

V.C. Summer Nuclear Station
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April 27, 2021

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555-001

Serial No. 21-162
LIC/TS/R0
Docket No. 50-395
License No. NPF-12

DOMINION ENERGY SOUTH CAROLINA, INC. (DESC)
VIRGIL C. SUMMER NUCLEAR STATION UNIT 1
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

Enclosed is the DESC Annual Radioactive Effluent Release Report as required by 10 CFR 50.36a, Section 6.9.1.8 of the Virgil C. Summer Nuclear Station Technical Specifications, and Section 1.6.2.1 of the Offsite Dose Calculation Manual. This submittal covers the period of January 1 through December 31, 2020.

If there are any questions, please call Ms. Tracey Stewart at (803) 931-5663.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Haselden", written over a horizontal line.

Robin R. Haselden
Director, Nuclear Station Safety and Licensing
V. C. Summer Nuclear Station

Commitments contained in this letter: None

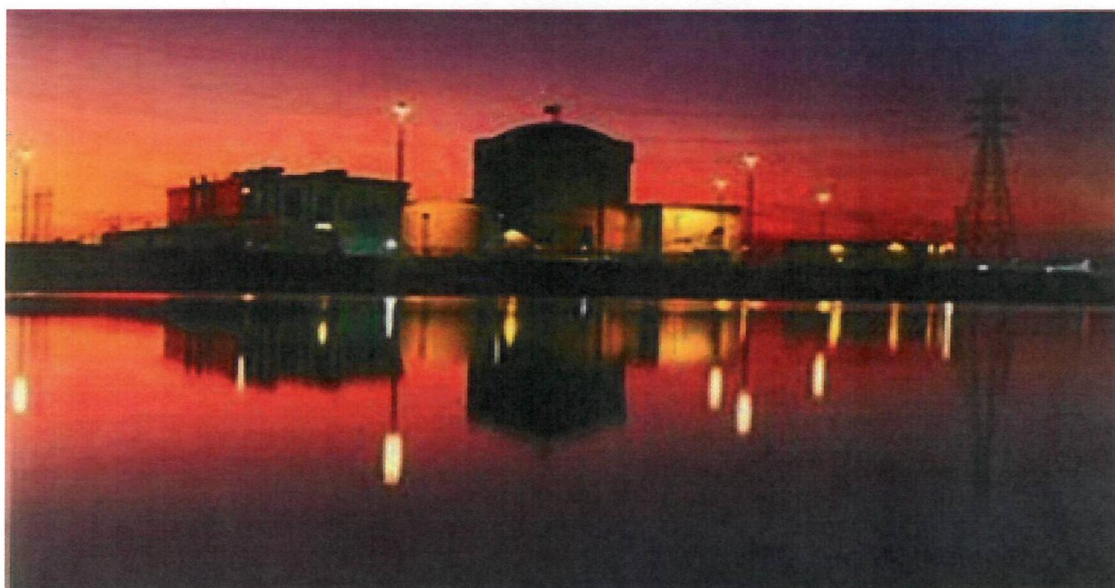
Enclosure: Annual Radioactive Effluent Release Report
Enclosure A: Meteorological Data Joint Frequency Distribution by Quarter for 2020

cc: w/o Enclosures unless noted
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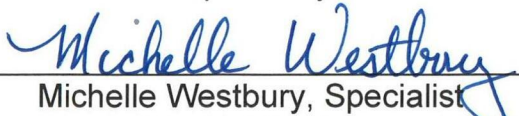


ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT VIRGIL C. SUMMER NUCLEAR STATION

FOR THE OPERATING PERIOD
JANUARY 1, 2020 - DECEMBER 31, 2020



Prepared by:

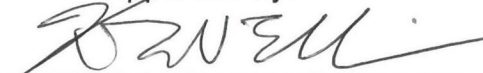

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ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JANUARY - DECEMBER 2020

VIRGIL C. SUMMER NUCLEAR STATION

Introduction

This report is being submitted as a summary of quantities of radioactive liquid and gaseous effluents and solid waste released from the Virgil C. Summer Nuclear Station. This report is submitted in fulfillment of the requirements in the V. C. Summer Nuclear Station Operating License Technical Specifications Section 6.9.1.8, Offsite Dose Calculation Manual (ODCM) Section 1.6.2 and 10CFR50.36(a) and follows the reporting details specified in USNRC Regulatory Guide 1.21⁽¹⁾.

Summary information of radioactive gaseous and liquid effluents is presented along with a summary of radioactive waste disposal as well as an evaluation of the radiological impact on man due to operation of the Virgil C. Summer Nuclear Station. Supplemental information including release limits also required by USNRC Regulatory Guide 1.21 is provided as Appendix A.

A. Supplemental Information

Regulatory limits for doses, dose rate and effluent concentration limits presented in Supplemental Information are from the Virgil C. Summer Nuclear Station ODCM and 40 CFR 190. Average energy (\bar{E}) is not applicable to the method for determining release rate limits for fission and activation gaseous effluents, therefore, it has been omitted. A compilation of required supplemental information is provided in Appendix A.

B. Gaseous Effluents

Gaseous effluents released from ground level are summarized in Tables 1 and 2. An elevated release pathway does not exist at Virgil C. Summer Nuclear Station. Cumulative doses are discussed in Section E.

The error for both liquid and gaseous release totals is estimated as twenty percent for radioactive radionuclides sampled and released in effluent pathways. Error was derived using root sum of squares methodology considering known sources of error including calibration of detectors and flow measurement equipment, sample preparation, and analysis counting error.

C. Liquid Effluents

Liquid effluents are summarized in Tables 3 and 4. Estimated total errors are expressed as in Section B above.

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D. Solid Waste Shipments

Solid waste shipments are summarized in Table 5. Curie content of radioactive waste packages is determined by dose rates and/or gamma spectroscopy analysis of samples. The total error for each type of curie content determination is conservatively estimated to be the sum of a 15% systematic error and a 20% photon response error for the detector used.

E. Radiological Impact on Man

Dose to the maximum exposed individual in the unrestricted area was calculated using measured plant gaseous effluents and meteorological data in accordance with the Offsite Dose Calculation Manual. The source term involved 6 Waste Gas Decay Tank (WGDT) releases, 1.97 days of 6-inch Reactor Building purge releases, 20.49 days of 36-inch Reactor Building purge releases and a continuous 12-month Main Plant vent release. Doses are summarized in Table 6. The total gaseous activities released are presented in Tables 1 and 2. The highest quarterly air doses at the station boundary resulting from the release of noble gases were $9.99\text{E-}04$ mrad for gamma during the second quarter and $4.82\text{E-}04$ mrad for beta during the second quarter. The maximum quarterly organ dose attributed to the releases, excluding Carbon-14, was $1.10\text{E-}03$ mrem. Cumulative annual dose was $1.00\text{E-}03$ mrad, $4.85\text{E-}04$ mrad and $1.10\text{E-}03$ mrem for gamma, beta, and organ dose, respectively. Discussion of the impact of Carbon-14 is included in Section K.

Measured plant liquid effluent data was used to calculate estimates of doses to individuals in accordance with the Offsite Dose Calculation Manual. The source term consisted of the isotopic contents of 221 Waste Monitor Tank batch releases, 19 Condensate Backwash Receiver Tank batch releases, 1 NaOH Sump batch release, 7.36 days of Steam Generator Blowdown release and a continuous Turbine Building Sump release.

Doses are summarized in Table 6 and total liquid radioactivity released is described in Tables 3 and 4. The highest quarterly total body dose to the maximum exposed individual resulting from the release of radioactive liquid was $2.92\text{E-}03$ mrem during the fourth quarter. The highest organ dose was $2.92\text{E-}03$ mrem to the Liver for the fourth quarter. Cumulative annual doses for the hypothetical maximum exposed individual were $6.25\text{E-}03$ mrem for the total body and $6.32\text{E-}03$ mrem for the GI-LLI, the maximum annual organ. The GI-LLI was the maximum exposed organ for the first, second and third quarter and the Liver was the maximum exposed organ for the fourth quarter.

Dose rates and concentrations were below station limits as specified in Supplemental Information, Section II A, B, and C during all the effluent releases.

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Radiation exposure to members of the public within the site boundary was assessed through calculation of gamma and beta air dose at 0.25 miles of the gaseous effluent release point and direct measurement of exposure using thermoluminescent dosimeters. Onsite air dose for this reporting period was $3.26\text{E-}03$ mrad gamma and $1.58\text{E-}03$ mrad beta, well below levels that can be distinguished above background. Quarterly thermoluminescent dosimetry (TLD) data from four onsite monitoring locations within 0.2 miles of the Reactor Building and eight locations at the site boundary were analyzed and compared with respective pre-operational background and previous year history. Results showed that the 2020 quarterly dose rates did not differ significantly from the pre-operational or 2019 dose rates.

