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United States Nuclear Regulatory Commission
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Washington, DC 20555

Gentlemen:

RADIOACTIVE EFFLUENT RELEASE REPORT - 10
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

In accordance with Section 6.9.1.11 of Appendix A to the Operating License for Hope Creek Generating Station (HCGS), Public Service Electric and Gas Company (PSE&G) hereby transmits one copy of the semi-annual Radioactive Effluent Release Report, RERR-10. This report summarizes liquid and gaseous releases and solid waste shipments from the HCGS for the period July 1 through December 31, 1990.

Should you have any questions regarding this transmittal, please feel free to contact us.

Sincerely,

Attachment



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1/1

RERR REPORT only

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# HOPE CREEK GENERATING STATION
# SEMIANNUAL RADIOACTIVE
# EFFLUENT RELEASE REPORT
# HCGS RERR-10

DOCKET NO. 50-354
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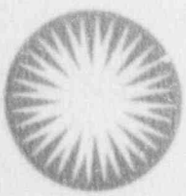

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The Energy People

HOPE CREEK GENERATING STATION
RADIOACTIVE EFFLUENT RELEASE REPORT
JULY - DECEMBER 1990

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HOPE CREEK GENERATING STATION
RADIOACTIVE EFFLUENT RELEASE REPORT
JULY - DECEMBER 1990

INTRODUCTION

This report, HCGS-RERR-10, summarizes information pertaining to the releases of radioactive materials in liquid, gaseous and solid form from the HOPE CREEK Generating Station (HCGS) for the period July 1, 1990 to December 31, 1990.

The Hope Creek Generating Station (HCGS) employs a General Electric (GE) Boiling Water Reactor designed to operate at a rated core thermal power of 3293 MWt (100% steam flow) with a gross electrical output of approximately 1118 MWe and a net output of approximately 1067 MWe. The HCGS achieved initial criticality on June 28, 1986 and went into commercial operation on December 20, 1986.

This report is prepared in the format of Regulatory Guide 1.21, Appendix B, as required by Specification 6.9.1.7 of the Hope Creek Technical Specifications.. Preceding the tables summarizing the gaseous and liquid discharges and solid waste shipments are our responses to parts A-F of the "Supplemental Information" section of Regulatory Guide 1.21, Appendix B.

As required by Regulatory Guide 1.21, our Technical Specification limits are described in detail within this report along with a summary description of how total activity measurements and their approximations were developed.

To facilitate determination of compliance with 40CFR190 requirements, the following information on electrical output is provided.

Hope Creek generated 4040517 megawatt-hours of electrical energy (net) during the reporting period.

Results of liquid and gaseous composites analyzed for Sr-89, Sr-90 and Fe-55 for the fourth quarter of 1990 were not available for inclusion in this report. The results of these composites will be provided in the next Radioactive Effluent Release Report.

The Sr-89, Sr-90 and Fe-55 analyses for the second quarter of 1990 (refer to RERR-9) have been completed; amended pages to RERR-9 are included in this report.

PART A. PRELIMINARY SUPPLEMENTAL INFORMATION

1.0 REGULATORY LIMITS

1.1 Fission and Activation Gas Release Limits

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

For noble gases: Less than or equal to 500 mrems/yr to the total body and less than or equal to 3000 mrems/yr to the skin.

In addition, the air dose due to noble gases released in gaseous effluents from the site to areas at and beyond the site boundary, shall be limited to the following:

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

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

1.2 Iodine, Particulates, and Tritium

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

For Iodine-131,133, for tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrems/yr to any organ.

In addition, the dose to a member of the public from iodine-131,133, from tritium, and from all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each reactor unit, from the site to areas at and beyond the site boundary, shall be limited to the following:

During any calendar quarter: Less than or equal to 7.5 mrems to any organ and,

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

1.3 Tritium

See Section 1.b.

1.4 Liquid Effluents Release Limits

The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10CFR20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2E-4 microcuries per milliliter.

In addition, the dose or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas shall be limited:

During any calendar quarter to less than or equal to 1.5 mrems to the total body and to less than or equal to 5 mrems to any organ, and

During any calendar year to less than or equal to 3 mrems to the total body and to less than or equal to 10 mrems to any organ.

1.5 Total Dose Limit

The annual (calendar year) dose or dose commitment to any member of the public, due to releases of radioactivity and radiation, from uranium fuel cycle sources shall be limited to less than or equal to 25 mrems to the total body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mrems).

2.0 MAXIMUM PERMISSIBLE CONCENTRATIONS (MPC)

Regulatory Guide 1.21 requires that the licensee provide the MPCs used in determining allowable release rates or concentrations for radioactive releases.

a. MPC values were not used to determine the maximum release rates for fission gases, iodines, or particulates.

b. MPC values as stated in 10CFR20, Appendix B, Table II, Column 2 are used for liquids.

c. The MPC value used for dissolved or entrained noble gases is 2E-4 microcuries per milliliter.

## 3.0 AVERAGE ENERGY

Regulatory Guide 1.21 requires that the licensee provide the average energy of the radionuclide mixture in releases of fission and activation gases, if applicable.

Release limits for HCGS are not based upon average energy. Therefore this section is not applicable to HCGS.

## 4.0 MEASUREMENTS AND APPROXIMATION OF TOTAL RADIOACTIVITY

### 4.1 Liquid Effluents

Liquid effluents are monitored in accordance with Table 4.11.1.1.1-1 of the Technical Specifications. During the period of record, all liquid wastes were rerouted to the sampling tanks for monitoring prior to release. Technical Specifications require these tanks to be uniformly mixed for sampling and analysis before being released. Batch releases are defined as releases from the equipment drain sample tanks, floor drain sample tanks, detergent drain tanks, and condensate storage tank. There are no continuous liquid releases for this reporting period. The preponderant gamma emitting nuclides detected in sampling were Cr-51, Mn-54 and Zn-65. Specific activities from analyses were multiplied by the volume of effluent discharged to the environment in order to calculate the total liquid activity discharged.

The detection requirements of Table 4.1.1.1-1 of the Technical Specifications are achieved or exceeded. Nuclides measured at concentrations below the Technical Specification detection limit (LLDs) are treated as being present. Nuclides for which no activity was detected while meeting the required LLDs are treated as absent.

### 4.2 Gaseous Effluents

Gaseous effluent streams are monitored and sampled in accordance with Table 4.11.2.1.2-1 of the Technical Specifications. The north plant vent (NPV) and south plant vent (SPV) are the final release points for most planned gaseous effluent releases. A small quantity of

gaseous effluent will be released via the filtration, recirculation, and ventilation system (FRVS) vent during testing periods. The NPV and SPV are continuously monitored for iodines, particulates and noble gases; the FRVS is continuously monitored for noble gases. The NPV and SPV monitors have moving particulate and fixed carbon filters; the FRVS monitor has fixed particulate and carbon filters. The filters are changed weekly, as a minimum, and are analyzed on a multi-channel analyzer. The NPV and SPV are sampled monthly for noble gases and tritium.

The detection requirements of Tables 4.11.2.1.2-1 of the Technical Specifications are achieved or exceeded. Nuclides measured at concentrations below the Technical Specification detection limits (LLDs), are treated as being present. Nuclides for which no activity was detected while meeting the LLD values are treated as absent.

Continuous Mode gaseous releases are quantified by routine (monthly) sampling and isotopic analyses of the plant vents. If noble gases are detected, during the routine sampling, the measured concentrations are adjusted using the radiation monitoring readings to obtain an average concentration for the period. This average concentration is then multiplied by the total vent flow value for the entire sampling period in order to estimate the normal continuous release of radioactivity through the plant vent.

When monthly noble gas grab samples yield no detectable activity, continuous mode releases are quantified by integrating Radiation Monitor System readings above background. Noble gas isotopic abundances for these integrations are based on the ANSI N237-1976/ANS-18.1 mix for BWRs. Doses calculated from this data employ the methods from Section 2.0 and Appendix C of the Hope Creek ODCM.

Batch Mode gaseous releases (primary containment purge) are quantified by pre-release sampling and isotopic analysis. Specific activities for each isotope are multiplied by the total volume in order to estimate the batch release of radioactivity through the plant vent.

Elevated plant vent radiation monitoring system readings while the channel is in an alarm state are treated as batch mode releases. If specific activity data from grab samples taken is not available, then the abnormal release is quantified by the use of the plant vent radiation monitors. The monitor's response is converted to a "specific activity" using historical efficiency factors. The "specific activity" is multiplied by the volume of effluent discharged while the channel was in an alarm state in order to estimate the total activity discharged.

