
Manganese-54	CURIES	0.00E+00	0.00E+00	6.85E-06	0.00E+00
Nickel-63	CURIES	0.00E+00	0.00E+00	2.06E-03	2.12E-04
Antimony-122	CURIES	0.00E+00	0.00E+00	6.83E-07	0.00E+00
Antimony-124	CURIES	0.00E+00	0.00E+00	0.00E+00	1.76E-04
Antimony-125	CURIES	0.00E+00	0.00E+00	9.05E-04	6.75E-04
Tin-117m	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon-133	CURIES	0.00E+00	0.00E+00	1.49E-03	2.13E-05
Xenon-135	CURIES	0.00E+00	0.00E+00	2.68E-04	1.02E-06
TOTAL FOR PERIOD	CURIES	1.03E-02	6.92E-03	6.48E+02	5.83E+01

STP NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 2
Starting: 1-Jul-2018 Ending: 31-Dec-2018

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	2.00E-04	1.90E-05	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	8.43E-11	1.56E-11	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	2.32E-04	1.74E-04	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	4.55E+00	4.05E+00	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.92E-06	3.33E-06	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	7.26E-02	1.26E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	0.00E+00	0.00E+00	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	0.00E+00	0.00E+00	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.00E+00	0.00E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	4.94E+06	4.72E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	3.41E+05	1.70E+05	1
F. VOLUME OF DILUTION WATER USED**	LITERS	6.21E+08	3.17E+08	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

STP NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 2018

		CONTINUOUS RELEASES		**BATCH RELEASES**	
NUCLIDES RELEASED	**UNITS**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
ALL NUCLIDES					
Silver-110M	CURIES	0.00E+00	0.00E+00	9.51E-06	0.00E+00
Arsenic-76	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt-58	CURIES	0.00E+00	0.00E+00	2.64E-06	0.00E+00
Cobalt-60	CURIES	0.00E+00	0.00E+00	1.70E-05	1.67E-05
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cesium-137	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Iron-55	CURIES	0.00E+00	0.00E+00	8.50E-06	2.33E-06
Tritium	CURIES	1.12E-02	3.51E-02	4.54E+00	4.01E+00
Manganese-54	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel-63	CURIES	0.00E+00	0.00E+00	9.74E-06	0.00E+00
Antimony-122	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony-124	CURIES	0.00E+00	0.00E+00	1.74E-05	0.00E+00
Antimony-125	CURIES	0.00E+00	0.00E+00	1.35E-04	0.00E+00
Tin-117m	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Strontium-92	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon-133	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon-135	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.12E-02	3.51E-02	4.54E+00	4.01E+00

STP NUCLEAR OPERATING COMPANY

Unit 1 plus 2 Total

REPORT CATEGORY: ANNUAL LIQUID RELEASES. TOTALS FOR EACH NUCLIDE RELEASED. FOR ALL OF 2018

NUCLIDES RELEASED	**UNITS**	**UNIT 1 2018**	**UNIT 2 2018**	**TOTAL 2018**
ALL NUCLIDES				
Silver-110M	CURIES	3.93E-04	1.26E-05	4.06E-04
Arsenic-76	CURIES	0.00E+00	5.06E-04	5.06E-04
Cobalt-58	CURIES	1.58E-04	6.22E-05	2.21E-04
Cobalt-60	CURIES	2.06E-03	6.31E-04	2.69E-03
Chromium-51	CURIES	1.29E-05	0.00E+00	1.29E-05
Cesium-137	CURIES	7.34E-06	0.00E+00	7.34E-06
Iron-55	CURIES	3.63E-04	2.57E-04	6.20E-04
Tritium	CURIES	1.25E+03	7.15E+02	1.96E+03
Manganese-54	CURIES	3.05E-05	6.85E-06	3.73E-05
Nickel-63	CURIES	2.44E-03	2.28E-03	4.72E-03
Antimony-122	CURIES	0.00E+00	6.83E-07	6.83E-07
Antimony-124	CURIES	2.54E-05	1.93E-04	2.18E-04
Antimony-125	CURIES	1.33E-04	1.72E-03	1.85E-03
Tin-117m	CURIES	2.75E-05	0.00E+00	2.75E-05
Strontium-92	CURIES	1.61E-06	0.00E+00	1.61E-06
Xenon-133	CURIES	1.83E-03	1.51E-03	3.34E-03
Xenon-135	CURIES	2.09E-05	2.69E-04	2.90E-04
TOTAL FOR PERIOD	CURIES	1.25E+03	7.15E+02	1.96E+03
TOTAL Noble Gases	CURIES	1.85E-03	1.78E-03	3.63E-03
TOTAL Excluding Tritium & Noble Gases	CURIES	5.65E-03	5.67E-03	1.13E-02
TOTAL Gamma Emitters Excluding Noble Gases	millicuries	2.85E+00	3.13E+00	5.98E+00

Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	Estimated Error, (+/-)%
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3	2.46E+01	2.00E+01
	Ci	3.51E+02	
b. Dry compressible waste, contaminated equip., etc.	m^3	7.32E+02	2.00E+01
	Ci	7.39E-01	
c. Irradiated components, control rods, etc.	m^3	None	N/A
	Ci	None	
d. Other (Large Reactor Components and Associated Commodities)	m^3	None	N/a
	Ci	None	
e. Low Level Exempt Quantities of sewage sludge, resin and oily sludge.	m^3	1.53E+01	2.00E+01
	Ci	2.90E-07	

2. Estimate of major nuclide composition (by type of waste)

a. Spent resins, filter sludges, evaporator bottoms, etc.	Shipped Curie (Ci)	%
Nickel-63	2.18E+02	62.09
Cobalt-60	7.60E+01	21.68
Iron-55	3.79E+01	10.81
Manganese-54	5.58E+00	1.59
b. Dry compressible waste, contaminated equip., etc.	**Shipped Curie (Ci)**	**%**
Cobalt-60	4.02E-01	54.66
Cobalt-58	6.85E-02	9.33
Iron-55	6.45E-02	8.78
Chromium-51	5.48E-02	7.47
Manganese-54	4.20E-02	5.72
Niobium-95	2.54E-02	3.46
Nickel-63	1.75E-02	2.38
Cerium-144	1.55E-02	2.11
Antimony-125	1.34E-02	1.82
Zirconium-95	1.09E-02	1.49

c. Irradiated components, control rods, etc.	Shipped Curie (Ci)	%
None	0.00E+00	0.00%
d. Other (Large Reactor Components and Associated Commodities)	Shipped Curie (Ci)	%
None	0.00E+00	0.00%
e. Low Level Exempt Quantities of sewage sludge, resin and oily sludge	Shipped Curie (Ci)	%
Cobalt-60	2.90E-07	100

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Type of Waste	Destination
13	Truck	b. Dry compressible waste, contaminated equip., etc.	Energy Solutions - Duratek Services 1560 Bear Creek Road Oak Ridge, TN 37830
7	Truck	a. Spent resins, filter sludges, evaporator bottoms, etc. b. Dry compressible waste, contaminated equip., etc.	Waste Control Specialists - Compact Waste Disposal Facility 9998 W. State Highway 176 Andrews, Texas 79714
3	Truck	a. Spent resins, filter sludges, evaporator bottoms, etc.	Waste Control Specialists - Storage and Processing Facility (TSDF) 9998 W. State Highway 176 Andrews, Texas 79714
1	Truck	e. Low Level Exempt Quantities	Republic Services * Blue Ridge Landfill 2200 FM 521 Fresno, Texas 77545

Note: *Shipped per Texas Commission on Environmental Quality exemption to industrial landfill

4. Class of Solid Waste:
A, B, C

5. Type of Containers Used for Shipment:
General Design, Type A Containers, Type B Containers

6. Solidifying Agent:
N/A

B. Irradiated Fuel Shipments (Disposal)
No shipments made during this period

Dose Data Tab

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Dose Accumulations

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 1
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS AND AIR
Starting: 1-Jan-2018 Ending: 31-Dec-2018

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (mrad or mrem)
LIQUID	TOTAL BODY	7.16E-03	ADULT	LITTLE ROBBINS SLOUGH(5)	2.39E-01	3
LIQUID	LIVER	7.18E-03	ADULT	LITTLE ROBBINS SLOUGH(5)	7.18E-02	10
NOBLE GAS	AIR DOSE (gamma-mrad)	4.42E-04		1720m NW	4.42E-03	10
NOBLE GAS	AIR DOSE (beta-mrad)	1.72E-04		1720m NW	8.62E-04	20
NOBLE GAS	TOTAL BODY	2.94E-04	ALL(1)	1720m NW	5.87E-03	5
NOBLE GAS	TOTAL BODY	3.68E-05	ALL(2)	7200m NW	7.35E-04	5
NOBLE GAS	SKIN	4.75E-04	ALL(1)	1720m NW	3.17E-03	15
NOBLE GAS	SKIN	5.95E-05	ALL(2)	7200m NW	3.96E-04	15
IODINE, PARTICULATES, TRITIUM & C-14	BONE	1.69E-01	CHILD(1)	1720m NW	1.13E+00	15
IODINE, PARTICULATES, TRITIUM & C-14	BONE	4.25E-02	CHILD(2)	4000m WSW	2.83E-01	15

SUMMARY OF POPULATION DOSES FOR 2018			
EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (person-rem)	AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	4.90E-04	1.08E-07(3)
GASEOUS	TOTAL BODY	3.51E-02	2.88E-09(4)

NOTES:
(1) Doses were calculated for HYPOTHETICAL receptors at the site boundary.
(2) Highest dose for nearest individual or receptor. This individual is assumed to reside at this location.
(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 3,800 for salt water sport fish ingestion.
(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project.
(5) Receptor at this location is an adult ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 2
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS, AND AIR
Starting: 1-Jan-2018 Ending: 31-Dec-2018

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (mrad or mrem)
LIQUID	TOTAL BODY	4.12E-03	ADULT	LITTLE ROBBINS SLOUGH(5)	1.37E-01	3
LIQUID	LIVER	4.13E-03	ADULT	LITTLE ROBBINS SLOUGH(5)	4.14E-02	10
NOBLE GAS	AIR DOSE (gamma-mrad)	2.73E-04		1400m N	2.73E-03	10
NOBLE GAS	AIR DOSE (beta-mrad)	1.32E-04		1720m NW	6.62E-04	20
NOBLE GAS	TOTAL BODY	1.81E-04	ALL(1)	1400m N	3.63E-03	5
NOBLE GAS	TOTAL BODY	3.87E-05	ALL(2)	4000m WSW	7.74E-04	5
NOBLE GAS	SKIN	2.95E-04	ALL(1)	1720m NW	1.97E-03	15
NOBLE GAS	SKIN	6.35E-05	ALL(2)	4000m WSW	4.24E-04	15
IODINE, PARTICULATES, TRITIUM & C-14	BONE	1.69E-01	CHILD(1)	1720m NW	1.13E+00	15
IODINE, PARTICULATES, TRITIUM & C-14	BONE	4.25E-02	CHILD(2)	4000m WSW	2.83E-01	15

SUMMARY OF POPULATION DOSES FOR 2018			
EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (person-rem)	AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	2.73E-04	6.19E-08(3)
GASEOUS	TOTAL BODY	3.48E-02	2.92E-09(4)

NOTES:
(1) Doses were calculated for HYPOTHETICAL receptors at the site boundary.
(2) Highest dose for nearest individual or receptor. This individual is assumed to reside at this location.
(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 3,800 for salt water sport fish ingestion.
(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project.
(5) Receptor at this location is an adult ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 1 plus 2
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS, AND AIR
Starting: 1-Jan-2018 Ending: 31-Dec-2018

EFFLUENT	APPLICABLE ORGAN	UNIT 1 ESTIMATED DOSE (mrem)	UNIT 2 ESTIMATED DOSE (mrem)	TOTAL 1+2 ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)
LIQUID	TOTAL BODY	7.16E-03	4.12E-03	1.13E-02	ADULT	LITTLE ROBBINS SLOUGH(5)
LIQUID	LIVER	7.18E-03	4.13E-03	1.13E-02	ADULT	LITTLE ROBBINS SLOUGH(5)
NOBLE GAS	AIR DOSE (gamma-mrad)	4.42E-04	2.69E-04	7.12E-04		1720m NW
NOBLE GAS	AIR DOSE (beta-mrad)	1.72E-04	1.32E-04	3.05E-04		1720m NW
NOBLE GAS	TOTAL BODY	2.94E-04	1.78E-04	4.72E-04	ALL(1)	1720m NW
NOBLE GAS	TOTAL BODY	3.52E-05	3.87E-05	7.39E-05	ALL(2)	4000m WSW
NOBLE GAS	SKIN	4.75E-04	2.95E-04	7.71E-04	ALL(1)	1720m NW
NOBLE GAS	SKIN	5.75E-05	6.35E-05	1.21E-04	ALL(2)	4000m WSW
IODINE, PARTICULATES, TRITIUM & C-14	BONE	1.69E-01	1.69E-01	3.38E-01	CHILD(1)	1720m NW
IODINE, PARTICULATES, TRITIUM & C-14	BONE	4.25E-02	4.25E-02	8.50E-02	CHILD(2)	4000m WSW
IODINE, PARTICULATES, TRITIUM & C-14	TOTAL BODY	4.02E-03	3.82E-03	7.83E-03	ADULT(2)	4000m WSW