The impact of Independent Spent Fuel Storage Installation (ISFSI) operation which began cask storage on March 26, 2016 was assessed using six TLD locations monitoring the perimeter of the ISFSI site. The TLD locations were monitored for three quarters prior to fuel storage and continued to be monitored through 2020 during which fuel storage casks were stored. Analysis of monitoring results showed no statistically significant increase in perimeter dose as a result of ISFSI operation.

Based on review of gaseous effluent dose calculations and analysis of onsite TLD monitoring it was concluded that doses to members of the public inside the site boundary were indistinguishable from normal background dose.

Radiation doses from radioactive effluents to workers at the Fairfield Hydro Station for this reporting period were calculated to be $4.73\text{E-}05$ and $2.29\text{E-}05$ mrad for gamma and beta, respectively.

Radiation doses from radioactive effluents to workers at the New Nuclear Site for this reporting period were calculated to be $4.07\text{E-}04$ and $1.97\text{E-}04$ mrad for gamma and beta, respectively.

Radiation doses from nearby uranium fuel cycle sources were not assessed. The ODCM, Sections 1.3.1 and B/1.3 establish a five (5) mile limit beyond which doses from nearby plants are insignificant. There are no uranium fuel cycle plants within a five (5) mile radius of Virgil C. Summer Nuclear Station.

F. Abnormal Releases

None

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G. Meteorology

The meteorological data for 2020 was collected and analyzed. An annual meteorological summary report of joint frequency distributions of wind direction and speed by atmospheric stability class for each quarter is included as Enclosure A.

The wind direction and wind speed data used were acquired from the 10-meter level of the primary monitoring tower. Stability was determined by the primary differential temperature (61 to 10 meter).

The combined annual data recovery for wind direction, wind speed and stability was 99.57%. Primary variable recovery rates were as follows: wind direction (10 m) – 99.60%, wind speed (10 m) – 99.60%, and differential temperature (61 - 10 m) – 99.57%.

H. Offsite Dose Calculation Manual

The Virgil C. Summer Nuclear Station ODCM was not revised in 2020.

I. Offsite Dose Calculation Manual Reportable Incidents

The Turbine Building Sump Effluent Line Radiation Monitor RM-L8 required by ODCM Control 1.1.1.1 was out of service from April 12, 2020 at 1605 until May 12, 2020 at 0750. Out of service condition was the result of the normal condition light not being lit. Replacement of the proper bulb by station maintenance personnel resulted in the bulb being immediately blown. RM-L8 was returned to service after successfully resolving this issue.

RML-8 was also out of service from June 13, 2020 at 2010 until September 17, 2020 at 1805. Out of service condition was the result of the ratemeter malfunctioning. After significant troubleshooting efforts the system was restored by replacing the old ratemeter with a newer style ratemeter.

Compensatory actions were implemented during these time periods in accordance with the requirements of the ODCM.

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J. Major Changes to Radioactive Waste Treatment Systems

During 2020, there were no major changes to the Radioactive Waste Treatment System.

K. Carbon-14 Gaseous Effluents

Carbon-14 production and release estimates were calculated using EPRI Report 1021106⁽²⁾, "Estimation of Carbon-14 in Nuclear Plant Gaseous Effluents". This calculation uses active core coolant mass, average neutron flux by energy and reactor coolant nitrogen concentrations to determine Carbon-14 generation based upon an effective full power year. The estimated generation for VC Summer Nuclear station for 2020 was 9.09 curies.

Public dose estimates were performed using Regulatory Guide 1.109⁽³⁾ methodology. Carbon dioxide is assumed to make up 20% of the Carbon-14 gaseous emissions from the station based upon available references and on-site testing. Carbon-14 is the highest dose contributor of all radionuclides released in gaseous effluents. Annual dose resulting from Carbon-14 releases in gaseous effluents is estimated to be 1.61E-01 mrem total body and 8.08E-01 mrem to the maximum organ (bone).

References

1. Regulatory Guide 1.21, *"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"*, Revision 1, US Nuclear Regulatory Commission, Washington D.C., 1974.
2. EPRI Report 1021106, *"Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents"*, Electric Power Research Institute, Palo Alto, CA, 2010.
3. Regulatory Guide 1.109, *"Calculation of Annual Doses to Man from Routine Releases of Reactor effluents for the Purpose of Demonstrating compliance with 10 CFR50, Appendix I"*, US Nuclear Regulatory Commission, Washington D.C., 1976.

APPENDIX A
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SUPPLEMENTAL INFORMATION

I. Regulatory Dose Limits:

A. Fission and Activation Gases:

The air dose to an individual due to noble gases released in gaseous effluents shall be limited to less than or equal to 5 mrad for gamma radiation and 10 mrad for beta radiation during any calendar quarter and 10 mrad for gamma radiation and 20 mrad for beta radiation during any calendar year (ODCM, Section 1.2.3.1).

B. Iodines, Particulates (half-lives > 8 days) and Tritium:

The dose to an individual from radioiodine, tritium and radioactive materials in particulate form with half-lives greater than 8 days in gaseous effluents shall be limited to less than or equal to 7.5 mrem to any organ during any calendar quarter and 15 mrem to any organ during any calendar year (ODCM, Section 1.2.4.1).

C. Liquid Effluents:

The dose or dose commitment to an individual from radioactive materials in liquid effluents released shall be limited to less than or equal to 1.5 mrem to the total body and 5 mrem to any organ during any calendar quarter and 3 mrem to the total body and 10 mrem to any organ during any calendar year (ODCM, Section 1.1.3.1).

D. All Sources:

The annual dose equivalent shall not exceed 25 mrem to the whole body, 75 mrem to the thyroid and 25 mrem to any other organ (40 CFR 190).

II. Dose Rate and Effluent Concentration Limits:

A. Fission and Activation Gases

The dose rate in unrestricted areas due to radioactive materials released in gaseous effluents shall be limited to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin (ODCM, Section 1.2.2.1).

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B. Iodines, Particulates (half-lives > 8 days) and Tritium:

The dose rate in unrestricted areas due to radioactive materials in effluents shall be limited to less than or equal to 1500 mrem/year to any organ (ODCM, Section 1.2.2.1).

C. Liquid Effluents:

The concentration of radioactive materials released from the site shall be limited to 10 times the concentrations specified in 10 CFR 20, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to $2\text{E-}04$ $\mu\text{Ci/ml}$ total activity (ODCM, Section 1.1.2.1).

III. Average Energy:

Not Applicable

IV. Measurements and Approximations of Total Radioactivity:

- A. Fission and activation gases: Gamma spectrometry (HPGe)
- B. Iodines: Gamma spectrometry (HPGe)
- C. Particulates: Gamma spectrometry (HPGe), beta proportional counting, alpha proportional counting
- D. Tritium: Liquid scintillation
- E. Liquid effluents: Gamma spectrometry (HPGe), liquid scintillation (H-3), beta proportional counting, alpha proportional counting.

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V. Batch Releases:

A. Gaseous:

1. Number of batch releases: 6
2. Total time period for batch releases: 1012 min
3. Maximum time period for a batch release: 240 min
4. Average time period for a batch release: 169 min
5. Minimum time period for a batch release: 13 min

B. Liquid:

1. Number of batch releases:

68	For first quarter, 2020
94	For second quarter, 2020
36	For third quarter, 2020
43	For fourth quarter, 2020

2. Total time period for batch releases:

4.99E+03	min. for first quarter, 2020
6.48E+03	min. for second quarter, 2020
2.62E+03	min. for third quarter, 2020
3.06E+03	min. for fourth quarter 2020

3. Maximum time period for a batch release:

1.31E+02	min. for second quarter, 2020
1.00E+02	min. for second quarter, 2020
8.10E+01	min. for third quarter, 2020
8.20E+01	min. for fourth quarter, 2020

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4. Average time period for batch releases:

7.34E+01	min. for first quarter, 2020
5.73E+01	min. for second quarter, 2020
7.29E+01	min. for third quarter, 2020
7.11E+01	min. for fourth quarter, 2020
5. Minimum time period for a batch release:

1.00E+00	min. for first quarter, 2020
1.00E+00	min. for second quarter, 2020
6.90E+01	min. for third quarter, 2020
1.00E+00	min. for fourth quarter, 2020
6. Average stream flow during periods of release of effluent into a flowing stream:

4.52E+06	gpm for first quarter, 2020
5.80E+06	gpm for second quarter, 2020
6.72E+06	gpm for third quarter, 2020
4.46E+06	gpm for fourth quarter, 2020

VI. Abnormal Releases:

A. Gaseous:

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

B. Liquid:

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

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TABLE 1

Gaseous Effluents-Summation of All Releases

Type of Effluent	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Error %
<u>A. Fission & Activation Gases</u>						
1. Total Release	Curies	0.00E+00	8.28E-01	1.45E-02	0.00E+00	2.00E+01
2. Average Release Rate for Period	µCi/sec	0.00E+00	1.05E-01	1.83E-03	0.00E+00	
3. Percent of Applicable Limit	%	0.00E+00	2.00E-02	3.23E-05	0.00E+00	
<u>B. Iodines</u>						
1. Total Iodine-131	Curies	0.00E+00	1.31E-05	0.00E+00	0.00E+00	2.50E+01
2. Average Release Rate for Period	µCi/sec	0.00E+00	1.67E-06	0.00E+00	0.00E+00	
3. Percent of Applicable Limit	%	0.00E+00	1.31E-03	0.00E+00	0.00E+00	
<u>C. Particulates</u>						
1. Total Particulates (Half-lives > 8 days)	Curies	9.49E-06	0.00E+00	3.47E-06	1.05E-05	2.50E+01
2. Average Release Rate for Period	µCi/sec	1.21E-06	0.00E+00	4.36E-07	1.32E-06	
3. Percent of Applicable Limit	%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
4. Gross Alpha Activity	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<u>D. Tritium</u>						
1. Total Release	Curies	0.00E+00	1.82E+00	0.00E+00	0.00E+00	2.00E+01
2. Average Release Rate for Period	µCi/sec	0.00E+00	2.32E-01	0.00E+00	0.00E+00	
3. Percent of Applicable Limit	%	0.00E+00	1.38E-02	0.00E+00	0.00E+00	
<u>E. Carbon-14</u>						
1. Total Release	Curies	2.26E+00	2.26E+00	2.28E+00	2.28E+00	N/A
2. Average Release Rate for Period	µCi/sec	2.87E-01	2.87E-01	2.87E-01	2.87E-01	

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TABLE 2

Gaseous Effluents-Ground Level Releases

		Continuous Mode				Batch Mode			
Nuclides Released	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1. Fission and Activation Gases									
Ar-41	Curies	0.00E+00	4.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.88E-06	0.00E+00
Kr-85M	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-05	0.00E+00
Kr-88	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.73E-06	0.00E+00
Xe-131m	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-04	0.00E+00
Xe-133	Curies	0.00E+00	1.22E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-02	0.00E+00
Xe-133m	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.98E-05	0.00E+00
Xe-135	Curies	0.00E+00	3.64E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E-04	0.00E+00
Total for Period	Curies	0.00E+00	8.28E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-02	0.00E+00
2. Iodines									
I-131	Curies	0.00E+00	3.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	Curies	0.00E+00	9.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Curies	0.00E+00	1.31E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates									
As-76	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Be-7	Curies	9.49E-06	0.00E+00	3.47E-06	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-82	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Curies	9.49E-06	0.00E+00	3.47E-06	1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Tritium									
H-3	Curies	0.00E+00	1.82E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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TABLE 3

Liquid Effluents-Summation of All Releases

Type of Effluent	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Error %
A. Fission & Activation Products						
1. Total Release (not including Tritium, Gases, and Alpha)	Curies	7.82E-04	8.70E-04	3.31E-04	1.46E-04	2.00E+01
2. Average Diluted Concentration During Period	µCi/ml	8.95E-12	6.13E-12	4.60E-12	2.74E-12	
3. Percent of Applicable Limit	%	1.56E-02	1.74E-02	6.62E-03	2.92E-03	
B. Tritium						
1. Total Release	Curies	1.59E+02	9.43E+01	1.09E+02	2.25E+02	2.00E+01
2. Average Diluted Concentration During Period	µCi/ml	1.82E-06	6.64E-07	1.52E-06	4.22E-06	
3. Percent of Applicable Limit	%	1.82E-01	6.64E-02	1.52E-01	4.22E-01	
C. Dissolved and Entrained Gases						
1. Total Release	Curies	2.30E-04	1.94E-04	2.32E-05	7.65E-06	2.00E+01
2. Average Diluted Concentration During Period	µCi/ses	2.63E-12	1.36E-12	3.23E-13	1.44E-13	
3. Percent of Applicable Limit	%	1.31E-06	6.82E-07	1.62E-07	7.18E-08	
D. Gross Alpha Radioactivity						
1. Total Release	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
E. Waste Volume Released (Pre-Dilution)						
	Liters	1.21E+07	4.34E+07	1.43E+07	9.17E+06	3.00E+00
F. Volume of Dilution Water Used						
	Liters	8.74E+10	1.42E+11	7.19E+10	5.32E+10	4.30E+00

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TABLE 4

Liquid Effluents

Nuclides Released	Units	Continuous Mode				Batch Mode			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
As-76	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-05	0.00E+00	0.00E+00
Co-58	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	9.32E-05	1.04E-05	8.64E-06
Co-60	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.82E-04	2.42E-04	2.59E-04	1.06E-04
Cs-137	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-06
H-3	Curies	6.64E-03	0.00E+00	0.00E+00	0.00E+00	1.59E+02	9.43E+01	1.09E+02	2.25E+02
Mn-54	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.70E-05	1.87E-05	1.32E-05	5.46E-06
Nb-95	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-05	1.05E-05	3.65E-06	0.00E+00
Sb-122	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-06	0.00E+00	0.00E+00
Sb-124	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-04	9.25E-06	2.00E-06
Sb-125	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-05	2.72E-04	3.51E-05	1.76E-05
Te-123M	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.45E-05	0.00E+00	0.00E+00
Xe-133	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-04	1.94E-04	2.32E-05	7.65E-06
Xe-135	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.89E-06	0.00E+00	0.00E+00	0.00E+00
Zn-65	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-05	0.00E+00	1.66E-06
Zr-95	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-06	5.52E-06	0.00E+00	0.00E+00
Zr-97	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.71E-06	0.00E+00	0.00E+00
<hr/>									
Total for Period	Curies	6.64E-03	0.00E+00	0.00E+00	0.00E+00	1.59E+02	9.43E+01	1.09E+02	2.25E+02

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
January - December 2020

Virgil C. Summer Nuclear Station
Dominion Energy

Table 5
SOLID WASTE SHIPMENTS

1. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

Type of Waste	Unit	2020 Total	Est. Total Error, %
a. Spent resins, filters, sludge, evaporator bottoms, etc.	m ³ Ci	3.94E+01 2.99E+01	2.5E+01
b. Dry compressible waste, metals, contaminated equipment, etc.	m ³ Ci	3.54E+02 1.04E-01	2.5E+01
c. Irradiated components, control rods, etc.	m ³ Ci	0.00E+00 0.00E+00	N/A
d. Other waste, oil, etc.	m ³ Ci	0.00E+00 0.00E+00	N/A

2. Estimate of major nuclide composition for the year (by type of waste) for concentrations above 1.0%

a.

Ni-63	36.90 %	1.10E+01 Ci
Co-60	24.64 %	7.36E+00 Ci
Fe-55	14.84 %	4.44E+00 Ci
Co-58	8.28 %	2.47E+00 Ci
Mn-54	5.80 %	1.73E+00 Ci
Sb-125	5.69 %	1.70E+00 Ci
Cs-137	1.39 %	4.14E-01 Ci

b.

Fe-55	32.67 %	3.40E-02 Ci
Co-60	30.85 %	3.21E-02 Ci
Ni-63	10.96 %	1.14E-02 Ci
Co-58	10.90 %	1.13E-02 Ci
Mn-54	3.69 %	3.54E-03 Ci
Nb-95	3.17 %	3.30E-03 Ci
Cr-51	2.68 %	2.79E-03 Ci
Zr-95	1.64 %	1.70E-03 Ci
Sb-125	1.19 %	1.24E-03 Ci

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
January - December 2020

Virgil C. Summer Nuclear Station
Dominion Energy
Table 5
SOLID WASTE SHIPMENTS

c.

None	N/A	N/A
------	-----	-----

d.

