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AUG 2 7 1992

NLR-N92122

United States Nuclear Regulatory Commission Document Control Desk Washington, DC 20555

Gentlemen:

RADIOACTIVE EFFLUENT RELEASE REPORT - 13 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-13. This report summarizes liquid and gaseous releases and solid waste shipments from the Hope Creek Generating Station for the period January 1 through June 30, 1992.

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

Sincerely, Attim & Multiply, An 3CB

Attachment (1)

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RERR REPORT only

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DOCKET NO. 50-354 OPERATING LICENSE NO. NFP-57



AUGUST, 1992

PSEG

The Energy People

HOPE CREEK GENERATING STATION RADIOACTIVE EFFLUENT RELEASE REPORT JANUARY - JUNE 1992

Table	of (Contents
INTRO	DUCT	ION
PART	Α.	PRELIMINARY SUPPLEMENTAL INFORMATION
	1.0	REGULATORY LIMITS
	2.0	MAXIMUM PERMISSIBLE CONCENTRATIONS (MPC)
	3.0	AVERAGE ENERGY
	4.0	MEASUREMENTS AND APPROXIMATION OF TOTAL RADIOACTIVITY 4
	5 0	BATCH RELEASES
	6.0	UNPLANNED RELEASES 6
	7.0	ELEVATED RADIATION MONITOR RESPONSES 6
	8.0	MODIFICATION TO PREVIOUS RADIOACTIVE EFFLUENT RELEASE REPORTS
PART	В.	GASEOUS EFFLUENTS
PART	C.	LIQUID EFFLUENTS
PART	D.	SOLID WASTE
PART	E.	RADIOLOGICAL IMPACT ON MAN
PART	F.	METEOROLOGICAL DATA
PART	G.	OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES 11
PART	н.	INOPERABLE MONITORS
PART	r I.	ENVIRONMENTAL MONITORING LOCATION CHANGES 11

HOPE CREEK GENERATING STATION RADIOACTIVE EFFLUENT RELEAS' EPORT JANUARY - JUNE 1992

INTRODUCTION

This report, HCGS-RERR-12, 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 January 1, 1992 to June 30, 1992.

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 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 4,070,028 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 second quarter of 1992 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 half of 1991 (refer to RERR-12) have been completed; amended pages to RERR-12 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, I-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 offluents 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 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 dore commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas shall be limited to:

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

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

1.4 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 liquid effluents.
- 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 of the Technical Specifications. During the period of record, all liquid wastes were routed 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 the condensate storage tank dike. Normally, there are no continuous liquid releases. Specific activities from analyses were multiplied by the volume of effluent discharged to the environment in order to determine the total liquid activity discharged.

The detection requirements of Table 4.1.1.1-1 of the Technical Specifications are achieved or exceeded. Radionuclides measured at concentrations below the Technical Specification detection limit (LLDs) are treated as being present. Radionuclides 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 lodine, particulates and noble gases; the FRVS is continuously monitored for noble gases. The NPV and SPV monitors have moving particulate and fixed charcoal filters; the FRVS monitor has fixed particulate a d charcoal filters.

The filters and charcoal are changed weekly, and are analyzed on a multichannel 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. Radionuclides measured at concentrations below the Technical Specification detection limit (LLDs) are treated as being present. Radionuclides for which no activity was detected while meeting the required LLDs 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 vent grab samples yield no detectable activity, continuous mode releases are quantified by integrating Radiation Monitor System readings. 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 purge flow 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 dis narged.

4.3 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 this reporting period there were no unplanned releases.

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-12) did not include the quarterly Sr-R9, Sr-90 and Fe-55 composite data for the second half of 1991. Amended pages to RERR-12 are included at the end of this report.

Additionally calculational errors were found in previous reports, amended pages are included at 'he end of this report.

PART B. GASEOUS EFFLUENTS

See Summary Tables ! A through 1C.

PART C. LIQUID EFFLUENTS

See Summary Tables 2A through 2B.

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, fet i 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. Calculated doses to individuals are as shown below.

Total body lose to an individual: 3.59E-02 mrem Highest organ dose: 1.01E-01 mrem to the GI-LLI

Dose to the 6 million individuals living within the 50 mile radius of the plant site:

Total population dose: 4.05E-01 person-rem

Average population dose: 6.78E-05 mrem/person

Air Pathways

The calculated doses to individuals via the air pathway are shown below:

Total body dose: 3.20E-01 mrem

Skin dose: 7.00E-01 mrem

Highest organ dose due to radioiodines and particulates with half lives greater than 8 days:

1.96E-04 mrem to the Liver.

Dose to the 6 million individuals living within the 50 mile radius of the plant site:

Total population dose: 3.48E-01 person-rem

Average population dose: 5.83E-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, and natural background radiation.

TLD data for the six month reporting period is given below:

TLD	Location	Measurement
2S-2 5S-1	0.3 mile	5.7 mrad/month

These values are intepreted to represent natural background, since the values are within the statistical variation associated with the pre-operational program results, which are 3.7 mrad/month for location 2S-2, and 4.2 mrad/month for location 5S-1.

Total Dose

40CFR190 limits the total dose to members of the public due to radioactivity and radiation from uranium fuel cycle sources to:

<25 mrem total body or any organ <75 mrem thyroid

for a calendar year. For Artificial Island, the major sources of dose are from liquid and gaseous effluents from the Hope Creek and Salem plants.

