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March 1, 1989

U.S. Nuclear Regulatory Commission
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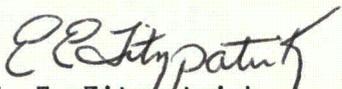
Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Effluent Release Report

Attached is a copy of the Oyster Creek Effluent Release report for the period covering July 1988 through December 1988. This submittal is made in accordance with 10CFR50.36a(a)2 and our Operating License and Technical Specifications.

If you have any questions, please do not hesitate to contact Brenda DeMerchant, Oyster Creek Licensing Engineer at (609) 971-4642.

Very truly yours,


E. E. Fitzpatrick
Vice President and Director
Oyster Creek

EEF/BD/aa
(0705A:47)
Att.

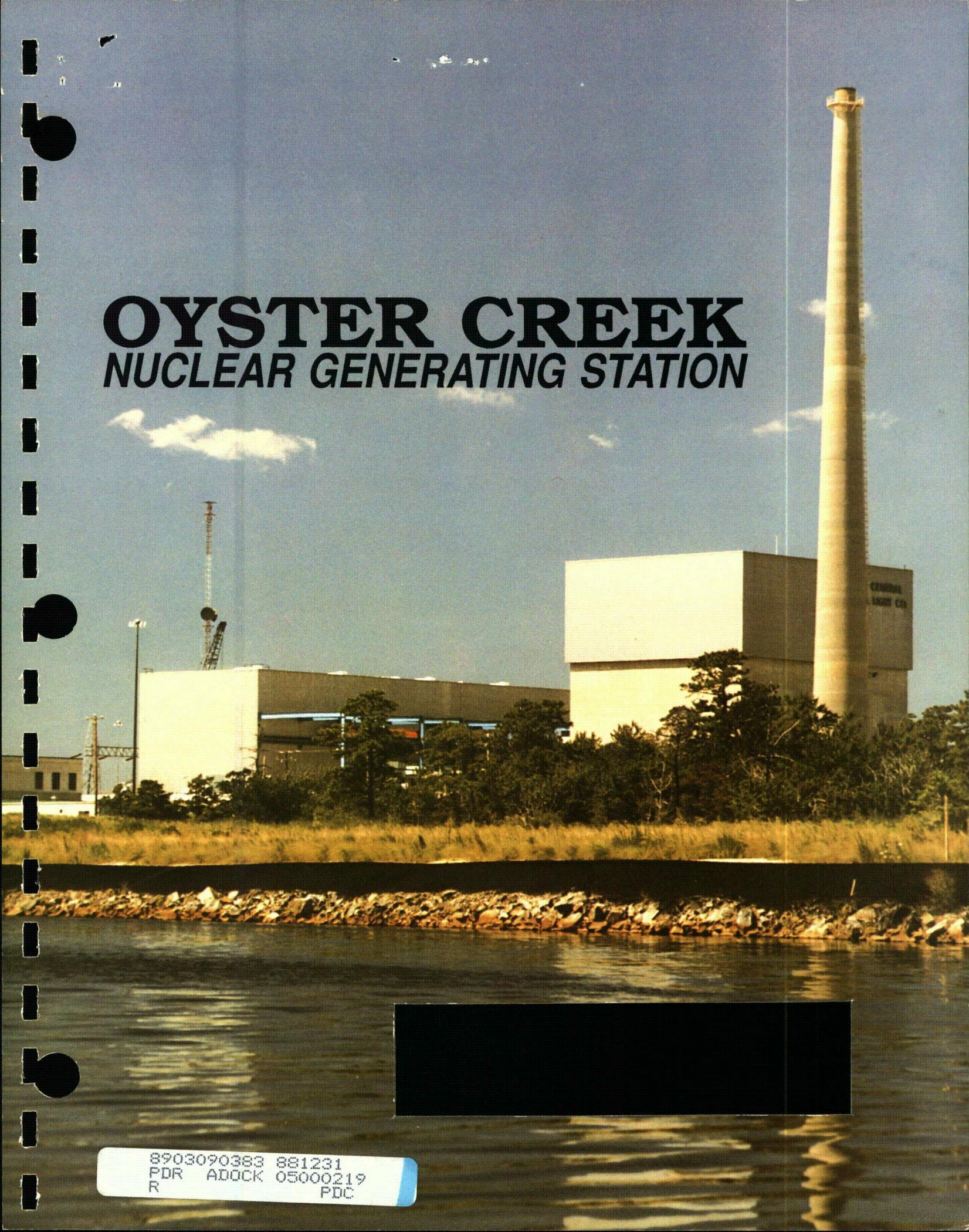
cc: NRC Resident Inspector

Chief
Bureau of Nuclear Engineering
N.J. Department of Environmental Protection
CN 411
Trenton, N.J. 08623

Mr. William T. Russell, Administrator
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OYSTER CREEK NUCLEAR GENERATING STATION



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OYSTER CREEK NUCLEAR GENERATING STATION Forked River, New Jersey

The 650 MW plant is a single-unit, five-loop General Electric Boiling Water Reactor (BWR). The site, about 800 acres, is in Lacey and Ocean Townships of Ocean County. Located approximately nine miles south of Toms River, it is about 50 miles east of Philadelphia, and 60 miles south of Newark.

Construction began in December 1963. The station began commercial operation on December 23, 1969, and at that time was the largest nuclear facility in the United States solely financed by a private company.

The Reactor Building, Turbine Building and Ventilation Stack are the most prominent structures at the site. The Reactor Building stands approximately 150 feet high with 42 feet extending below grade. The Reactor Building serves as a secondary containment and houses the primary containment (drywell), the reactor vessel and its auxiliary systems which comprise the Nuclear Steam Supply System. The drywell, which houses the reactor vessel, is constructed of high-density reinforced concrete with an inner steel liner measuring 120 feet high and 70 feet in diameter.

The reactor vessel is 63 feet high and 18 feet in diameter. The 652-ton reactor contains 560 fuel assemblies, each with 62 fuel rods that are 12 feet long, and 137 control rods. The reactor operates at a nominal pressure of 1,020 pounds per square inch and an average temperature of 540 degrees Fahrenheit.

The Turbine Building houses the turbine-generator, control room, main condensers, power conversion equipment and auxiliary systems. The turbine-generator consists of one high-pressure turbine, three low-pressure turbines, a generator and an exciter. The turbines and generator turn at 1,800 revolutions per minute to generate three-phase, 60-cycle electricity at 24,000 volts. The electricity generated is provided to the grid by two transformers which boost the voltage to 230,000 volts.

Steam is supplied to the high pressure turbine from the reactor. After being used to drive the turbines and generator, the steam is condensed in the main condensers and returned to the reactor vessel in the form of water through the condensate and feedwater pumps.

The main condensers consist of three horizontal, single pass, divided water boxes containing 44,000 tubes having a total length of about 1,875,000 feet. Cooling water is provided from Barnegat Bay, through the South Branch of the Forked River and passes through the condensers and discharges into Oyster Creek for return to Barnegat Bay. The water is pumped by four 1,000-horsepower pumps, each of which moves about 115,000 gallons per minute through the 6-foot-diameter pipes that feed the condensers.

The ventilation stack is 368 feet high with 26 feet extending below grade. The stack provides ventilation for the Reactor Building, Turbine Building and Radwaste Facilities.

Oyster Creek is owned by Jersey Central Power & Light (JCP&L) Company and operated by GPU Nuclear (GPUN) Corporation. JCP&L and GPUN are units of the GPU System.



OYSTER CREEK
NUCLEAR GENERATING STATION

*prepared by
Radiological Engineering Dept
Oyster Creek*

*1988-2
SemiAnnual Effluent
Release Report*

Executive Summary

The Semiannual Effluent Release Report is submitted to the United States Nuclear Regulatory Commission (NRC) every six months in accordance with the Oyster Creek Nuclear Generating Station (OCNGS) Technical Specifications. It summarizes the radioactive liquid and gaseous effluents released and solid radioactive wastes shipped from the OCNGS. In addition, meteorological data are presented in joint frequency tables per atmospheric stability class.

For clarity, the report is organized into three parts. Section I itemizes gaseous releases of 941 curies of fission and activation gases, 0.139 curies of non-particulate halogens, 8.03 curies of tritium, and 0.004 curies of particulate radioactivity. In addition, 0.022 curies of fission and activation products, .00097 curies of noble gases, and 16.15 curies of tritium were released in 64 batch liquid releases. Section I also itemizes 448.42 curies of radioactivity, contained in 96.7 cubic meters of waste, which was shipped offsite in 25 shipments. These releases are similar to or less than releases of nuclear plants of comparable type, age, and size. The report summarizes the fact that all effluents released were within the federal regulatory requirements of OCNGS Technical Specifications.

Section II provides a summary of Oyster Creek's meteorological data for the reporting period in tabular form.

Section III provides a detailed listing of all changes made to the Offsite Dose Calculation Manual and the Process Control Plan during the reporting period. Two changes were made to the Process Control Plan. There were no changes to the Offsite Dose Calculation Manual.

Section IV reports any effluent monitoring instrumentation that was inoperative as per Technical Specification 3.15 for the reporting period.

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**EFFLUENT AND WASTE DISPOSAL
SUPPLEMENTAL INFORMATION**

FACILITY: Oyster Creek Nuclear Generating Station

LICENSEE: Owner - Jersey Central Power & Light Company
Operator - GPU Nuclear Corporation

1. Regulatory Limits

a. Fission and Activation Gases

Technical Specification 3.6.E.1

The gross radioactivity in noble gases discharged from the main condenser air ejector shall not exceed a 0.21/E Ci/sec after the holdup line where E is the average gamma energy (Mev per atomic transformation).