4.4 Estimated Total Error

The estimated total error of reported liquid releases is within 25%.

The estimated total error of the reported continuous gaseous releases is within 50% when concentrations exceed detectable levels. This error is due primarily to variability of waste stream flow rates and changes in isotopic distributions of waste streams between sampling periods. The estimated total error of the reported batch gaseous releases is within 10%.

Error estimates for releases where sample activity is below the detectable concentration levels are not included since error estimates at the LLD are not defined.

The estimated total error of reported solid releases is within 25%.

5.0 BATCH RELEASES

Summaries of batch releases of gaseous and liquid effluents are provided in Tables 4A and 4B.

6.0 UNPLANNED RELEASES

During the reporting period there was one unplanned release of airborne radioactive material during a plant scram. On Sunday, November 4, 1990, with the Unit operating at 100% reactor power (1098 MWe) and with all major equipment in service, a reactor scram occurred as a result of a single main steam isolation valve closing due to a broken instrument gas supply line to the pilot actuator. The reactor protective system functioned normally during the scram. In response to a low condenser vacuum, operators

placed the mechanical vacuum pumps in service. The mechanical vacuum pumps discharge to the south plant vent. The unplanned release occurred during plant cooldown for a

period of nineteen hours. Four hundred thirty-six (436) curies of noble gases were released via a monitored pathway, the south plant vent. The maximum release rate was 24,400 microcuries per second. The average release rate during the 19 hour period was 265 microcuries per second. No release limits were exceeded during the unplanned release. In accordance with Section 4.b of this report, the radioactive material discharged as a result of the unplanned release is included in Table 1B, 4th quarter gaseous effluents, batch mode.

## 7.0 ELEVATED RADIATION MONITOR RESPONSES

During this reporting period, the plant vent radiation monitors indicated slightly elevated readings on several occasions. As indicated above monitor readings were quantified and treated as continuous releases. The elevated readings are included in Tables 1A and 1B.

## 8.0 MODIFICATION TO PREVIOUS RADIOACTIVE EFFLUENT RELEASE REPORTS

Our last report (RERR-9) did not include the second quarter Sr-89, Sr-90 and Fe-55 composite data for the first half of 1990. Amended pages to RERR-9 are included at the end of this report.

## Part B GASEOUS EFFLUENTS

See Summary Tables 1A through 1C.

## Part C. LIQUID EFFLUENTS

See Summary Tables 2A through 2C.

## Part D. SOLID WASTE

See Summary in Table 3.

## Part E. RADIOLOGICAL IMPACT ON MAN

The calculated individual doses in this section are based on actual locations of nearby residents and farms. The population dose impact is based on historical site specific data i.e., food production, milk production, feed for milk animals and seafood production.

The doses were calculated using methods described in Regulatory Guide 1.109 and represent calculations for the six month reporting interval. Individual doses from batch and continuous releases were calculated using the annual average historic meteorological dispersion coefficients as described in the Offsite Dose Calculation Manual. Population doses were calculated using the meteorological dispersion coefficients for the six month reporting interval.

Liquid Pathways

Doses to individuals in the population from liquid releases are primarily from the seafood ingestion pathway. The total body dose to an individual was calculated to be 5.52E-02 mrem. The calculated highest organ dose from liquid releases was 1.54E-01 mrem to the liver. The calculated population total body dose was 9.68E-01 person-rem. The calculated average total body dose to the population within fifty miles of the site was 1.62E-04 mrem/person.

Air Pathways

The resulting total body and skin doses to an individual were calculated to be 1.63E+00 mrem and 3.03E+00 mrem respectively. The calculated highest organ dose due to radioiodines and particulates with at greater than eight day half-life was 1.20E-02 mrem to the thyroid. The calculated population total body dose was 2.58E+00 person-rem. The calculated average total body dose to the population within fifty miles of the site was 4.83E-04 mrem/person.

Direct Radiation

Direct radiation may be estimated by Thermoluminescent dosimetric (TLD) measurements. One method for comparing TLD measurements is by comparison with pre-operational data. It should be noted that the TLDs measure direct radiation from both the Salem and Hope Creek Generating Stations at Artificial Island.

TLDs at onsite locations 2S-2 and 5S-1, which are 0.3 miles and 0.9 miles from the point of origin, averaged 4.9 and 4.2 mrad/month respectively. The values for stations 2S-2 and 5S-1 are within the statistical variation associated with the pre-operational program results. The pre-operational values for these locations are 3.7 mrad/month at 2S-2 and 4.2 mrad/month at 5S-1.

It should be noted the nearest resident is 3.5 miles away. It can thus be concluded that there is no measurable dose to any offsite location from direct radiation.

Part F. METEOROLOGICAL DATA

Cumulative joint wind frequency distributions by atmospheric stability class at the 300 foot elevation are provided for the third and fourth quarters of 1990 in Tables 5 and 6.

Part G. OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES

During this period, there were no changes to the HCGS Off-Site Dose Calculation Manual.

Part H. INOPERABLE MONITORS

During this period, there were no effluent monitors inoperable for greater than 30 days.

HOPE CREEK GENERATING STATION
TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

| | Units | 3rd Quarter | 4th Quarter | Est. Total Error % (1) |
|---|---|---|---|---|
| A. Fission and Activation Gases | | | | |
| 1. Total release | Ci | 6.91E+01 | 6.87E+02 | 25 |
| 2. Average release rate for period | µCi/sec | 8.79E+00 | 8.74E+01 | |
| 3. Percent of technical specification limit (T.S. 3.11.2.2(a)) | % | 9.43E-01 | 7.53E+00 | |
| B. Iodines | | | | |
| 1. Total iodine-131,133 | Ci | 0.00E+00 | 1.35E-03 | 25 |
| 2. Average release rate for period | µCi/sec | 0.00E+00 | 1.70E-04 | |
| 3. Percent of technical specification limit (2) (T.S. 3.11.2.3(a)) | % | 1.66E-05 | 1.60E-01 | |
| C. Particulates | | | | |
| 1. Particulates with half-lives >8 days | Ci | 3.83E-07 | 8.74E-05 | 25 |
| 2. Average release rate for period | µCi/sec | 4.28E-08 | 1.10E-05 | |
| 3. Percent of technical specification limit (2) (T.S. 3.11.2.3(a)) | % | 1.66E-05 | 1.60E-01 | |
| 4. Gross alpha | Ci | 0.00E+00 | 0.00E+00 | |
| C. Tritium | | | | |
| 1. Total Release | Ci | 3.16E+01 | 4.20E+01 | 25 |
| 2. Average release rate for period | µCi/sec | 3.97E+00 | 5.29E+00 | |
| 3. Percent of technical specification limit (2) (T.S. 3.11.2.3(a)) | % | 1.66E-05 | 1.60E-01 | |

(1) For batch releases the estimated overall error is within 10%
(2) Iodine, tritium and particulates are treated as a group

HOPE CREEK GENERATING STATION
TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

| | | CONTINUOUS MODE | | BATCH MODE | |
|---|---|---|---|---|---|
| Nuclides Released | Units | 3rd Quarter | 4th Quarter | 3rd Quarter | 4th Quarter |
| 1. Fission Gases | | | | | |
| Krypton-83m | Ci | 6.91E-01 | 2.54E+00 | 0.00E+00 | 0.00E+00 |
| Krypton-85m | Ci | 6.91E-01 | 2.54E+00 | 0.00E+00 | 4.34E+01 |
| Krypton-87 | Ci | 2.76E+00 | 1.01E+01 | 0.00E+00 | 6.26E+01 |
| Krypton-88 | Ci | 2.76E+00 | 1.01E+01 | 0.00E+00 | 1.08E+02 |
| Krypton-89 | Ci | 1.87E+01 | 6.84E+01 | 0.00E+00 | 0.00E+00 |
| Xenon-133 | Ci | 1.38E+00 | 5.07E+00 | 0.00E+00 | 6.70E+01 |
| Xenon-133m | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.37E+00 |
| Xenon-135 | Ci | 3.46E+00 | 1.27E+01 | 0.00E+00 | 1.45E+02 |
| Xenon-135m | Ci | 4.15E+00 | 1.52E+01 | 0.00E+00 | 6.70E+00 |
| Xenon-137 | Ci | 2.14E+01 | 7.86E+01 | 0.00E+00 | 0.00E+00 |
| Xenon-138 | Ci | 1.31E+01 | 4.82E+01 | 0.00E+00 | 0.00E+00 |
| Totals | Ci | 6.91E+01 | 2.54E+02 | 0.00E+00 | 4.36E+02 |
| 2. Iodines | | | | | |
| Iodine-131 | Ci | 0.00E+00 | 1.20E-03 | 0.00E+00 | 0.00E+00 |
| Iodine-133 | Ci | 0.00E+00 | 1.47E-04 | 0.00E+00 | 0.00E+00 |
| Totals | Ci | 0.00E+00 | 1.35E-03 | 0.00E+00 | 0.00E+00 |
| 3. Particulates (half-lives >8 days | | | | | |
| Chromium-51 | Ci | 0.00E+00 | 8.81E-08 | 0.00E+00 | 0.00E+00 |
| Manganese-54 | Ci | 1.53E-07 | 3.68E-05 | 0.00E+00 | 0.00E+00 |
| Iron-59 | Ci | 0.00E+00 | 5.04E-05 | 0.00E+00 | 0.00E+00 |
| Zinc-65 | Ci | 2.30E-07 | 5.56E-08 | 0.00E+00 | 0.00E+00 |
| Totals | Ci | 3.83E-07 | 8.73E-05 | 0.00E+00 | 0.00E+00 |