The following doses to a member of the public have been calculated for the six month reporting period. They are the sum of gaseous and liquid pathway doses for the Salem 1 and 2 and Hope Creek plants:

0.778 mrem total body

2.930 mrem organ (GI-LLI)

0.179 mrem thyroid

Duse to members of the public due to activities inside the site boundary.

In accordance with the requirements of Technical Specification 6.9.1.7, the dose to members of the public inside the site boundary has been calculated based on the following assumptions:

* Such persons are participating or spectators in local softball league

* 10 hours per week on site

* dose due to airborne pathway (inhalation and immersion)

* persons are located about 3/4 mile east of plant discharge points (baseball fields)

* occupancy coincides with batch gaseous discharges

For the six month reporting period, the calculated doses are:

5.52E-04 mrem total body 5.61E-04 mrem organ (Lung)

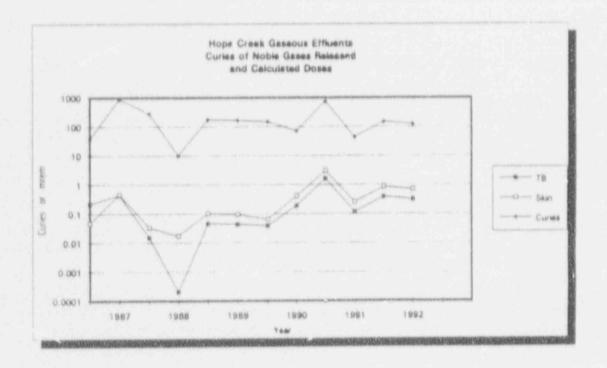
Assessment

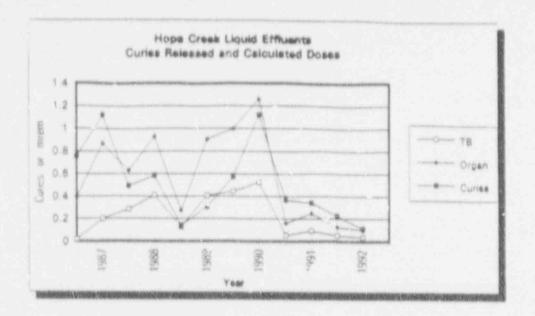
Hope Creek gaseous effluents continue to be one of the lowest of United States BWRs, with an avarage release rate of 7.8 microcuries per second, characteristic of a plant with no cladding defects.

Individual noble gas radionuclide concentrations are too low to measure directly. Calculated doses from noble gases are based on a default isotopic mixture, which assumes little decay, and has principally short lived species with large dose factors. Because of this assumed isotopic mix, caculated dose; are probably conservative by a factor of 25, assuming that the actual discharge consisted of mostly Xenon-133.

Hope Creek liquid effluents decreased slightly from previous reporting period. Calculated doses are due principally to isotopes of iron and zinc.

The following two trend graphs show the gaseous and liquid effluents and calculated doses from Hope Creek since plant initial operation in 1986.





PART F. METEOROLOGICAL DATA

Cumulative joint wind frequency distributions by atmospheric stability class at the 300 foot elevation are provided for the first and second quarters of 1992 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.

PART I. ENVIRONMENTAL MONITORING LOCATION CHANGES

During the reporting period, there were one change to the environmental monitoring sampling locations. Farm 14F4 was added to the Environmental Monitoring Program due to a neighboring farm (14F1) ceasing dairy operations.

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JANUARY - JUNE 1992

GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

		Units	1st Quarte.	2nd Quarter	Est. Total Error *
Α.	Fission and Activation Gases	***************************************	the cold to your do the work the		
	1. Total release 2. Average release	Ci	1.08E+02	1.43E+01	25
	rate for period 3. Percent of technical specification limit	μCi/sec	1.37E+01	1.82E+00	
	(T.S. 3.11.2.2(a))	4	1.48E+00	1.96E-01	
3 .	Iodines 1. Total iodine-131,133 2. Average release	ci	0.00E+00	0.00E+00	25
	rate for period 3. Percent of technical specification limit		0.00E+00	0.00E+00	
	(T.S. 3.11.2.3(a))	*	1.46E=03	1.15E-03	
2.	Particulates 1. Particulates with				
	half-lives >8 days 2. Average release	Ci	9.05E-04	6.35E+04	25
	rate for period 3. Percent of technical specification limit		1.15E-04	8.0817-05	
	(T.S. 3.11.2.3(a))	1	46E-03	1.15E-03	
	4. Gross alpha	Ci	9.72E-06	0.00E+00	
D,	Tritium 1. Total Release	ci	7.92E-02	5.87E+00	25
	2. Average release rate for period 3. Percent of technical	μCl/sec	1.01E-02		
	specification limit (T.S. 3.11.2.3(a))	(2)	1.46E-03	1.15E-03	