SUMMARY OF POPULATION DOSES FOR 2018			
EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (person-rem)	AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	7.63E-04	1.70E-07(3)
GASEOUS	TOTAL BODY	6.99E-02	4.53E-09(4)

NOTES:
(1) Doses were calculated for HYPOTHETICAL receptors at the site boundary.
(2) Highest dose for nearest individual or receptor. This individual is assumed to reside at this location.
(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 3,800 for salt water sport fish ingestion.
(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project.
(5) Receptor at this location is an adult ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

Results of Direct Radiation Measurements Program

STP NUCLEAR OPERATING COMPANY

Onsite Direct Radiation Measurements

REPORT CATEGORY: THERMOLUMINESCENT DOSIMETER MONITORING STATIONS QUARTERLY RESULTS FOR 2018 TABLE 8-1

MONITORING STATION NUMBER (Noted on Figure 8-1)	**QUARTER 1**	**QUARTER 2**	**QUARTER 3**	**QUARTER 4**	**AVERAGE RATE**	**AVERAGE NET RATE**
UNITS	milliRoentgen	milliRoentgen	milliRoentgen	milliRoentgen	milliRoentgen per quarter	milliRoentgen per hour
PROTECTED AREA						
1	10	10	8	10	10	0.0043
2	12	12	11	12	12	0.0054
3	15	12	10	12	12	0.0056
4	13	12	10	13	12	0.0055
5	13	13	11	12	12	0.0056
6	15	19	14	16	16	0.0073
7	15	19	15	18	17	0.0077
8	14	15	13	14	14	0.0064
9	12	12	11	13	12	0.0055
10	9	13	10	12	11	0.0050
11	9	10	8	10	9	0.0042
12	10	10	9	9	10	0.0043
13	10	11	9	9	10	0.0045
14	10	11	9	11	10	0.0047
15	13	14	11	12	13	0.0057
16	12	14	11	12	12	0.0056
OLD STEAM GENERATOR STORAGE FACILITY						
25	11	12	11	12	12	0.0053
26	13	15	12	13	13	0.0061
27	12	12	11	12	12	0.0054
28	11	12	11	12	12	0.0053
LOW LEVEL RAD WASTE STORAGE AREA						
29	14	16	14	14	15	0.0066
30	14	15	14	15	15	0.0066
31	14	16	13	15	15	0.0066

Results of Direct Radiation Measurements

MONITORING STATION NUMBER (Noted on Figure 8-1)	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	AVERAGE RATE	AVERAGE NET RATE
UNITS	milliRoentgen	milliRoentgen	milliRoentgen	milliRoentgen	milliRoentgen per quarter	milliRoentgen per hour
32	14	15	14	15	15	0.0066
33	14	14	13	15	14	0.0064
34	14	15	13	17	15	0.0068
35	15	19	17	17	17	0.0078
36	13	15	13	15	14	0.0064
ISFSI AREA						
37*	10	10	10	10	10	0.0046
38*	11	10	9	10	10	0.0046
39*	10	10	10	11	10	0.0047
40*	11	10	9	10	10	0.0046

**The Independent Spent Fuel Storage Installation Area currently does not store radioactive material. Environmental Thermoluminescent dosimeters (TLDs) were first installed January 2015. TLD (#37 through #40) used both environmental (Panasonic UD 814s) and personnel TLDs (Mirion type 36 badge) starting the third quarter in 2015 to measure gamma and neutron exposure.*

Note: There was no radioactive material stored using the onsite staging facility (warehouse D) in 2018.

Notes for Onsite Direct Radiation Measurements

Measurement Results

Individual values normalized to a 91 day quarter.

Only the calcium sulfate elements were used in these averages for the environmental TLDs.

Average Net Rate:

Average Net Rate = Average Rate / 91 days / 24 hours per day

Originally, average net rate is the difference between the present exposure rate and the 1986 measured rate due to natural background.

The pre-operational background rate of 15.4 mR at the site boundary in 1986 has been used to reflect the background baseline exposure rate for STP. Historically the exposure rates measured near the protected area fence have been lower than the historical background at the site boundary hence pre-operational background rate of 15.4 is not subtracted from average rate for calculation.

However, a few dosimeter stations have at times exceeded this background rate due to radioactive waste shipping activities. In those cases background rate has not been subtracted from average rate when calculating average net rate values to maintain consistency.

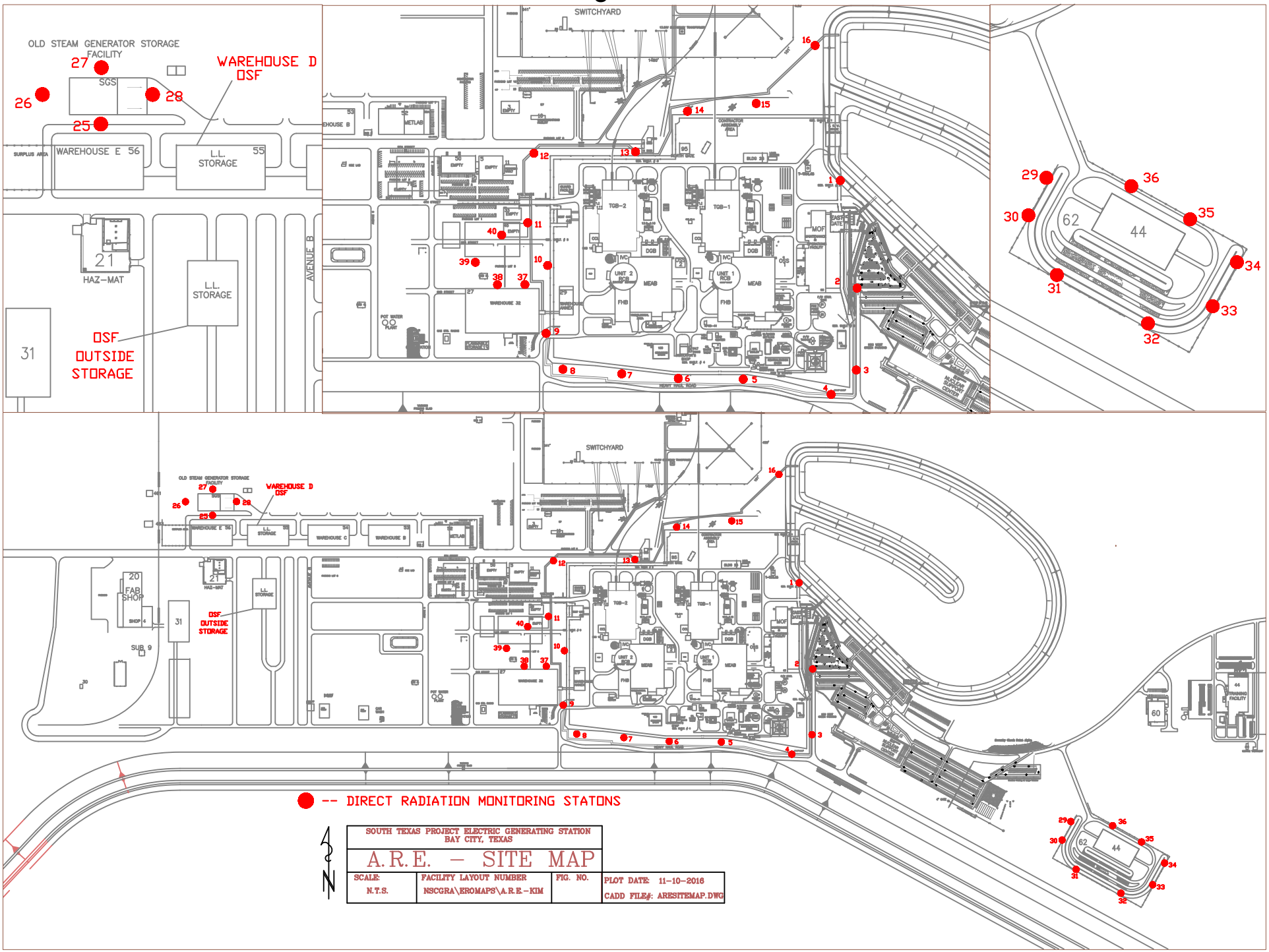
Zero:

Zero (0 or 0.00) indicate background levels

Milliroentgen:

Milliroentgen or mR is a unit of exposure for X-rays and gamma rays.

Figure 8-1


OLD STEAM GENERATOR STORAGE FACILITY
WAREHOUSE D
OSF
SGS
WAREHOUSE E 56
L.L. STORAGE
55
21
HAZ–MAT
L.L. STORAGE
AVENUE B
31
OSF OUTSIDE STORAGE
SWITCHYARD
62
44
60
20
FAB SHOP
SUB 9
-- DIRECT RADIATION MONITORING STATONS
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION
BAY CITY, TEXAS
A.R.E. – SITE MAP
SCALE: N.T.S.
FACILITY LAYOUT NUMBER NSCGRA\EROMAPS\A.R.E.–KIM
FIG. NO.
PLOT DATE: 11–10–2016
CADD FILE#: ARESITEMAP.DWG

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Meteorological Data Tab

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Joint Frequency Tables

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	1	4	15	2	0	0	23	7.0%	13.8
NNE	0	0	1	5	5	2	0	0	13	4.0%	12.8
NE	0	0	0	6	8	0	0	0	14	4.3%	13.4
ENE	0	0	2	5	5	1	0	0	13	4.0%	12.6
E	0	0	1	2	4	2	0	0	9	2.8%	15.4
ESE	0	0	1	1	10	7	2	0	21	6.4%	17.8
SE	0	0	0	3	18	18	11	0	50	15.3%	20.2
SSE	0	0	0	4	13	23	9	0	49	15.0%	20.0
S	0	0	2	19	31	8	0	0	60	18.3%	13.9
SSW	0	0	1	12	6	0	0	0	19	5.8%	11.5
SW	0	0	3	8	5	0	0	0	16	4.9%	10.4
WSW	0	0	1	2	0	0	0	0	3	0.9%	8.3
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	3	2	0	0	5	1.5%	17.1
NNW	0	0	0	1	13	15	3	0	32	9.8%	19.1
Total	0	1	13	72	136	80	25	0	327		
% Of Total	0.0%	0.3%	4.0%	22.0%	41.6%	24.5%	7.6%	0.0%			

Average speed for this table (MPH): 16.1
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	4	2	1	0	7	7.4%	19.6
NNE	0	0	0	1	2	0	0	0	3	3.2%	14.8
NE	0	0	0	4	2	1	0	0	7	7.4%	13.9
ENE	0	0	0	1	1	0	0	0	2	2.1%	12.8
E	0	0	1	2	1	3	0	0	7	7.4%	14.9
ESE	0	1	0	1	1	1	1	0	5	5.3%	16.4
SE	0	0	0	2	2	19	3	0	26	27.7%	20.7
SSE	0	0	0	1	10	6	1	0	18	19.1%	18.0
S	0	0	3	2	2	0	0	0	7	7.4%	10.1
SSW	0	0	0	2	0	0	0	0	2	2.1%	8.9
SW	0	0	1	0	0	0	0	0	1	1.1%	7.4
WSW	0	0	2	0	0	0	0	0	2	2.1%	6.2
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	1	0	0	0	0	0	1	1.1%	4.0
NW	0	0	0	1	0	1	0	0	2	2.1%	16.1
NNW	0	0	0	2	1	1	0	0	4	4.3%	13.2
Total	0	1	8	19	26	34	6	0	94		
% Of Total	0.0%	1.1%	8.5%	20.2%	27.7%	36.2%	6.4%	0.0%			