Technical Specification 3.6.K.1

The dose equivalent rate outside of the EXCLUSION AREA due to radioactive noble gas in gaseous effluent shall not exceed 500 mrem/year to the total body or 3000 mrem/year to the skin.

Technical Specification 3.6.L.1

The air dose outside of the EXCLUSION AREA due to noble gas released in gaseous effluent shall not exceed:

*5 mrad/calendar quarter due to gamma radiation,
10 mrad/calendar quarter due to beta radiation,
10 mrad/calendar year due to gamma radiation, or
20 mrad/calendar year due to beta radiation*

Technical Specification 3.6.N.1

The annual dose to a MEMBER OF THE PUBLIC due to radiation and radioactive material in effluents from the OCNCS outside of the EXCLUSION AREA shall not exceed 75 mrem to his thyroid or 25 mrem to his total body or to any other organ.

b. Iodines and Particulates

Technical Specification 3.6.K.2

The dose equivalent rate outside of the EXCLUSION AREA due to H-3, I-131, I-133, and to radioactive material in particulates having half-lives of 8 days or more in gaseous effluents shall not exceed 1500 mrem/year to any body organ when the dose rate due to H-3, Sr-89, Sr-90, and alpha-emitting radionuclides is averaged over no more than 3 months and the dose rate due to other radionuclides is averaged over no more than 31 days.

Technical Specification 3.6.M.1

The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, and from radionuclides in particulate form having half-lives of 8 days or more in gaseous effluents, outside of the EXCLUSION AREA shall not exceed 7.5 mrem to any body organ per calendar quarter or 15 mrem to any body organ per calendar year.

c. Liquid Effluents:

Technical Specification 3.6.I.1

The concentration of radioactive material, other than noble gases, in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2.

Technical Specification 3.6.I.2

The concentration of noble gases dissolved or entrained in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed 2×10^{-4} microcuries/milliliter.

Technical Specification 3.6.J.1

The dose to a MEMBER OF THE PUBLIC due to radioactive material in liquid effluents beyond the outside of the EXCLUSION AREA shall not exceed:

*1.5 mrem to the total body during any calendar quarter,
5 mrem to any body organ during any calendar quarter,
3 mrem to the total body during any calendar year, or
10 mrem to any body organ during any calendar year.*

2. Maximum Permissible Concentrations (MPC)

a. Fission and Activation Gases:

Appendix B, Table II, Column 2, of 10CFR20

b. Iodines and Particulates:

Appendix B, Table II, Column 2, of 10CFR20

c. Liquid Effluents:

Appendix B, Table II, Column 2, of 10 CFR 20 except for dissolved or entrained noble gases where the limit is 2×10^{-4} uCi/ml

3. Measurements and Approximation of Total Radioactivity

a. Fission and Activation Gases:

1. Stack

The continuous recording of gross activity and the incorporation of isotopic data obtained from a weekly grab sample analyzed using gamma spectroscopy.

2. AOG Vent

The continuous recording of gross activity and the incorporation of isotopic data obtained from a monthly grab sample analyzed using gamma spectroscopy.

3. TB/FP Vent

A grab sample is obtained four times a week which is analyzed for isotopic activity using gamma spectroscopy.

b. Iodines

1. Stack

Filters are changed twice weekly and analyzed using gamma spectroscopy.

2. AOG Vent

Filters are changed twice weekly and analyzed using gamma spectroscopy.

3. TB/FP Vent

Filters are changed twice weekly and analyzed using gamma spectroscopy.

c. Particulates

1. Stack

Filters are changed twice weekly and analyzed using a low background internal proportional beta counter and gamma spectroscopy.

2. AOG Vent

Filters are changed twice weekly and analyzed using gamma spectroscopy.

3. TB/FP Vent

Filters are changed twice weekly and analyzed using gamma spectroscopy.

d. Liquid Effluents

Analysis per batch release using gamma ray spectrometry with a germanium detector, a low background beta counter, and a liquid scintillation counter.

Section I

Effluent Summaries

Gases, Liquids, and Solid Waste

Table 1
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Third Quarter Summary

| Gaseous Effluents | Nuclide | Elevated Release Curies Released |
|-------------------------------------|-----------------------------|---|
| <i>Fission and Activation Gases</i> | | |
| | Kr-85m | 6.75E+01 |
| | Kr-87 | 1.67E+02 |
| | Kr-88 | 1.87E+02 |
| | Xe-133 | 1.03E+02 |
| | Xe-135 | 3.52E+02 |
| | Xe-135m | 3.90E+01 |
| | Xe-138 | 2.57E+01 |
| | Total Released | 9.41E+02 |
| | Average Release Rate | 1.18E+02 uCi/sec |
| <i>Iodines</i> | | |
| | I-131 | 1.95E-02 |
| | I-133 | 6.57E-02 |
| | I-135 | 5.36E-02 |
| | Total Released | 1.39E-01 |
| | Average Release Rate | 1.75E-02 uCi/sec |
| <i>Particulates</i> | | |
| | Mn-54 | 8.12E-05 |
| | Sr-89 | 1.84E-03 |
| | Sr-90 | 1.85E-05 |
| | Tc-99m | 1.04E-03 |
| | Ba-140 | 5.60E-04 |
| | La-140 | 2.87E-04 |
| | Gross Alpha | 7.23E-06 |
| | Total Released | 3.83E-03 |
| | Average Release Rate | 4.81E-04 uCi/sec |
| <i>Tritium</i> | | |
| | H-3 | 8.03E+00 |
| | Total Released | 8.03E+00 |
| | Average Release Rate | 1.01E+00 uCi/sec |

Table 2
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Fourth Quarter Summary

| Gaseous Effluents | | Elevated Release |
|-------------------------------------|----------------------|------------------|
| <i>Fission and Activation Gases</i> | | |
| | Nuclide | Curies Released |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |
| <i>Iodines</i> | | |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |
| <i>Particulates</i> | | |
| | Co-60 | 1.43E-04 |
| | Gross Alpha | 2.51E-06 |
| | Total Released | 1.46E-04 |
| | Average Release Rate | 5.44E-05 uCi/sec |
| <i>Tritium</i> | | |
| | H-3 | < LLD |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |

Table 3
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Third Quarter Summary

| Gaseous Effluents | Nuclide | Ground Level Release Curies Released |
|-------------------------------------|----------------------|---|
| <i>Fission and Activation Gases</i> | | |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |
| <i>Iodines</i> | I-131 | 9.01E-06 |
| | I-133 | 4.77E-04 |
| | Total Released | 4.86E-04 |
| | Average Release Rate | 6.12E-05 uCi/sec |
| <i>Particulates</i> | Sr-89 | 8.96E-06 |
| | Total Released | 8.96E-06 |
| | Average Release Rate | 1.13E-06 uCi/sec |
| <i>Tritium</i> | H-3 | < LLD |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |

Table 4
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Fourth Quarter Summary

| Gaseous Effluents | Nuclide | Ground Level Release Curies Released |
|-------------------------------------|----------------------|---|
| <i>Fission and Activation Gases</i> | | |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |
| <i>Iodines</i> | I-131 | 1.44E-07 |
| | Total Released | 1.44E-07 |
| | Average Release Rate | 1.81E-08 uCi/sec |
| <i>Particulates</i> | | < LLD |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |
| <i>Tritium</i> | H-3 | < LLD |
| | Total Released | < LLD |
| | Average Release Rate | < LLD uCi/sec |

Table 5
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Third Quarter Summary

Liquid Effluents

| | Nuclide | Curies Released |
|--|-----------------------|-----------------|
| <i>Fission and Activation Products</i> | | |
| | Cr-51 | 1.27E-03 |
| | Co-60 | 3.77E-03 |
| | Sr-89 | 8.19E-04 |
| | Sr-90 | 1.29E-05 |
| | I-131 | 5.38E-05 |
| | Cs-134 | 1.33E-04 |
| | Cs-137 | 1.87E-03 |
| | La-140 | 1.07E-04 |
| | Total Released | 8.04E-03 |

Noble Gases

| | | |
|--|-----------------------|-----------------|
| | Xe-133 | 8.68E-04 |
| | Xe-135 | 1.04E-04 |
| | Total Released | 9.72E-04 |

Tritium

| | | |
|--|-----------------------|-----------------|
| | H-3 | 8.04E+00 |
| | Total Released | 8.04E+00 |

Gross Alpha

| | | |
|--|-----------------------|-----------------|
| | Total Released | < LLD |
|--|-----------------------|-----------------|

| | |
|---|-------------------------|
| Volume of Waste Released (Prior to Dilution) | 5.27E+05 gallons |
| Volume of Dilution Water Used | 3.07E+09 gallons |

Table 6
OYSTER CREEK NUCLEAR GENERATING STATION
1988-2 SemiAnnual Effluent Release Report
Fourth Quarter Summary

Liquid Effluents

| | Nuclide | Curies Released |
|--|-----------------------|-----------------|
| <i>Fission and Activation Products</i> | | |
| | Mn-54 | 6.62E-04 |
| | Co-58 | 1.18E-03 |
| | Co-60 | 9.90E-03 |
| | Sr-89 | 2.07E-05 |
| | Sr-90 | 7.88E-06 |
| | Cs-134 | 2.44E-04 |
| | Cs-137 | 2.09E-03 |
| | Total Released | 1.41E-02 |