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

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JANUARY - JUNE 1992 GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

	nar peggan kendir kiraknalanas	CONTINU	OUS MODE	BATCH	MODE
Nuclides Released	Unit	1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
1. Fission Gases					
Krypton-83m Krypton-85m Krypton-87 Krypton-88 Krypton-89 Xenon-133 Xenon-135 Xenon-135m Xenon-137 Xenon-138		1.09E+00 1.09E+00 4.36E+00 4.36E+00 2.94E+01 2.14E+00 5.45E+00 6.54E+00 3.38E+01 2.03E+01	1.41E-01 1.41E-01 5.66E-01 5.66E-01 3.22E+00 2.83E-01 7.07E-01 8.47E-01 4.38E+00 2.86E+00	0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 7.89E-06 0.00E+00 0.00E+00	0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00
TOTALS	Ci	1.08E+02	1.43E+01	7.89E-06	0.00E+00
2. logines					
Iodine-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTALS	Ci	0.00E-00	0.00E+00	0.00E+00	0.00E+00
3. Particulates (half-live >8	days				
Manganese-54 2inc-65 Cobalt-60	ci ci ci	2.75E-04 5.87E-04 4 20E-05	1.13E-04 4.39E-04 5.15E-05	2.61E-09 6.02E-09 3.21E-09	4.35E-06 2.34E-05 3.75E-06
TOTALS	ci	9.05E+04	6-03E-04	1.18E-08	3.15E-05

TABLE 1C

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

JANUARY - JUNE 1992

GASEOUS EFFLUENTS-ELEVATED RELEASES

There were no elevated gaseous releases during this reporting period.

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JANUARY - JUNE 1992

LIQUID FFFLUENTS-SUMMATION OF ALL RELEASES

		Units	1st Quarter	2nd Quarter	Est. Total Error %
Α.	Fission and activation products 1. Total release (not including tritium,				
	gases alpha) 2. Average diluted concentration during	Ci	5.70E-02	5.51E-02	25
	period 3. Percent of technical	μCi/mL	5.09E-08	5.98E-08	
	specification limit (T.S. 3.11.1.2.(a))	8	1.20E+00	1.19E+00	
В.	Tritium 1. Total release 2. Average diluted	Ci	1.83E+01	2.23E+01	25
	3. Percent of technical	μCi/mL	1.63E-05	2.42E-05	
	specification limit (T.S. 3.11.1.1)	8	5.43E-01	8.07E-01	
	Dissolved and entrained noble gases 1. Total release 2. Average diluted	Ci	4.18E-03	3.41E-03	25
	3. Percent of technical	μCi/mL	3.73E-09	3.70E-09	
	specification limit (T.S. 3.11.1.1)	*	1.87E-03	1.85E-02	
٥.	Gross alpha activit: 1. Total release	Ci	0.00E+00	0.00E+00	
	Volume of waste release (prior to dilution - Batch Release)	liters	5.91E+06	4.33E+06	
	Volume of dilution water used during entire period	liters	1.27E+10	1.48E+10	

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SFMIANNUAL PEPORT JANUARY - JUNE 1992

LIQUID EFFLUENTS

		CONTINUOU	S MODE	BATCH:	MODE
Nuclides Released	Unit	1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
Niobium-95	Cí	0.00%+00	0.00E+60	7.13E-05	1.73E-05
Chromium-51	Ci	0.00E+00	0.00E+00	2.73E-02	3.13E-02
Manganese-54	Ci	0.00E+00	0.002+00	8.75103	6.60E-03
Iron-55	Ci	0.00E+00	0.00E+00	5.44F-U1	0.00E+00
Iron-59	Ci	0.003+00	0.00E+00	1.832-03	2.72E-03
Cobalt-58	Ci	0.00E+00	0.00E+00	2.48E-04	1.58E-04
Cobalt-60	ci	0.00E+00	0.0UE+00	1.94E-03	1.24E-03
Zinc-65	Ci	0.00E+00	0.00E+00	8.22E-03	9.35E-03
Silver-110m	Ci	0.00E+00	0.00E+00	2.895-03	2.96E-03
Sodium-24	Ci	0.60E-00	0.00E+00	2.53E-05	1.08E-03
Strontium-92	Ci	0.00E+00	0.00E+30	2.57E-04	0.00E+00
Arsenic-76	Ci	0.00E+00	0.00E+00	0.00E+00	2.38E-05
Cesium-137	Ci	0.00E+00	0.00E+00	0.00E+00	1.56E-05
Zirconium-97	Ci	0.00100	0.002+00	1.02F-05	1.21E-05
TOTALS	Ci	0.00E+00	0.00E+00	5.70E-U2	5.51E-02
Tritium	Ci	0.00E+0C	0.00E+00	1.83E+01	2.23E+01
Xenon=133	Ci	0.00E+00	0.00E+00	7.75E-04	4.71E-04
Xenon-135	ci	0.60E+00	0.00E+00	3.40E-03	2.94E-03
TOTALS	ci	0.00E+00	0.00E+00	1.83E+01	2.23E+01

TABLE 3

EFFLUENT AND W/STE DISPOSAL SEMIANNUAL REPORT JANUARY - JULY 1992 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

1 .	Тур	e of waste	Units(1)		Est. Total
	a.	Spent resins, filters, sludges, evaporator bottoms	m3 Ci	7.94E+01 9.49E+02	25
	b.	Dry compressible waste, contaminated equipment.	m3 Ci	8.66E+00 6.72E-01	25
	G.	Irradiated components, control rods	m3 Ci	3.25E+00 1.98E+04	25
	d.	Others (described) Oil, Freon	m3 Ci	1./9E+01 2.68E-05	25