Average speed for this table (MPH): 16.5
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	6	3	1	0	0	11	10.6%	12.8
NNE	0	0	2	4	4	1	0	0	11	10.6%	12.4
NE	0	0	1	1	7	0	0	0	9	8.7%	12.8
ENE	0	0	1	7	1	0	0	0	9	8.7%	10.0
E	0	0	1	3	3	2	0	0	9	8.7%	14.4
ESE	0	0	0	1	3	1	0	0	5	4.8%	15.8
SE	0	0	0	0	13	9	2	0	24	23.1%	18.8
SSE	0	0	0	1	7	5	0	0	13	12.5%	17.4
S	0	0	1	4	1	0	0	0	6	5.8%	9.8
SSW	0	0	1	1	0	0	0	0	2	1.9%	8.1
SW	0	0	1	1	0	0	0	0	2	1.9%	8.9
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	1	0	0	0	0	1	1.0%	10.9
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	1	1	0	0	2	1.9%	16.5
Total	0	0	9	30	43	20	2	0	104		
% Of Total	0.0%	0.0%	8.7%	28.8%	41.3%	19.2%	1.9%	0.0%			

Average speed for this table (MPH): 14.5
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	12	39	54	20	8	1	134	18.9%	14.9
NNE	0	0	11	36	14	1	0	0	62	8.7%	10.3
NE	0	0	13	36	17	1	0	0	67	9.4%	10.5
ENE	0	0	7	22	7	0	0	0	36	5.1%	9.9
E	0	0	1	11	22	8	0	0	42	5.9%	15.2
ESE	0	0	1	3	18	3	0	0	25	3.5%	14.5
SE	0	0	2	20	40	37	0	0	99	14.0%	16.6
SSE	0	0	7	20	52	19	0	0	98	13.8%	14.6
S	0	0	11	26	12	0	0	0	49	6.9%	10.1
SSW	0	0	5	6	0	0	0	0	11	1.6%	7.7
SW	0	0	1	5	5	0	0	0	11	1.6%	11.4
WSW	0	1	1	3	2	0	0	0	7	1.0%	10.2
W	0	0	0	3	0	0	0	0	3	0.4%	10.6
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	3	2	0	0	3	0	8	1.1%	15.9
NNW	0	1	7	8	30	9	2	0	57	8.0%	14.7
Total	0	2	82	240	273	98	13	1	709		
% Of Total	0.0%	0.3%	11.6%	33.9%	38.5%	13.8%	1.8%	0.1%			

Average speed for this table (MPH): 13.5
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	3	7	18	17	1	0	0	46	9.6%	11.3
NNE	0	1	9	8	1	0	0	0	19	4.0%	7.8
NE	0	0	8	5	1	0	0	0	14	2.9%	7.8
ENE	0	0	15	15	0	1	0	0	31	6.5%	8.0
E	0	4	7	18	6	1	0	0	36	7.5%	9.5
ESE	0	3	11	15	2	0	0	0	31	6.5%	7.7
SE	0	1	12	32	26	8	0	0	79	16.5%	11.8
SSE	0	3	14	26	37	5	0	0	85	17.8%	11.8
S	0	0	15	19	1	0	0	0	35	7.3%	8.2
SSW	0	0	10	5	0	0	0	0	15	3.1%	6.5
SW	0	0	2	4	2	0	0	0	8	1.7%	10.8
WSW	0	3	3	3	1	0	0	0	10	2.1%	6.4
W	0	0	2	2	0	0	0	0	4	0.8%	8.5
WNW	0	0	0	1	1	0	0	0	2	0.4%	12.7
NW	0	2	1	1	6	3	5	0	18	3.8%	17.3
NNW	0	2	2	26	11	2	1	0	44	9.2%	11.9
	0	0	0	0	1	0	0	0	1	0.2%	15.1
Total	0	22	118	198	113	21	6	0	478		
% Of Total	0.0%	4.6%	24.7%	41.4%	23.6%	4.4%	1.3%	0.0%			

Average speed for this table (MPH): 10.4
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	3	5	5	0	0	0	0	13	10.8%	6.8
NNE	0	6	9	6	0	0	0	0	21	17.5%	5.6
NE	0	2	4	3	0	0	0	0	9	7.5%	6.1
ENE	0	1	7	3	0	0	0	0	11	9.2%	5.8
E	0	3	4	7	0	0	0	0	14	11.7%	6.6
ESE	0	3	5	3	0	0	0	0	11	9.2%	5.7
SE	0	2	5	3	0	0	0	0	10	8.3%	5.7
SSE	0	0	1	1	0	0	0	0	2	1.7%	7.7
S	0	0	1	2	0	0	0	0	3	2.5%	7.5
SSW	0	0	1	1	0	0	0	0	2	1.7%	6.4
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	1	0	0	0	0	0	0	1	0.8%	2.2
NW	0	1	2	0	0	0	0	0	3	2.5%	4.8
NNW	0	1	9	10	0	0	0	0	20	16.7%	7.5
Total	0	23	53	44	0	0	0	0	120		
% Of Total	0.0%	19.2%	44.2%	36.7%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 6.3
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	5	5	1	0	0	0	0	11	7.2%	4.4
NNE	0	1	8	3	0	0	0	0	12	7.9%	6.2
NE	0	0	11	5	0	0	0	0	16	10.5%	6.7
ENE	0	2	11	1	0	0	0	0	14	9.2%	4.8
E	0	4	22	5	0	0	0	0	31	20.4%	5.6
ESE	0	8	13	1	0	0	0	0	22	14.5%	4.5
SE	0	1	5	0	0	0	0	0	6	3.9%	4.4
SSE	0	1	1	0	0	0	0	0	2	1.3%	3.8
S	0	1	1	0	0	0	0	0	2	1.3%	4.2
SSW	0	1	0	0	0	0	0	0	1	0.7%	1.4
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	2	0	0	0	0	0	0	2	1.3%	1.8
WNW	1	1	2	0	0	0	0	0	4	2.6%	2.8
NW	0	4	11	0	0	0	0	0	15	9.9%	3.9
NNW	0	4	7	2	0	0	0	0	13	8.6%	5.0
	0	0	0	1	0	0	0	0	1	0.7%	8.3
Total	1	35	97	19	0	0	0	0	152		
% Of Total	0.7%	23.0%	63.8%	12.5%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 5.0
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 175
Total number of Valid hours : 1984
Total number of hours for period : 2160

Joint Frequency Table

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	12	31	73	93	26	9	1	245	12.3%	13.3
NNE	0	8	40	63	26	4	0	0	141	7.1%	9.4
NE	0	2	37	60	35	2	0	0	136	6.9%	10.1
ENE	0	3	43	54	14	2	0	0	116	5.8%	8.7
E	0	11	37	48	36	16	0	0	148	7.5%	10.9
ESE	0	15	31	25	34	12	3	0	120	6.0%	10.8
SE	0	4	24	60	99	91	16	0	294	14.8%	15.8
SSE	0	4	23	53	119	58	10	0	267	13.5%	14.9
S	0	1	34	72	47	8	0	0	162	8.2%	11.0
SSW	0	1	18	27	6	0	0	0	52	2.6%	8.6
SW	0	0	8	18	12	0	0	0	38	1.9%	10.6
WSW	0	4	7	8	3	0	0	0	22	1.1%	7.9
W	0	2	2	6	0	0	0	0	10	0.5%	8.0
WNW	1	2	3	1	1	0	0	0	8	0.4%	5.4
NW	0	7	17	4	9	6	8	0	51	2.6%	12.3
NNW	0	8	25	49	56	28	6	0	172	8.7%	13.3
	0	0	0	1	1	0	0	0	2	0.1%	11.7
Total	1	84	380	622	591	253	52	1	1984		
% Of Total	0.1%	4.2%	19.2%	31.4%	29.8%	12.8%	2.6%	0.1%			

Average speed for this table (MPH):	12.3
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	175
Total number of Valid hours :	1984
Total number of hours for period :	2160

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	11	1	0	0	0	13	2.4%	9.8
NNE	0	0	0	8	7	4	0	0	19	3.5%	14.0
NE	0	0	1	1	0	2	1	0	5	0.9%	17.0
ENE	0	0	1	1	2	2	0	0	6	1.1%	14.9
E	0	0	0	0	1	1	0	0	2	0.4%	17.7
ESE	0	0	1	4	5	7	0	0	17	3.1%	15.7
SE	0	0	0	7	30	37	6	0	80	14.8%	18.4
SSE	0	0	0	5	66	30	5	0	106	19.6%	17.4
S	0	0	2	80	94	4	0	0	180	33.3%	13.2
SSW	0	0	2	45	19	0	0	0	66	12.2%	11.1
SW	0	0	1	13	2	0	0	0	16	3.0%	9.6
WSW	0	0	0	2	0	0	0	0	2	0.4%	10.1
W	0	0	0	1	0	0	0	0	1	0.2%	7.6
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	3	3	1	0	0	7	1.3%	14.1
NNW	0	0	2	3	6	8	2	0	21	3.9%	17.5
Total	0	0	11	184	236	96	14	0	541		
% Of Total	0.0%	0.0%	2.0%	34.0%	43.6%	17.7%	2.6%	0.0%			

Average speed for this table (MPH): 14.7
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	5	1	0	0	0	6	5.3%	10.4
NNE	0	0	0	1	1	0	1	0	3	2.6%	16.5
NE	0	0	1	0	0	1	0	0	2	1.8%	13.4
ENE	0	0	0	1	1	0	0	0	2	1.8%	13.9
E	0	0	0	0	2	2	0	0	4	3.5%	19.2
ESE	0	0	0	0	1	0	0	0	1	0.9%	16.2
SE	0	0	0	6	10	7	1	0	24	21.1%	15.9
SSE	0	0	0	3	24	3	0	0	30	26.3%	15.9
S	0	0	0	14	9	2	0	0	25	21.9%	12.6
SSW	0	0	4	1	1	0	0	0	6	5.3%	8.2
SW	0	0	0	2	0	0	0	0	2	1.8%	9.0
WSW	0	0	3	0	0	0	0	0	3	2.6%	6.4
W	0	1	0	0	0	0	0	0	1	0.9%	3.4
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	1	0	0	0	0	1	0.9%	11.9
NNW	0	0	1	0	0	0	3	0	4	3.5%	21.6
Total	0	1	9	34	50	15	5	0	114		
% Of Total	0.0%	0.9%	7.9%	29.8%	43.9%	13.2%	4.4%	0.0%			

Average speed for this table (MPH): 14.2
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	2	0	0	0	0	2	2.5%	10.9
NNE	0	0	0	1	1	0	0	0	2	2.5%	12.2
NE	0	0	0	0	0	0	0	0	0	0.0%	0.0
ENE	0	0	0	1	1	0	0	0	2	2.5%	12.3
E	0	0	1	0	1	1	0	0	3	3.7%	14.3
ESE	0	0	0	0	2	1	0	0	3	3.7%	16.8
SE	0	0	1	5	11	10	1	0	28	34.6%	16.6
SSE	0	0	0	3	3	4	0	0	10	12.3%	16.0
S	0	0	1	11	7	0	0	0	19	23.5%	11.5
SSW	0	0	0	3	1	0	0	0	4	4.9%	11.6
SW	0	0	2	0	0	0	0	0	2	2.5%	7.3
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	1	0	0	0	0	0	1	1.2%	4.7
NW	0	0	0	2	0	0	0	0	2	2.5%	9.6
NNW	0	0	1	0	0	2	0	0	3	3.7%	16.6
Total	0	0	7	28	27	18	1	0	81		
% Of Total	0.0%	0.0%	8.6%	34.6%	33.3%	22.2%	1.2%	0.0%			

Average speed for this table (MPH): 14.1
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	5	5	9	2	0	0	21	4.2%	12.5
NNE	0	1	5	13	4	3	0	0	26	5.1%	11.0
NE	0	1	8	6	10	0	0	0	25	4.9%	10.6
ENE	0	0	7	3	0	0	0	0	10	2.0%	6.6
E	0	0	2	5	5	0	0	0	12	2.4%	11.2
ESE	0	1	2	10	19	4	0	0	36	7.1%	13.0
SE	0	0	3	15	83	35	0	0	136	26.9%	16.3
SSE	0	0	5	21	81	20	0	0	127	25.1%	15.2
S	0	1	3	32	14	0	0	0	50	9.9%	10.9
SSW	0	0	2	14	0	0	0	0	16	3.2%	9.0
SW	0	0	0	3	1	0	0	0	4	0.8%	11.3
WSW	0	0	2	2	0	0	0	0	4	0.8%	8.3
W	0	0	0	1	0	0	0	0	1	0.2%	9.7
WNW	0	0	3	0	0	0	0	0	3	0.6%	4.5
NW	0	0	2	1	1	0	1	0	5	1.0%	13.1
NNW	0	0	0	10	9	7	4	0	30	5.9%	16.6
Total	0	4	49	141	236	71	5	0	506		
% Of Total	0.0%	0.8%	9.7%	27.9%	46.6%	14.0%	1.0%	0.0%			