Noble Gases

| | | |
|--|-----------------------|-------|
| | | < LLD |
| | Total Released | <LLD |

Tritium

| | | |
|--|-----------------------|----------|
| | H-3 | 8.11E+00 |
| | Total Released | 8.11E+00 |

Gross Alpha

| | | |
|--|-----------------------|----------|
| | Total Released | 1.58E-05 |
|--|-----------------------|----------|

| | |
|---|------------------|
| Volume of Waste Released (Prior to Dilution) | 6.73E+05 gallons |
| Volume of Dilution Water Used | 2.68E+09 gallons |

SOLID WASTE SHIPPED OFFSITE FOR DISPOSAL

| | | |
|----------|----|-----------|
| 1-Jul-88 | To | 31-Dec-88 |
|----------|----|-----------|

Waste Stream: Resins, Filters, Evaporator Bottoms

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 1512.8 | 42.8 | 1.14E+02 | 25% |
| B | 1276.1 | 36.1 | 2.94E+02 | 25% |
| C | 59.5 | 1.7 | 6.51E+00 | 25% |
| ALL | 2848.4 | 80.7 | 4.15E+02 | 25% |

Waste Stream: Dry Activated Waste

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 355.0 | 10.1 | 8.33E+00 | 25% |
| B | 0.0 | 0.0 | 0.00E+00 | 25% |
| C | 0.0 | 0.0 | 0.00E+00 | 25% |
| ALL | 355 | 10.1 | 8.33E+00 | 25% |

Waste Stream: Irradiated Components

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 0.0 | 0.0 | 0.00E+00 | 25% |
| B | 0.0 | 0.0 | 0.00E+00 | 25% |
| C | 0.0 | 0.0 | 0.00E+00 | 25% |
| ALL | 0 | 0.0 | 0.00E+00 | 25% |

Waste Stream: Other Waste

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 0.0 | 0.0 | 0.00E+00 | 25% |
| B | 177.5 | 5.0 | 1.90E+01 | 25% |
| C | 0.0 | 0.0 | 0.00E+00 | 25% |
| ALL | 177.5 | 5.0 | 1.90E+01 | 25% |

Waste Stream: Sum of All Four Categories

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 1867.8 | 52.9 | 1.22E+02 | 25% |
| B | 1453.6 | 41.2 | 3.13E+02 | 25% |
| C | 59.5 | 1.7 | 6.51E+00 | 25% |
| ALL | 3380.9 | 95.7 | 4.42E+02 | 25% |

Waste Stream: SEG (Dry Activated Waste)

| Waste Class | Cubic Feet | Cubic Meters | Curies Shipped | % Error (Curies) |
|-------------|------------|--------------|----------------|------------------|
| A | 36.6 | 1.0 | 6.42E+00 | 25% |

ESTIMATES of MAJOR NUCLIDES by WASTE CLASS and STREAM

1-Jul-88 To 31-Dec-88

Waste Stream: Resins, Filters, Evaporator Bottoms

| Waste Class | Nuclide Name | PerCent Abundance | Curies | Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|-------------|--------------|-------------------|----------|
| A | Fe-55 | 35.555% | 4.05E+01 | B | Cs-137 | 33.252% | 9.78E+01 |
| | Co-60 | 26.151% | 2.98E+01 | | Co-60 | 29.670% | 8.73E+01 |
| | H-3 | 11.921% | 1.36E+01 | | Cs-134 | 15.200% | 4.47E+01 |
| | Cr-51 | 6.586% | 7.50E+00 | | Fe-55 | 10.446% | 3.07E+01 |
| | Cs-137 | 6.055% | 6.90E+00 | | Cr-51 | 4.035% | 1.19E+01 |
| | Mn-54 | 4.017% | 4.57E+00 | | Mn-54 | 2.796% | 8.23E+00 |
| | Cs-134 | 3.215% | 3.66E+00 | | Co-58 | 2.556% | 7.52E+00 |
| | Co-58 | 1.748% | 1.99E+00 | | C-14 | 0.318% | 9.37E-01 |
| | I-131 | 1.589% | 1.81E+00 | | Ni-63 | 0.150% | 4.42E-01 |
| | C-14 | 0.789% | 8.99E-01 | | Sr-90 | 0.113% | 3.32E-01 |
| | Ni-63 | 0.321% | 3.65E-01 | | Pu-241 | 0.077% | 2.27E-01 |
| | Pu-241 | 0.210% | 2.40E-01 | | H-3 | 0.061% | 1.81E-01 |
| | Sr-90 | 0.071% | 8.08E-02 | | Ni-59 | 0.047% | 1.38E-01 |
| | Cm-242 | 0.003% | 3.98E-03 | | Cm-242 | 0.002% | 6.05E-03 |
| | Ni-59 | 0.000% | 0.00E+00 | | Nb-94 | 0.000% | 0.00E+00 |
| | Nb-94 | 0.000% | 0.00E+00 | | Tc-99 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 | | I-129 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 | | | | |

| Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|
| C | Co-60 | 69.074% | 4.49E+00 |
| | Fe-55 | 29.175% | 1.90E+00 |
| | Mn-54 | 1.024% | 6.66E-02 |
| | Ni-63 | 0.408% | 2.66E-02 |
| | Pu-241 | 0.236% | 1.54E-02 |
| | Cs-137 | 0.031% | 1.99E-03 |
| | Sr-90 | 0.004% | 2.82E-04 |
| | Cm-242 | 0.001% | 5.83E-05 |
| | Ni-59 | 0.000% | 0.00E+00 |
| | Nb-94 | 0.000% | 0.00E+00 |
| | H-3 | 0.000% | 0.00E+00 |
| | C-14 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 |

| Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|
| ALL | Co-60 | 29.322% | 1.22E+02 |
| | Cs-137 | 25.261% | 1.05E+02 |
| | Fe-55 | 17.636% | 7.31E+01 |
| | Cs-134 | 11.670% | 4.84E+01 |
| | Cr-51 | 4.672% | 1.94E+01 |
| | H-3 | 3.318% | 1.38E+01 |
| | Mn-54 | 3.104% | 1.29E+01 |
| | Co-58 | 2.294% | 9.51E+00 |
| | C-14 | 0.443% | 1.84E+00 |
| | Ni-63 | 0.201% | 8.34E-01 |
| | Pu-241 | 0.116% | 4.82E-01 |
| | Sr-90 | 0.100% | 4.13E-01 |
| | Ni-59 | 0.033% | 1.38E-01 |
| | Cm-242 | 0.002% | 1.01E-02 |
| | Nb-94 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 |

ESTIMATES of MAJOR NUCLIDES by WASTE CLASS and STREAM

1-Jul-88 To 31-Dec-88

Waste Stream: Dry Activated Waste

| Waste Class | Nuclide Name | PerCent Abundance | Curies | Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|-------------|--------------|-------------------|----------|
| A | Fe-55 | 46.577% | 3.88E+00 | All | Fe-55 | 46.577% | 3.88E+00 |
| | Co-60 | 30.167% | 2.51E+00 | | Co-60 | 30.167% | 2.51E+00 |
| | Cs-137 | 13.913% | 1.16E+00 | | Cs-137 | 13.913% | 1.16E+00 |
| | Cs-134 | 4.322% | 3.60E-01 | | Cs-134 | 4.322% | 3.60E-01 |
| | Mn-54 | 3.829% | 3.19E-01 | | Mn-54 | 3.829% | 3.19E-01 |
| | Cr-51 | 1.092% | 9.10E-02 | | Cr-51 | 1.092% | 9.10E-02 |
| | Sr-90 | 0.095% | 7.92E-03 | | Sr-90 | 0.095% | 7.92E-03 |
| | C-14 | 0.002% | 1.31E-04 | | C-14 | 0.002% | 1.31E-04 |
| | Ni-59 | 0.000% | 0.00E+00 | | Ni-59 | 0.000% | 0.00E+00 |
| | Ni-63 | 0.000% | 0.00E+00 | | Ni-63 | 0.000% | 0.00E+00 |
| | Nb-94 | 0.000% | 0.00E+00 | | Nb-94 | 0.000% | 0.00E+00 |
| | H-3 | 0.000% | 0.00E+00 | | H-3 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 | | Tc-99 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 | | I-129 | 0.000% | 0.00E+00 |
| | Pu-241 | 0.000% | 0.00E+00 | | Pu-241 | 0.000% | 0.00E+00 |
| | Cm-242 | 0.000% | 0.00E+00 | | Cm-242 | 0.000% | 0.00E+00 |