None	N/A	N/A
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3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
4	Hittman Transport	Energy Solutions, LLC - Barnwell Processing Facility Barnwell, SC
8	Landstar	Alaron Nuclear Services Wampum, PA
1	Specialty Transport, Inc.	UniTech Services Group, Inc. Oakridge, TN

Notes:

- Four** shipments by Hittman Transport containing (1) 10-160 FR SEDS High Integrity Container of Dewatered Primary Resin; (1) 8-120 FR High Integrity Container of Dewatered Mixed Bed/Charcoal Resin; (1) 8-120 FR High Integrity Container of Dewatered Charcoal/Cation/Anion Resin; and (1) 8-120 FR High Integrity Container of Dewatered Charcoal/Cation Resin were shipped to the Barnwell Processing facility for processing.
- Eight** shipments by Landstar containing (8) 20-foot Sealands of Dry Active Waste; (9) B-25 Boxes of Gross Dewatered Resin; and (14) B-25 Boxes of Dry Active Waste were shipped to Alaron in Wampum, PA for processing.
- One** shipment by Specialty Transport, Inc. containing (1) 20-foot Sealand of Green-is-Clean (GIC) waste was shipped to Oakridge, TN for processing.

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY – DECEMBER 2020
Virgil C. Summer Nuclear Station

TABLE 6

Gaseous Effluents

	Parameter	Location	Dose	Dose Limit	% of Limit
<u>Qtr 1</u>	Gamma Air Dose (mrad)	1.61 km ENE	0.00E+00	5.00E+00	0.00
	Beta Air Dose (mrad)	1.61 km ENE	0.00E+00	1.00E+01	0.00
	Total Body Dose (mrem)	1.61 km ENE	0.00E+00	5.00E+00	0.00
	Skin Dose (mrem)	1.61 km ENE	0.00E+00	7.50E+00	0.00
	Max Organ Dose (mrem)*	1.77 km E	0.00E+00	7.50E+00	0.00
	None - None				
<u>Qtr 2</u>	Gamma Air Dose (mrad)	1.61 km ENE	9.99E-04	5.00E+00	0.02
	Beta Air Dose (mrad)	1.61 km ENE	4.82E-04	1.00E+01	0.00
	Total Body Dose (mrem)	1.61 km ENE	9.48E-04	5.00E+00	0.02
	Skin Dose (mrem)	1.61 km ENE	1.48E-03	7.50E+00	0.02
	Max Organ Dose (mrem)*	1.77 km E	1.10E-03	7.50E+00	0.01
	Child - Thyroid				
<u>Qtr 3</u>	Gamma Air Dose (mrad)	1.61 km ENE	1.23E-06	5.00E+00	0.00
	Beta Air Dose (mrad)	1.61 km ENE	3.23E-06	1.00E+01	0.00
	Total Body Dose (mrem)	1.61 km ENE	1.06E-06	5.00E+00	0.00
	Skin Dose (mrem)	1.61 km ENE	2.45E-06	7.50E+00	0.00
	Max Organ Dose (mrem)*	1.77 km E	0.00E+00	7.50E+00	0.00
	None - None				
<u>Qtr 4</u>	Gamma Air Dose (mrad)	1.61 km ENE	0.00E+00	5.00E+00	0.00
	Beta Air Dose (mrad)	1.61 km ENE	0.00E+00	1.00E+01	0.00
	Total Body Dose (mrem)	1.61 km ENE	0.00E+00	5.00E+00	0.00
	Skin Dose (mrem)	1.61 km ENE	0.00E+00	7.50E+00	0.00
	Max Organ Dose (mrem)*	1.77 km E	0.00E+00	7.50E+00	0.00
	None - None				
<u>Year</u>	Gamma Air Dose (mrad)	1.61 km ENE	1.00E-03	1.00E+01	0.01
	Beta Air Dose (mrad)	1.61 km ENE	4.85E-04	2.00E+01	0.00
	Total Body Dose (mrem)	1.61 km ENE	9.49E-04	1.00E+01	0.01
	Skin Dose (mrem)	1.61 km ENE	1.48E-03	1.50E+01	0.01
	Max Organ Dose (mrem)*	1.77 km E	1.10E-03	1.50E+01	0.01
	Child - Thyroid				

(* Includes dose from all nuclides excluding Carbon-14. See Section K for C-14)

Liquid Effluents

	Parameter	Max Receptor	Dose	Dose Limit	% of Limit
<u>Qtr 1</u>	Max Organ Dose (mrem)	Adult - Gi-LLi	1.76E-03	5.00E+00	0.04
	Total Body Dose (mrem)	Adult - Total Body	1.70E-03	1.50E+00	0.11
<u>Qtr 2</u>	Max Organ Dose (mrem)	Adult - Gi-LLi	8.60E-04	5.00E+00	0.02
	Total Body Dose (mrem)	Adult - Total Body	8.49E-04	1.50E+00	0.06
<u>Qtr 3</u>	Max Organ Dose (mrem)	Adult - Gi-LLi	7.88E-04	5.00E+00	0.02
	Total Body Dose (mrem)	Adult - Total Body	7.81E-04	1.50E+00	0.05
<u>Qtr 4</u>	Max Organ Dose (mrem)	Adult - Liver	2.92E-03	5.00E+00	0.06
	Total Body Dose (mrem)	Adult - Total Body	2.92E-03	1.50E+00	0.19
<u>Year</u>	Max Organ Dose (mrem)	Adult - Gi-LLi	6.32E-03	1.00E+01	0.06
	Total Body Dose (mrem)	Adult - Total Body	6.25E-03	3.00E+00	0.21

NOTE: See Section E for max organ for each quarter

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METEOROLOGICAL DATA
JOINT FREQUENCY DISTRIBUTION
TABLES

Quarterly Summaries

Annual Summary

WGDT Batch Release Periods

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ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
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VIRGIL C. SUMMER NUCLEAR STATION

METEOROLOGICAL DATA
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WGDT Batch Release Periods

Quarterly Summaries

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	2	2	3	1	0	8
NNE	0	0	1	21	1	0	23
NE	0	0	1	4	0	0	5
ENE	0	0	1	1	0	0	2
E	0	0	2	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	2	2	0	0	0	5
SSW	0	9	4	0	0	0	13
SW	5	25	19	0	0	0	49
WSW	1	16	10	0	0	0	27
W	5	22	4	1	0	0	32
WNW	5	17	3	0	0	0	25
NW	0	5	7	0	0	0	12
NNW	1	1	0	1	0	0	3
Total	18	100	56	31	2	0	207

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	207
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	2	6	11	1	0	21
NNE	2	1	11	29	0	0	43
NE	1	3	8	10	0	0	22
ENE	0	1	4	7	0	0	12
E	0	2	1	0	0	0	3
ESE	0	0	3	0	0	0	3
SE	0	0	1	0	0	0	1
SSE	1	0	4	0	0	0	5
S	0	10	2	0	0	0	12
SSW	1	2	1	0	0	0	4
SW	5	7	2	0	0	0	14
WSW	2	3	4	0	0	0	9
W	2	4	7	0	0	0	13
WNW	3	5	0	0	0	0	8
NW	1	5	0	2	0	0	8
NNW	0	0	1	3	0	0	4
Total	19	45	55	62	1	0	182

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	182
Total Hours for the Period:			2184

Hours at Each Wind Speed and Direction

Stability Class:	C	Delta Temperature	Slightly Unstable
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Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	2	6	1	0	0	10
NNE	1	11	22	4	1	0	39
NE	5	9	28	12	1	0	55
ENE	0	8	32	2	0	0	42
E	0	8	18	0	0	0	26
ESE	0	3	1	0	0	0	4
SE	1	3	3	0	0	0	7
SSE	4	6	1	0	0	0	11
S	3	5	3	1	0	0	12
SSW	3	7	1	0	0	0	11
SW	5	13	4	0	0	0	22
WSW	1	6	1	0	0	0	8
W	2	6	0	0	0	0	8
WNW	4	1	0	0	0	0	5
NW	7	5	1	1	0	0	14
NNW	2	2	1	0	1	0	6
Total	39	95	122	21	3	0	280
Calm Hours not Included above for:	Total Period				All Hours	0	
Variable Direction Hours for:	Total Period				All Hours	0	
Invalid Hours for:	Total Period				All Hours	0	
Number of Valid Hours for this Table:	Total Period				All Hours	280	
Total Hours for the Period:							2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	3	15	10	2	0	0	30
NNE	6	18	3	8	2	0	37
NE	4	11	17	6	0	0	38
ENE	4	27	27	0	0	0	58
E	5	40	21	0	0	0	66
ESE	2	27	1	0	0	0	30
SE	4	27	3	0	0	0	34
SSE	15	13	14	1	0	0	43
S	17	34	21	7	0	0	79
SSW	14	48	29	10	0	0	101
SW	25	53	11	1	0	0	90
WSW	17	45	5	2	0	0	69
W	20	30	9	0	0	0	59
WNW	14	13	2	0	0	0	29
NW	14	19	4	1	0	0	38
NNW	8	12	6	1	0	0	27
Total	172	432	183	39	2	0	828
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		828		
Total Hours for the Period:					2184		