HOPE CREEK GENERATING STATION

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

JULY - DECEMBER 1990

GASEOUS EFFLUENTS-ELEVATED RELEASES

| Nuclide Releases | 3rd Quarter | 4th Quarter | 3rd Quarter | 4th Quarter |
|---|---|---|---|---|

There were no elevated gaseous releases during this reporting period.

HOPE CREEK GENERATING STATION
TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990

LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

| | Units | 3rd Quarter | 4th Quarter | Est. Total Error % (1) |
|---|---|---|---|---|
| A. Fission and activation products | | | | |
| 1. Total release (not including tritium, gases, alpha) | Ci | 2.75E-01 | 1.38E-02 | 25 |
| 2. Average diluted concentration during period | µCi/ml | 1.91E-06 | 3.88E-08 | |
| 3. Percent of technical specification limit (T.S. 3.11.1.2.(a)) | % | 5.16E+00 | 1.22E+00 | |
| B. Tritium | | | | |
| 1. Total release | Ci | 7.24E-01 | 3.39E+00 | 25 |
| 2. Average diluted concentration during period | µCi/ml | 5.02E-06 | 9.54E-06 | |
| 3. Percent of technical specification limit (T.S. 3.11.1.1) | % | 5.02E-04 | 9.54E-04 | |
| C. Dissolved and entrained noble gases | | | | |
| 1. Total release | Ci | 2.71E-04 | 2.44E-03 | 25 |
| 2. Average diluted concentration during period | µCi/ml | 1.88E-07 | 6.85E-09 | |
| 3. Percent of technical specification limit (T.S. 3.11.1.1) | % | 1.88E-07 | 6.85E-07 | |
| D. Gross alpha activity | | | | |
| 1. Total release | Ci | 0.00E+00 | 0.00E+00 | |
| E. Volume of waste release (prior to dilution - Batch Release) | liters | 6.05E+05 | 1.95E+06 | |
| F. Volume of dilution water used during entire period | liters | 1.43E+08 | 3.53E+08 | |

HOPE CREEK GENERATING STATION

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990

LIQUID EFFLUENTS

| | | CONTINUOUS MODE | | BATCH MODE | |
|---|---|---|---|---|---|
| Nuclides Released | Units | 3rd Quarter | 4th Quarter | 3rd Quarter | 4th Quarter |
| Sodium-24 | Ci | 0.00E+00 | 0.00E+00 | 5.87E-06 | 0.00E+00 |
| Chromium-51 | Ci | 0.00E+00 | 0.00E+00 | 2.47E-03 | 1.96E-03 |
| Manganese-54 | Ci | 0.00E+00 | 0.00E+00 | 5.44E-03 | 3.18E-03 |
| Iron-55 | Ci | 0.00E+00 | 0.00E+00 | 2.50E-01 | 0.00E+00 |
| Cobalt-58 | Ci | 0.00E+00 | 0.00E+00 | 5.22E-05 | 7.25E-05 |
| Iron-59 | Ci | 0.00E+00 | 0.00E+00 | 1.50E-04 | 6.66E-04 |
| Cobalt-60 | Ci | 0.00E+00 | 0.00E+00 | 1.62E-03 | 7.76E-04 |
| Zinc-65 | Ci | 0.00E+00 | 0.00E+00 | 1.51E-02 | 7.01E-03 |
| Silver-110m | Ci | 0.00E+00 | 0.00E+00 | 3.66E-05 | 7.48E-05 |
| Iodine-131 | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.73E-06 |
| TOTALS | Ci | 0.00E+00 | 0.00E+00 | 2.75E-01 | 1.38E-02 |
| Tritium | Ci | 0.00E+00 | 0.00E+00 | 7.24E-01 | 3.39E+00 |
| Xenon-133 | Ci | 0.00E+00 | 0.00E+00 | 9.44E-05 | 2.24E-03 |
| Xenon-135 | Ci | 0.00E+00 | 0.00E+00 | 1.77E-04 | 1.93E-04 |
| TOTALS | Ci | 0.00E+00 | 0.00E+00 | 7.24E-01 | 3.39E+00 |

HOPE CREEK GENERATING STATION

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
(Not irradiated fuel)

| 1. Type of waste | | Units(1) | 6-month period | Est. Total Error, % |
|---|---|---|---|---|
| a. | Spent resins, filters, sludges, evaporator bottoms | m3<br>Ci | 1.13E+02<br>5.58E+02 | 25 |
| b. | Dry compressible waste, contaminated equipment. | m3<br>Ci | 1.21E+01<br>1.80E+00 | 25 |
| c. | Irradiated components, control rods | m3<br>Ci | 0.00E+00<br>0.00E+00 | 25 |
| d. | Others<br>Lubricating Oil | m3<br>Ci | 1.98E+01<br>1.48E+00 | 25 |

Estimate of major nuclide composition (for Type A and B waste)

| | RESIN | | DAW | | OIL | |
|---|---|---|---|---|---|---|
| | % | Curies | % | Curies | % | Curies |
| Hydrogen-3 | 0.0 | 0.00E+00 | 0.0 | 0.00E+00 | 1.2 | 1.78E-02 |
| Chromium-51 | 1.4 | 7.80E+00 | 1.4 | 2.00E-02 | 7.4 | 1.10E-01 |
| Manganese-54 | 2.0 | 1.12E+01 | 2.0 | 4.00E-02 | 7.1 | 1.05E-02 |
| Iron-55 | 18.0 | 1.00E+02 | 18.0 | 3.00E-01 | 34.1 | 2.66E-01 |
| Iron-59 | 0.1 | 5.58E-01 | 0.1 | 1.80E-02 | 0.9 | 1.33E-02 |
| Cobalt-58 | 0.2 | 1.12E+00 | 0.2 | 3.00E-03 | 0.6 | 8.89E-03 |
| Cobalt-60 | 1.3 | 7.20E+00 | 1.3 | 2.00E-02 | 2.6 | 3.85E-02 |
| Zinc-65 | 76.8 | 4.28E+02 | 76.8 | 1.40E+00 | 45.1 | 6.67E-01 |
| Nickel-63 | 0.1 | 5.58E-01 | 0.1 | 1.80E-02 | 0.0 | 0.00E+00 |
| Cerium-144 | 0.0 | 0.00E+00 | 0.0 | 0.00E+00 | 0.5 | 7.40E-03 |

(1) Volumes are measured, activities are estimated

HOPE CREEK GENERATING STATION

TABLE 3
(CONT'D)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

3. Solid Waste Disposition

| Number of Shipments | Mode of Transportation | Destination | Type of Containers |
|---|---|---|---|
| 20 | Truck | Barnwell, SC | HIC and 17C drums |
| 3 | Truck | Barnwell, SC | Strong, tight Containers |
| 1 | Truck | Oak Ridge, TN | 17C drums |

4. IRRADIATED FUEL SHIPMENTS (Disposition)

| Number of Shipments | Mode of Transportation | Destination |
|---|---|---|
| none | N/A | N/A |

HOPE CREEK GENERATING STATION
TABLE 4A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1. Dates: July - September 30, 1990

2. Type of release: Gas

3. Number of releases during the 3rd Quarter: 0

4. Total time duration for all releases of type listed above:
0 minutes

5. Maximum duration for release of type listed above:
0 minutes

6. Average duration for release of type listed above:
0 minutes

7. Minimum duration for release of type listed above:
0 minutes

8. Average stream flow (dilution flow) during the period of release: N/A

HOPE CREEK GENERATING STATION
TABLE 4A
(CONT'D)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1. Dates: October 1 - December 31, 1990