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

	(%)	RESINS (Ci)	(%)	DAW (Ci)	(後)	OTL (Ci)
Chromium-51	13.7	1.30£+02	13.6	9.14E-02	0.0	0.00E+00
Iron-55	35.3	3,35E+02	35.2	2.37E-01	18.5	4.96E-06
Tritium (H-5)	0.0	0.00E+00	0.0	0.005+00	0.0	0.00E+00
Manganese-54	4.0	3.50E+01	4.0	2.69E-02	10.4	2.79E-06
Carbon-14	0.0	0.00E+00	0.0	0.00E+00	0.0	0.00E+00
Cobalt-60	2.4	2.23E+01	2.4	1.61E-02	8.5	2.28E-06
Nickel-63	0.0	0.00E+00	0.0	0.00E+00	0.0	0.00E+00
7inc-65	43.1	4.09E+02	43.0	2.89E-01	52.5	1.41E-05

2. Estimate of major nuclide composition (for Type C waste)

	Irradiated (%)	Hardwar (Ci)
Iron-55	56.2 1	.11E+04
Cobalt-€0	39.3 7	.77E+03
Manganese-54	2.2 4	.35E+02
Nickel-63	1.9 3	.76E+02

(1) Volumes are measured, activities are estimated

TABLE 3 (CONT'D)

EFFLUENT AND WASTE DISPOSAL SEMI ANNUAL REPORT JANUARY - JUNE 1992 SOLID WASTE AND IRRADIATED FULL SHIPMENTS

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination	Type of Containers
27	Truck	Barnwell, SC	HIC and 17E drums
2	Truck	Barnwell, SC	Steel liners
5	Truck	Oak Ridge, TN	Strong tight Containers

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

JANUARY - JUNE 1992

SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED

IN A BATCH MODE

- 1. Dates: January 1 March 31, 1992
- 2. Type of release: Gas
- 3. Number of releases "" g the 16. Quarter: 1
- 4. Total time duration for all releases of type listed above: 1.12E+03 min
- 5. Maximum duration for release of type listed above: 1.12E+03 min
- 6. Average duration for release of type listed above: 1.12E+03 min
- 7. Minimum duration for release of type listed above: 1.12E+03 min
- 8. Average stream flow (dilution flow) during the period of release: N/A

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

EFFLUENT AND WASTE DILPOSAL SELIANNUAL REPORT

JANUARY - JUNE 1992

SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED

IN A BATCH MODE

- 1. Dates: April 1 June 30, 1992
- 2. Type of release: Gas
- 3. Number of releases during the 2nd Quarter: 1
- 4. Total time duration for all releases of type listed above: 5.12E+03 min
- 5. Maximum duration for release of type listed above: 5.12E+03 min
- 6. Average duration for release of type listed above: 5.12F+03 min
- 7. Minimum duration for release of type listed above: 5.12E+03 min
- 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 JANUARY - JUNE 1992 SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED IN A BATCH MODE

- 1. Dates: January 1 March 31, 1992
- 2. Type of release: Liquid
- 3. Number of releases during the 1st Quarter: 144
- 4. Total time duration for all releases of type listed above: 1.15E+04 min
- 5. Maximum duration for release of type listed above: 1.14E+02 min
- 6. Average duration for release of type listed above: 8.00E+01 min
- 'Ainimum duration for release of type listed above: 2.5E+01 min
- Average stream flow (dilution flow) during the period of release: 25859 gpm

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

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

JANUARY - JUNE 1992

SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED

IN A BATCH MODE

- 1. Dates: April 1 June 30, 1992
- 2. Type of release: Liquid
- 3. Number of releases during the 2nd Quarter: 108
- 4. Total time duration for all releases of type listed above: 8.35E+03 min
- Maximum duration for release of type listed above: 1.03E+02 min
- 6. Average duration for release of type listed above: 7.74E+01 min
- Minimum duration for release of type listed above: 2.2E+01 min
- 8. Average stream flow (dilution flow) during the period of release: 29173 gpm

JOINT DISTRIBUTION OF WIND DIRFCTICM AND SPEED 87 ATMOSPHERIC STABILITY CLASS W.WD: 300 FT

DELTA T: (300-33FT)

LE -1.9 DEG C/100M LAPSE RATE:

CLAS. A

WIND SPEED GROUPS (MPH)

RCENT	5 0	0 0	0.0	0.0	0.1	0.1	0.0	0.1	0 0	0 0	0.0	2 0	0 3	0.5	1.5	0.5		
SUM PERCENT	9	G	0	0	6	2		M	0	900	0	9	*	11	31	11		-
24.6 PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.7	0.2		
GE 24.6 SUM PERCES	0	0	0	0	0	0	0	0	0	0	0	M	2	0	71	4		***
18.6-24.5 SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	9.5	0.5	0.2		*
18.6 SUM PE	-	0	0	0	0	0	0	0	0	0	0	en	•	4	glan (pro	2		3.3
12.6-18.5 S.M PERCENT	0.2	0.0	0.0	9.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.2	9.2	0.1		
12.0 S.M.P	1/1	0	0	0	0	2	0		0	0	0	0	N	Wh.	10	2		2.2
SUM PERCENT	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0,0	0.0	0.0	0.0	0.0	0.1	0.0	0.0		7 0
SUM	0	0	0	0	N	0	**		0		0	0	0	2	91	0		
SUM PERCENT	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	9.6	0.0		0 0
SI MIS	0	0	0	0	0	0	0	ges	0	0	0	0	0	0	c)	0		*
PERCENT	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
- H	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	9		0
SUM PERCENT	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
SUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
DIRECTION	20	NNE	HE	3.6.3	w	353	SE	SSE	un.	MSS	MS	MSM	3	FINES	NA	MAN		