Average speed for this table (MPH):	13.8
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	74
Total number of Valid hours :	2110
Total number of hours for period :	2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	4	7	0	0	0	0	11	1.9%	8.9
NNE	0	0	5	6	4	0	0	0	15	2.6%	10.7
NE	0	1	13	5	1	0	0	0	20	3.5%	6.7
ENE	0	2	5	1	0	0	0	0	8	1.4%	5.4
E	0	1	11	9	3	0	0	0	24	4.2%	8.1
ESE	0	1	12	23	3	1	0	0	40	7.0%	9.0
SE	0	1	10	71	36	5	0	0	123	21.4%	11.8
SSE	0	1	13	99	43	4	0	0	160	27.9%	11.3
S	0	1	18	69	13	0	0	0	101	17.6%	9.8
SSW	0	0	16	20	0	0	0	0	36	6.3%	8.3
SW	0	0	8	4	1	0	0	0	13	2.3%	8.1
WSW	0	1	0	1	0	0	0	0	2	0.3%	5.1
W	0	0	4	0	0	0	0	0	4	0.7%	5.3
WNW	0	0	2	0	0	0	0	0	2	0.3%	5.6
NW	0	1	2	0	0	0	0	0	3	0.5%	3.9
NNW	0	2	2	5	2	1	0	0	12	2.1%	9.1
Total	0	12	125	320	106	11	0	0	574		
% Of Total	0.0%	2.1%	21.8%	55.7%	18.5%	1.9%	0.0%	0.0%			

Average speed for this table (MPH): 10.1
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	2	2	1	1	0	0	0	6	4.1%	6.7
NNE	0	4	4	1	0	0	0	0	9	6.2%	4.3
NE	0	5	5	3	0	0	0	0	13	9.0%	5.0
ENE	0	10	8	0	0	0	0	0	18	12.4%	3.5
E	0	6	3	0	0	0	0	0	9	6.2%	3.2
ESE	0	5	9	1	0	0	0	0	15	10.3%	4.7
SE	0	2	24	2	0	0	0	0	28	19.3%	5.1
SSE	0	2	20	7	0	0	0	0	29	20.0%	6.1
S	0	1	2	0	0	0	0	0	3	2.1%	4.1
SSW	0	2	0	0	0	0	0	0	2	1.4%	2.5
SW	0	0	2	0	0	0	0	0	2	1.4%	4.8
WSW	0	0	1	0	0	0	0	0	1	0.7%	5.6
W	0	1	0	0	0	0	0	0	1	0.7%	3.4
WNW	0	1	0	0	0	0	0	0	1	0.7%	3.0
NW	0	0	2	2	0	0	0	0	4	2.8%	6.5
NNW	0	1	3	0	0	0	0	0	4	2.8%	4.2
Total	0	42	85	17	1	0	0	0	145		
% Of Total	0.0%	29.0%	58.6%	11.7%	0.7%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 4.9
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	2	3	0	0	0	0	0	5	3.4%	4.4
NNE	1	12	3	0	0	0	0	0	16	10.7%	3.1
NE	0	10	1	0	0	0	0	0	11	7.4%	2.6
ENE	0	10	3	0	0	0	0	0	13	8.7%	3.2
E	0	9	3	0	0	0	0	0	12	8.1%	3.1
ESE	0	8	12	0	0	0	0	0	20	13.4%	3.8
SE	0	3	18	1	0	0	0	0	22	14.8%	4.7
SSE	0	1	6	0	0	0	0	0	7	4.7%	4.7
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	1	0	0	0	0	0	0	1	0.7%	1.9
W	0	0	2	0	0	0	0	0	2	1.3%	4.2
WNW	0	6	8	0	0	0	0	0	14	9.4%	3.7
NW	0	5	11	1	0	0	0	0	17	11.4%	4.4
NNW	0	3	5	1	0	0	0	0	9	6.0%	4.4
Total	1	70	75	3	0	0	0	0	149		
% Of Total	0.7%	47.0%	50.3%	2.0%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 3.8
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	4	15	31	12	2	0	0	64	3.0%	9.9
NNE	1	17	17	30	17	7	1	0	90	4.3%	9.7
NE	0	17	29	15	11	3	1	0	76	3.6%	8.0
ENE	0	22	24	7	4	2	0	0	59	2.8%	6.0
E	0	16	20	14	12	4	0	0	66	3.1%	8.3
ESE	0	15	36	38	30	13	0	0	132	6.3%	9.9
SE	0	6	56	107	170	94	8	0	441	20.9%	14.1
SSE	0	4	44	138	217	61	5	0	469	22.2%	13.7
S	0	3	26	206	137	6	0	0	378	17.9%	11.8
SSW	0	2	24	83	21	0	0	0	130	6.2%	9.8
SW	0	0	13	22	4	0	0	0	39	1.8%	8.9
WSW	0	2	6	5	0	0	0	0	13	0.6%	6.9
W	0	2	6	2	0	0	0	0	10	0.5%	5.4
WNW	0	7	14	0	0	0	0	0	21	1.0%	4.0
NW	0	6	17	10	4	1	1	0	39	1.8%	7.9
NNW	0	6	14	19	17	18	9	0	83	3.9%	14.1
Total	1	129	361	727	656	211	25	0	2110		
% Of Total	0.0%	6.1%	17.1%	34.5%	31.1%	10.0%	1.2%	0.0%			

Average speed for this table (MPH): 11.7
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 74
Total number of Valid hours : 2110
Total number of hours for period : 2184

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	0	0	0	0	0	1	0.3%	6.5
NNE	0	0	1	0	0	0	0	0	1	0.3%	5.5
NE	0	0	1	0	2	0	0	0	3	0.9%	10.3
ENE	0	0	2	4	1	0	0	0	7	2.1%	8.6
E	0	0	3	2	0	0	0	0	5	1.5%	8.5
ESE	0	0	3	2	2	0	0	0	7	2.1%	9.5
SE	0	0	0	7	8	0	0	0	15	4.6%	13.1
SSE	0	0	2	7	26	0	0	0	35	10.7%	13.9
S	0	0	4	90	40	0	0	0	134	40.9%	11.5
SSW	0	0	7	64	14	0	0	0	85	25.9%	10.5
SW	0	0	6	8	12	0	0	0	26	7.9%	10.9
WSW	0	0	0	3	0	0	0	0	3	0.9%	10.0
W	0	0	3	3	0	0	0	0	6	1.8%	7.5
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	33	190	105	0	0	0	328		
% Of Total	0.0%	0.0%	10.1%	57.9%	32.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 11.2
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	2	2	0	0	0	0	4	3.6%	7.3
NNE	0	0	1	2	0	0	0	0	3	2.7%	8.4
NE	0	0	1	5	0	0	0	0	6	5.4%	7.9
ENE	0	0	1	2	0	0	0	0	3	2.7%	7.3
E	0	0	1	1	0	0	0	0	2	1.8%	7.9
ESE	0	0	0	1	0	0	0	0	1	0.9%	8.2
SE	0	0	3	3	7	0	0	0	13	11.7%	11.8
SSE	0	0	4	10	11	0	0	0	25	22.5%	11.5
S	0	0	7	18	0	0	0	0	25	22.5%	9.2
SSW	0	0	10	8	1	0	0	0	19	17.1%	7.9
SW	0	0	2	2	0	0	0	0	4	3.6%	8.6
WSW	0	0	1	0	0	0	0	0	1	0.9%	6.5
W	0	0	1	0	0	0	0	0	1	0.9%	5.1
WNW	0	0	3	0	0	0	0	0	3	2.7%	4.7
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	1	0	0	0	0	1	0.9%	8.1
Total	0	0	37	55	19	0	0	0	111		
% Of Total	0.0%	0.0%	33.3%	49.5%	17.1%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 9.3
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	3	0	0	0	0	4	3.3%	9.4
NNE	0	0	2	2	0	0	0	0	4	3.3%	6.9
NE	0	0	1	2	1	0	0	0	4	3.3%	9.8
ENE	0	0	0	2	1	0	0	0	3	2.5%	9.6
E	0	0	3	2	0	0	0	0	5	4.2%	7.5
ESE	0	1	2	2	0	0	0	0	5	4.2%	6.9
SE	0	0	5	3	12	0	0	0	20	16.7%	11.3
SSE	0	0	4	8	10	0	0	0	22	18.3%	11.8
S	0	0	2	20	5	0	0	0	27	22.5%	11.0
SSW	0	0	6	1	0	0	0	0	7	5.8%	5.9
SW	0	1	3	6	0	0	0	0	10	8.3%	7.5
WSW	0	0	2	0	0	0	0	0	2	1.7%	4.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	2	4	0	0	0	0	0	6	5.0%	4.8
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	1	0	0	0	0	0	1	0.8%	4.8
Total	0	4	36	51	29	0	0	0	120		
% Of Total	0.0%	3.3%	30.0%	42.5%	24.2%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 9.5
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	4	5	0	0	0	0	9	2.6%	8.3
NNE	0	2	2	5	0	0	0	0	9	2.6%	7.0
NE	0	2	15	9	10	0	0	0	36	10.4%	9.0
ENE	0	1	8	22	2	0	0	0	33	9.5%	9.2
E	0	0	6	13	5	0	0	0	24	6.9%	9.6
ESE	0	0	5	6	2	0	0	0	13	3.8%	9.5
SE	0	0	3	21	14	0	0	0	38	11.0%	11.2
SSE	0	0	5	30	16	0	0	0	51	14.7%	11.0
S	0	0	11	39	0	0	0	0	50	14.5%	9.2
SSW	0	0	12	21	1	0	0	0	34	9.8%	8.6
SW	0	0	2	13	1	0	0	0	16	4.6%	10.2
WSW	0	1	4	2	0	0	0	0	7	2.0%	6.2
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	3	4	0	0	0	0	0	7	2.0%	4.4
NW	0	1	7	3	0	0	0	0	11	3.2%	6.4
NNW	0	0	3	2	3	0	0	0	8	2.3%	9.2
Total	0	10	91	191	54	0	0	0	346		
% Of Total	0.0%	2.9%	26.3%	55.2%	15.6%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 9.3
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	2	7	2	0	0	0	0	11	1.4%	5.6
NNE	0	1	24	8	0	0	0	0	33	4.3%	6.7
NE	0	1	24	12	1	0	0	0	38	5.0%	6.9
ENE	0	2	20	12	3	0	0	0	37	4.9%	7.7
E	0	2	29	25	2	0	0	0	58	7.6%	7.0
ESE	0	0	49	16	2	0	0	0	67	8.8%	6.1
SE	0	3	29	58	1	0	0	0	91	12.0%	8.0
SSE	0	0	45	89	9	0	0	0	143	18.8%	8.8
S	0	0	45	100	0	0	0	0	145	19.1%	8.7
SSW	0	0	26	55	0	0	0	0	81	10.7%	8.3
SW	0	0	4	15	2	0	0	0	21	2.8%	9.9
WSW	0	0	2	4	0	0	0	0	6	0.8%	8.1
W	0	2	4	1	0	0	0	0	7	0.9%	4.9
WNW	0	0	7	1	0	0	0	0	8	1.1%	5.8
NW	0	2	3	2	0	0	0	0	7	0.9%	5.3
NNW	0	3	2	0	0	0	0	0	5	0.7%	3.8
	0	0	1	0	0	0	0	0	1	0.1%	4.0
Total	0	18	321	400	20	0	0	0	759		
% Of Total	0.0%	2.4%	42.3%	52.7%	2.6%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 7.9
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	7	7	0	0	0	0	0	14	3.6%	3.6
NNE	0	7	10	1	0	0	0	0	18	4.6%	4.6
NE	0	9	18	0	0	0	0	0	27	6.9%	4.3
ENE	0	59	7	0	0	0	0	0	66	16.8%	3.4
E	0	15	36	1	0	0	0	0	52	13.2%	3.7
ESE	0	12	16	1	0	0	0	0	29	7.4%	4.2
SE	0	10	64	6	0	0	0	0	80	20.3%	5.2
SSE	0	4	39	1	0	0	0	0	44	11.2%	5.7
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	4	0	0	0	0	0	4	1.0%	6.8
SW	0	0	7	0	0	0	0	0	7	1.8%	6.0
WSW	0	1	6	0	0	0	0	0	7	1.8%	5.2
W	0	1	10	0	0	0	0	0	11	2.8%	4.4
WNW	0	2	9	0	0	0	0	0	11	2.8%	3.9
NW	0	11	4	0	0	0	0	0	15	3.8%	3.5
NNW	0	9	0	0	0	0	0	0	9	2.3%	2.6
Total	0	147	237	10	0	0	0	0	394		
% Of Total	0.0%	37.3%	60.2%	2.5%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 4.4
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	7	0	0	0	0	0	0	7	5.0%	2.7
NNE	0	13	9	0	0	0	0	0	22	15.7%	3.3
NE	0	39	5	0	0	0	0	0	44	31.4%	3.0
ENE	0	17	2	0	0	0	0	0	19	13.6%	2.9
E	0	11	0	0	0	0	0	0	11	7.9%	3.0
ESE	0	7	9	0	0	0	0	0	16	11.4%	3.4
SE	0	6	3	0	0	0	0	0	9	6.4%	3.5
SSE	0	1	1	0	0	0	0	0	2	1.4%	3.5
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	1	0	0	0	0	0	0	1	0.7%	3.4
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	2	0	0	0	0	0	0	2	1.4%	2.9
NW	0	1	1	0	0	0	0	0	2	1.4%	3.1
NNW	0	2	3	0	0	0	0	0	5	3.6%	3.8
Total	0	107	33	0	0	0	0	0	140		
% Of Total	0.0%	76.4%	23.6%	0.0%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 3.1
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 10
Total number of Valid hours : 2198
Total number of hours for period : 2208