Waste Stream: Other Waste

| Waste Class | Nuclide Name | PerCent Abundance | Curies | Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|-------------|--------------|-------------------|----------|
| B | Cs-137 | 59.513% | 1.13E+01 | ALL | Co-60 | 59.513% | 1.13E+01 |
| | Cs-134 | 20.961% | 3.98E+00 | | Cs-137 | 20.961% | 3.98E+00 |
| | Co-60 | 14.641% | 2.78E+00 | | Fe-55 | 14.641% | 2.78E+00 |
| | Mn-54 | 2.449% | 4.65E-01 | | Cs-134 | 2.449% | 4.65E-01 |
| | Fe-55 | 1.785% | 3.39E-01 | | Cr-51 | 1.785% | 3.39E-01 |
| | Ni-63 | 0.218% | 4.14E-02 | | H-3 | 0.218% | 4.14E-02 |
| | C-14 | 0.071% | 1.35E-02 | | Mn-54 | 0.071% | 1.35E-02 |
| | Pu-241 | 0.061% | 1.15E-02 | | Co-58 | 0.061% | 1.15E-02 |
| | H-3 | 0.058% | 1.10E-02 | | C-14 | 0.058% | 1.10E-02 |
| | Sr-90 | 0.048% | 9.06E-03 | | Ni-63 | 0.048% | 9.06E-03 |
| | Cm-242 | 0.001% | 2.83E-04 | | Pu-241 | 0.001% | 2.83E-04 |
| | Ni-59 | 0.000% | 0.00E+00 | | Sr-90 | 0.000% | 0.00E+00 |
| | Nb-94 | 0.000% | 0.00E+00 | | Ni-59 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 | | Cm-242 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 | | Nb-94 | 0.000% | 0.00E+00 |

ESTIMATES of MAJOR NUCLIDES by WASTE CLASS and STREAM

1-Jul-88 To 31-Dec-88

Waste Stream: Sum of All Four Categories

| Waste Class | Nuclide Name | PerCent Abundance | Curies | Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|-------------|--------------|-------------------|----------|
| A | Fe-55 | 36.307% | 4.44E+01 | B | Cs-137 | 34.844% | 1.09E+02 |
| | Co-60 | 26.425% | 3.23E+01 | | Co-60 | 28.759% | 9.01E+01 |
| | H-3 | 11.108% | 1.36E+01 | | Cs-134 | 15.550% | 4.87E+01 |
| | Cr-51 | 6.211% | 7.59E+00 | | Fe-55 | 9.921% | 3.11E+01 |
| | Cs-137 | 6.591% | 8.05E+00 | | Cr-51 | 3.791% | 1.19E+01 |
| | Mn-54 | 4.004% | 4.89E+00 | | Mn-54 | 2.775% | 8.69E+00 |
| | Cs-134 | 3.290% | 4.02E+00 | | Co-58 | 2.401% | 7.52E+00 |
| | Co-58 | 1.629% | 1.99E+00 | | C-14 | 0.303% | 9.50E-01 |
| | I-131 | 1.481% | 1.81E+00 | | Ni-63 | 0.154% | 4.84E-01 |
| | C-14 | 0.736% | 8.99E-01 | | Sr-90 | 0.109% | 3.41E-01 |
| | Ni-63 | 0.299% | 3.65E-01 | | Pu-241 | 0.076% | 2.38E-01 |
| | Pu-241 | 0.196% | 2.40E-01 | | H-3 | 0.061% | 1.92E-01 |
| | Sr-90 | 0.073% | 8.88E-02 | | Ni-59 | 0.044% | 1.38E-01 |
| | Cm-242 | 0.003% | 3.98E-03 | | Cm-242 | 0.002% | 6.33E-03 |
| | Ni-59 | 0.000% | 0.00E+00 | | Nb-94 | 0.000% | 0.00E+00 |
| | Nb-94 | 0.000% | 0.00E+00 | | Tc-99 | 0.000% | 0.00E+00 |
| | Tc-99 | 0.000% | 0.00E+00 | | I-129 | 0.000% | 0.00E+00 |
| | I-129 | 0.000% | 0.00E+00 | | | | |

| Waste Class | Nuclide Name | PerCent Abundance | Curies | Waste Class | Nuclide Name | PerCent Abundance | Curies |
|-------------|--------------|-------------------|----------|-------------|--------------|-------------------|----------|
| C | Co-60 | 69.074% | 4.49E+00 | ALL | Co-60 | 28.707% | 1.27E+02 |
| | Fe-55 | 29.175% | 1.90E+00 | | Cs-137 | 26.519% | 1.17E+02 |
| | Mn-54 | 1.024% | 6.66E-02 | | Fe-55 | 17.500% | 7.73E+01 |
| | Ni-63 | 0.408% | 2.66E-02 | | Cs-134 | 11.931% | 5.27E+01 |
| | Pu-241 | 0.236% | 1.54E-02 | | Cr-51 | 4.404% | 1.95E+01 |
| | Cs-137 | 0.031% | 1.99E-03 | | H-3 | 3.115% | 1.38E+01 |
| | Sr-90 | 0.004% | 2.82E-04 | | Mn-54 | 3.089% | 1.37E+01 |
| | Cm-242 | 0.001% | 5.83E-05 | | Co-58 | 2.152% | 9.51E+00 |
| | Ni-59 | 0.000% | 0.00E+00 | | C-14 | 0.418% | 1.85E+00 |
| | Nb-94 | 0.000% | 0.00E+00 | | Ni-63 | 0.198% | 8.76E-01 |
| | H-3 | 0.000% | 0.00E+00 | | Pu-241 | 0.112% | 4.93E-01 |
| | C-14 | 0.000% | 0.00E+00 | | Sr-90 | 0.097% | 4.30E-01 |
| | Tc-99 | 0.000% | 0.00E+00 | | Ni-59 | 0.031% | 1.38E-01 |
| | I-129 | 0.000% | 0.00E+00 | | Cm-242 | 0.002% | 1.04E-02 |
| | | | | | Nb-94 | 0.000% | 0.00E+00 |
| | | | | | Tc-99 | 0.000% | 0.00E+00 |
| | | | | | I-129 | 0.000% | 0.00E+00 |

ESTIMATES of MAJOR NUCLIDES by WASTE CLASS and STREAM

1-Jul-88 To 31-Dec-88

Waste Stream: Dry Activated Waste (SEG)

| Nuclide Name | PerCent Abundance | Curies |
|--------------|-------------------|----------|
| Fe-55 | 45.100% | 2.90E+00 |
| Co-60 | 29.200% | 1.88E+00 |
| Cs-137 | 13.500% | 8.67E-01 |
| Cs-134 | 4.350% | 2.79E-01 |
| Mn-54 | 3.710% | 2.38E-01 |
| Cr-51 | 1.060% | 6.80E-02 |
| Co-58 | 0.940% | 6.00E-02 |
| La-140 | 0.590% | 3.90E-02 |
| Sr-89 | 0.470% | 3.00E-02 |
| NI-63 | 0.320% | 2.10E-02 |
| Zn-65 | 0.170% | 1.10E-02 |
| Fe-59 | 0.150% | 1.00E-02 |
| Sr-90 | 0.090% | 6.00E-03 |
| Ce-141 | 0.060% | 4.00E-03 |
| Ce-144 | 0.040% | 3.00E-03 |
| H-3 | 0.000% | 0.00E+00 |
| C-14 | 0.000% | 0.00E+00 |
| Cm-242 | 0.000% | 0.00E+00 |
| NI-59 | 0.000% | 0.00E+00 |
| Nb-94 | 0.000% | 0.00E+00 |
| Tc-99 | 0.000% | 0.00E+00 |
| I-129 | 0.000% | 0.00E+00 |

SOLID WASTE DISPOSITION SUMMARY

| Number of Shipments | Mode of Transportation | Destination |
|---------------------|------------------------|---------------------|
| 20 | Truck | Barnwell, SC |
| 5 | Truck | Oak Ridge, TN (SEG) |

SEG= Scientific Ecology Group, Inc.