MEAN WIND SPEED: 20.7 MISSING: 8

Table 5 Page 1 of 9

ARTHSTCIAL ISLAND 01/92-03/92

JOIN? DISTRIBUTION OF WIND DERECTION AND SPEED BY AIMOSPHERIC STABILITY CLASS

WIND: 2.9 FT

DELIA T: (300-33FT)

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

CLASS 8

WIND SPEED GROUPS (NPH)

SUM PERCENT			3.0	0.0	0.0	0.0	0.0	0.0	0 1	0 1	0 0	0.0	0 0	7 0	7 0	1 0	0		
SUM P			. 4	0 =		0		- 4	^		0		4 80	0	*	25	20		
9.9	RCENT	0	0.0	0 0	0 0	0.0	0.0	0.0	0.0	0.0	0 0	0 0	0.0	0.1	0.0	0.1	0.0		
GE 24.6	SUM PERCEN	q		0	0	0	0	9	0	0	0	0	0	2	9	m	*		
18.6-24.5	SUM PERCENT	0 1	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	7.0	0.0		
18.6	SIN P	^	0	0	0	0	0		0	0	0	~		9	m	0	-		
12.6-18.5	SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.0	0.5		
12.6	SUM P		0	0	0	0	0	2	0	ger	0	0	0	ger	pry	40	10		
7.6-12.5	SUM PLACEMY	0.1	9.3	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	0.3		
7.6	SUS P	2	9			0		**	0	0	0	0	0	9	0				
3.6-7.5	SUM PERCEST	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
3,00	SUM P	0	0	9	0	0	0	0	N	N	0	0	0	0	0	0	-		
6-3.5	PERCENT	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
9.0	SIM P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		c
0.0-0.5	SUM PERCERT	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
3	SIM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		¢
	DIRECTION	*	38%	NE	383	ш	353	35	325	v)	MSS	MS.	MSM.	7	7007	7.71	MMM		

16.5 MEAN WIND SPEED: MISSING:

Table 5

Fage 2 of 9

JOINT DISTRIBUTION OF WIND DIRECTION AND SFEED 87 AIMOSPHERIC STABILITY CLASS

DELTA T: (300-33FT) WIND: 300 FT

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

CLASS C

WIND SPEED GROUPS (NPH)

SUM PERCENT		. 0	2 0	0 3	0.0	0.0	0.0	0.0	3.2	0.1	0.0	0 0	7 0	0 7	9 6	1.0	9.6		1 7
SUN P		^	1 10	10			***		9	2		*	æ	15	113	21	13		7/6
GE 24	RCENT	0 0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0 1	0.1	0.1	1 0	0.0		0.5
35	SUM PERCEN	0	0	0	0	0	0	0	0	0	0	0	2	**	*	2	0		10
18.6-24.5	SUM PERCENT	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	0.1	0.2	0.1		9.0
18.6	SUR PE	0	ú	0	0	0	0	0	*	0	0	-	0		2	5	M		13
18.5	RCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.2	0.5	9.2		1.5
12. 6-18.5	SUM PERCENT	0	0	47	0	0	0	0	-	0	0	0		7	50	11	10		3.1
7.6-12.5	RCENT	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.1	0.0		m)
7.6	SLM VERCENT	Qrin.	W1	7	0	0	-	0	-	gen		0	12	4	-	2	**		56
3.6-7.5	SLAN PERCENT	0.0	0.1	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	9.2		0.7
3.6	SIM P	**	2	0		(en-	0	,		ge	0	0	-	0	0	ger	4		17
6-3.5	PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	.0.0	0.0	0.0		0.0
0.6	SUM PE	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0		0
0.5	RCENT	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
6.0-0.5	SUM PERCENT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
	DIRECTION	*	RHE	WE	3#3	ш	ESE	35	SSE	L/A	MSS	755	MSM	3	nwn	PLM	MMM		

MEAN WIND SPEED: 14.7 MISSING

Table 5 Page 3 of 9

JOHN DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

WIND: 300 FT DELIA T: (300-33FT)

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

WIND SPEED GROUPS (MPH)