2. Type of release: Gas

3. Number of releases during the 4th Quarter: 2

4. Total time duration for all releases of type listed above:
3978 minutes

5. Maximum duration for release of type listed above:
3092 minutes

6. Average duration for release of type listed above:
1989 minutes

7. Minimum duration for release of type listed above:
886 minutes

8. Average stream flow (dilution flow) during the period of release: N/A

HOPE CREEK GENERATING STATION
TABLE 4B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1. Dates: July 1 - September 30, 1990

2. Type of release: Liquid

3. Number of releases during the 3rd Quarter: 13

4. Total time duration for all releases of type listed above:
3724 minutes

5. Maximum duration for release of type listed above:
591 minutes

6. Average duration for release of type listed above:
286 minutes

7. Minimum duration for release of type listed above:
50 minutes

8. Average stream flow (dilution flow) during the period of
release: 29808 gpm

HOPE CREEK GENERATING STATION
TABLE 4B
(CONT'D)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
JULY - DECEMBER 1990
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1. Dates: October 1 - December 31, 1990

2. Type of release: Liquid

3. Number of releases during the 4th Quarter: 39

4. Total time duration for all releases of type listed above:
14463 minutes

5. Maximum duration for release of type listed above:
1783 minutes

6. Average duration for release of type listed above:
370 minutes

7. Minimum duration for release of type listed above:
70 minutes

8. Average stream flow (dilution flow) during the period of release: 26909 gpm

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: LE -1.9 DEG C/100M
CLASS A

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 2 | 0.1 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| SSE | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| S | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| SSW | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 |
| SW | 0 | 0.0 | 0 | 0.0 | 8 | 0.4 | 8 | 0.4 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 17 | 0.9 |
| WSW | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 |
| W | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 3 | 0.2 |
| WNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 2 | 0.1 | 2 | 0.1 | 0 | 0.0 | 6 | 0.3 |
| NW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 3 | 0.2 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | 0 | 0.0 | 2 | 0.1 | 19 | 1.0 | 19 | 1.0 | 8 | 0.4 | 5 | 0.3 | 0 | 0.0 | 53 | 2.7 |

MEAN WIND SPEED: 9.9
MISSING: 0

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -1.8 TO -1.7 DEG C/100M
CLASS B

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 4 | 0.2 | 3 | 0.2 | 5 | 0.3 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 15 | 0.8 |
| NNE | 0 | 0.0 | 1 | 0.1 | 4 | 0.2 | 7 | 0.4 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 14 | 0.7 |
| NE | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 4 | 0.2 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| E | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 |
| SSE | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 9 | 0.5 |
| S | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 8 | 0.4 |
| SSW | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 0.4 |
| SW | 0 | 0.0 | 1 | 0.1 | 6 | 0.3 | 6 | 0.3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 13 | 0.7 |
| WSW | 0 | 0.0 | 0 | 0.0 | 7 | 0.4 | 4 | 0.2 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 13 | 0.7 |
| W | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 1 | 0.1 | 5 | 0.3 | 3 | 0.2 | 0 | 0.0 | 15 | 0.8 |
| WNW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 | 0 | 0.0 | 8 | 0.4 |
| NW | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 3 | 0.2 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 9 | 0.5 |
| NNW | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 | 5 | 0.3 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 13 | 0.7 |
| | 0 | 0.0 | 11 | 0.6 | 50 | 2.5 | 48 | 2.4 | 21 | 1.1 | 9 | 0.5 | 0 | 0.0 | 139 | 7.0 |

MEAN WIND SPEED: 9.2
MISSING: 4

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -1.6 TO -1.5 DEG C/100M
CLASS C

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 1 | 0.1 | 3 | 0.2 | 9 | 0.5 | 4 | 0.2 | 1 | 0.1 | 0 | 0.0 | 18 | 0.9 |
| NNE | 0 | 0.0 | 1 | 0.1 | 5 | 0.3 | 7 | 0.4 | 9 | 0.5 | 0 | 0.0 | 0 | 0.0 | 22 | 1.1 |
| NE | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| SE | 0 | 0.0 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 2 | 0.1 | 6 | 0.3 |
| SSE | 0 | 0.0 | 1 | 0.1 | 3 | 0.2 | 6 | 0.3 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 12 | 0.6 |
| S | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 |
| SSW | 0 | 0.0 | 1 | 0.1 | 1 | 0.1 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 |
| SW | 0 | 0.0 | 1 | 0.1 | 8 | 0.4 | 4 | 0.2 | 5 | 0.3 | 0 | 0.0 | 2 | 0.1 | 20 | 1.0 |
| WSW | 0 | 0.0 | 3 | 0.2 | 5 | 0.3 | 9 | 0.5 | 5 | 0.3 | 0 | 0.0 | 0 | 0.0 | 22 | 1.1 |
| W | 0 | 0.0 | 1 | 0.1 | 7 | 0.4 | 2 | 0.1 | 7 | 0.4 | 1 | 0.1 | 0 | 0.0 | 18 | 0.9 |
| WNW | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 8 | 0.4 |
| NW | 0 | 0.0 | 3 | 0.2 | 4 | 0.2 | 1 | 0.1 | 4 | 0.2 | 4 | 0.2 | 0 | 0.0 | 16 | 0.8 |
| NNW | 0 | 0.0 | 1 | 0.1 | 6 | 0.3 | 13 | 0.7 | 9 | 0.5 | 1 | 0.1 | 0 | 0.0 | 30 | 1.5 |
| | 0 | 0.0 | 14 | 0.7 | 52 | 2.6 | 59 | 3.0 | 55 | 2.8 | 8 | 0.4 | 4 | 0.2 | 192 | 9.7 |

MEAN WIND SPEED: 10.4
MISSING: 15

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: 1.4 TO -0.5 DEG C/100M
CLASS D

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 1 | 0.1 | 7 | 0.4 | 16 | 0.8 | 8 | 0.4 | 4 | 0.2 | 0 | 0.0 | 36 | 1.8 |
| NNE | 0 | 0.0 | 2 | 0.1 | 10 | 0.5 | 10 | 0.5 | 37 | 1.9 | 10 | 0.5 | 0 | 0.0 | 69 | 3.5 |
| NE | 0 | 0.0 | 3 | 0.2 | 6 | 0.3 | 20 | 1.0 | 19 | 1.0 | 10 | 0.5 | 1 | 0.1 | 59 | 3.0 |
| ENE | 0 | 0.0 | 2 | 0.1 | 2 | 0.1 | 8 | 0.4 | 12 | 0.6 | 5 | 0.3 | 0 | 0.0 | 29 | 1.5 |
| E | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 |
| ESE | 0 | 0.0 | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 |
| SE | 0 | 0.0 | 3 | 0.2 | 3 | 0.2 | 7 | 0.4 | 5 | 0.3 | 4 | 0.2 | 9 | 0.5 | 31 | 1.6 |
| SSE | 0 | 0.0 | 7 | 0.4 | 17 | 0.9 | 28 | 1.4 | 58 | 2.9 | 12 | 0.6 | 2 | 0.1 | 124 | 6.3 |
| S | 0 | 0.0 | 5 | 0.3 | 9 | 0.5 | 29 | 1.5 | 23 | 1.2 | 7 | 0.4 | 0 | 0.0 | 73 | 3.7 |
| SSW | 0 | 0.0 | 2 | 0.1 | 10 | 0.5 | 26 | 1.3 | 13 | 0.7 | 8 | 0.4 | 0 | 0.0 | 59 | 3.0 |
| SW | 0 | 0.0 | 8 | 0.4 | 10 | 0.5 | 15 | 0.8 | 28 | 1.4 | 4 | 0.2 | 3 | 0.2 | 68 | 3.4 |
| WSW | 0 | 0.0 | 7 | 0.4 | 9 | 0.5 | 17 | 0.9 | 15 | 0.8 | 0 | 0.0 | 0 | 0.0 | 48 | 2.4 |
| W | 0 | 0.0 | 3 | 0.2 | 13 | 0.7 | 9 | 0.5 | 20 | 1.0 | 9 | 0.5 | 0 | 0.0 | 54 | 2.7 |
| WNW | 0 | 0.0 | 4 | 0.2 | 8 | 0.4 | 3 | 0.2 | 9 | 0.5 | 3 | 0.2 | 0 | 0.0 | 27 | 1.4 |
| NW | 0 | 0.0 | 3 | 0.2 | 5 | 0.3 | 10 | 0.5 | 7 | 0.4 | 3 | 0.2 | 0 | 0.0 | 28 | 1.4 |
| NNW | 0 | 0.0 | 4 | 0.2 | 14 | 0.7 | 17 | 0.9 | 13 | 0.7 | 3 | 0.2 | 2 | 0.1 | 53 | 2.7 |
| | 0 | 0.0 | 56 | 2.8 | 127 | 6.4 | 218 | 11.0 | 270 | 13.7 | 82 | 4.1 | 17 | 0.9 | 770 | 38.9 |