Joint Frequency Table

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	16	22	12	0	0	0	0	50	2.3%	5.6
NNE	0	23	49	18	0	0	0	0	90	4.1%	5.5
NE	0	51	65	28	14	0	0	0	158	7.2%	6.0
ENE	0	79	40	42	7	0	0	0	168	7.6%	5.8
E	0	28	78	44	7	0	0	0	157	7.1%	6.1
ESE	0	20	84	28	6	0	0	0	138	6.3%	5.9
SE	0	19	107	98	42	0	0	0	266	12.1%	8.2
SSE	0	5	100	145	72	0	0	0	322	14.6%	9.7
S	0	0	69	267	45	0	0	0	381	17.3%	9.9
SSW	0	0	65	149	16	0	0	0	230	10.5%	9.0
SW	0	2	24	44	15	0	0	0	85	3.9%	9.5
WSW	0	2	15	9	0	0	0	0	26	1.2%	6.7
W	0	3	18	4	0	0	0	0	25	1.1%	5.3
WNW	0	9	27	1	0	0	0	0	37	1.7%	4.5
NW	0	15	15	5	0	0	0	0	35	1.6%	4.7
NNW	0	14	9	3	3	0	0	0	29	1.3%	5.1
	0	0	1	0	0	0	0	0	1	0.0%	4.0
Total	0	286	788	897	227	0	0	0	2198		
% Of Total	0.0%	13.0%	35.9%	40.8%	10.3%	0.0%	0.0%	0.0%			

Average speed for this table (MPH):	7.8
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	10
Total number of Valid hours :	2198
Total number of hours for period :	2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	3	3	0	0	0	6	3.4%	12.5
NNE	0	0	0	4	12	0	0	0	16	8.9%	13.4
NE	0	0	0	1	5	0	0	0	6	3.4%	14.4
ENE	0	0	0	4	2	0	0	0	6	3.4%	11.5
E	0	0	0	1	0	0	0	0	1	0.6%	10.7
ESE	0	0	0	0	4	0	0	0	4	2.2%	17.1
SE	0	0	1	1	16	7	0	0	25	14.0%	16.4
SSE	0	0	0	6	7	9	0	0	22	12.3%	16.5
S	0	0	0	15	9	0	0	0	24	13.4%	12.4
SSW	0	0	1	5	1	0	0	0	7	3.9%	10.9
SW	0	0	2	5	5	0	0	0	12	6.7%	12.5
WSW	0	0	1	0	0	0	0	0	1	0.6%	4.3
W	0	0	1	1	0	0	0	0	2	1.1%	9.0
WNW	0	0	6	1	0	0	0	0	7	3.9%	7.2
NW	0	0	7	7	7	0	0	0	21	11.7%	10.2
NNW	0	0	0	0	15	4	0	0	19	10.6%	16.4
Total	0	0	19	54	86	20	0	0	179		
% Of Total	0.0%	0.0%	10.6%	30.2%	48.0%	11.2%	0.0%	0.0%			

Average speed for this table (MPH): 13.5
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 16
Total number of Valid hours : 2192
Total number of hours for period : 2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	3	1	0	0	0	4	3.4%	11.3
NNE	0	0	0	6	7	1	0	0	14	12.1%	13.0
NE	0	0	1	1	3	0	0	0	5	4.3%	12.5
ENE	0	0	1	1	0	0	0	0	2	1.7%	9.2
E	0	0	1	6	0	0	0	0	7	6.0%	10.5
ESE	0	0	1	0	4	0	0	0	5	4.3%	13.0
SE	0	0	0	2	14	5	0	0	21	18.1%	16.2
SSE	0	0	0	1	3	2	0	0	6	5.2%	17.2
S	0	0	2	9	6	0	0	0	17	14.7%	11.2
SSW	0	0	1	1	1	0	0	0	3	2.6%	9.8
SW	0	0	1	3	0	0	0	0	4	3.4%	8.8
WSW	0	0	1	0	0	0	0	0	1	0.9%	4.4
W	0	0	2	2	0	0	0	0	4	3.4%	7.2
WNW	0	0	1	2	0	0	0	0	3	2.6%	8.6
NW	0	0	2	4	2	2	0	0	10	8.6%	12.4
NNW	0	0	1	1	5	3	0	0	10	8.6%	15.0
Total	0	0	15	42	46	13	0	0	116		
% Of Total	0.0%	0.0%	12.9%	36.2%	39.7%	11.2%	0.0%	0.0%			

Average speed for this table (MPH): 12.7
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 16
Total number of Valid hours : 2192
Total number of hours for period : 2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	3	4	0	0	0	8	7.9%	12.2
NNE	0	0	0	6	10	1	0	0	17	16.8%	13.3
NE	0	0	1	2	3	1	0	0	7	6.9%	14.4
ENE	0	1	0	2	0	0	0	0	3	3.0%	6.1
E	0	0	3	2	3	0	0	0	8	7.9%	10.1
ESE	0	0	1	3	3	0	0	0	7	6.9%	11.8
SE	0	0	2	4	8	3	0	0	17	16.8%	13.6
SSE	0	0	0	3	3	0	0	0	6	5.9%	11.9
S	0	0	2	0	2	0	0	0	4	4.0%	10.6
SSW	0	0	1	0	0	0	0	0	1	1.0%	7.2
SW	0	0	0	2	0	0	0	0	2	2.0%	9.8
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	1	0	0	0	0	1	1.0%	8.4
WNW	0	0	1	0	1	1	0	0	3	3.0%	13.6
NW	0	0	2	1	2	0	3	1	9	8.9%	20.0
NNW	0	0	0	1	1	6	0	0	8	7.9%	19.9
Total	0	1	14	30	40	12	3	1	101		
% Of Total	0.0%	1.0%	13.9%	29.7%	39.6%	11.9%	3.0%	1.0%			

Average speed for this table (MPH): 13.5
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 16
Total number of Valid hours : 2192
Total number of hours for period : 2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	4	43	74	16	2	0	140	19.9%	14.0
NNE	0	0	7	43	62	4	0	0	116	16.5%	13.0
NE	0	0	12	29	29	3	0	0	73	10.4%	11.8
ENE	0	1	5	12	6	0	0	0	24	3.4%	10.6
E	0	0	2	3	8	1	0	0	14	2.0%	13.0
ESE	0	0	2	9	3	4	1	0	19	2.7%	13.5
SE	0	0	2	5	21	6	0	0	34	4.8%	15.5
SSE	0	0	3	10	12	5	4	0	34	4.8%	15.4
S	0	2	5	12	4	1	0	0	24	3.4%	9.3
SSW	0	1	2	6	3	0	0	0	12	1.7%	8.8
SW	0	0	1	1	1	0	0	0	3	0.4%	9.9
WSW	0	0	2	1	0	0	0	0	3	0.4%	7.7
W	0	0	5	3	1	0	0	0	9	1.3%	7.2
WNW	0	2	4	3	11	1	0	0	21	3.0%	11.9
NW	0	0	1	13	21	11	2	0	48	6.8%	15.6
NNW	0	0	16	29	37	32	15	0	129	18.3%	15.8
Total	0	7	73	222	293	84	24	0	703		
% Of Total	0.0%	1.0%	10.4%	31.6%	41.7%	11.9%	3.4%	0.0%			

Average speed for this table (MPH):	13.6
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	16
Total number of Valid hours :	2192
Total number of hours for period :	2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	2	6	21	7	1	0	0	37	6.2%	9.7
NNE	0	2	8	39	12	0	0	0	61	10.3%	10.0
NE	0	0	8	16	8	0	0	0	32	5.4%	10.0
ENE	0	2	15	12	0	0	0	0	29	4.9%	6.7
E	0	2	15	7	2	0	0	0	26	4.4%	7.1
ESE	0	8	17	25	13	2	0	0	65	11.0%	9.0
SE	0	6	14	50	9	3	0	0	82	13.8%	9.5
SSE	0	5	21	36	17	4	0	0	83	14.0%	9.9
S	1	6	25	13	10	1	0	0	56	9.4%	8.0
SSW	0	1	14	4	0	0	0	0	19	3.2%	6.5
SW	0	0	6	0	0	0	0	0	6	1.0%	5.4
WSW	0	1	3	0	0	0	0	0	4	0.7%	4.6
W	0	0	4	2	2	1	0	0	9	1.5%	9.6
WNW	0	1	14	4	2	1	0	0	22	3.7%	7.7
NW	0	5	7	12	3	2	0	0	29	4.9%	8.9
NNW	0	1	10	15	4	3	0	0	33	5.6%	10.1
Total	1	42	187	256	89	18	0	0	593		
% Of Total	0.2%	7.1%	31.5%	43.2%	15.0%	3.0%	0.0%	0.0%			

Average speed for this table (MPH): 9.0
Hours in above table with variable direction : 0
Total number of CALMs : 1
Total number of Invalid hours : 16
Total number of Valid hours : 2192
Total number of hours for period : 2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	6	4	0	0	0	0	11	4.1%	6.8
NNE	0	2	11	9	2	0	0	0	24	9.0%	7.5
NE	0	11	22	5	0	0	0	0	38	14.2%	5.2
ENE	0	5	16	5	0	0	0	0	26	9.7%	5.6
E	0	0	18	1	0	0	0	0	19	7.1%	5.1
ESE	0	2	27	3	0	0	0	0	32	12.0%	5.8
SE	0	3	17	8	0	0	0	0	28	10.5%	6.3
SSE	0	0	5	4	0	0	0	0	9	3.4%	7.0
S	0	0	9	7	0	0	0	0	16	6.0%	6.8
SSW	0	0	10	0	0	0	0	0	10	3.7%	5.4
SW	0	1	3	0	0	0	0	0	4	1.5%	5.0
WSW	0	1	2	0	0	0	0	0	3	1.1%	3.3
W	0	2	4	0	0	0	0	0	6	2.2%	4.5
WNW	0	4	11	2	0	0	0	0	17	6.4%	5.5
NW	0	2	7	4	1	0	0	0	14	5.2%	6.8
NNW	0	2	8	0	0	0	0	0	10	3.7%	4.9
Total	0	36	176	52	3	0	0	0	267		
% Of Total	0.0%	13.5%	65.9%	19.5%	1.1%	0.0%	0.0%	0.0%			

Average speed for this table (MPH):	5.9
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	16
Total number of Valid hours :	2192
Total number of hours for period :	2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	5	3	2	0	0	0	0	10	4.3%	4.7
NNE	0	7	6	1	0	0	0	0	14	6.0%	4.1
NE	0	16	4	1	0	0	0	0	21	9.0%	3.1
ENE	0	13	4	2	0	0	0	0	19	8.2%	3.7
E	0	7	14	1	0	0	0	0	22	9.4%	4.3
ESE	0	13	8	0	0	0	0	0	21	9.0%	3.4
SE	0	10	17	1	0	0	0	0	28	12.0%	4.6
SSE	0	4	14	2	0	0	0	0	20	8.6%	5.2
S	0	3	1	0	0	0	0	0	4	1.7%	3.3
SSW	0	4	0	0	0	0	0	0	4	1.7%	1.6
SW	0	3	0	0	0	0	0	0	3	1.3%	1.7
WSW	0	4	1	0	0	0	0	0	5	2.1%	3.1
W	0	4	2	0	0	0	0	0	6	2.6%	3.4
WNW	0	10	8	0	0	0	0	0	18	7.7%	3.3
NW	0	12	7	2	0	0	0	0	21	9.0%	4.3
NNW	0	11	6	0	0	0	0	0	17	7.3%	3.8
Total	0	126	95	12	0	0	0	0	233		
% Of Total	0.0%	54.1%	40.8%	5.2%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH):	3.9
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	16
Total number of Valid hours :	2192
Total number of hours for period :	2208