	0.0	0.0-0.5	9.0	.6-3.5	3.6	3.6-7.5	7.6	7.6-12.5	12.6-18.5	18.5	100	18.6-24.5	3	0.42	-	SOM PERSON
DIRECTION	SUM P	SLAN PERCENT	3d MIS	PERCENT	S18	SUM PERCENT	SUM PERCENT	RCENT	SUM PERCENT	RCENT	SUR	SUM PERCENT	SILM	SUM PERCENT		
						0 0		0 3	10	0.5	13	9.6	0	0.0	36	5
æ	0	0.0		0.0	, ,	2 0		6.0	16	0.8	4	0.2	2	0.1	30	
NNE	0	0.0	0	0.0	0 1	0.0	3.2		76	0.7	M	0.1	60	7.0	25	7 2.
ME	0	0.0	2	0.1	10	8.0	77		3.5		0	9.6	25	0.2	99	
ENE	0	0.0	-	0.0	0-	9.0	13	0.0	0 1	2 0	c	0.0	0	0.0	23	3 1.1
w	0	0.0	2	0.1	9	2.0	30	0.0		0 0	*	0		9.0	-	
ESE	0	0.0	0	0.0	m	0.1		2.6	D	0.0		0 0		0.1	2	
SE	0	0.0	0	0.0	un.	0.2	0.	4.0	^ :	3.0		0 0	. 0	0.1	30	0 1.5
355	0	0.0	M	0.1	9	0.3	40	0.3	prin	0.0	y (0 0		0 0	8	
u	0	0.0	***	0.0	1	0.3	12	9.0	m	0.1	0	0.0		9 6		
2	0 0	0 0	pr	0.1	20	0.1	C4	0.1	pr)	9.1	0	0.0		0.0		
MOO	0 0	0 0		0 0	**	0.0	5	0.2	1	0.3	m	0.1		0		
SMS	0	0.0	5 6	9 6	٧	0 0	*	7 0	5	0.2	4	9.2				
MSM	0	0.0	0	0.0	n 1	2.0		0.6	13	40.60	4.7	0.8	23		79	
2	0	0.0	0	0.0	n	3.6	0.0	2.0	2.0		28	7 1			80	
CMU	0	0.0	2	0.1	vn.	9.2		0.0	2.5		V	2.2		0.0	6	
28	0	0.0	0	0.0	gom.	0.0	9	0.3	17	1.3		4 6	7.6	0 3	25	
N. N.	0	0.0	*	0.0	60	9.0	9	0.2	31	0.7	0					
			1	6	7.8	0 1	110	5 9	185	9.2	271	7.4	96	90.7	653	3 32.
	0	0.0	36	0.0	10	× 15	200									

MEAN MIND SPEED: 16.2 HISSING: 109

Table 5 Page 4 of 9

JOINT DISTRIBUTION OF WILD 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)

	- 8														come del	COPENT
	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 PI	ERCENT
DIRECTION	SUM PI	ERCENT	SI'M PE	ERCENT	SUM P	ENCENT	SUM P	ERCENT	SLEN P	ERCENT	SUM PE	RCENT	SUM PE	RCENT		
		0.0	0	0.0	7	0.3	11	0.5	12	0.6	7	0.3	0	0.0	37	1.8
×	0		0	0.0		0.0	15	0.7	4	0.2	3	0.1	0	0.0	22	1.1
NHE	0	0.0		0.0	4	0.2	9	0.4	12	0.6	4	0.2	. 5	0.2	34	1.7
NE	0	0.0	0		6	0.3	22	1.1	21	1.0	3	0.1	1	0.0	55	2.7
ENE	0	0.0	2	0.1	8	0.4	18	0.9	5	0.2	0	0.0	- 1	0.0	3.2	1.6
£		0.0	0	0.0	5	0.2	9	0.4	5	0.2	0	0.0	- 1	0.0	21	1.0
ESE	0	0.0	1	0.0		0.2	6	0.3	14	0.7	12	0.6	13	0.6	51	2.5
SE	0	0.0	2	0.1	4		6	0.3	- 11	0.5	10	0.5	6	0.3	43	2.1
SSE	0	0.0	3	0.1		0.3	9	0.4	5	0.2	0	0.0	0	0.0	23	1.1
5	0	9.0	1	0.0	8	0.4	17	0.8	6	0.3	- 5	0.1	1	0.0	34	1.7
SSW	0	0.0	1	0.0	6	0.3			18	0.9	6	0.3	5	0.2	46	2.3
Su	0	0.0	3	0.1	7	0.3	7	0.3	17	0.8	9	0.4	- 3	0.1	44	2.2
usu	- 0	0.0	1	0.0	4	0.2	10	0.5		0.6	14	0.7	7	0.3	46	2.3
¥	0	0.0	2	0.1	- 3	0.1		0.4	12		13	0.6	2	J.1	77	3.8
UNG	0	0.0	- 1	0.0	3	0.1	18	0.9	40	2.0	40	2.0	15	0.7	154	7.7
MA	0	0.0	. 1	0.0	5	0.2	10	0.5	83	4.1		1.0	3	0.1	56	3.3
HNU	0	0.0	0	0.0	2	0.1	17	0.8	23	1.1	21	1.0				
													+ 1			
	- 0	0.0	18	0.9	79	3.9	192	9.6	288	14.4	145	7.2	63	3.1	785	39.2

MEAN WIND SPEED: 15.0

MISSING: 31

Table 5

Page 5 of 9

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

DELTA T: (300-33FT) WIND: 300 FF

LAPSE RATE: 1.6 10 4.0 BEG C/100M CLASS F

WIND SPEED GROUPS (MPH)