Section II

Meteorological Data

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 4 | 1 | 0 | 0 | 0 | 6 |
| NNE | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| NE | 1 | 11 | 3 | 0 | 0 | 0 | 15 |
| ENE | 1 | 14 | 10 | 0 | 0 | 0 | 25 |
| E | 1 | 13 | 10 | 0 | 0 | 0 | 24 |
| ESE | 0 | 15 | 5 | 0 | 0 | 0 | 20 |
| SE | 0 | 18 | 43 | 0 | 0 | 0 | 61 |
| SSE | 0 | 6 | 39 | 5 | 0 | 0 | 50 |
| S | 0 | 11 | 33 | 50 | 0 | 0 | 94 |
| SSW | 0 | 8 | 27 | 11 | 0 | 0 | 46 |
| SW | 0 | 21 | 21 | 2 | 0 | 0 | 44 |
| WSW | 1 | 20 | 16 | 3 | 0 | 0 | 40 |
| W | 1 | 10 | 15 | 0 | 0 | 0 | 26 |
| WNW | 0 | 11 | 7 | 0 | 0 | 0 | 18 |
| NW | 2 | 24 | 35 | 0 | 0 | 0 | 61 |
| NNW | 1 | 13 | 20 | 2 | 0 | 0 | 36 |
| TOTAL | 9 | 202 | 285 | 73 | 0 | 0 | 569 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| 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 | 2 | 0 | 0 | 0 | 0 | 2 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| SSE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| S | 1 | 2 | 1 | 1 | 0 | 0 | 5 |
| SSW | 0 | 3 | 3 | 0 | 1 | 0 | 7 |
| SW | 0 | 4 | 1 | 0 | 0 | 0 | 5 |
| WSW | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| W | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| WNW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NW | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| NNW | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 4 | 19 | 10 | 1 | 1 | 0 | 35 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| NNE | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| NE | 0 | 5 | 1 | 0 | 0 | 0 | 6 |
| ENE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| E | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| ESE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| SE | 1 | 4 | 4 | 0 | 0 | 0 | 9 |
| SSE | 2 | 5 | 6 | 0 | 0 | 0 | 13 |
| S | 1 | 1 | 11 | 1 | 0 | 0 | 14 |
| SSW | 0 | 4 | 9 | 0 | 0 | 0 | 13 |
| SW | 0 | 3 | 4 | 0 | 0 | 0 | 7 |
| WSW | 0 | 4 | 3 | 0 | 0 | 0 | 7 |
| W | 0 | 3 | 2 | 0 | 0 | 0 | 5 |
| WNW | 1 | 2 | 2 | 0 | 0 | 0 | 5 |
| NW | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| NNW | 1 | 4 | 1 | 0 | 0 | 0 | 6 |
| TOTAL | 13 | 41 | 44 | 1 | 0 | 0 | 99 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 7 | 3 | 0 | 0 | 0 | 0 | 10 |
| NNE | 3 | 2 | 2 | 0 | 0 | 0 | 7 |
| NE | 6 | 10 | 3 | 0 | 0 | 0 | 19 |
| ENE | 2 | 9 | 0 | 0 | 0 | 0 | 11 |
| E | 3 | 4 | 0 | 0 | 0 | 0 | 7 |
| ESE | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| SE | 3 | 14 | 7 | 3 | 0 | 0 | 27 |
| SSE | 3 | 14 | 3 | 2 | 0 | 0 | 22 |
| S | 4 | 37 | 17 | 6 | 1 | 0 | 65 |
| SSW | 2 | 23 | 46 | 12 | 1 | 0 | 84 |
| SW | 3 | 28 | 6 | 0 | 0 | 0 | 37 |
| WSW | 5 | 13 | 6 | 0 | 0 | 0 | 24 |
| W | 5 | 7 | 5 | 0 | 0 | 0 | 17 |
| WNW | 4 | 6 | 3 | 0 | 0 | 0 | 13 |
| NW | 1 | 10 | 3 | 0 | 0 | 0 | 14 |
| NNW | 6 | 6 | 2 | 0 | 0 | 0 | 14 |
| TOTAL | 57 | 188 | 104 | 23 | 2 | 0 | 374 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|------------|-----------|----------|----------|----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 4 | 3 | 0 | 0 | 0 | 0 | 7 |
| NNE | 4 | 0 | 1 | 0 | 0 | 0 | 5 |
| NE | 4 | 4 | 4 | 0 | 0 | 0 | 12 |
| ENE | 4 | 10 | 0 | 0 | 0 | 0 | 14 |
| E | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| ESE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| SE | 3 | 2 | 0 | 0 | 0 | 0 | 5 |
| SSE | 11 | 9 | 3 | 0 | 0 | 0 | 23 |
| S | 20 | 30 | 4 | 0 | 0 | 0 | 54 |
| SSW | 17 | 71 | 31 | 0 | 0 | 0 | 119 |
| SW | 29 | 72 | 13 | 0 | 0 | 0 | 114 |
| WSW | 18 | 23 | 3 | 1 | 0 | 0 | 45 |
| W | 14 | 20 | 1 | 0 | 0 | 0 | 35 |
| WNW | 13 | 15 | 1 | 0 | 0 | 0 | 29 |
| NW | 8 | 11 | 0 | 0 | 0 | 0 | 19 |
| NNW | 10 | 8 | 2 | 0 | 0 | 0 | 20 |
| TOTAL | 163 | 279 | 63 | 1 | 0 | 0 | 506 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----------|----------|----------|----------|----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ESE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| SSE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| S | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| SSW | 16 | 1 | 0 | 0 | 0 | 0 | 17 |
| SW | 22 | 8 | 0 | 0 | 0 | 0 | 30 |
| WSW | 36 | 24 | 0 | 0 | 0 | 0 | 60 |
| W | 51 | 18 | 0 | 0 | 0 | 0 | 69 |
| WNW | 40 | 7 | 0 | 0 | 0 | 0 | 47 |
| NW | 48 | 19 | 0 | 0 | 0 | 0 | 67 |
| NNW | 18 | 7 | 0 | 0 | 0 | 0 | 25 |
| TOTAL | 245 | 87 | 0 | 0 | 0 | 0 | 332 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----------|----------|----------|----------|----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 2 | 3 | 0 | 0 | 0 | 0 | 5 |
| NNE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ENE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| E | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| ESE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| SSE | 5 | 2 | 0 | 0 | 0 | 0 | 7 |
| S | 9 | 3 | 0 | 0 | 0 | 0 | 12 |
| SSW | 16 | 6 | 0 | 0 | 0 | 0 | 22 |
| SW | 13 | 8 | 0 | 0 | 0 | 0 | 21 |
| WSW | 11 | 8 | 0 | 0 | 0 | 0 | 19 |
| W | 19 | 10 | 0 | 0 | 0 | 0 | 29 |
| WNW | 11 | 4 | 0 | 0 | 0 | 0 | 15 |
| NW | 9 | 10 | 0 | 0 | 0 | 0 | 19 |
| NNW | 9 | 4 | 0 | 0 | 0 | 0 | 13 |
| TOTAL | 116 | 58 | 0 | 0 | 0 | 0 | 174 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|------------|------------|-----------|----------|----------|-------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 18 | 16 | 1 | 0 | 0 | 0 | 35 |
| NNE | 10 | 6 | 3 | 0 | 0 | 0 | 19 |
| NE | 13 | 30 | 11 | 0 | 0 | 0 | 54 |
| ENE | 11 | 36 | 10 | 0 | 0 | 0 | 57 |
| E | 13 | 19 | 10 | 0 | 0 | 0 | 42 |
| ESE | 5 | 19 | 6 | 0 | 0 | 0 | 30 |
| SE | 11 | 39 | 55 | 3 | 0 | 0 | 108 |
| SSE | 23 | 38 | 51 | 7 | 0 | 0 | 119 |
| S | 41 | 84 | 66 | 58 | 1 | 0 | 250 |
| SSW | 51 | 116 | 116 | 23 | 2 | 0 | 308 |
| SW | 67 | 144 | 45 | 2 | 0 | 0 | 258 |
| WSW | 71 | 94 | 30 | 4 | 0 | 0 | 199 |
| W | 90 | 68 | 25 | 0 | 0 | 0 | 183 |
| WNW | 70 | 45 | 13 | 0 | 0 | 0 | 128 |
| NW | 68 | 77 | 39 | 0 | 0 | 0 | 184 |
| NNW | 45 | 43 | 25 | 2 | 0 | 0 | 115 |
| TOTAL | 607 | 874 | 506 | 99 | 3 | 0 | 2089 |

PERIODS OF CALM(HOURS): 32
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 119