MEAN WIND SPEED: 12.1
MISSING: 124

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -0.4 TO 1.5 DEG C/100M
CLASS E

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 9 | 0.5 | 7 | 0.4 | 11 | 0.6 | 11 | 0.6 | 0 | 0.0 | 38 | 1.9 |
| NNE | 0 | 0.0 | 2 | 0.1 | 5 | 0.3 | 11 | 0.6 | 18 | 0.9 | 1 | 0.1 | 0 | 0.0 | 37 | 1.9 |
| NE | 0 | 0.0 | 1 | 0.1 | 4 | 0.2 | 15 | 0.8 | 13 | 0.7 | 1 | 0.1 | 0 | 0.0 | 34 | 1.7 |
| ENE | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 20 | 1.0 | 8 | 0.4 | 0 | 0.0 | 0 | 0.0 | 30 | 1.5 |
| E | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 5 | 0.3 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 12 | 0.6 |
| ESE | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 6 | 0.3 | 5 | 0.3 | 0 | 0.0 | 0 | 0.0 | 17 | 0.9 |
| SE | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 6 | 0.3 | 5 | 0.3 | 1 | 0.1 | 0 | 0.0 | 13 | 0.7 |
| SSE | 0 | 0.0 | 0 | 0.0 | 11 | 0.6 | 15 | 0.8 | 6 | 0.3 | 0 | 0.0 | 0 | 0.0 | 33 | 1.7 |
| S | 0 | 0.0 | 1 | 0.1 | 11 | 0.6 | 15 | 0.8 | 6 | 0.3 | 0 | 0.0 | 0 | 0.0 | 33 | 1.7 |
| SSW | 0 | 0.0 | 3 | 0.2 | 8 | 0.4 | 15 | 0.8 | 21 | 1.1 | 3 | 0.2 | 0 | 0.0 | 50 | 2.5 |
| SW | 0 | 0.0 | 3 | 0.2 | 9 | 0.5 | 11 | 0.6 | 34 | 1.7 | 12 | 0.6 | 1 | 0.1 | 70 | 3.5 |
| WSW | 0 | 0.0 | 4 | 0.2 | 7 | 0.4 | 24 | 1.2 | 35 | 1.8 | 10 | 0.5 | 0 | 0.0 | 80 | 4.0 |
| W | 0 | 0.0 | 3 | 0.2 | 11 | 0.6 | 10 | 0.5 | 17 | 0.9 | 4 | 0.2 | 0 | 0.0 | 45 | 2.3 |
| WNW | 0 | 0.0 | 6 | 0.3 | 20 | 1.0 | 21 | 1.1 | 14 | 0.7 | 1 | 0.1 | 0 | 0.0 | 62 | 3.1 |
| NW | 0 | 0.0 | 6 | 0.3 | 7 | 0.4 | 13 | 0.7 | 21 | 1.1 | 3 | 0.2 | 1 | 0.1 | 51 | 2.6 |
| NNW | 0 | 0.0 | 3 | 0.2 | 11 | 0.6 | 17 | 0.9 | 27 | 1.4 | 11 | 0.6 | 1 | 0.1 | 70 | 3.5 |
| | 0 | 0.0 | 1 | 0.1 | 10 | 0.5 | 12 | 0.6 | 17 | 0.9 | 16 | 0.8 | 1 | 0.1 | 57 | 2.9 |
| | 0 | 0.0 | 33 | 1.7 | 124 | 6.3 | 208 | 10.5 | 256 | 12.9 | 74 | 3.7 | 4 | 0.2 | 699 | 35.4 |

MEAN WIND SPEED: 12.0
MISSING: 66

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: 1.6 TO 4.0 DEG C/100M
CLASS F

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 8 | 0.4 | 21 | 1.1 | 6 | 0.3 | 0 | 0.0 | 37 | 1.9 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 8 | 0.4 |
| NE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 8 | 0.4 | 0 | 0.0 | 0 | 0.0 | 10 | 0.5 |
| E | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| ESE | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 |
| SSE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 |
| S | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1 | 0.1 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 |
| SSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 1 | 0.1 | 0 | 0.0 | 5 | 0.3 |
| SW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.2 | 3 | 0.2 | 1 | 0.1 | 0 | 0.0 | 7 | 0.4 |
| WSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 |
| W | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 1 | 0.1 | 1 | 0.1 | 0 | 0.0 | 3 | 0.2 |
| WNW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.3 |
| NW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 3 | 0.2 | 5 | 0.3 | 1 | 0.1 | 0 | 0.0 | 11 | 0.6 |
| NNW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 6 | 0.3 | 8 | 0.4 | 2 | 0.1 | 0 | 0.0 | 18 | 0.9 |
| | 0 | 0.0 | 3 | 0.2 | 9 | 0.5 | 35 | 1.8 | 64 | 3.2 | 13 | 0.7 | 0 | 0.0 | 124 | 6.3 |

MEAN WIND SPEED: 13.5
MISSING: 6

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: GT 4.0 DEG C/100M
CLASS G

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SSE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| S | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| WSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| W | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| WNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| - | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

MEAN WIND SPEED: 0.0
MISSING: 0

ARTIFICIAL ISLAND 7/90 - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

ALL STABILITY CLASSES

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 6 | 0.3 | 24 | 1.2 | 45 | 2.3 | 47 | 2.4 | 22 | 1.1 | 0 | 0.0 | 144 | 7.3 |
| NNE | 0 | 0.0 | 6 | 0.3 | 24 | 1.2 | 39 | 2.0 | 70 | 3.5 | 11 | 0.6 | 0 | 0.0 | 150 | 7.6 |
| NE | 0 | 0.0 | 4 | 0.2 | 14 | 0.7 | 38 | 1.9 | 41 | 2.1 | 13 | 0.7 | 1 | 0.1 | 111 | 5.6 |
| ENE | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 34 | 1.7 | 29 | 1.5 | 5 | 0.3 | 0 | 0.0 | 74 | 3.7 |
| E | 0 | 0.0 | 1 | 0.1 | 7 | 0.4 | 9 | 0.5 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 21 | 1.1 |
| ESE | 0 | 0.0 | 3 | 0.2 | 7 | 0.4 | 7 | 0.4 | 10 | 0.5 | 0 | 0.0 | 0 | 0.0 | 27 | 1.4 |
| SE | 0 | 0.0 | 4 | 0.2 | 5 | 0.3 | 20 | 1.0 | 14 | 0.7 | 5 | 0.3 | 11 | 0.6 | 59 | 3.0 |
| SSE | 0 | 0.0 | 9 | 0.5 | 39 | 2.0 | 55 | 2.8 | 65 | 3.3 | 13 | 0.7 | 2 | 0.1 | 183 | 9.3 |
| S | 0 | 0.0 | 12 | 0.6 | 24 | 1.2 | 47 | 2.4 | 48 | 2.4 | 11 | 0.6 | 0 | 0.0 | 142 | 7.2 |
| SSW | 0 | 0.0 | 6 | 0.3 | 29 | 1.5 | 44 | 2.2 | 51 | 2.6 | 21 | 1.1 | 1 | 0.1 | 152 | 7.7 |
| SW | 0 | 0.0 | 14 | 0.7 | 39 | 2.0 | 60 | 3.0 | 72 | 3.6 | 15 | 0.8 | 5 | 0.3 | 205 | 10.4 |
| WSW | 0 | 0.0 | 15 | 0.8 | 33 | 1.7 | 41 | 2.1 | 46 | 2.3 | 4 | 0.2 | 0 | 0.0 | 139 | 7.0 |
| W | 0 | 0.0 | 12 | 0.6 | 44 | 2.2 | 36 | 1.8 | 47 | 2.4 | 16 | 0.8 | 0 | 0.0 | 155 | 7.8 |
| WNW | 0 | 0.0 | 10 | 0.5 | 25 | 1.3 | 24 | 1.2 | 32 | 1.6 | 13 | 0.7 | 1 | 0.1 | 105 | 5.3 |
| NW | 0 | 0.0 | 9 | 0.5 | 26 | 1.3 | 35 | 1.8 | 48 | 2.4 | 20 | 1.0 | 1 | 0.1 | 139 | 7.0 |
| NNW | 0 | 0.0 | 6 | 0.3 | 37 | 1.9 | 53 | 2.7 | 50 | 2.5 | 22 | 1.1 | 3 | 0.2 | 171 | 8.6 |
| | 0 | 0.0 | 119 | 6.0 | 381 | 19.3 | 587 | 29.7 | 674 | 34.1 | 191 | 9.7 | 25 | 1.3 | 1977 | 100.0 |