	0.0	0.0-0.5	0.6	6-3.5	3.6	6.7.5	7.6-12.5	12.5	12.6-18.5	18.5	18.6	18.6.24.5	ğ	GE 24.6	SUM PERCEN	RCEN
DIRECTION	#IS	SUM PERCENT	SUR PH	PERCENT	SUM PERCENT	RCENT	SUM PERCENT	RCENT	SUM PERCENT	RCENT	SUS.	SUM PERCENT	SIM	SLIM PERCENT		
3	6	0	c	0	4	6.2	2	0.1	*	0.1	•	0.0	0	0.0	10	3.5
N M	0 0	0 0	0	0.0	6	0.2	2	0.1		0.0	9	0.0	0	0.0	80	7.0
MAE	0 0	0.0	0	0.0	2	0.1	7	0.3	0-	7.0	*	0.0	0	0.0	10	6.9
382	0 0	0.0		0.0	M	0.1	9	0.3	12	9.0	0	9.6	0	0.0	22	#11 #17
34.3	0	0.0		0.0	M	0.1	345	0.1	M	0.1	6	0.0	0	0.0	10	6.5
FSF	0	0.0	-	3.0	m	0.1	m	0.1	0	0.0	0	0.0	0	0.0	No.	0.3
35	0	0.0	2	0.1	2	0.1	11	0.5	0	0.3	1-	0.3	S	0.2	33	0 1
300	0	0.0	2	0.1	-4	0.2	11	6.5	40	0.3	W.	0.1	100	0.5	3.7	100
-	0	0.3	2	0.1	9	0.3	9	0.3	3	0.1	7	0.1	en.	0.0	20	1.0
733	0	0.0	-	0.0	gar.	0.0	2	0.1	10	0.1	J	0.2	2	0.1	40.	9.6
3	0	0.0		0.0	14	0.2	9	0.2	80	9.0	5	0.2		0.0	53	1.1
7000	0	0.0	0	0.0		0.0	-4	0.2	13	0.1	N	0.1	**	0.0	-	0.5
7	0	0 0		0.0	-	0.0	9	0.3	0	0.0		0.0	0	0.0	0	5.0
1900	0	0 0	0	0.0	14	0.5	-	0.0	ys.	0.2	0	0.0	0	0.0	10	0.5
200	0 0	0 0	C	0.0	gar.	0.0	W)	0.1	0	9.0	0	0.0	0	0.0	17	9.6
NNN	0	0.0	0	0.0	m	0.1	2	0.1	4	9.5	gen.	0.0	0	0.0	10	0.5
	0	0.0	12	9.0	27	2.3	73	3.6	K	3.7	22	1,3	5.1	1.0	255	12.7
MECH WIND SPEED:	SPEED:	13.4				Ta	b1e									
						-	Maria Control	1 4								

Page 6 of 9

JOINT DISTRIBUTION OF WIND DIDECTION AND SPEED

CY AIMOSPHERIC STABILITY CLASS WIND: 300 FI

DELTA T: (300-33FT)

G1 4.0 DEG C/109M CLASS G LAPSE RATE:

WIND SPEED CROUPS (MPH)

	0.0	0.0-0.5	9.6	.6-3.3	N.	3.6-7.5	7.6-	7.6-12.5	12.6-18.5	18.5	18.6	18.6-24.5	B	GE 24.6	4 15	SUM PERCENT	
DIRECTION	SUM P	SUM PERCENT	SUM P	PERCENT	SIM	SUM PERCENT	SUM PERCENT	RCENT	SUM PERCERT	RCERT	STORES	SLIPH DERCENT	a a	S'M PERCENT			
3	0	0 0	0	0.0	0	0.0	ę.	0.0		0.0	Ю	9.0	0	0.0	2	0.1	
2000	0	0.0	0	0	0		*	0.1	ţw.	0.0	0	0.0	0	0.0	-3	0.2	
MAC	0 0	0 0	0	0.0		0.0	-	0.0	0	0.0		0.9	0	0.0	M	0.1	
THE STATE OF	0 6	0 0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
2 2 2	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 22	0 0	0.0		0.0	0	0.0	0	0.0	0	0.6	0	0.0	0	0.0	0	0.0	
25.2	0 0	0.0	e	0 0	0	0.0	0	0.0	0	0.0	۵	0.0	co	0.0	0	0.0	
36	0 0	0.0	0	0.0	0	0.0	0	0.0	4	0.2	1	0.0	-t	0.2	0	5.0	
335	0 0	0.0	0	0.0	400	0.0	2	0.1	**	0.0	***	0.0	-e	0.2	10	0.5	
n 195	0 0	0.0	. 0	0.0	Ī	0.0	-	0.0	2	6.1	*	0.0	0	0.0	V.	0.2	
25%	0 0	0 0	0	0.0	0	0.0	-	0.0	2	0.1	2	0.1	0	0.0	SO.	0.2	
200	0 0	0 0	C	0.0	M	9.1	***	0.0	N	0.1	6	0.0	0	0.0	40	0.3	
3 7	0 0	0 0	0	0.0	0	0.0	27	0.1	2	0.1	gen	0.0	0	0.0	40	0.3	
2000	0 6	0 0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0		
777	0 0	0 0	0	0.0	que.	0.0	0	0.0	0	0.0	0	9.6	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	
	0	0.0	0	0.0	*	0.3	114	0.7	15	6.7	~	0.3	80	9.0	-21	27	
MEAN WIND SPEED:	peeb:	7.91					Table	43									
HISSING:		5					Page	7 of	σ.								