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	5	4	1	0	0	0	10
NNE	2	10	1	0	0	0	13
NE	4	5	0	0	0	0	9
ENE	5	3	0	0	0	0	8
E	7	4	1	0	0	0	12
ESE	5	6	0	0	0	0	11
SE	6	13	1	0	0	0	20
SSE	11	12	0	0	0	0	23
S	14	22	3	1	0	0	40
SSW	32	47	2	0	0	0	81
SW	43	43	0	0	0	0	86
WSW	46	19	0	0	0	0	65
W	35	33	0	0	0	0	68
WNW	17	5	0	0	0	0	22
NW	13	6	1	0	0	0	20
NNW	9	4	2	0	0	0	15
Total	254	236	12	1	0	0	503

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	503
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	2	1	0	0	0	0	3
NNE	3	0	0	0	0	0	3
NE	3	1	0	0	0	0	4
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	2	0	0	0	0	0	2
SE	1	4	0	0	0	0	5
SSE	3	9	0	0	0	0	12
S	6	7	0	0	0	0	13
SSW	8	1	0	0	0	0	9
SW	14	1	0	0	0	0	15
WSW	11	6	0	0	0	0	17
W	7	2	0	0	0	0	9
WNW	3	2	0	0	0	0	5
NW	3	1	0	0	0	0	4
NNW	3	0	0	0	0	0	3
Total	69	35	0	0	0	0	104

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	104
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 01/01/2020 01:00 - 04/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	2	0	0	0	0	0	2
SSE	8	5	0	0	0	0	13
S	14	3	0	0	0	0	17
SSW	7	0	0	0	0	0	7
SW	11	1	0	0	0	0	12
WSW	12	2	0	0	0	0	14
W	8	1	0	0	0	0	9
WNW	3	0	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
Total	68	12	0	0	0	0	80

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	80
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** 01/01/2020 01:00 - 04/01/2020 00:00 **All Hours**

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	13	26	25	17	2	0	83
NNE	14	40	38	62	4	0	158
NE	17	29	54	32	1	0	133
ENE	9	39	64	10	0	0	122
E	13	54	43	0	0	0	110
ESE	9	36	5	0	0	0	50
SE	14	48	8	0	0	0	70
SSE	42	45	19	1	0	0	107
S	55	83	31	9	0	0	178
SSW	65	114	37	10	0	0	226
SW	108	143	36	1	0	0	288
WSW	90	97	20	2	0	0	209
W	79	98	20	1	0	0	198
WNW	49	43	5	0	0	0	97
NW	38	41	13	4	0	0	96
NNW	24	19	10	5	1	0	59
Total	639	955	428	154	8	0	2184
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		2184		
Total Hours for the Period:					2184		

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	10	14	4	10	0	0	38
NNE	10	22	5	23	2	0	62
NE	5	10	14	16	0	0	45
ENE	2	13	11	0	0	0	26
E	2	4	4	0	0	0	10
ESE	0	1	0	0	0	0	1
SE	0	1	1	0	0	0	2
SSE	0	3	2	0	0	0	5
S	1	11	7	8	0	0	27
SSW	0	21	10	2	0	0	33
SW	5	42	4	0	0	0	51
WSW	8	64	12	0	0	0	84
W	8	37	13	0	0	0	58
WNW	5	24	2	0	0	0	31
NW	7	26	12	1	0	0	46
NNW	10	18	17	4	1	0	50
Total	73	311	118	64	3	0	569

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	569
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	7	5	9	1	0	23
NNE	3	3	2	9	2	0	19
NE	1	6	9	11	0	0	27
ENE	0	3	3	3	0	0	9
E	1	2	5	0	0	0	8
ESE	0	4	0	0	0	0	4
SE	1	3	2	0	0	0	6
SSE	0	4	2	0	0	0	6
S	1	4	3	3	0	0	11
SSW	2	11	2	1	0	0	16
SW	8	14	2	0	0	0	24
WSW	4	5	3	0	0	0	12
W	5	5	2	0	0	0	12
WNW	10	9	0	0	0	0	19
NW	3	3	1	0	0	0	7
NNW	4	1	6	3	0	0	14
Total	44	84	47	39	3	0	217

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	217
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period					All Hours
		04/01/2020 01:00 - 07/01/2020 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	C	Delta Temperature		Slightly Unstable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	4	5	9	4	0	0	22
NNE	2	3	8	7	0	0	20
NE	0	3	9	5	0	0	17
ENE	0	2	8	0	0	0	10
E	1	4	3	0	0	0	8
ESE	2	3	1	0	0	0	6
SE	0	3	2	0	0	0	5
SSE	0	8	3	2	0	0	13
S	1	9	2	4	0	0	16
SSW	3	9	0	1	0	0	13
SW	6	7	2	0	0	0	15
WSW	3	4	0	0	0	0	7
W	1	4	1	0	0	0	6
WNW	2	2	0	0	0	0	4
NW	3	8	2	0	0	0	13
NNW	2	2	4	1	0	0	9
Total	30	76	54	24	0	0	184
Calm Hours not Included above for:		Total Period			All Hours		0
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		21
Number of Valid Hours for this Table:		Total Period			All Hours		184
Total Hours for the Period:							2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	4	10	3	7	0	0	24
NNE	3	9	10	4	0	0	26
NE	4	8	18	0	0	0	30
ENE	4	15	5	0	0	0	24
E	2	31	10	0	0	0	43
ESE	4	13	3	0	0	0	20
SE	7	23	1	0	0	0	31
SSE	10	20	2	5	0	0	37
S	7	28	11	4	0	0	50
SSW	14	52	16	1	1	0	84
SW	21	41	2	0	0	0	64
WSW	23	37	2	0	0	0	62
W	18	29	8	0	0	0	55
WNW	15	5	0	0	0	0	20
NW	12	16	2	0	0	0	30
NNW	4	10	6	0	0	0	20
Total	152	347	99	21	1	0	620

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	620
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	3	3	0	1	0	0	7
NNE	2	4	0	0	0	0	6
NE	2	1	0	0	0	0	3
ENE	1	5	2	0	0	0	8
E	1	6	0	0	0	0	7
ESE	5	3	0	0	0	0	8
SE	10	13	1	0	0	0	24
SSE	13	13	0	0	0	0	26
S	16	27	0	0	0	0	43
SSW	23	48	0	0	0	0	71
SW	33	18	1	0	0	0	52
WSW	26	11	0	0	0	0	37
W	23	23	0	0	0	0	46
WNW	13	4	0	0	0	0	17
NW	6	2	0	0	0	0	8
NNW	0	2	1	0	0	0	3
Total	177	183	5	1	0	0	366

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	366
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	1	0	0	0	0	1
NNE	1	1	0	0	0	0	2
NE	2	0	0	0	0	0	2
ENE	3	1	0	0	0	0	4
E	0	1	1	0	0	0	2
ESE	1	0	0	0	0	0	1
SE	1	8	0	0	0	0	9
SSE	6	17	0	0	0	0	23
S	10	9	0	0	0	0	19
SSW	15	18	0	0	0	0	33
SW	10	2	0	0	0	0	12
WSW	10	1	0	0	0	0	11
W	11	0	0	0	0	0	11
WNW	14	1	0	0	0	0	15
NW	5	5	0	0	0	0	10
NNW	1	0	0	0	0	0	1
Total	90	65	1	0	0	0	156

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	156
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period**All Hours**

Period of Record = 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	4	4	0	0	0	0	8
S	6	0	0	0	0	0	6
SSW	7	1	0	0	0	0	8
SW	5	0	0	0	0	0	5
WSW	6	0	0	0	0	0	6
W	9	1	0	0	0	0	10
WNW	4	1	0	0	0	0	5
NW	3	0	0	0	0	0	3
NNW	0	0	0	0	0	0	0
Total	44	7	0	0	0	0	51