MISSING HOURS: 231

MEAN WIND SPEED: 11.7

ARTIFICIAL ISLAND 7/9[illegible] - 9/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

DIRECTION VS SPEED ONLY

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 7 | 0.4 | 27 | 1.4 | 46 | 2.3 | 47 | 2.4 | 22 | 1.1 | 0 | 0.0 | 149 | 7.5 |
| NNE | 0 | 0.0 | 6 | 0.3 | 25 | 1.3 | 39 | 2.0 | 70 | 3.5 | 11 | 0.6 | 0 | 0.0 | 151 | 7.6 |
| NE | 0 | 0.0 | 4 | 0.2 | 14 | 0.7 | 38 | 1.9 | 41 | 2.1 | 13 | 0.7 | 1 | 0.1 | 111 | 5.6 |
| ENE | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 34 | 1.7 | 29 | 1.5 | 5 | 0.3 | 0 | 0.0 | 74 | 3.7 |
| E | 0 | 0.0 | 1 | 0.1 | 7 | 0.4 | 9 | 0.5 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 21 | 1.1 |
| ESE | 0 | 0.0 | 3 | 0.2 | 7 | 0.4 | 7 | 0.4 | 10 | 0.5 | 0 | 0.0 | 0 | 0.0 | 27 | 1.4 |
| SE | 0 | 0.0 | 4 | 0.2 | 5 | 0.3 | 20 | 1.0 | 14 | 0.7 | 5 | 0.3 | 11 | 0.6 | 59 | 3.0 |
| SSE | 0 | 0.0 | 9 | 0.5 | 39 | 2.0 | 57 | 2.9 | 68 | 3.4 | 13 | 0.7 | 2 | 0.1 | 188 | 9.4 |
| S | 0 | 0.0 | 12 | 0.6 | 24 | 1.2 | 47 | 2.4 | 48 | 2.4 | 11 | 0.6 | 0 | 0.0 | 142 | 7.1 |
| SSW | 0 | 0.0 | 6 | 0.3 | 29 | 1.5 | 44 | 2.2 | 51 | 2.6 | 21 | 1.1 | 1 | 0.1 | 152 | 7.6 |
| SW | 0 | 0.0 | 14 | 0.7 | 39 | 2.0 | 62 | 3.1 | 72 | 3.6 | 15 | 0.8 | 5 | 0.3 | 207 | 10.4 |
| WSW | 0 | 0.0 | 15 | 0.8 | 33 | 1.7 | 41 | 2.1 | 46 | 2.3 | 4 | 0.2 | 0 | 0.0 | 139 | 7.0 |
| W | 0 | 0.0 | 12 | 0.6 | 44 | 2.2 | 36 | 1.8 | 47 | 2.4 | 16 | 0.8 | 0 | 0.0 | 155 | 7.8 |
| WNW | 0 | 0.0 | 10 | 0.5 | 25 | 1.3 | 24 | 1.2 | 32 | 1.6 | 13 | 0.7 | 1 | 0.1 | 105 | 5.3 |
| NW | 0 | 0.0 | 10 | 0.5 | 26 | 1.3 | 35 | 1.8 | 48 | 2.4 | 20 | 1.0 | 1 | 0.1 | 140 | 7.0 |
| NNW | 0 | 0.0 | 6 | 0.3 | 39 | 2.0 | 53 | 2.7 | 50 | 2.5 | 22 | 1.1 | 3 | 0.2 | 173 | 8.7 |
| | 0 | 0.0 | 121 | 6.1 | 387 | 19.4 | 592 | 29.7 | 677 | 34.0 | 191 | 9.6 | 25 | 1.3 | 1993 | 100.0 |

MISSING HOURS: 215

MEAN WIND SPEED: 11.7

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: LE -1.9 DEG C/100M
CLASS A

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| SSE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| S | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| WSW | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| W | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 |
| WNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 4 | 0.2 | 0 | 0.0 | 6 | 0.3 |
| NW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 2 | 0.1 | 4 | 0.2 |
| | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 11 | 0.5 | 4 | 0.2 | 8 | 0.4 | 2 | 0.1 | 27 | 1.2 |

MEAN WIND SPEED: 15.0
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -1.8 TO -1.7 DEG C/100M
CLASS B

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 6 | 0.3 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| SSE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| S | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| SSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| WSW | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| W | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 5 | 0.2 |
| WNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 4 | 0.2 | 1 | 0.0 | 9 | 0.4 |
| NW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 6 | 0.3 | 8 | 0.4 | 11 | 0.5 | 28 | 1.3 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 5 | 0.2 | 5 | 0.2 | 4 | 0.2 | 17 | 0.8 |
| | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 18 | 0.8 | 17 | 0.8 | 20 | 0.9 | 17 | 0.8 | 76 | 3.5 |

MEAN WIND SPEED: 17.5
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -1.6 TO -1.5 DEG C/100M
CLASS C

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 5 | 0.2 | 2 | 0.1 | 2 | 0.1 | 1 | 0.0 | 12 | 0.5 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| NE | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| ESE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 |
| SSE | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| S | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SSW | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| SW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 |
| WSW | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 1 | 0.0 | 1 | 0.0 | 2 | 0.1 | 0 | 0.0 | 7 | 0.3 |
| W | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 | 1 | 0.0 | 2 | 0.1 | 1 | 0.0 | 9 | 0.4 |
| WNW | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 2 | 0.1 | 3 | 0.1 | 3 | 0.1 | 5 | 0.2 | 16 | 0.7 |
| NW | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 3 | 0.1 | 8 | 0.4 | 6 | 0.3 | 9 | 0.4 | 29 | 1.3 |
| NNW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 6 | 0.3 | 3 | 0.1 | 2 | 0.1 | 1 | 0.0 | 14 | 0.6 |
| | 0 | 0.0 | 2 | 0.1 | 21 | 1.0 | 30 | 1.4 | 22 | 1.0 | 17 | 0.8 | 17 | 0.8 | 109 | 5.0 |

MEAN WIND SPEED: 14.6
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -1.4 TO -0.5 DEG C/100M
CLASS D

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 2 | 0.1 | 3 | 0.1 | 6 | 0.3 | 7 | 0.3 | 3 | 0.1 | 13 | 0.6 | 34 | 1.5 |
| NNE | 0 | 0.0 | 0 | 0.0 | 15 | 0.7 | 5 | 0.2 | 3 | 0.1 | 0 | 0.0 | 0 | 0.0 | 23 | 1.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 8 | 0.4 | 12 | 0.5 | 2 | 0.1 | 0 | 0.0 | 28 | 1.3 |
| ENE | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 2 | 0.1 | 3 | 0.1 | 0 | 0.0 | 8 | 0.4 |
| E | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 |
| ESE | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 2 | 0.1 | 1 | 0.0 | 0 | 3.0 | 0 | 0.0 | 6 | 0.3 |
| SE | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 6 | 0.3 | 8 | 0.4 | 2 | 0.1 | 6 | 0.3 | 25 | 1.1 |
| SSE | 0 | 0.0 | 2 | 0.1 | 3 | 0.1 | 5 | 0.2 | 10 | 0.5 | 5 | 0.2 | 0 | 0.0 | 25 | 1.1 |
| S | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 8 | 0.4 | 9 | 0.4 | 22 | 1.0 | 4 | 0.2 | 46 | 2.1 |
| SSW | 0 | 0.0 | 3 | 0.1 | 3 | 0.1 | 8 | 0.4 | 10 | 0.5 | 4 | 0.2 | 4 | 0.2 | 32 | 1.5 |
| SW | 0 | 0.0 | 4 | 0.2 | 6 | 0.3 | 15 | 0.7 | 4 | 0.2 | 1 | 0.0 | 0 | 0.0 | 30 | 1.4 |
| WSW | 0 | 0.0 | 1 | 0.0 | 9 | 0.4 | 5 | 0.2 | 1 | 0.0 | 2 | 0.1 | 1 | 0.0 | 19 | 0.9 |
| W | 0 | 0.0 | 1 | 0.0 | 2 | 0.1 | 6 | 0.3 | 8 | 0.4 | 13 | 0.6 | 2 | 0.1 | 32 | 1.5 |
| WNW | 0 | 0.0 | 3 | 0.1 | 5 | 0.2 | 1 | 0.0 | 13 | 0.6 | 11 | 0.5 | 16 | 0.7 | 49 | 2.2 |
| NW | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 4 | 0.2 | 11 | 0.5 | 41 | 1.9 | 22 | 1.0 | 84 | 3.7 |
| NNW | 0 | 0.0 | 1 | 0.0 | 6 | 0.3 | 11 | 0.5 | 15 | 0.7 | 14 | 0.6 | 5 | 0.2 | 52 | 2.4 |
| | 0 | 0.0 | 22 | 1.0 | 71 | 3.2 | 92 | 4.2 | 115 | 5.2 | 123 | 5.6 | 73 | 3.3 | 496 | 22.6 |