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| ENE | 0 | 0 | 7 | 4 | 0 | 0 | 11 |
| E | 0 | 0 | 4 | 1 | 0 | 0 | 5 |
| ESE | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| SE | 0 | 0 | 6 | 2 | 0 | 0 | 8 |
| SSE | 0 | 0 | 1 | 8 | 0 | 0 | 9 |
| S | 0 | 0 | 3 | 10 | 11 | 0 | 24 |
| SSW | 0 | 0 | 1 | 10 | 3 | 0 | 14 |
| SW | 0 | 1 | 2 | 8 | 0 | 0 | 11 |
| WSW | 0 | 0 | 2 | 6 | 3 | 0 | 11 |
| W | 0 | 0 | 3 | 6 | 1 | 0 | 10 |
| WNW | 0 | 0 | 3 | 4 | 0 | 0 | 7 |
| NW | 0 | 0 | 5 | 8 | 6 | 0 | 19 |
| NNW | 0 | 0 | 2 | 5 | 3 | 0 | 10 |
| TOTAL | 0 | 2 | 44 | 72 | 27 | 0 | 145 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| NNE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| NE | 0 | 1 | 4 | 1 | 0 | 0 | 6 |
| ENE | 0 | 1 | 6 | 1 | 0 | 0 | 8 |
| E | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| ESE | 0 | 5 | 5 | 0 | 0 | 0 | 10 |
| SE | 1 | 2 | 8 | 3 | 0 | 0 | 14 |
| SSE | 0 | 1 | 9 | 3 | 0 | 0 | 13 |
| S | 0 | 3 | 11 | 10 | 4 | 0 | 28 |
| SSW | 0 | 0 | 6 | 11 | 5 | 3 | 25 |
| SW | 0 | 3 | 9 | 3 | 0 | 0 | 15 |
| WSW | 0 | 2 | 7 | 3 | 1 | 0 | 13 |
| W | 0 | 3 | 5 | 2 | 0 | 0 | 10 |
| WNW | 0 | 0 | 5 | 5 | 0 | 0 | 10 |
| NW | 0 | 2 | 7 | 4 | 0 | 0 | 13 |
| NNW | 0 | 1 | 1 | 5 | 1 | 0 | 8 |
| TOTAL | 1 | 26 | 89 | 51 | 11 | 3 | 181 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| ENE | 0 | 0 | 4 | 2 | 0 | 0 | 6 |
| E | 0 | 1 | 7 | 0 | 0 | 0 | 8 |
| ESE | 0 | 1 | 5 | 0 | 0 | 0 | 6 |
| SE | 0 | 0 | 13 | 1 | 0 | 0 | 14 |
| SSE | 0 | 0 | 8 | 9 | 0 | 0 | 17 |
| S | 1 | 0 | 4 | 10 | 3 | 0 | 18 |
| SSW | 0 | 0 | 2 | 14 | 6 | 0 | 22 |
| SW | 0 | 1 | 4 | 4 | 2 | 0 | 11 |
| WSW | 0 | 1 | 7 | 7 | 1 | 0 | 16 |
| W | 0 | 3 | 5 | 3 | 0 | 0 | 11 |
| WNW | 1 | 1 | 2 | 2 | 0 | 0 | 6 |
| NW | 0 | 1 | 1 | 5 | 7 | 0 | 14 |
| NNW | 0 | 0 | 3 | 5 | 0 | 0 | 8 |
| TOTAL | 2 | 10 | 67 | 63 | 20 | 0 | 162 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 6 | 6 | 2 | 0 | 0 | 15 |
| NNE | 1 | 6 | 3 | 0 | 0 | 0 | 10 |
| NE | 0 | 7 | 17 | 2 | 6 | 0 | 32 |
| ENE | 1 | 7 | 24 | 7 | 4 | 0 | 43 |
| E | 0 | 8 | 3 | 1 | 0 | 0 | 12 |
| ESE | 1 | 6 | 4 | 1 | 0 | 0 | 12 |
| SE | 0 | 8 | 19 | 5 | 5 | 2 | 39 |
| SSE | 3 | 9 | 20 | 5 | 1 | 3 | 41 |
| S | 1 | 10 | 33 | 17 | 2 | 3 | 66 |
| SSW | 1 | 10 | 35 | 55 | 40 | 10 | 151 |
| SW | 0 | 7 | 19 | 20 | 10 | 0 | 56 |
| WSW | 1 | 15 | 16 | 18 | 5 | 1 | 56 |
| W | 1 | 7 | 11 | 6 | 4 | 0 | 29 |
| WNW | 0 | 5 | 8 | 10 | 2 | 0 | 25 |
| NW | 1 | 4 | 4 | 17 | 3 | 0 | 29 |
| NNW | 1 | 7 | 7 | 4 | 3 | 0 | 22 |
| TOTAL | 13 | 122 | 229 | 170 | 85 | 19 | 638 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 3 | 3 | 6 | 2 | 0 | 14 |
| NNE | 1 | 3 | 3 | 0 | 0 | 0 | 7 |
| NE | 5 | 5 | 3 | 2 | 0 | 0 | 15 |
| ENE | 2 | 6 | 4 | 1 | 0 | 0 | 13 |
| E | 2 | 3 | 1 | 0 | 0 | 0 | 6 |
| ESE | 2 | 2 | 0 | 0 | 0 | 0 | 4 |
| SE | 1 | 0 | 4 | 0 | 0 | 0 | 5 |
| SSE | 0 | 4 | 3 | 0 | 1 | 0 | 8 |
| S | 0 | 3 | 14 | 11 | 0 | 0 | 28 |
| SSW | 2 | 8 | 17 | 74 | 26 | 3 | 130 |
| SW | 1 | 6 | 17 | 56 | 48 | 0 | 128 |
| WSW | 1 | 3 | 8 | 15 | 9 | 0 | 36 |
| W | 0 | 4 | 5 | 15 | 7 | 0 | 31 |
| WNW | 0 | 2 | 1 | 13 | 7 | 1 | 24 |
| NW | 0 | 4 | 15 | 8 | 8 | 1 | 36 |
| NNW | 0 | 4 | 8 | 17 | 6 | 0 | 35 |
| TOTAL | 17 | 60 | 106 | 218 | 114 | 5 | 520 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 12 | 12 | 8 | 0 | 32 |
| NNE | 1 | 4 | 5 | 6 | 1 | 0 | 17 |
| NE | 0 | 1 | 4 | 6 | 0 | 0 | 11 |
| ENE | 0 | 0 | 3 | 4 | 0 | 0 | 7 |
| E | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ESE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| SE | 0 | 1 | 10 | 2 | 0 | 0 | 13 |
| SSE | 2 | 3 | 0 | 2 | 0 | 0 | 7 |
| S | 0 | 4 | 9 | 0 | 0 | 0 | 13 |
| SSW | 0 | 2 | 8 | 1 | 0 | 0 | 11 |
| SW | 2 | 2 | 10 | 3 | 5 | 1 | 23 |
| WSW | 0 | 4 | 4 | 5 | 2 | 0 | 15 |
| W | 0 | 5 | 4 | 8 | 5 | 1 | 23 |
| WNW | 0 | 4 | 4 | 5 | 3 | 2 | 18 |
| NW | 0 | 3 | 2 | 2 | 3 | 1 | 11 |
| NNW | 0 | 1 | 1 | 6 | 5 | 4 | 17 |
| TOTAL | 5 | 37 | 76 | 62 | 32 | 9 | 221 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 1 | 0 | 4 | 1 | 1 | 7 |
| NNE | 0 | 2 | 3 | 1 | 0 | 0 | 6 |
| NE | 3 | 4 | 0 | 2 | 0 | 0 | 9 |
| ENE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| E | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| ESE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| SE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SSE | 0 | 0 | 4 | 1 | 0 | 0 | 5 |
| S | 3 | 2 | 0 | 2 | 0 | 0 | 7 |
| SSW | 2 | 1 | 3 | 24 | 3 | 0 | 33 |
| SW | 0 | 2 | 3 | 12 | 14 | 1 | 32 |
| WSW | 1 | 3 | 7 | 14 | 9 | 1 | 35 |
| W | 1 | 1 | 1 | 17 | 3 | 1 | 24 |
| WNW | 0 | 1 | 0 | 6 | 4 | 5 | 16 |
| NW | 2 | 5 | 6 | 4 | 7 | 4 | 28 |
| NNW | 0 | 0 | 6 | 8 | 8 | 5 | 27 |
| TOTAL | 16 | 24 | 34 | 95 | 49 | 18 | 236 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88070101-88093024
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 12 | 23 | 24 | 12 | 1 | 73 |
| NNE | 3 | 15 | 15 | 7 | 1 | 0 | 41 |
| NE | 8 | 19 | 32 | 14 | 6 | 0 | 79 |
| ENE | 3 | 15 | 48 | 19 | 4 | 0 | 89 |
| E | 3 | 13 | 19 | 2 | 0 | 0 | 37 |
| ESE | 4 | 18 | 17 | 1 | 0 | 0 | 40 |
| SE | 4 | 11 | 60 | 13 | 5 | 2 | 95 |
| SSE | 5 | 17 | 45 | 28 | 2 | 3 | 100 |
| S | 5 | 22 | 74 | 60 | 20 | 3 | 184 |
| SSW | 5 | 21 | 72 | 189 | 83 | 16 | 386 |
| SW | 3 | 22 | 64 | 106 | 79 | 2 | 276 |
| WSW | 3 | 28 | 51 | 68 | 30 | 2 | 182 |
| W | 2 | 23 | 34 | 57 | 20 | 2 | 138 |
| WNW | 1 | 13 | 23 | 45 | 16 | 8 | 106 |
| NW | 3 | 19 | 40 | 48 | 34 | 6 | 150 |
| NNW | 1 | 13 | 28 | 50 | 26 | 9 | 127 |
| TOTAL | 54 | 281 | 645 | 731 | 338 | 54 | 2103 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 105