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	51
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 04/01/2020 01:00 - 07/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	22	40	21	31	1	0	115
NNE	21	42	25	43	4	0	135
NE	14	28	50	32	0	0	124
ENE	10	39	29	3	0	0	81
E	7	48	23	0	0	0	78
ESE	12	24	4	0	0	0	40
SE	19	51	7	0	0	0	77
SSE	33	69	9	7	0	0	118
S	42	88	23	19	0	0	172
SSW	64	160	28	5	1	0	258
SW	88	124	11	0	0	0	223
WSW	80	122	17	0	0	0	219
W	75	99	24	0	0	0	198
WNW	63	46	2	0	0	0	111
NW	39	60	17	1	0	0	117
NNW	21	33	34	8	1	0	97
Total	610	1073	324	149	7	0	2163

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	21
Number of Valid Hours for this Table:	Total Period	All Hours	2163
Total Hours for the Period:			2184

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	11	29	5	0	1	0	46
NNE	9	28	5	8	2	0	52
NE	4	31	33	30	0	0	98
ENE	0	10	16	0	0	0	26
E	0	7	7	1	0	0	15
ESE	0	2	3	0	0	0	5
SE	0	3	3	0	0	0	6
SSE	0	9	8	0	0	0	17
S	1	13	5	1	0	0	20
SSW	2	23	5	0	0	0	30
SW	9	59	3	0	0	0	71
WSW	21	64	4	0	0	0	89
W	15	22	1	0	0	0	38
WNW	8	8	0	0	0	0	16
NW	5	9	1	0	0	0	15
NNW	8	11	1	0	0	0	20
Total	93	328	100	40	3	0	564

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	564
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	6	12	8	2	2	0	30
NNE	2	12	10	8	5	0	37
NE	3	4	21	21	0	0	49
ENE	1	1	1	3	0	0	6
E	1	1	2	0	0	0	4
ESE	0	1	1	0	0	0	2
SE	0	4	4	0	0	0	8
SSE	1	6	4	1	0	0	12
S	0	8	2	0	0	0	10
SSW	1	14	3	0	0	0	18
SW	5	14	3	0	0	0	22
WSW	7	3	0	0	0	0	10
W	7	1	0	0	0	0	8
WNW	3	3	0	0	0	0	6
NW	4	4	0	0	0	0	8
NNW	1	3	4	0	0	0	8
Total	42	91	63	35	7	0	238

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	238
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	9	10	0	0	0	20
NNE	2	12	20	9	1	0	44
NE	0	8	39	15	0	0	62
ENE	0	8	29	2	0	0	39
E	0	7	2	0	0	0	9
ESE	2	2	0	0	0	0	4
SE	2	2	0	0	0	0	4
SSE	3	9	1	0	0	0	13
S	4	14	1	0	0	0	19
SSW	1	12	0	0	0	0	13
SW	3	5	1	0	0	0	9
WSW	11	5	0	0	0	0	16
W	4	0	0	0	0	0	4
WNW	3	0	0	0	0	0	3
NW	0	3	0	0	0	0	3
NNW	3	4	1	1	0	0	9
Total	39	100	104	27	1	0	271

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	271
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	8	6	2	0	0	0	16
NNE	4	14	9	5	0	0	32
NE	3	21	19	0	0	0	43
ENE	4	26	25	3	0	0	58
E	5	20	13	2	0	0	40
ESE	7	13	0	0	0	0	20
SE	7	20	1	0	0	0	28
SSE	14	40	5	0	0	0	59
S	12	24	1	0	0	0	37
SSW	35	38	6	0	0	0	79
SW	27	36	1	0	0	0	64
WSW	28	7	0	0	0	0	35
W	11	4	0	0	0	0	15
WNW	11	6	0	0	0	0	17
NW	6	9	2	0	0	0	17
NNW	3	6	1	0	0	0	10
Total	185	290	85	10	0	0	570

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	570
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	1	2	1	0	0	4
NNE	1	1	1	0	0	0	3
NE	1	1	0	0	0	0	2
ENE	1	5	1	0	0	0	7
E	6	5	0	0	0	0	11
ESE	4	5	0	0	0	0	9
SE	14	25	0	0	0	0	39
SSE	29	43	0	0	0	0	72
S	26	20	0	0	0	0	46
SSW	33	28	0	0	0	0	61
SW	61	6	0	0	0	0	67
WSW	39	8	0	0	0	0	47
W	25	5	0	0	0	0	30
WNW	17	2	0	0	0	0	19
NW	14	0	0	0	0	0	14
NNW	3	1	0	0	0	0	4
Total	274	156	4	1	0	0	435

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	435
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** 07/01/2020 01:00 - 10/01/2020 00:00 **All Hours**

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	6	0	0	0	0	6
SSE	9	6	0	0	0	0	15
S	14	2	0	0	0	0	16
SSW	12	4	0	0	0	0	16
SW	23	3	0	0	0	0	26
WSW	6	0	0	0	0	0	6
W	4	0	0	0	0	0	4
WNW	6	0	0	0	0	0	6
NW	6	0	0	0	0	0	6
NNW	1	0	0	0	0	0	1
Total	84	21	0	0	0	0	105

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	105
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	0	0	0	0	1
SSW	1	1	0	0	0	0	2
SW	9	0	0	0	0	0	9
WSW	8	0	0	0	0	0	8
W	3	0	0	0	0	0	3
WNW	2	0	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	23	2	0	0	0	0	25

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	25
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/01/2020 01:00 - 10/01/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	27	57	27	3	3	0	117
NNE	18	67	45	30	8	0	168
NE	12	65	112	66	0	0	255
ENE	6	50	72	8	0	0	136
E	13	40	24	3	0	0	80
ESE	13	23	4	0	0	0	40
SE	23	60	8	0	0	0	91
SSE	56	113	18	1	0	0	188
S	57	82	9	1	0	0	149
SSW	85	120	14	0	0	0	219
SW	137	123	8	0	0	0	268
WSW	120	87	4	0	0	0	211
W	69	32	1	0	0	0	102
WNW	50	19	0	0	0	0	69
NW	35	25	3	0	0	0	63
NNW	19	25	7	1	0	0	52
Total	740	988	356	113	11	0	2208

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 10/01/2020 01:00 - 01/01/2021 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	7	14	4	1	0	0	26
NNE	3	14	7	9	0	0	33
NE	0	14	19	2	0	0	35
ENE	0	13	5	0	0	0	18
E	0	3	2	0	0	0	5
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
SSE	0	0	1	0	0	0	1
S	0	4	0	0	0	0	4
SSW	1	4	0	0	0	0	5
SW	1	15	5	1	0	0	22
WSW	5	14	7	0	0	0	26
W	11	15	7	0	0	0	33
WNW	9	10	0	0	0	0	19
NW	11	19	1	0	0	0	31
NNW	4	11	3	0	0	0	18
Total	52	151	61	13	0	0	277

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	17
Number of Valid Hours for this Table:	Total Period	All Hours	277
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 10/01/2020 01:00 - 01/01/2021 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	2	11	8	5	0	0	26
NNE	0	10	15	19	1	0	45
NE	1	8	14	10	0	0	33
ENE	1	8	9	2	0	0	20
E	0	2	5	0	0	0	7
ESE	1	4	0	0	0	0	5
SE	0	1	1	0	0	0	2
SSE	0	2	1	0	0	0	3
S	1	1	0	0	0	0	2
SSW	3	2	0	0	0	0	5
SW	0	6	2	0	0	0	8
WSW	8	1	2	0	0	0	11
W	3	2	1	0	0	0	6
WNW	1	0	0	0	0	0	1
NW	5	1	0	1	0	0	7
NNW	3	4	3	4	1	0	15
Total	29	63	61	41	2	0	196

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	17
Number of Valid Hours for this Table:	Total Period	All Hours	196
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period			All Hours		
		10/01/2020 01:00 - 01/01/2021 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	D	Delta Temperature	Neutral				
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	11	14	4	0	1	0	30
NNE	4	26	9	1	0	0	40
NE	3	31	38	2	0	0	74
ENE	2	21	63	1	0	0	87
E	7	42	16	0	0	0	65
ESE	1	23	2	0	0	0	26
SE	6	28	7	0	0	0	41
SSE	8	33	9	0	0	0	50
S	5	16	12	5	2	0	40
SSW	18	18	8	3	2	0	49
SW	17	9	3	0	0	0	29
WSW	17	19	8	0	0	0	44
W	18	34	9	0	0	0	61
WNW	20	3	0	0	0	0	23
NW	6	5	2	0	0	0	13
NNW	6	7	10	1	0	0	24
Total	149	329	200	13	5	0	696
Calm Hours not Included above for:		Total Period		All Hours		1	
Variable Direction Hours for:		Total Period		All Hours		0	
Invalid Hours for:		Total Period		All Hours		17	
Number of Valid Hours for this Table:		Total Period		All Hours		696	
Total Hours for the Period:						2208	