MEAN WIND SPEED: 16.0
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/93

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: -0.4 TO 1.5 DEG C/100M
CLASS E

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 3 | 0.1 | 0 | 0.0 | 9 | 0.4 | 12 | 0.5 | 26 | 1.2 | 10 | 0.5 | 60 | 2.7 |
| NNE | 0 | 0.0 | 4 | 0.2 | 10 | 0.5 | 5 | 0.2 | 9 | 0.4 | 2 | 0.1 | 0 | 0.0 | 30 | 1.4 |
| NE | 0 | 0.0 | 1 | 0.0 | 1 | 0.0 | 8 | 0.4 | 7 | 0.3 | 3 | 0.1 | 0 | 0.0 | 20 | 0.9 |
| ENE | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 6 | 0.3 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 12 | 0.5 |
| E | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 | 9 | 0.4 | 4 | 0.2 | 1 | 0.0 | 0 | 0.0 | 19 | 0.9 |
| ESE | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 5 | 0.2 | 3 | 0.1 | 7 | 0.3 | 1 | 0.0 | 20 | 0.9 |
| SE | 0 | 0.0 | 1 | 0.0 | 8 | 0.4 | 17 | 0.8 | 17 | 0.8 | 20 | 0.9 | 21 | 1.0 | 84 | 3.8 |
| SSE | 0 | 0.0 | 2 | 0.1 | 9 | 0.4 | 9 | 0.4 | 20 | 0.9 | 11 | 0.5 | 12 | 0.5 | 63 | 2.9 |
| S | 0 | 0.0 | 2 | 0.1 | 11 | 0.5 | 10 | 0.5 | 15 | 0.7 | 11 | 0.5 | 4 | 0.2 | 53 | 2.4 |
| SSW | 0 | 0.0 | 2 | 0.1 | 9 | 0.4 | 31 | 1.4 | 37 | 1.7 | 19 | 0.9 | 6 | 0.3 | 104 | 4.7 |
| SW | 0 | 0.0 | 2 | 0.1 | 9 | 0.4 | 22 | 1.0 | 31 | 1.4 | 22 | 1.0 | 9 | 0.4 | 95 | 4.3 |
| WSW | 0 | 0.0 | 0 | 0.0 | 7 | 0.3 | 20 | 0.9 | 24 | 1.1 | 16 | 0.7 | 3 | 0.1 | 70 | 3.2 |
| W | 0 | 0.0 | 3 | 0.1 | 7 | 0.3 | 15 | 0.7 | 13 | 0.6 | 11 | 0.5 | 2 | 0.1 | 51 | 2.3 |
| WNW | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 7 | 0.3 | 23 | 1.0 | 12 | 0.5 | 6 | 0.3 | 54 | 2.5 |
| NW | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 10 | 0.5 | 42 | 1.9 | 63 | 2.9 | 9 | 0.4 | 125 | 5.7 |
| NNW | 0 | 0.0 | 3 | 0.1 | 2 | 0.1 | 19 | 0.9 | 49 | 2.2 | 42 | 1.9 | 15 | 0.7 | 130 | 5.9 |
| | 0 | 0.0 | 28 | 1.3 | 88 | 4.0 | 202 | 9.2 | 307 | 14.0 | 267 | 12.2 | 98 | 4.5 | 990 | 45.1 |

MEAN WIND SPEED: 16.1
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: 1.6 TO 4.0 DEG C/100M
CLASS F

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 | 8 | 0.4 | 1 | 0.0 | 0 | 0.0 | 14 | 0.6 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 | 17 | 0.8 | 0 | 0.0 | 0 | 0.0 | 22 | 1.0 |
| NE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 2 | 0.1 | 2 | 0.1 | 0 | 0.0 | 10 | 0.5 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 |
| E | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 8 | 0.4 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 12 | 0.5 |
| ESE | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 3 | 0.1 | 5 | 0.2 | 1 | 0.0 | 0 | 0.0 | 13 | 0.6 |
| SE | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 13 | 0.6 | 4 | 0.2 | 1 | 0.0 | 1 | 0.0 | 23 | 1.0 |
| SSE | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 5 | 0.2 | 3 | 0.1 | 1 | 0.0 | 10 | 0.5 | 21 | 1.0 |
| S | 0 | 0.0 | 2 | 0.1 | 4 | 0.2 | 4 | 0.2 | 5 | 0.2 | 2 | 0.1 | 4 | 0.2 | 21 | 1.0 |
| SSW | 0 | 0.0 | 1 | 0.0 | 6 | 0.3 | 6 | 0.3 | 24 | 1.1 | 14 | 0.6 | 14 | 0.6 | 65 | 3.0 |
| SW | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 10 | 0.5 | 19 | 0.9 | 21 | 1.0 | 12 | 0.5 | 66 | 3.0 |
| WSW | 0 | 0.0 | 0 | 0.0 | 6 | 0.3 | 8 | 0.4 | 18 | 0.8 | 12 | 0.5 | 1 | 0.0 | 45 | 2.1 |
| W | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 | 9 | 0.4 | 9 | 0.4 | 6 | 0.3 | 0 | 0.0 | 28 | 1.3 |
| WNW | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 2 | 0.1 | 0 | 0.0 | 1 | 0.0 | 6 | 0.3 |
| NW | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 2 | 0.1 | 9 | 0.4 | 6 | 0.3 | 0 | 0.0 | 20 | 0.9 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 8 | 0.4 | 16 | 0.7 | 2 | 0.1 | 0 | 0.0 | 26 | 1.2 |
| | 0 | 0.0 | 7 | 0.3 | 37 | 1.7 | 96 | 4.4 | 143 | 6.5 | 69 | 3.1 | 43 | 2.0 | 395 | 18.0 |

MEAN WIND SPEED: 15.5
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

LAPSE RATE: GT 4.0 DEG C/100M
CLASS G

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| NNE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 3 | 0.1 | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 |
| NE | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 |
| ENE | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| E | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| ESE | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SE | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| SSE | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 8 | 0.4 |
| S | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 3 | 0.1 | 7 | 0.3 | 7 | 0.3 | 2 | 0.1 | 20 | 0.9 |
| SSW | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 7 | 0.3 | 10 | 0.5 | 3 | 0.1 | 0 | 0.0 | 24 | 1.1 |
| SW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 | 4 | 0.2 | 2 | 0.1 | 0 | 0.0 | 11 | 0.5 |
| WSW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 3 | 0.1 | 0 | 0.0 | 0 | 0.0 | 4 | 0.2 |
| W | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 4 | 0.2 | 6 | 0.3 | 6 | 0.3 | 1 | 0.0 | 18 | 0.8 |
| WNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 1 | 0.0 | 0 | 0.0 | 3 | 0.1 |
| NW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| NNW | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | 0 | 0.0 | 5 | 0.2 | 9 | 0.4 | 27 | 1.2 | 37 | 1.7 | 19 | 0.9 | 4 | 0.2 | 101 | 4.6 |