Joint Frequency Table

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	9	20	79	89	17	2	0	216	9.9%	12.3
NNE	0	11	32	108	105	6	0	0	262	12.0%	11.4
NE	0	27	48	55	48	4	0	0	182	8.3%	9.3
ENE	0	22	41	38	8	0	0	0	109	5.0%	7.1
E	0	9	53	21	13	1	0	0	97	4.4%	7.5
ESE	0	23	56	40	27	6	1	0	153	7.0%	8.6
SE	0	19	53	71	68	24	0	0	235	10.7%	11.0
SSE	0	9	43	62	42	20	4	0	180	8.2%	11.4
S	1	11	44	56	31	2	0	0	145	6.6%	9.1
SSW	0	6	29	16	5	0	0	0	56	2.6%	7.2
SW	0	4	13	11	6	0	0	0	34	1.6%	8.6
WSW	0	6	10	1	0	0	0	0	17	0.8%	4.4
W	0	6	18	9	3	1	0	0	37	1.7%	6.9
WNW	0	17	45	12	14	3	0	0	91	4.2%	7.6
NW	0	19	33	43	36	15	5	1	152	6.9%	11.2
NNW	0	14	41	46	62	48	15	0	226	10.3%	13.7
Total	1	212	579	668	557	147	27	1	2192		
% Of Total	0.0%	9.7%	26.4%	30.5%	25.4%	6.7%	1.2%	0.0%			

Average speed for this table (MPH):	10.4
Hours in above table with variable direction :	0
Total number of CALMs :	1
Total number of Invalid hours :	16
Total number of Valid hours :	2192
Total number of hours for period :	2208

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	2	0	0	0	2	4.3%	13.5
NE	0	0	0	2	2	0	0	0	4	8.5%	13.1
ENE	0	0	0	1	0	0	0	0	1	2.1%	9.5
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	0	7	8	0	15	31.9%	24.5
SSE	0	0	0	0	8	3	4	0	15	31.9%	20.2
S	0	0	1	2	4	0	0	0	7	14.9%	11.6
SSW	0	0	0	3	0	0	0	0	3	6.4%	9.9
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	1	8	16	10	12	0	47		
% Of Total	0.0%	0.0%	2.1%	17.0%	34.0%	21.3%	25.5%	0.0%			

Average speed for this table (MPH): 18.5
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 176
Total number of hours for period : 178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	0	0	0	0	0	0	0	0.0%	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	0	9	0	0	9	90.0%	21.4
SSE	0	0	0	0	1	0	0	0	1	10.0%	18.1
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	0	0	1	9	0	0	10		
% Of Total	0.0%	0.0%	0.0%	0.0%	10.0%	90.0%	0.0%	0.0%			

Average speed for this table (MPH): 21.1
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 176
Total number of hours for period : 178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	1	0	0	0	1	14.3%	16.2
NE	0	0	0	0	0	0	0	0	0	0.0%	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	2	2	0	0	4	57.1%	18.8
SSE	0	0	0	0	1	0	0	0	1	14.3%	15.0
S	0	0	0	1	0	0	0	0	1	14.3%	8.7
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	0	1	4	2	0	0	7		
% Of Total	0.0%	0.0%	0.0%	14.3%	57.1%	28.6%	0.0%	0.0%			

Average speed for this table (MPH):	16.4
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	2
Total number of Valid hours :	176
Total number of hours for period :	178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	2	0	0	0	2	3.2%	14.4
NE	0	0	0	0	0	1	0	0	1	1.6%	19.2
ENE	0	0	0	0	1	0	0	0	1	1.6%	16.3
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	1	0	0	0	1	1.6%	17.1
SE	0	0	0	3	8	18	0	0	29	46.8%	18.9
SSE	0	0	1	5	14	4	0	0	24	38.7%	14.6
S	0	0	0	1	2	0	0	0	3	4.8%	12.7
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	1	0	0	1	1.6%	23.1
Total	0	0	1	9	28	24	0	0	62		
% Of Total	0.0%	0.0%	1.6%	14.5%	45.2%	38.7%	0.0%	0.0%			

Average speed for this table (MPH): 16.8
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 176
Total number of hours for period : 178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	1	0	0	0	0	2	6.3%	8.9
NNE	0	0	0	1	1	0	0	0	2	6.3%	12.7
NE	0	0	1	0	0	0	0	0	1	3.1%	3.6
ENE	0	0	1	0	0	0	0	0	1	3.1%	3.9
E	0	0	1	0	0	0	0	0	1	3.1%	6.3
ESE	0	0	2	1	1	0	0	0	4	12.5%	8.2
SE	0	0	0	7	4	0	0	0	11	34.4%	11.4
SSE	0	0	1	2	4	0	0	0	7	21.9%	11.8
S	0	0	0	2	0	0	0	0	2	6.3%	10.1
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	1	0	0	0	0	0	0	1	3.1%	3.3
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	1	7	14	10	0	0	0	32		
% Of Total	0.0%	3.1%	21.9%	43.8%	31.3%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 10.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 176
Total number of hours for period : 178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	1	0	0	0	0	0	1	12.5%	7.4
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	1	2	2	0	0	0	0	5	62.5%	6.8
SE	0	0	1	0	0	0	0	0	1	12.5%	5.2
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	1	0	0	0	0	1	12.5%	7.8
Total	0	1	4	3	0	0	0	0	8		
% Of Total	0.0%	12.5%	50.0%	37.5%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH):	6.8
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	2
Total number of Valid hours :	176
Total number of hours for period :	178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	0	0	0	0	0	0	0	0.0%	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	1	2	0	0	0	0	0	3	30.0%	3.3
ESE	0	4	1	0	0	0	0	0	5	50.0%	3.8
SE	0	1	1	0	0	0	0	0	2	20.0%	4.2
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	6	4	0	0	0	0	0	10		
% Of Total	0.0%	60.0%	40.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH):	3.7
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	2
Total number of Valid hours :	176
Total number of hours for period :	178

Joint Frequency Table - Batch Release Hours

From : 01/01/2018 00:00 **To :** 03/31/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	1	0	0	0	0	2	1.1%	8.9
NNE	0	0	0	1	6	0	0	0	7	4.0%	13.9
NE	0	0	2	2	2	1	0	0	7	4.0%	11.8
ENE	0	0	1	1	1	0	0	0	3	1.7%	9.9
E	0	1	3	0	0	0	0	0	4	2.3%	4.1
ESE	0	5	5	3	2	0	0	0	15	8.5%	6.9
SE	0	1	2	10	14	36	8	0	71	40.3%	18.6
SSE	0	0	2	7	28	7	4	0	48	27.3%	16.0
S	0	0	1	6	6	0	0	0	13	7.4%	11.4
SSW	0	0	0	3	0	0	0	0	3	1.7%	9.9
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	1	0	0	0	0	0	0	1	0.6%	3.3
NNW	0	0	0	1	0	1	0	0	2	1.1%	15.5
Total	0	8	17	35	59	45	12	0	176		
% Of Total	0.0%	4.5%	9.7%	19.9%	33.5%	25.6%	6.8%	0.0%			

Average speed for this table (MPH):	15.1
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	2
Total number of Valid hours :	176
Total number of hours for period :	178

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	0	0	0	0	0	1	0.8%	6.6
NNE	0	0	0	3	6	4	0	0	13	10.2%	15.7
NE	0	0	0	1	0	2	1	0	4	3.1%	19.9
ENE	0	0	0	0	2	1	0	0	3	2.4%	18.6
E	0	0	0	0	0	1	0	0	1	0.8%	20.5
ESE	0	0	0	1	2	5	0	0	8	6.3%	18.3
SE	0	0	0	5	4	3	1	0	13	10.2%	16.2
SSE	0	0	0	1	15	11	1	0	28	22.0%	18.2
S	0	0	0	3	21	4	0	0	28	22.0%	15.6
SSW	0	0	0	2	0	0	0	0	2	1.6%	9.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	3	3	1	0	0	7	5.5%	14.1
NNW	0	0	1	2	6	8	2	0	19	15.0%	18.6
Total	0	0	2	21	59	40	5	0	127		
% Of Total	0.0%	0.0%	1.6%	16.5%	46.5%	31.5%	3.9%	0.0%			

Average speed for this table (MPH): 16.9
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	1	0	0	0	1	3.7%	17.9
NNE	0	0	0	0	1	0	1	0	2	7.4%	20.9
NE	0	0	0	0	0	1	0	0	1	3.7%	22.7
ENE	0	0	0	0	1	0	0	0	1	3.7%	16.0
E	0	0	0	0	2	2	0	0	4	14.8%	19.2
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	1	1	2	0	0	4	14.8%	15.9
SSE	0	0	0	0	4	0	0	0	4	14.8%	16.5
S	0	0	0	2	2	1	0	0	5	18.5%	15.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	1	0	0	0	0	1	3.7%	11.9
NNW	0	0	1	0	0	0	3	0	4	14.8%	21.6
Total	0	0	1	4	12	6	4	0	27		
% Of Total	0.0%	0.0%	3.7%	14.8%	44.4%	22.2%	14.8%	0.0%			

Average speed for this table (MPH): 17.7
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	1	0	0	0	0	1	5.3%	11.7
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	0	0	0	0	0	0	0	0.0%	0.0
ENE	0	0	0	1	1	0	0	0	2	10.5%	12.3
E	0	0	0	0	1	1	0	0	2	10.5%	18.4
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	1	1	3	0	0	5	26.3%	19.2
SSE	0	0	0	1	0	3	0	0	4	21.1%	19.0
S	0	0	0	2	0	0	0	0	2	10.5%	9.9
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	1	0	0	0	0	1	5.3%	10.3
NNW	0	0	0	0	0	2	0	0	2	10.5%	21.9
Total	0	0	0	7	3	9	0	0	19		
% Of Total	0.0%	0.0%	0.0%	36.8%	15.8%	47.4%	0.0%	0.0%			

Average speed for this table (MPH): 16.8
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	3	2	5	2	0	0	12	6.3%	13.6
NNE	0	0	1	9	3	3	0	0	16	8.5%	13.0
NE	0	0	3	4	10	0	0	0	17	9.0%	12.5
ENE	0	0	3	1	0	0	0	0	4	2.1%	6.5
E	0	0	0	1	4	0	0	0	5	2.6%	13.8
ESE	0	0	1	3	7	0	0	0	11	5.8%	12.3
SE	0	0	0	0	21	7	0	0	28	14.8%	17.0
SSE	0	0	0	10	30	10	0	0	50	26.5%	15.7
S	0	0	2	4	8	0	0	0	14	7.4%	11.7
SSW	0	0	0	2	0	0	0	0	2	1.1%	10.3
SW	0	0	0	2	0	0	0	0	2	1.1%	11.2
WSW	0	0	0	2	0	0	0	0	2	1.1%	10.1
W	0	0	0	1	0	0	0	0	1	0.5%	9.7
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	1	1	0	1	0	3	1.6%	18.2
NNW	0	0	0	6	5	7	4	0	22	11.6%	17.9
Total	0	0	13	48	94	29	5	0	189		
% Of Total	0.0%	0.0%	6.9%	25.4%	49.7%	15.3%	2.6%	0.0%			

Average speed for this table (MPH): 14.6
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	6	0	0	0	0	6	5.5%	11.2
NNE	0	0	4	5	3	0	0	0	12	11.0%	10.7
NE	0	1	8	2	1	0	0	0	12	11.0%	6.5
ENE	0	1	2	0	0	0	0	0	3	2.8%	4.4
E	0	0	2	5	1	0	0	0	8	7.3%	9.2
ESE	0	0	1	4	0	0	0	0	5	4.6%	9.7
SE	0	1	0	1	9	0	0	0	11	10.1%	13.3
SSE	0	1	2	6	9	1	0	0	19	17.4%	12.0
S	0	1	1	7	8	0	0	0	17	15.6%	11.4
SSW	0	0	2	0	0	0	0	0	2	1.8%	6.3
SW	0	0	3	0	0	0	0	0	3	2.8%	6.6
WSW	0	1	0	0	0	0	0	0	1	0.9%	1.6
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	1	0	0	0	0	0	1	0.9%	4.4
NNW	0	1	1	5	1	1	0	0	9	8.3%	9.9
Total	0	7	27	41	32	2	0	0	109		
% Of Total	0.0%	6.4%	24.8%	37.6%	29.4%	1.8%	0.0%	0.0%			