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 6 | 7 | 0 | 0 | 0 | 13 |
| NNE | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| NE | 0 | 7 | 0 | 0 | 0 | 0 | 7 |
| ENE | 0 | 7 | 0 | 0 | 0 | 0 | 7 |
| E | 0 | 4 | 0 | 1 | 0 | 0 | 5 |
| ESE | 0 | 6 | 4 | 2 | 0 | 0 | 12 |
| SE | 0 | 2 | 3 | 0 | 0 | 0 | 5 |
| SSE | 0 | 1 | 9 | 1 | 0 | 0 | 11 |
| S | 0 | 1 | 20 | 9 | 0 | 0 | 30 |
| SSW | 0 | 4 | 11 | 2 | 0 | 0 | 17 |
| SW | 0 | 11 | 8 | 2 | 0 | 0 | 21 |
| WSW | 0 | 18 | 25 | 3 | 0 | 0 | 46 |
| W | 1 | 10 | 48 | 7 | 1 | 0 | 67 |
| WNW | 0 | 13 | 56 | 4 | 0 | 0 | 73 |
| NW | 1 | 18 | 43 | 5 | 0 | 0 | 67 |
| NNW | 0 | 10 | 18 | 0 | 0 | 0 | 28 |
| TOTAL | 2 | 123 | 252 | 36 | 1 | 0 | 414 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| SE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 0 | 0 | 2 | 1 | 0 | 0 | 3 |
| S | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| SSW | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| SW | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| WSW | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| W | 0 | 5 | 1 | 0 | 0 | 0 | 6 |
| WNW | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| NW | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| NNW | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| TOTAL | 2 | 14 | 16 | 4 | 0 | 0 | 36 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| ENE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SE | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| SSE | 0 | 0 | 1 | 3 | 0 | 0 | 4 |
| S | 1 | 1 | 9 | 1 | 0 | 0 | 12 |
| SSW | 0 | 1 | 4 | 4 | 1 | 0 | 10 |
| SW | 0 | 1 | 4 | 0 | 0 | 0 | 5 |
| WSW | 0 | 3 | 4 | 0 | 0 | 0 | 7 |
| W | 1 | 5 | 5 | 4 | 0 | 0 | 15 |
| WNW | 0 | 5 | 5 | 0 | 0 | 0 | 10 |
| NW | 0 | 4 | 5 | 0 | 0 | 0 | 9 |
| NNW | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| TOTAL | 3 | 30 | 42 | 12 | 1 | 0 | 88 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 8 | 6 | 0 | 0 | 0 | 14 |
| NNE | 1 | 3 | 6 | 0 | 0 | 0 | 10 |
| NE | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| ENE | 0 | 1 | 0 | 1 | 1 | 0 | 3 |
| E | 1 | 3 | 5 | 0 | 0 | 0 | 9 |
| ESE | 0 | 2 | 7 | 1 | 0 | 0 | 10 |
| SE | 2 | 4 | 5 | 2 | 1 | 0 | 14 |
| SSE | 0 | 3 | 4 | 6 | 0 | 0 | 13 |
| S | 0 | 7 | 10 | 6 | 3 | 0 | 26 |
| SSW | 0 | 4 | 25 | 21 | 2 | 0 | 52 |
| SW | 3 | 8 | 3 | 1 | 0 | 0 | 15 |
| WSW | 3 | 14 | 12 | 1 | 0 | 0 | 30 |
| W | 1 | 13 | 3 | 1 | 0 | 0 | 18 |
| WNW | 1 | 14 | 11 | 4 | 1 | 0 | 31 |
| NW | 3 | 19 | 14 | 2 | 0 | 0 | 38 |
| NNW | 1 | 13 | 9 | 0 | 0 | 0 | 23 |
| TOTAL | 16 | 119 | 120 | 46 | 8 | 0 | 309 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 8 | 6 | 1 | 0 | 0 | 0 | 15 |
| NNE | 4 | 6 | 0 | 0 | 0 | 0 | 10 |
| NE | 2 | 1 | 1 | 0 | 0 | 0 | 4 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| ESE | 0 | 7 | 4 | 0 | 0 | 0 | 11 |
| SE | 0 | 12 | 6 | 0 | 0 | 0 | 18 |
| SSE | 1 | 9 | 7 | 0 | 0 | 0 | 17 |
| S | 3 | 26 | 29 | 2 | 0 | 0 | 60 |
| SSW | 0 | 24 | 36 | 10 | 0 | 0 | 70 |
| SW | 8 | 26 | 29 | 0 | 0 | 0 | 63 |
| WSW | 4 | 61 | 11 | 1 | 0 | 0 | 77 |
| W | 7 | 36 | 14 | 2 | 0 | 0 | 59 |
| WNW | 3 | 32 | 19 | 4 | 0 | 0 | 58 |
| NW | 6 | 22 | 13 | 0 | 0 | 0 | 41 |
| NNW | 7 | 20 | 1 | 0 | 0 | 0 | 28 |
| TOTAL | 54 | 290 | 172 | 19 | 0 | 0 | 535 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| ESE | 6 | 1 | 0 | 0 | 0 | 0 | 7 |
| SE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| SSE | 6 | 2 | 0 | 0 | 0 | 0 | 8 |
| S | 9 | 3 | 0 | 0 | 0 | 0 | 12 |
| SSW | 12 | 6 | 0 | 0 | 0 | 0 | 18 |
| SW | 23 | 27 | 0 | 0 | 0 | 0 | 50 |
| WSW | 63 | 82 | 0 | 0 | 0 | 0 | 145 |
| W | 46 | 40 | 0 | 0 | 0 | 0 | 86 |
| WNW | 28 | 17 | 0 | 0 | 0 | 0 | 45 |
| NW | 43 | 37 | 0 | 0 | 0 | 0 | 80 |
| NNW | 15 | 19 | 0 | 0 | 0 | 0 | 34 |
| TOTAL | 262 | 234 | 0 | 0 | 0 | 0 | 496 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SE | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| SSE | 4 | 4 | 1 | 0 | 0 | 0 | 9 |
| S | 3 | 14 | 0 | 0 | 0 | 0 | 17 |
| SSW | 3 | 21 | 0 | 0 | 0 | 0 | 24 |
| SW | 4 | 18 | 4 | 0 | 0 | 0 | 26 |
| WSW | 17 | 45 | 0 | 0 | 0 | 0 | 62 |
| W | 8 | 32 | 0 | 0 | 0 | 0 | 40 |
| WNW | 12 | 31 | 2 | 0 | 0 | 0 | 45 |
| NW | 6 | 17 | 2 | 0 | 0 | 0 | 25 |
| NNW | 4 | 17 | 0 | 0 | 0 | 0 | 21 |
| TOTAL | 66 | 203 | 9 | 0 | 0 | 0 | 278 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SPD33A DIRECTION:DIR33A LAPSE:DT150

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|------|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 11 | 21 | 15 | 0 | 0 | 0 | 47 |
| NNE | 9 | 16 | 6 | 0 | 0 | 0 | 31 |
| NE | 4 | 13 | 1 | 0 | 0 | 0 | 18 |
| ENE | 1 | 9 | 1 | 1 | 1 | 0 | 13 |
| E | 5 | 10 | 6 | 1 | 0 | 0 | 22 |
| ESE | 6 | 16 | 15 | 5 | 0 | 0 | 42 |
| SE | 6 | 23 | 15 | 2 | 1 | 0 | 47 |
| SSE | 11 | 19 | 24 | 11 | 0 | 0 | 65 |
| S | 16 | 52 | 71 | 18 | 3 | 0 | 160 |
| SSW | 16 | 60 | 77 | 38 | 3 | 0 | 194 |
| SW | 38 | 93 | 49 | 3 | 0 | 0 | 183 |
| WSW | 87 | 226 | 52 | 5 | 0 | 0 | 370 |
| W | 64 | 141 | 71 | 14 | 1 | 0 | 291 |
| WNW | 45 | 112 | 95 | 12 | 1 | 0 | 265 |
| NW | 59 | 117 | 79 | 7 | 0 | 0 | 262 |
| NNW | 27 | 85 | 34 | 0 | 0 | 0 | 146 |
| TOTAL | 405 | 1013 | 611 | 117 | 10 | 0 | 2156 |

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 52

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|----------|----------|-----------|-----------|----------|-----------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| S | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| WSW | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| W | 0 | 0 | 1 | 3 | 2 | 1 | 7 |
| WNW | 0 | 0 | 0 | 6 | 4 | 0 | 10 |
| NW | 0 | 0 | 0 | 5 | 6 | 0 | 11 |
| NNW | 0 | 0 | 0 | 2 | 1 | 0 | 3 |
| TOTAL | 0 | 0 | 3 | 16 | 14 | 1 | 34 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----------|-----------|-----------|-----------|----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 1 | 2 | 2 | 0 | 0 | 5 |
| NNE | 0 | 2 | 1 | 1 | 0 | 0 | 4 |
| NE | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| ENE | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| E | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| ESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SE | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| SSE | 0 | 1 | 2 | 3 | 0 | 0 | 6 |
| S | 0 | 0 | 1 | 8 | 1 | 2 | 12 |
| SSW | 0 | 0 | 2 | 7 | 3 | 0 | 12 |
| SW | 0 | 1 | 3 | 4 | 0 | 0 | 8 |
| WSW | 0 | 1 | 7 | 5 | 2 | 1 | 16 |
| W | 0 | 1 | 4 | 9 | 8 | 0 | 22 |
| WNW | 0 | 3 | 4 | 11 | 3 | 2 | 23 |
| NW | 0 | 2 | 4 | 6 | 3 | 3 | 18 |
| NNW | 0 | 0 | 2 | 3 | 1 | 0 | 6 |
| TOTAL | 0 | 16 | 39 | 59 | 21 | 8 | 143 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|----------|-----------|-----------|-----------|----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 2 | 2 | 0 | 0 | 4 |
| 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 | 1 | 2 | 0 | 0 | 0 | 3 |
| ESE | 0 | 1 | 3 | 0 | 0 | 0 | 4 |
| SE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SSE | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| S | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| SSW | 0 | 0 | 0 | 4 | 1 | 0 | 5 |
| SW | 0 | 0 | 2 | 3 | 0 | 0 | 5 |
| WSW | 0 | 1 | 4 | 3 | 3 | 0 | 11 |
| W | 0 | 0 | 4 | 3 | 6 | 3 | 16 |
| WNW | 0 | 0 | 5 | 9 | 13 | 1 | 28 |
| NW | 0 | 1 | 6 | 8 | 18 | 3 | 36 |
| NNW | 0 | 0 | 2 | 6 | 4 | 0 | 12 |
| TOTAL | 0 | 6 | 36 | 38 | 45 | 7 | 132 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----------|-----------|------------|------------|-----------|------------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 4 | 4 | 16 | 9 | 0 | 33 |
| NNE | 0 | 3 | 6 | 12 | 0 | 0 | 21 |
| NE | 0 | 2 | 6 | 9 | 0 | 0 | 17 |
| ENE | 1 | 0 | 2 | 1 | 2 | 2 | 8 |
| E | 0 | 2 | 1 | 0 | 1 | 0 | 4 |
| ESE | 1 | 5 | 0 | 1 | 6 | 6 | 19 |
| SE | 1 | 1 | 5 | 3 | 2 | 5 | 17 |
| SSE | 1 | 0 | 2 | 3 | 8 | 6 | 20 |
| S | 0 | 6 | 5 | 10 | 18 | 3 | 42 |
| SSW | 0 | 2 | 2 | 15 | 28 | 27 | 74 |
| SW | 0 | 1 | 4 | 11 | 11 | 5 | 32 |
| WSW | 1 | 1 | 6 | 21 | 7 | 1 | 37 |
| W | 1 | 1 | 13 | 16 | 18 | 8 | 57 |
| WNW | 0 | 4 | 8 | 29 | 19 | 16 | 76 |
| NW | 0 | 7 | 8 | 15 | 27 | 14 | 71 |
| NNW | 0 | 1 | 8 | 22 | 11 | 1 | 43 |
| TOTAL | 6 | 40 | 80 | 184 | 167 | 94 | 571 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