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period							All Hours
Period of Record =		10/01/2020 01:00 - 01/01/2021 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	E	Delta Temperature		Slightly Stable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	8	2	4	1	0	0	15
NNE	2	11	1	0	0	0	14
NE	5	1	3	0	0	0	9
ENE	5	3	2	0	0	0	10
E	3	22	1	0	0	0	26
ESE	5	6	0	0	0	0	11
SE	8	22	2	0	0	0	32
SSE	22	11	2	0	0	0	35
S	8	13	0	0	0	0	21
SSW	21	11	0	0	0	0	32
SW	19	3	0	0	0	0	22
WSW	25	7	0	0	0	0	32
W	21	10	1	0	0	0	32
WNW	12	2	0	0	0	0	14
NW	8	9	0	0	0	0	17
NNW	4	0	0	0	0	0	4
Total	176	133	16	1	0	0	326
Calm Hours not Included above for:		Total Period			All Hours		1
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		17
Number of Valid Hours for this Table:		Total Period			All Hours		326
Total Hours for the Period:							2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** 10/01/2020 01:00 - 01/01/2021 00:00 **All Hours**

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	1	0	0	0	0	2
NNE	2	3	0	0	0	0	5
NE	1	2	0	0	0	0	3
ENE	2	0	0	0	0	0	2
E	5	0	0	0	0	0	5
ESE	3	0	0	0	0	0	3
SE	9	12	0	0	0	0	21
SSE	21	13	0	0	0	0	34
S	26	13	0	0	0	0	39
SSW	13	4	0	0	0	0	17
SW	23	2	0	0	0	0	25
WSW	26	4	0	0	0	0	30
W	9	3	0	0	0	0	12
WNW	12	0	0	0	0	0	12
NW	4	2	0	0	0	0	6
NNW	4	1	0	0	0	0	5
Total	161	60	0	0	0	0	221

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	17
Number of Valid Hours for this Table:	Total Period	All Hours	221
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 10/01/2020 01:00 - 01/01/2021 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	2	0	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	1
SE	1	1	0	0	0	0	2
SSE	5	6	0	0	0	0	11
S	17	5	0	0	0	0	22
SSW	21	3	0	0	0	0	24
SW	46	2	0	0	0	0	48
WSW	53	1	0	0	0	0	54
W	35	0	0	0	0	0	35
WNW	8	0	0	0	0	0	8
NW	3	0	0	0	0	0	3
NNW	1	0	0	0	0	0	1
Total	195	18	0	0	0	0	213

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	17
Number of Valid Hours for this Table:	Total Period	All Hours	213
Total Hours for the Period:			2208

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 10/01/2020 01:00 - 01/01/2021 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	34	48	24	10	1	0	117
NNE	13	72	48	34	1	0	168
NE	13	67	109	17	0	0	206
ENE	11	51	117	7	0	0	186
E	16	72	31	0	0	0	119
ESE	11	38	4	0	0	0	53
SE	26	77	12	0	0	0	115
SSE	57	73	14	0	0	0	144
S	58	61	14	6	2	0	141
SSW	79	49	10	3	2	0	143
SW	108	41	10	1	0	0	160
WSW	137	48	19	0	0	0	204
W	103	64	19	0	0	0	186
WNW	66	16	0	0	0	0	82
NW	40	42	5	2	0	0	89
NNW	26	24	18	8	1	0	77
Total	798	843	454	88	7	0	2190
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours				
Variable Direction Hours for:	Total Period		All Hours				
Invalid Hours for:	Total Period		All Hours				
Number of Valid Hours for this Table:	Total Period		All Hours				
Total Hours for the Period:							

Annual Summary

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 01/01/2021 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	28	59	15	14	2	0	118
NNE	22	64	18	61	5	0	170
NE	9	55	67	52	0	0	183
ENE	2	36	33	1	0	0	72
E	2	14	15	1	0	0	32
ESE	0	3	3	0	0	0	6
SE	0	6	4	0	0	0	10
SSE	0	12	11	0	0	0	23
S	3	30	14	9	0	0	56
SSW	3	57	19	2	0	0	81
SW	20	141	31	1	0	0	193
WSW	35	158	33	0	0	0	226
W	39	96	25	1	0	0	161
WNW	27	59	5	0	0	0	91
NW	23	59	21	1	0	0	104
NNW	23	41	21	5	1	0	91
Total	236	890	335	148	8	0	1617

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	38
Number of Valid Hours for this Table:	Total Period	All Hours	1617
Total Hours for the Period:			8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 01/01/2021 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	10	32	27	27	4	0	100
NNE	7	26	38	65	8	0	144
NE	6	21	52	52	0	0	131
ENE	2	13	17	15	0	0	47
E	2	7	13	0	0	0	22
ESE	1	9	4	0	0	0	14
SE	1	8	8	0	0	0	17
SSE	2	12	11	1	0	0	26
S	2	23	7	3	0	0	35
SSW	7	29	6	1	0	0	43
SW	18	41	9	0	0	0	68
WSW	21	12	9	0	0	0	42
W	17	12	10	0	0	0	39
WNW	17	17	0	0	0	0	34
NW	13	13	1	3	0	0	30
NNW	8	8	14	10	1	0	41
Total	134	283	226	177	13	0	833

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	38
Number of Valid Hours for this Table:	Total Period	All Hours	833
Total Hours for the Period:			8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period					All Hours
		01/01/2020 01:00 - 01/01/2021 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	C	Delta Temperature		Slightly Unstable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	11	22	29	8	0	0	70
NNE	5	34	66	25	2	0	132
NE	7	31	111	35	1	0	185
ENE	0	24	107	8	0	0	139
E	2	22	30	0	0	0	54
ESE	4	13	4	0	0	0	21
SE	5	20	7	0	0	0	32
SSE	8	31	6	2	0	0	47
S	9	37	8	6	0	0	60
SSW	9	35	3	1	0	0	48
SW	16	29	7	0	0	0	52
WSW	18	17	3	0	0	0	38
W	13	10	2	0	0	0	25
WNW	13	4	0	0	0	0	17
NW	13	22	5	2	0	0	42
NNW	11	9	8	5	1	0	34
Total	144	360	396	92	4	0	996
Calm Hours not Included above for:		Total Period			All Hours		1
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		38
Number of Valid Hours for this Table:		Total Period			All Hours		996
Total Hours for the Period:							8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 01/01/2020 01:00 - 01/01/2021 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	26	45	19	9	1	0	100
NNE	17	67	31	18	2	0	135
NE	14	71	92	8	0	0	185
ENE	14	89	120	4	0	0	227
E	19	133	60	2	0	0	214
ESE	14	76	6	0	0	0	96
SE	24	98	12	0	0	0	134
SSE	47	106	30	6	0	0	189
S	41	102	45	16	2	0	206
SSW	81	156	59	14	3	0	313
SW	90	139	17	1	0	0	247
WSW	85	108	15	2	0	0	210
W	67	97	26	0	0	0	190
WNW	60	27	2	0	0	0	89
NW	38	49	10	1	0	0	98
NNW	21	35	23	2	0	0	81
Total	658	1398	567	83	8	0	2714
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Calm Hours not Included above for:	Total Period			All Hours			1
Variable Direction Hours for:	Total Period			All Hours			0
Invalid Hours for:	Total Period			All Hours			38
Number of Valid Hours for this Table:	Total Period			All Hours			2714
Total Hours for the Period:							8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period							All Hours
Period of Record =		01/01/2020 01:00 - 01/01/2021 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	E	Delta Temperature		Slightly Stable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	16	10	7	3	0	0	36
NNE	7	26	3	0	0	0	36
NE	12	8	3	0	0	0	23
ENE	12	16	5	0	0	0	33
E	17	37	2	0	0	0	56
ESE	19	20	0	0	0	0	39
SE	38	73	4	0	0	0	115
SSE	75	79	2	0	0	0	156
S	64	82	3	1	0	0	150
SSW	109	134	2	0	0	0	245
SW	156	70	1	0	0	0	227
WSW	136	45	0	0	0	0	181
W	104	71	1	0	0	0	176
WNW	59	13	0	0	0	0	72
NW	41	17	1	0	0	0	59
NNW	16	7	3	0	0	0	26
Total	881	708	37	4	0	0	1630
Calm Hours not Included above for:		Total Period			All Hours		1
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		38
Number of Valid Hours for this Table:		Total Period			All Hours		1630
Total Hours for the Period:							8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period					All Hours
		01/01/2020 01:00 - 01/01/2021 00:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	F	Delta Temperature		Moderately Stable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	4	3	0	0	0	0	7
NNE	6	4	0	0	0	0	10
NE	7	3	0	0	0	0	10
ENE	5	1	0	0	0	0	6
E	6	1	1	0	0	0	8
ESE	6	0	0	0	0	0	6
SE	11	30	0	0	0	0	41
SSE	39	45	0	0	0	0	84
S	56	31	0	0	0	0	87
SSW	48	27	0	0	0	0	75
SW	70	8	0	0	0	0	78
WSW	53	11	0	0	0	0	64
W	31	5	0	0	0	0	36
WNW	35	3	0	0	0	0	38
NW	18	8	0	0	0	0	26
NNW	9	1	0	0	0	0	10
Total	404	181	1	0	0	0	586
Calm Hours not Included above for:		Total Period			All Hours		1
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		38
Number of Valid Hours for this Table:		Total Period			All Hours		586
Total Hours for the Period:							8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 01/01/2020 01:00 - 01/01/2021 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	1	0	0	0	0	0	1
NNE	2	0	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	1	0	0	0	0	0	1
ESE	1	0	0	0	0	0	1
SE	3	1	0	0	0	0	4
SSE	17	15	0	0	0	0	32
S	37	9	0	0	0	0	46
SSW	36	5	0	0	0	0	41
SW	71	3	0	0	0	0	74
WSW	79	3	0	0	0	0	82
W	55	2	0	0	0	0	57
WNW	17	1	0	0	0	0	18
NW	6	0	0	0	0	0	6
NNW	2	0	0	0	0	0	2
Total	330	39	0	0	0	0	369