MEAN WIND SPEED: 13.9
MISSING: 0

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

ALL STABILITY CLASSES

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 5 | 0.2 | 5 | 0.2 | 30 | 1.4 | 30 | 1.4 | 35 | 1.6 | 24 | 1.1 | 129 | 5.9 |
| NNE | 0 | 0.0 | 4 | 0.2 | 25 | 1.1 | 20 | 0.9 | 34 | 1.5 | 2 | 0.1 | 0 | 0.0 | 85 | 3.9 |
| NE | 0 | 0.0 | 2 | 0.1 | 8 | 0.4 | 22 | 1.0 | 22 | 1.0 | 7 | 0.3 | 0 | 0.0 | 61 | 2.8 |
| ENE | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 | 14 | 0.6 | 3 | 0.1 | 4 | 0.2 | 0 | 0.0 | 26 | 1.2 |
| E | 0 | 0.0 | 1 | 0.0 | 10 | 0.5 | 19 | 0.9 | 7 | 0.3 | 1 | 0.0 | 0 | 0.0 | 38 | 1.7 |
| ESE | 0 | 0.0 | 4 | 0.2 | 8 | 0.4 | 11 | 0.5 | 9 | 0.4 | 8 | 0.4 | 1 | 0.0 | 41 | 1.9 |
| SE | 0 | 0.0 | 2 | 0.1 | 16 | 0.7 | 40 | 1.8 | 31 | 1.4 | 23 | 1.0 | 28 | 1.3 | 140 | 6.4 |
| SSE | 0 | 0.0 | 5 | 0.2 | 20 | 0.9 | 24 | 1.1 | 35 | 1.6 | 17 | 0.8 | 23 | 1.0 | 124 | 5.7 |
| S | 0 | 0.0 | 6 | 0.3 | 19 | 0.9 | 25 | 1.1 | 38 | 1.7 | 42 | 1.9 | 14 | 0.6 | 144 | 6.6 |
| SSW | 0 | 0.0 | 7 | 0.3 | 22 | 1.0 | 52 | 2.4 | 83 | 3.8 | 40 | 1.8 | 24 | 1.1 | 228 | 10.4 |
| SW | 0 | 0.0 | 7 | 0.3 | 20 | 0.9 | 57 | 2.6 | 58 | 2.6 | 46 | 2.1 | 21 | 1.0 | 209 | 9.5 |
| WSW | 0 | 0.0 | 3 | 0.1 | 25 | 1.1 | 35 | 1.6 | 47 | 2.1 | 32 | 1.5 | 5 | 0.2 | 147 | 6.7 |
| W | 0 | 0.0 | 5 | 0.2 | 16 | 0.7 | 43 | 2.0 | 38 | 1.7 | 39 | 1.8 | 7 | 0.3 | 148 | 6.7 |
| WNW | 0 | 0.0 | 5 | 0.2 | 14 | 0.6 | 14 | 0.6 | 46 | 2.1 | 35 | 1.6 | 29 | 1.3 | 143 | 6.5 |
| NW | 0 | 0.0 | 4 | 0.2 | 9 | 0.4 | 23 | 1.0 | 76 | 3.5 | 125 | 5.7 | 51 | 2.3 | 288 | 13.1 |
| NNW | 0 | 0.0 | 4 | 0.2 | 10 | 0.5 | 47 | 2.1 | 88 | 4.0 | 67 | 3.1 | 27 | 1.2 | 243 | 11.1 |
| | 0 | 0.0 | 65 | 3.0 | 231 | 10.5 | 476 | 21.7 | 645 | 29.4 | 523 | 23.8 | 254 | 11.6 | 2194 | 100.0 |

MISSING HOURS: 14

MEAN WIND SPEED: 15.8

ARTIFICIAL ISLAND 10/90-12/90

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: 300 FT
DELTA T: (300-33FT)

DIRECTION VS SPEED ONLY

WIND SPEED GROUPS (MPH)

| | 0.0-0.5 | | 0.6-3.5 | | 3.6-7.5 | | 7.6-12.5 | | 12.6-18.5 | | 18.6-24.5 | | GE 24.6 | | SUM PERCENT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIRECTION | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | SUM | PERCENT | | |
| N | 0 | 0.0 | 5 | 0.2 | 5 | 0.2 | 30 | 1.4 | 30 | 1.4 | 35 | 1.6 | 24 | 1.1 | 129 | 5.8 |
| NNE | 0 | 0.0 | 4 | 0.2 | 25 | 1.1 | 20 | 0.9 | 34 | 1.5 | 2 | 0.1 | 0 | 0.0 | 85 | 3.9 |
| NE | 0 | 0.0 | 2 | 0.1 | 8 | 0.4 | 22 | 1.0 | 22 | 1.0 | 7 | 0.3 | 0 | 0.0 | 61 | 2.8 |
| ENE | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 | 14 | 0.6 | 3 | 0.1 | 4 | 0.2 | 0 | 0.0 | 26 | 1.2 |
| E | 0 | 0.0 | 1 | 0.0 | 10 | 0.5 | 19 | 0.9 | 7 | 0.3 | 1 | 0.0 | 0 | 0.0 | 38 | 1.7 |
| ESE | 0 | 0.0 | 4 | 0.2 | 8 | 0.4 | 11 | 0.5 | 9 | 0.4 | 8 | 0.4 | 1 | 0.0 | 41 | 1.9 |
| SE | 0 | 0.0 | 2 | 0.1 | 15 | 0.7 | 40 | 1.8 | 31 | 1.4 | 23 | 1.0 | 28 | 1.3 | 140 | 6.3 |
| SSE | 0 | 0.0 | 5 | 0.2 | 20 | 0.9 | 24 | 1.1 | 35 | 1.6 | 17 | 0.8 | 23 | 1.0 | 124 | 5.6 |
| S | 0 | 0.0 | 6 | 0.3 | 19 | 0.9 | 25 | 1.1 | 38 | 1.7 | 42 | 1.9 | 14 | 0.6 | 144 | 6.5 |
| SSW | 0 | 0.0 | 7 | 0.3 | 22 | 1.0 | 52 | 2.4 | 83 | 3.8 | 40 | 1.8 | 24 | 1.1 | 228 | 10.3 |
| SW | 0 | 0.0 | 7 | 0.3 | 20 | 0.9 | 57 | 2.6 | 58 | 2.6 | 46 | 2.1 | 21 | 1.0 | 209 | 9.5 |
| WSW | 0 | 0.0 | 3 | 0.1 | 25 | 1.1 | 35 | 1.6 | 49 | 2.2 | 33 | 1.5 | 5 | 0.2 | 150 | 6.8 |
| W | 0 | 0.0 | 6 | 0.3 | 16 | 0.7 | 44 | 2.0 | 44 | 2.0 | 39 | 1.8 | 7 | 0.3 | 156 | 7.1 |
| WNW | 0 | 0.0 | 5 | 0.2 | 14 | 0.6 | 14 | 0.6 | 48 | 2.2 | 35 | 1.6 | 29 | 1.3 | 145 | 6.6 |
| NW | 0 | 0.0 | 4 | 0.2 | 9 | 0.4 | 23 | 1.0 | 76 | 3.4 | 125 | 5.7 | 51 | 2.3 | 288 | 13.0 |
| NNW | 0 | 0.0 | 4 | 0.2 | 10 | 0.5 | 47 | 2.1 | 88 | 4.0 | 67 | 3.0 | 27 | 1.2 | 243 | 11.0 |
| | 0 | 0.0 | 66 | 3.0 | 231 | 10.5 | 477 | 21.6 | 655 | 29.7 | 524 | 23.7 | 254 | 11.5 | 2207 | 100.0 |

MISSING HOURS: 1

MEAN WIND SPEED: 15.8

AMENDMENT TO RERR 9

Liquid Pathways

Doses to individuals in the population from liquid releases are primarily from the seafood ingestion pathway. The total body dose to an individual was calculated to be 5.91E-01 mrem. The calculated highest organ dose from liquid releases was 1.33E+00 mrem to the liver. The calculated population total body dose was 8.32E+00 person-rem. The calculated average total body dose to the population within fifty miles of the site was 1.39E-03 mrem/person.

Air Pathway

The resulting total body and skin doses to an individual were calculated to be 1.88E-01 mrem and 4.08E-01 mrem respectively. The calculated highest organ dose due to radioiodines and particulates with a greater than eight day half-life was 6.82E-04 mrem to the liver. The calculated population total body dose was 4.74E-01 person-rem. The calculated average total body dose to the population within fifty miles of the site was 7.94E-05 mrem/person.

Direct Radiation

Direct radiation may be estimated by Thermoluminescent dosimetric (TLD) measurements. One method for comparing TLD measurements is by comparison with pre-operational data. It should be noted that the TLDs measure direct radiation from both the Salem and Hope Creek Generating Stations at Artificial Island.

TLDs at onsite locations 2S-2 and 5S-1, which are 0.3 miles and 0.9 miles from the point of origin, averaged 4.6 and 4.1 mrads/month, respectively. The values for stations 2S-2 and 5S-1 are within the statistical variation associated with the pre-operational program results.

It should be noted that the nearest resident is 3.5 miles away. It can thus be concluded that there is no measurable dose to any offsite location from direct radiation.

Part F. METEOROLOGICAL DATA

Cumulative joint wind frequency distributions by atmospheric stability class at the 300 foot elevation are provided for the third and fourth quarters of 1990 in Tables 5 and 6.

REDO TABLES 2A AND 2B
FROM:
LAST RERR NUMBER 9

1. Change Fission & Activation Products to include:
Fe-55, Sr-89, & Sr-90 results
from last 2 quarters

2. Change footnotes accordingly

3. Redline changes

4. Append revised tables to latest RERR Number 10