Meteorological Data Joint Frequency Tables

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 0 | 5 | 14 | 6 | 0 | 25 |
| NNE | 0 | 0 | 10 | 2 | 0 | 0 | 12 |
| NE | 0 | 0 | 9 | 5 | 0 | 0 | 14 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 0 | 1 | 1 | 1 | 0 | 0 | 3 |
| ESE | 0 | 1 | 2 | 4 | 6 | 0 | 13 |
| SE | 0 | 2 | 7 | 6 | 9 | 0 | 24 |
| SSE | 0 | 1 | 1 | 4 | 5 | 3 | 14 |
| S | 0 | 0 | 3 | 6 | 12 | 0 | 21 |
| SSW | 0 | 2 | 0 | 15 | 55 | 19 | 91 |
| SW | 0 | 0 | 4 | 10 | 31 | 14 | 59 |
| WSW | 0 | 1 | 5 | 17 | 30 | 0 | 53 |
| W | 0 | 0 | 7 | 24 | 41 | 10 | 82 |
| WNW | 0 | 1 | 6 | 23 | 38 | 9 | 77 |
| NW | 0 | 0 | 7 | 16 | 16 | 17 | 56 |
| NNW | 1 | 1 | 4 | 11 | 18 | 1 | 36 |
| TOTAL | 2 | 10 | 71 | 158 | 267 | 73 | 581 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 2 | 3 | 5 | 8 | 14 | 2 | 34 |
| NNE | 1 | 7 | 3 | 14 | 2 | 0 | 27 |
| NE | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| ENE | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| E | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| ESE | 1 | 0 | 1 | 6 | 1 | 0 | 9 |
| SE | 1 | 2 | 6 | 3 | 0 | 0 | 12 |
| SSE | 0 | 1 | 7 | 4 | 5 | 0 | 17 |
| S | 0 | 1 | 4 | 5 | 5 | 0 | 15 |
| SSW | 2 | 0 | 2 | 7 | 5 | 0 | 16 |
| SW | 0 | 2 | 2 | 4 | 3 | 0 | 11 |
| WSW | 0 | 0 | 3 | 5 | 6 | 9 | 23 |
| W | 0 | 3 | 2 | 10 | 16 | 2 | 33 |
| WNW | 1 | 2 | 2 | 22 | 25 | 10 | 62 |
| NW | 1 | 1 | 1 | 12 | 4 | 1 | 20 |
| NNW | 2 | 1 | 2 | 4 | 8 | 2 | 19 |
| TOTAL | 12 | 23 | 40 | 109 | 94 | 26 | 304 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 0 | 1 | 11 | 13 | 2 | 28 |
| NNE | 1 | 1 | 5 | 8 | 1 | 0 | 16 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 0 | 0 | 2 | 1 | 0 | 0 | 3 |
| E | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ESE | 0 | 0 | 4 | 3 | 0 | 1 | 8 |
| SE | 0 | 1 | 2 | 1 | 1 | 0 | 5 |
| SSE | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| S | 0 | 1 | 1 | 3 | 3 | 1 | 9 |
| SSW | 0 | 1 | 1 | 3 | 21 | 3 | 29 |
| SW | 0 | 0 | 1 | 7 | 14 | 14 | 36 |
| WSW | 0 | 0 | 4 | 12 | 9 | 9 | 34 |
| W | 1 | 2 | 5 | 8 | 17 | 15 | 48 |
| WNW | 0 | 1 | 6 | 14 | 29 | 25 | 75 |
| NW | 1 | 4 | 3 | 18 | 18 | 13 | 57 |
| NNW | 0 | 2 | 4 | 23 | 25 | 1 | 55 |
| TOTAL | 4 | 14 | 41 | 112 | 152 | 84 | 407 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 88100101-88123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP380A DIRECTION:DR380A LAPSE:DT380A

| WIND DIRECTION | WIND SPEED(MPH) | | | | | | TOTAL |
|----------------|-----------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 3 | 8 | 19 | 53 | 42 | 4 | 129 |
| NNE | 2 | 13 | 25 | 37 | 3 | 0 | 80 |
| NE | 1 | 2 | 18 | 15 | 0 | 0 | 36 |
| ENE | 2 | 1 | 7 | 4 | 2 | 2 | 18 |
| E | 0 | 5 | 5 | 3 | 1 | 0 | 14 |
| ESE | 2 | 7 | 10 | 14 | 13 | 7 | 53 |
| SE | 2 | 8 | 21 | 13 | 12 | 5 | 61 |
| SSE | 1 | 4 | 17 | 14 | 19 | 9 | 64 |
| S | 0 | 10 | 16 | 32 | 39 | 6 | 103 |
| SSW | 2 | 5 | 7 | 51 | 113 | 49 | 227 |
| SW | 0 | 4 | 17 | 39 | 59 | 33 | 152 |
| WSW | 1 | 4 | 30 | 63 | 58 | 20 | 176 |
| W | 2 | 7 | 36 | 73 | 108 | 39 | 265 |
| WNW | 1 | 11 | 31 | 114 | 131 | 63 | 351 |
| NW | 2 | 15 | 29 | 80 | 92 | 51 | 269 |
| NNW | 3 | 5 | 22 | 71 | 68 | 5 | 174 |
| TOTAL | 24 | 109 | 310 | 676 | 760 | 293 | 2172 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 36

Section III

Changes to PCP and ODCM

Change Number 1

Procedure Title: Process Control Plan for Transfer and Solidification of Solid Wet Waste via CNSI Cement Solidification System (Procedure 351.36)

Effective Date: November 23, 1988

Description of Change: This change will require solidified liners containing either Filter Sludge or Evaporator Bottoms to remain uncapped for a minimum of ten days to allow for a more thorough curing of the solidified product.

This change mandates a minimum cure time for the solidified product, thereby insuring that all requirements of 10 CFR 61.56 (B) are met or exceeded.

Radwaste Shipping Supervisor: A.H. Wacha

Change Number 2

Procedure Title: Process Control Plan for Processing Resins into a CNSI High Integrity Container (Procedure 352.0)

Effective Date: October 24, 1988

Description of Change: This change is to allow for adding condensate flush water to provide for a proper slurry when the spent resin tank level instrumentation is inoperative.

Radwaste Shipping Supervisor: R.V. Hurley

Section IV
Effluent Monitoring
Instrumentation Inoperability

EFFLUENT MONITORING INSTRUMENTATION INOPERABILITY

Section 3.15 of the Technical Specifications requires that "instrumentation to monitor radioactive effluents [must be] operable when effluent is discharged or that [some] means of measuring effluent is provided." Furthermore, sections 3.15.A and 3.15.B for liquid and gaseous effluent monitoring instrumentation, respectively, state that when "less than the minimum number of ...channels are operable, ...make every reasonable effort to restore the instrument to operable status within 30 days and, if unsuccessful, explain in the next SemiAnnual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner."

During the reporting period, July 1, 1988 through December 31, 1988, the following effluent monitoring instrumentation inoperabilities greater than 30 days were recorded:

- 1.) Failure to maintain operability of:
 - Liquid Radwaste Effluent Line Monitor (Table 3.15.1a)
 - Reactor Building Service Water System Effluent Line Monitor (Table 3.15.1b)

Corrective Action: The corrective actions specified in Table 3.15.1 of the OC Technical Specifications were implemented. Daily overboard discharge samples have been taken and analyzed since October 1986. In addition, the licensee had notified the NRC by letter in August 1986 of the inoperable status of the service water system discharge monitor and the long term plans to address inoperability.

- 2.) Failure to maintain operability of Turbine Building Ventilation Radioactive Noble Gas Monitor (Table 3.15.2(3a)):

Due to the fact that channel is not operable, action 123 was taken as per Tech Spec 3.15.2.

- 3.) Failure to maintain operability of Main Condenser Offgas Treatment System Recombiner Effluent Hydrogen Monitor (Table 3.15.2(1)):

Corrective Action: Monitor was taken out of service due to instrument drift during July and August and action 125 was taken as per Tech Spec 3.15.2 during Augmented Offgas Treatment System operation. Additionally, the monitor was taken out of service

during the 12R refueling outage. Instrument drift was attributed to moisture in system. Heat trace tubing and a chiller (12R outage) were installed in order to cool the gas below the dew point to remove any moisture from the gas.

- 4.) Stack Radioactive Noble Gas Monitor (Table 3.15.2 (2a)) was taken out of service during the month of October, 1988 for the 12R refueling outage. Tech Spec 3.15.2 states that it is required to be operable "During releases via this pathway." As there were no releases via this pathway during the 12R outage, no further action is required.

Appendix A

Revisions to 1988-1 SemiAnnual

Effluent Release Report

**Revised Regulatory Guide 1.21 Report
1988-1 SemiAnnual Effluent Release Report**

| <u>Waste Type</u> | <u>Cubic Meters</u> | <u>Curies Shipped</u> |
|-------------------|---------------------|-----------------------|
| SEG | 0.42 | 3.12 E-01 |