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	38
Number of Valid Hours for this Table:	Total Period	All Hours	369
Total Hours for the Period:			8784

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** 01/01/2020 01:00 - 01/01/2021 00:00 **All Hours**

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	96	171	97	61	7	0	432
NNE	66	221	156	169	17	0	629
NE	56	189	325	147	1	0	718
ENE	36	179	282	28	0	0	525
E	49	214	121	3	0	0	387
ESE	45	121	17	0	0	0	183
SE	82	236	35	0	0	0	353
SSE	188	300	60	9	0	0	557
S	212	314	77	35	2	0	640
SSW	293	443	89	18	3	0	846
SW	441	431	65	2	0	0	939
WSW	427	354	60	2	0	0	843
W	326	293	64	1	0	0	684
WNW	228	124	7	0	0	0	359
NW	152	168	38	7	0	0	365
NNW	90	101	69	22	3	0	285
Total	2787	3859	1562	504	33	0	8745

Calm Hours not Included above for:	Total Period	All Hours	1
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	38
Number of Valid Hours for this Table:	Total Period	All Hours	8745
Total Hours for the Period:			8784

WGDT Batch Release Periods

07/15/20 23:50 - 03:08

07/16/20 23:25 - 23:38

07/17/20 12:53 - 16:27

07/23/20 17:17 - 21:17

09/04/20 11:21 - 13:34

09/05/20 13:33 - 17:07

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
<hr/>							
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period				All Hours	
		07/15/2020 23:00 - 07/16/2020 04:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	C	Delta Temperature		Slightly Unstable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Calm Hours not Included above for:		Total Period			All Hours		0
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		0
Number of Valid Hours for this Table:		Total Period			All Hours		0
Total Hours for the Period:							6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	3	1	0	0	0	4
S	1	0	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	3	1	0	0	0	5
Calm Hours not Included above for:	Total Period		All Hours				
Variable Direction Hours for:	Total Period		All Hours				
Invalid Hours for:	Total Period		All Hours				
Number of Valid Hours for this Table:	Total Period		All Hours				
Total Hours for the Period:							

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		0		
Total Hours for the Period:					6		

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/15/2020 23:00 - 07/16/2020 04:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	4	1	0	0	0	5
S	1	0	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	4	1	0	0	0	6

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	6
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period**All Hours**

Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: E Delta Temperature Slightly Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	2	0	0	0	0	2
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	2

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

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

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period				All Hours			
Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00							
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	G	Delta Temperature		Extremely Stable			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Calm Hours not Included above for:		Total Period			All Hours		0
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		0
Number of Valid Hours for this Table:		Total Period			All Hours		0
Total Hours for the Period:							2

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 07/16/2020 23:00 - 07/17/2020 00:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	2	0	0	0	0	2
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	2

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

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
Total	2	4	0	0	0	0	6

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	6
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		0		
Total Hours for the Period:					6		

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		0		
Total Hours for the Period:					6		

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/17/2020 12:00 - 07/17/2020 17:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
Total	2	4	0	0	0	0	6

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	6
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: E Delta Temperature Slightly Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		1		
Total Hours for the Period:					6		

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 07/23/2020 17:00 - 07/23/2020 22:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	3	1	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	2	3	1	0	0	0	6

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	6
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	1	0	0	0	0	1
WNW	0	1	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	3	0	0	0	0	4
<hr/>							
Calm Hours not Included above for:	Total Period			All Hours			0
Variable Direction Hours for:	Total Period			All Hours			0
Invalid Hours for:	Total Period			All Hours			0
Number of Valid Hours for this Table:	Total Period			All Hours			4
Total Hours for the Period:							4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record =		Total Period					All Hours
		09/04/2020 11:00 - 09/04/2020 14:00					
Elevation:	Speed:	SP10T1	Direction:	DR10T1	Lapse:	DT61T1	
Stability Class:	D	Delta Temperature		Neutral			
Wind Speed (mph)							
Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Calm Hours not Included above for:		Total Period			All Hours		0
Variable Direction Hours for:		Total Period			All Hours		0
Invalid Hours for:		Total Period			All Hours		0
Number of Valid Hours for this Table:		Total Period			All Hours		0
Total Hours for the Period:							4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: E Delta Temperature Slightly Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			4

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
Period of Record = 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

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

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			4

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 09/04/2020 11:00 - 09/04/2020 14:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: ALL Delta Temperature

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	1	0	0	0	0	1
WNW	0	1	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	3	0	0	0	0	4
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours				
Variable Direction Hours for:	Total Period		All Hours				
Invalid Hours for:	Total Period		All Hours				
Number of Valid Hours for this Table:	Total Period		All Hours				
Total Hours for the Period:							

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: A Delta Temperature Extremely Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	1	0	0	0	1
NE	0	0	2	1	0	0	3
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	3	1	0	0	4

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	4
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: B Delta Temperature Moderately Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: C Delta Temperature Slightly Unstable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	1
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Period of Record = **Total Period** **All Hours**
 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: D Delta Temperature Neutral

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period**All Hours**

Period of Record =

09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: E Delta Temperature Slightly Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
<hr/>							
Calm Hours not Included above for:	Total Period		All Hours		0		
Variable Direction Hours for:	Total Period		All Hours		0		
Invalid Hours for:	Total Period		All Hours		0		
Number of Valid Hours for this Table:	Total Period		All Hours		0		
Total Hours for the Period:					6		

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period**All Hours**

Period of Record =

09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: F Delta Temperature Moderately Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution

Hours at Each Wind Speed and Direction

Total Period **All Hours**
 Period of Record = 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: Speed: SP10T1 Direction: DR10T1 Lapse: DT61T1

Stability Class: G Delta Temperature Extremely Stable

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	0
Total Hours for the Period:			6

Joint Frequency Distribution**Hours at Each Wind Speed and Direction**

Period of Record = **Total Period** **All Hours**
 09/05/2020 13:00 - 09/05/2020 18:00

Elevation: **Speed:** SP10T1 **Direction:** DR10T1 **Lapse:** DT61T1

Stability Class: ALL **Delta Temperature**

Wind Speed (mph)

Wind Direction	0.8-3.9	4.0-7.9	8.0-12.9	13.0-18.9	19.0-23.9	> 24.0	Total
N	0	0	0	0	0	0	0
NNE	0	0	2	0	0	0	2
NE	0	0	3	1	0	0	4
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	5	1	0	0	6

Calm Hours not Included above for:	Total Period	All Hours	0
Variable Direction Hours for:	Total Period	All Hours	0
Invalid Hours for:	Total Period	All Hours	0
Number of Valid Hours for this Table:	Total Period	All Hours	6
Total Hours for the Period:			6