Average speed for this table (MPH): 10.1
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	0	1	0	0	0	2	5.6%	10.6
NNE	0	0	1	1	0	0	0	0	2	5.6%	7.1
NE	0	0	0	3	0	0	0	0	3	8.3%	9.9
ENE	0	2	5	0	0	0	0	0	7	19.4%	4.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	1	1	0	0	0	0	0	2	5.6%	3.2
SE	0	0	3	1	0	0	0	0	4	11.1%	7.2
SSE	0	1	1	5	0	0	0	0	7	19.4%	7.7
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	1	0	0	0	0	0	0	1	2.8%	2.4
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	1	0	0	0	0	0	1	2.8%	5.6
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	1	0	0	0	0	0	0	1	2.8%	3.0
NW	0	0	2	1	0	0	0	0	3	8.3%	6.1
NNW	0	1	2	0	0	0	0	0	3	8.3%	4.3
Total	0	7	17	11	1	0	0	0	36		
% Of Total	0.0%	19.4%	47.2%	30.6%	2.8%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 6.2
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	3	0	0	0	0	0	4	7.3%	4.9
NNE	0	6	2	0	0	0	0	0	8	14.5%	3.3
NE	0	4	0	0	0	0	0	0	4	7.3%	2.2
ENE	0	1	3	0	0	0	0	0	4	7.3%	4.3
E	0	4	2	0	0	0	0	0	6	10.9%	3.2
ESE	0	1	3	0	0	0	0	0	4	7.3%	4.1
SE	0	1	3	1	0	0	0	0	5	9.1%	5.8
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	5	4	0	0	0	0	0	9	16.4%	3.5
NW	0	2	3	1	0	0	0	0	6	10.9%	4.7
NNW	0	1	4	0	0	0	0	0	5	9.1%	4.1
Total	0	26	27	2	0	0	0	0	55		
% Of Total	0.0%	47.3%	49.1%	3.6%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 3.9
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 2
Total number of Valid hours : 562
Total number of hours for period : 564

Joint Frequency Table - Batch Release Hours

From : 04/01/2018 00:00 **To :** 06/30/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	8	9	7	2	0	0	27	4.8%	11.4
NNE	0	6	8	18	13	7	1	0	53	9.4%	11.8
NE	0	5	11	10	11	3	1	0	41	7.3%	10.5
ENE	0	4	13	2	4	1	0	0	24	4.3%	7.5
E	0	4	4	6	8	4	0	0	26	4.6%	11.4
ESE	0	2	6	8	9	5	0	0	30	5.3%	11.8
SE	0	2	6	10	36	15	1	0	70	12.5%	15.0
SSE	0	2	3	23	58	25	1	0	112	19.9%	15.3
S	0	1	3	18	39	5	0	0	66	11.7%	13.5
SSW	0	1	2	4	0	0	0	0	7	1.2%	7.7
SW	0	0	3	2	0	0	0	0	5	0.9%	8.5
WSW	0	1	1	2	0	0	0	0	4	0.7%	6.9
W	0	0	0	1	0	0	0	0	1	0.2%	9.7
WNW	0	6	4	0	0	0	0	0	10	1.8%	3.4
NW	0	2	6	8	4	1	1	0	22	3.9%	10.3
NNW	0	3	9	13	12	18	9	0	64	11.4%	15.6
Total	0	40	87	134	201	86	14	0	562		
% Of Total	0.0%	7.1%	15.5%	23.8%	35.8%	15.3%	2.5%	0.0%			

Average speed for this table (MPH):	12.9
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	2
Total number of Valid hours :	562
Total number of hours for period :	564

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	******	0.0
NNE	0	0	0	0	0	0	0	0	0	******	0.0
NE	0	0	0	0	0	0	0	0	0	******	0.0
ENE	0	0	0	0	0	0	0	0	0	******	0.0
E	0	0	0	0	0	0	0	0	0	******	0.0
ESE	0	0	0	0	0	0	0	0	0	******	0.0
SE	0	0	0	0	0	0	0	0	0	******	0.0
SSE	0	0	0	0	0	0	0	0	0	******	0.0
S	0	0	0	0	0	0	0	0	0	******	0.0
SSW	0	0	0	0	0	0	0	0	0	******	0.0
SW	0	0	0	0	0	0	0	0	0	******	0.0
WSW	0	0	0	0	0	0	0	0	0	******	0.0
W	0	0	0	0	0	0	0	0	0	******	0.0
WNW	0	0	0	0	0	0	0	0	0	******	0.0
NW	0	0	0	0	0	0	0	0	0	******	0.0
NNW	0	0	0	0	0	0	0	0	0	******	0.0
Total	0	0	0	0	0	0	0	0	0		
% Of Total	********	********	********	********	********	********	********	********			

Average speed for this table (MPH): 0.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	******	0.0
NNE	0	0	0	0	0	0	0	0	0	******	0.0
NE	0	0	0	0	0	0	0	0	0	******	0.0
ENE	0	0	0	0	0	0	0	0	0	******	0.0
E	0	0	0	0	0	0	0	0	0	******	0.0
ESE	0	0	0	0	0	0	0	0	0	******	0.0
SE	0	0	0	0	0	0	0	0	0	******	0.0
SSE	0	0	0	0	0	0	0	0	0	******	0.0
S	0	0	0	0	0	0	0	0	0	******	0.0
SSW	0	0	0	0	0	0	0	0	0	******	0.0
SW	0	0	0	0	0	0	0	0	0	******	0.0
WSW	0	0	0	0	0	0	0	0	0	******	0.0
W	0	0	0	0	0	0	0	0	0	******	0.0
WNW	0	0	0	0	0	0	0	0	0	******	0.0
NW	0	0	0	0	0	0	0	0	0	******	0.0
NNW	0	0	0	0	0	0	0	0	0	******	0.0
Total	0	0	0	0	0	0	0	0	0		
% Of Total	********	********	********	********	********	********	********	********			

Average speed for this table (MPH): 0.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	******	0.0
NNE	0	0	0	0	0	0	0	0	0	******	0.0
NE	0	0	0	0	0	0	0	0	0	******	0.0
ENE	0	0	0	0	0	0	0	0	0	******	0.0
E	0	0	0	0	0	0	0	0	0	******	0.0
ESE	0	0	0	0	0	0	0	0	0	******	0.0
SE	0	0	0	0	0	0	0	0	0	******	0.0
SSE	0	0	0	0	0	0	0	0	0	******	0.0
S	0	0	0	0	0	0	0	0	0	******	0.0
SSW	0	0	0	0	0	0	0	0	0	******	0.0
SW	0	0	0	0	0	0	0	0	0	******	0.0
WSW	0	0	0	0	0	0	0	0	0	******	0.0
W	0	0	0	0	0	0	0	0	0	******	0.0
WNW	0	0	0	0	0	0	0	0	0	******	0.0
NW	0	0	0	0	0	0	0	0	0	******	0.0
NNW	0	0	0	0	0	0	0	0	0	******	0.0
Total	0	0	0	0	0	0	0	0	0		
% Of Total	********	********	********	********	********	********	********	********			

Average speed for this table (MPH): 0.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	1	0	0	0	0	0	1	100%	6.9
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	1	0	0	0	0	0	1		
% Of Total	0.0%	0.0%	100%	0.0%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 6.9
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	0	1	0	0	0	0	1	100%	7.9
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	0	1	0	0	0	0	1		
% Of Total	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 7.9
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	******	0.0
NNE	0	0	0	0	0	0	0	0	0	******	0.0
NE	0	0	0	0	0	0	0	0	0	******	0.0
ENE	0	0	0	0	0	0	0	0	0	******	0.0
E	0	0	0	0	0	0	0	0	0	******	0.0
ESE	0	0	0	0	0	0	0	0	0	******	0.0
SE	0	0	0	0	0	0	0	0	0	******	0.0
SSE	0	0	0	0	0	0	0	0	0	******	0.0
S	0	0	0	0	0	0	0	0	0	******	0.0
SSW	0	0	0	0	0	0	0	0	0	******	0.0
SW	0	0	0	0	0	0	0	0	0	******	0.0
WSW	0	0	0	0	0	0	0	0	0	******	0.0
W	0	0	0	0	0	0	0	0	0	******	0.0
WNW	0	0	0	0	0	0	0	0	0	******	0.0
NW	0	0	0	0	0	0	0	0	0	******	0.0
NNW	0	0	0	0	0	0	0	0	0	******	0.0
Total	0	0	0	0	0	0	0	0	0		
% Of Total	********	********	********	********	********	********	********	********			

Average speed for this table (MPH): 0.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	******	0.0
NNE	0	0	0	0	0	0	0	0	0	******	0.0
NE	0	0	0	0	0	0	0	0	0	******	0.0
ENE	0	0	0	0	0	0	0	0	0	******	0.0
E	0	0	0	0	0	0	0	0	0	******	0.0
ESE	0	0	0	0	0	0	0	0	0	******	0.0
SE	0	0	0	0	0	0	0	0	0	******	0.0
SSE	0	0	0	0	0	0	0	0	0	******	0.0
S	0	0	0	0	0	0	0	0	0	******	0.0
SSW	0	0	0	0	0	0	0	0	0	******	0.0
SW	0	0	0	0	0	0	0	0	0	******	0.0
WSW	0	0	0	0	0	0	0	0	0	******	0.0
W	0	0	0	0	0	0	0	0	0	******	0.0
WNW	0	0	0	0	0	0	0	0	0	******	0.0
NW	0	0	0	0	0	0	0	0	0	******	0.0
NNW	0	0	0	0	0	0	0	0	0	******	0.0
Total	0	0	0	0	0	0	0	0	0		
% Of Total	********	********	********	********	********	********	********	********			

Average speed for this table (MPH): 0.0
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 07/01/2018 00:00 **To :** 09/30/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	0	1	1	0	0	0	0	2	100%	7.4
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0%	0.0
S	0	0	0	0	0	0	0	0	0	0.0%	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NW	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	1	1	0	0	0	0	2		
% Of Total	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 7.4
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 2
Total number of hours for period : 2

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS A

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	1	2	0	0	0	3	4.2%	13.8
NNE	0	0	0	0	3	0	0	0	3	4.2%	13.9
NE	0	0	0	1	1	0	0	0	2	2.8%	13.7
ENE	0	0	0	2	1	0	0	0	3	4.2%	11.3
E	0	0	0	1	0	0	0	0	1	1.4%	10.7
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	0	11	6	0	0	17	23.6%	17.2
SSE	0	0	0	0	3	6	0	0	9	12.5%	19.7
S	0	0	0	5	6	0	0	0	11	15.3%	13.6
SSW	0	0	0	1	0	0	0	0	1	1.4%	11.6
SW	0	0	1	4	0	0	0	0	5	6.9%	10.0
WSW	0	0	1	0	0	0	0	0	1	1.4%	4.3
W	0	0	1	0	0	0	0	0	1	1.4%	6.0
WNW	0	0	3	0	0	0	0	0	3	4.2%	6.4
NW	0	0	2	4	0	0	0	0	6	8.3%	7.9
NNW	0	0	0	0	5	1	0	0	6	8.3%	16.8
Total	0	0	8	19	32	13	0	0	72		
% Of Total	0.0%	0.0%	11.1%	26.4%	44.4%	18.1%	0.0%	0.0%			

Average speed for this table (MPH): 14.1
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS B

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	0	0	0	0	0	0.0%	0.0
NNE	0	0	0	1	1	0	0	0	2	6.1%	12.9
NE	0	0	0	0	1	0	0	0	1	3.0%	15.0
ENE	0	0	1	0	0	0	0	0	1	3.0%	6.9
E	0	0	0	3	0	0	0	0	3	9.1%	10.7
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	1	6	4	0	0	11	33.3%	16.9
SSE	0	0	0	0	1	1	0	0	2	6.1%	19.6
S	0	0	0	2	4	0	0	0	6	18.2%	14.1
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	1	1	0	0	0	0	2	6.1%	8.4
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	1	0	0	0	0	0	1	3.0%	6.6
WNW	0	0	1	0	0	0	0	0	1	3.0%	5.9
NW	0	0	1	1	0	0	0	0	2	6.1%	7.2
NNW	0	0	0	0	1	0	0	0	1	3.0%	13.6
Total	0	0	5	9	14	5	0	0	33		
% Of Total	0.0%	0.0%	15.2%	27.3%	42.4%	15.2%	0.0%	0.0%			

Average speed for this table (MPH): 13.5
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS C

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	0	0	2	0	0	0	2	8.3%	14.4
NNE	0	0	0	0	3	0	0	0	3	12.5%	15.0
NE	0	0	1	1	2	1	0	0	5	20.8%	14.1
ENE	0	0	0	0	0	0	0	0	0	0.0%	0.0
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0%	0.0
SE	0	0	0	2	5	1	0	0	8	33.3%	14.8
SSE	0	0	0	1	1	0	0	0	2	8.3%	11.4
S	0	0	0	0	1	0	0	0	1	4.2%	16.7
SSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
SW	0	0	0	1	0	0	0	0	1	4.2%	8.7
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	1	0	0	0	0	0	1	4.2%	4.9
NW	0	0	1	0	0	0	0	0	1	4.2%	5.5
NNW	0	0	0	0	0	0	0	0	0	0.0%	0.0
Total	0	0	3	5	14	2	0	0	24		
% Of Total	0.0%	0.0%	12.5%	20.8%	58.3%	8.3%	0.0%	0.0%			

Average speed for this table (MPH): 13.4
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS D

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	0	6	25	2	0	0	34	18.8%	13.9
NNE	0	0	1	15	34	2	0	0	52	28.7%	13.6
NE	0	0	1	14	13	2	0	0	30	16.6%	12.6
ENE	0	0	0	2	3	0	0	0	5	2.8%	13.3
E	0	0	0	0	0	0	0	0	0	0.0%	0.0
ESE	0	0	0	1	0	0	0	0	1	0.6%	12.4
SE	0	0	0	0	6	0	0	0	6	3.3%	15.7
SSE	0	0	0	1	2	2	0	0	5	2.8%	15.9
S	0	0	1	2	2	1	0	0	6	3.3%	11.8
SSW	0	0	0	2	1	0	0	0	3	1.7%	9.8
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	0	1	0	0	0	0	0	1	0.6%	5.1
WNW	0	2	1	0	0	0	0	0	3	1.7%	4.4
NW	0	0	1	6	7	0	0	0	14	7.7%	12.1
NNW	0	0	8	10	1	2	0	0	21	11.6%	9.8
Total	0	3	14	59	94	11	0	0	181		
% Of Total	0.0%	1.7%	7.7%	32.6%	51.9%	6.1%	0.0%	0.0%			

Average speed for this table (MPH): 12.7
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS E

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	1	1	2	3	0	0	0	7	5.3%	9.8
NNE	0	0	1	12	7	0	0	0	20	15.0%	10.9
NE	0	0	1	6	5	0	0	0	12	9.0%	11.4
ENE	0	0	1	2	0	0	0	0	3	2.3%	8.6
E	0	0	1	0	0	0	0	0	1	0.8%	4.4
ESE	0	0	3	6	3	0	0	0	12	9.0%	9.4
SE	0	0	1	21	2	0	0	0	24	18.0%	9.8
SSE	0	0	4	14	9	0	0	0	27	20.3%	11.0
S	0	0	1	0	4	0	0	0	5	3.8%	12.4
SSW	0	0	4	0	0	0	0	0	4	3.0%	6.3
SW	0	0	3	0	0	0	0	0	3	2.3%	6.2
WSW	0	0	1	0	0	0	0	0	1	0.8%	6.1
W	0	0	0	0	0	0	0	0	0	0.0%	0.0
WNW	0	0	4	0	0	0	0	0	4	3.0%	4.5
NW	0	1	1	0	1	0	0	0	3	2.3%	8.8
NNW	0	1	2	4	0	0	0	0	7	5.3%	7.1
Total	0	3	29	67	34	0	0	0	133		
% Of Total	0.0%	2.3%	21.8%	50.4%	25.6%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 9.8
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS F

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	3	1	0	0	0	0	4	6.3%	6.6
NNE	0	0	3	0	0	0	0	0	3	4.8%	6.2
NE	0	0	2	1	0	0	0	0	3	4.8%	7.4
ENE	0	0	0	4	0	0	0	0	4	6.3%	8.7
E	0	0	4	1	0	0	0	0	5	7.9%	5.6
ESE	0	0	7	1	0	0	0	0	8	12.7%	5.8
SE	0	0	8	4	0	0	0	0	12	19.0%	6.9
SSE	0	0	3	1	0	0	0	0	4	6.3%	6.3
S	0	0	4	0	0	0	0	0	4	6.3%	4.8
SSW	0	0	1	0	0	0	0	0	1	1.6%	5.0
SW	0	0	3	0	0	0	0	0	3	4.8%	5.8
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	1	1	0	0	0	0	0	2	3.2%	4.3
WNW	0	1	2	0	0	0	0	0	3	4.8%	4.1
NW	0	0	3	0	0	0	0	0	3	4.8%	4.1
NNW	0	0	4	0	0	0	0	0	4	6.3%	6.7
Total	0	2	48	13	0	0	0	0	63		
% Of Total	0.0%	3.2%	76.2%	20.6%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 6.1
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

STABILITY CLASS G

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	0	1	0	0	0	0	0	1	1.4%	5.8
NNE	0	0	0	0	0	0	0	0	0	0.0%	0.0
NE	0	2	1	0	0	0	0	0	3	4.2%	2.5
ENE	0	1	2	2	0	0	0	0	5	7.0%	6.4
E	0	2	2	0	0	0	0	0	4	5.6%	3.2
ESE	0	3	2	0	0	0	0	0	5	7.0%	3.4
SE	0	4	11	0	0	0	0	0	15	21.1%	4.7
SSE	0	3	14	0	0	0	0	0	17	23.9%	5.1
S	0	1	0	0	0	0	0	0	1	1.4%	2.5
SSW	0	1	0	0	0	0	0	0	1	1.4%	1.2
SW	0	0	0	0	0	0	0	0	0	0.0%	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0%	0.0
W	0	2	0	0	0	0	0	0	2	2.8%	2.1
WNW	0	6	2	0	0	0	0	0	8	11.3%	2.7
NW	0	3	1	0	0	0	0	0	4	5.6%	3.4
NNW	0	3	2	0	0	0	0	0	5	7.0%	4.2
Total	0	31	38	2	0	0	0	0	71		
% Of Total	0.0%	43.7%	53.5%	2.8%	0.0%	0.0%	0.0%	0.0%			

Average speed for this table (MPH): 4.2
Hours in above table with variable direction : 0
Total number of CALMs : 0
Total number of Invalid hours : 0
Total number of Valid hours : 577
Total number of hours for period : 577

Joint Frequency Table - Batch Release Hours

From : 10/01/2018 00:00 **To :** 12/31/2018 23:00

PRIMARY TOWER

ALL STABILITY CLASSES COMBINED

Wind Speed (MPH) -> / Sector	(1) CALM	(2) 1.0 - 3.5	(3) 3.6 - 7.5	(4) 7.6 - 12.5	(5) 12.6 - 18.5	(6) 18.6 - 24.5	(7) 24.6 - 32.5	(8) 32.6 +	Total	% Of Total	Avg. Speed
N	0	2	5	10	32	2	0	0	51	8.8%	12.6
NNE	0	0	5	28	48	2	0	0	83	14.4%	12.7
NE	0	2	6	23	22	3	0	0	56	9.7%	11.7
ENE	0	1	4	12	4	0	0	0	21	3.6%	9.5
E	0	2	7	5	0	0	0	0	14	2.4%	6.3
ESE	0	3	12	8	3	0	0	0	26	4.5%	7.2
SE	0	4	20	28	30	11	0	0	93	16.1%	11.6
SSE	0	3	21	17	16	9	0	0	66	11.4%	11.0
S	0	1	6	9	17	1	0	0	34	5.9%	11.9
SSW	0	1	5	3	1	0	0	0	10	1.7%	7.2
SW	0	0	8	6	0	0	0	0	14	2.4%	7.9
WSW	0	0	2	0	0	0	0	0	2	0.3%	5.2
W	0	3	4	0	0	0	0	0	7	1.2%	4.3
WNW	0	9	14	0	0	0	0	0	23	4.0%	4.1
NW	0	4	10	11	8	0	0	0	33	5.7%	8.8
NNW	0	4	16	14	7	3	0	0	44	7.6%	9.5
Total	0	39	145	174	188	31	0	0	577		
% Of Total	0.0%	6.8%	25.1%	30.2%	32.6%	5.4%	0.0%	0.0%			

Average speed for this table (MPH):	10.5
Hours in above table with variable direction :	0
Total number of CALMs :	0
Total number of Invalid hours :	0
Total number of Valid hours :	577
Total number of hours for period :	577

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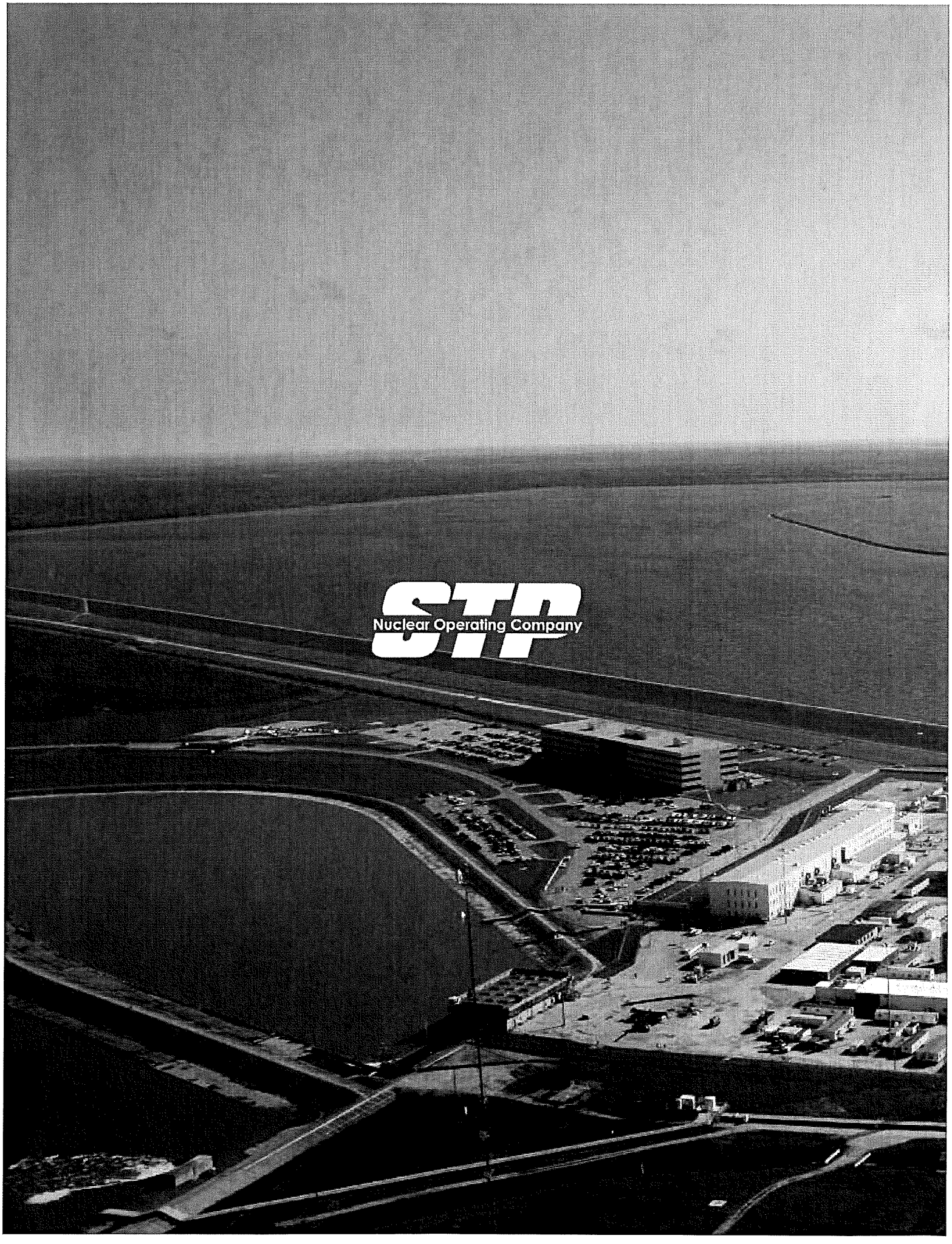
STP
Nuclear Operating Company