ARTIFICIAL ISLAND 01/92-03/92 JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILLTY CLASS

WIND: 300 FT DELTA T: (300-33FT)

ALL STABILITY CLASSES

WIND SPEED GROUPS (MPH)

1.2 32 1.8 22 2.2 34 2.1 56 1.6 15 0.9 7 1.4 27 1.2 34 1.5 13	22 1.1 36 1.8 36 2.8 35 0.7 7 0.3 27 1.3 34 1.7 33 0.6	SUM PE: 24 7 9 12 0 1 21 17 3	1.2 0.3 0.4 0.6 0.0 0.0 1.0 0.8	0 2 13 6 1 1 20 23	0.0 0.1 0.6 0.3 0.0 0.9	98 77 119 139 68 40 112	4.9 3.8 5.9 6.9 3.4 2.0 5.6 6.4
1.8 22 2.2 36 2.1 56 1.6 15 0.9 7 1.4 27 1.2 34 1.5 13	22 1.1 36 1.8 36 2.8 35 0.7 7 0.3 27 1.3 34 1.7 33 0.6	7 9 12 0 1 21	0.3 0.4 0.6 0.0 0.0 1.0	2 13 6 1 1 20 23	0.1 0.6 0.3 0.0 0.0	77 119 139 68 40 112	3.8 5.9 6.9 3.4 2.0 5.6
1.8 22 2.2 36 2.1 56 1.6 15 0.9 7 1.4 27 1.2 34 1.5 13	22 1.1 36 1.8 36 2.8 35 0.7 7 0.3 27 1.3 34 1.7 33 0.6	7 9 12 0 1 21	0.3 0.4 0.6 0.0 0.0 1.0	2 13 6 1 1 20 23	0.1 0.6 0.3 0.0 0.0	77 119 139 68 40 112	3.8 5.9 6.9 3.4 2.0 5.6
2.1 56 1.6 15 0.9 7 1.4 27 1.2 34 1.5 13	56 1.8 56 2.8 55 0.7 7 0.3 57 1.3 54 1.7 53 0.6	12 0 1 21	0.4 0.6 0.0 0.0 1.0 0.8	13 6 1 1 20 23	0.6 0.3 0.0 0.0	119 139 68 40 112	5.9 6.9 3.4 2.0 5.6
1.6 15 0.9 7 1.4 27 1.2 34 1.5 13	56 2.8 55 0.7 7 0.3 27 1.3 54 1.7 13 0.6	12 0 1 21	0.6 0.0 0.0 1.0	6 1 1 20 23	0.3 0.0 0.0 1.0	139 68 40 112	6.9 3.4 2.0 5.6
0.9 7 1.4 27 1.2 34 1.5 13	15 0.7 7 0.3 27 1.3 34 1.7 13 0.6	0 1 21 17	0.0 0.0 1.0 0.8	1 1 20 23	0.0 0.0 1.0	68 40 112	3.4 2.0 5.6
1.4 27 1.2 34 1.5 13	7 0.3 27 1.3 34 1.7 13 0.6	21	0.0 1.0 0.8	20 23	1.0	40 112	2.0 5.6
1.2 34 1.5 13	1.7 13 0.6	17	1.0	23	1.0	112	5.6
1.5 13	3 0.6		8.0	23			
	3 0.6	3				77,000,000	
			100 - 1	5	0.2	81	4.0
1.2 14	4 0.7	8	0.4	3	0.1	65	3.2
0.8 35	1.7	19	0.9	7	0.5	94	4.7
1.3 28	8 1.4	19	0.9	9	0.4	98	4.9
1.5 37	7 1.8	43	2.1	37	1.8	160	8.0
1.4 85	5 4.2	52	2.6	25	1.2	206	10.3
1.1 143	3 7.1	110	5.5	53	2.6	339	16.9
1.5 58	8 2.9	49	2.4	22	1.1	179	8.9
	2 32.1	394	19.7	227	11.3	2003	100.0
	23.1 64	23.1 642 32.1	23.1 642 32.1 394	23.1 642 32.1 394 19.7	23.1 642 32.1 394 19.7 227	23.1 642 32.1 394 19.7 227 11.3	23.1 642 32.1 394 19.7 227 11.3 2003

MISSING HOURS: 181

MEAN WIND SPEED: 15.5

Table 5 Page 8 of 9

ARTIFICIAL ISLAND 01/92-03/92 JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

WIND: 300 FT DELTA T: (300-37FT)

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 2	24.6	SUM P	ERCENT
DIR	ECTION	SUM P	ERCEWI	SUM PE	RCENT	SUM P	ERCENT	SUM P	ERCEPT	SUM P	ERCENT	SUM P	ERCENT	SUM PE	ERCENT		
	H	0	9.0	1	0.0	17	8.0	24	1.2	32	1.6	24	1.2	0	0,0	98	4.9
	HNE	0	0.0	0	0.0	10	0.5	36	1.8	22	1.1	7	0.3	2	0.1	77	3.8
	NE	0	0.0	2	0.1	15	0.7	44	2.2	36	1.8	9	0.4	13	0.6	119	5.9
	ENE	0	0.0	4	0.2	19	0.9	42	2.1	56	2.5	12	0.6	6	0.3	139	6.9
	E	0	0.0	. 3	0.1	16	0.8	33	1.6	15	C.7	0	0.0	1	0.0	68	3.4
	ESE	0	0.0	2	0.1	11	0.5	18	0.9	7	0.3	1	0.0	1.	0.0	40	2.0
	SE	0	0.0	4	0.2	12	0.6	28	1.4	27	1.3	21	1.0	20	1.0	112	5.6
	GSE	0	0.0	8	0.4	21	1.0	26	1.3	35	1.7	17	0.8	23	1.1	130	6.5
	S	0	0.0	4	0.2	26	1.3	31	1.5	13	0.6	3	0.1	5	0.2	82	4.1
	SSW	0	C.0	5	0.2	11	0.5	24	1.2	14	0.7	8	0.4	3	0.1	65	3.2
	SW	0	0.0	4	0.2	12	0.6	17	0.8	35	1.7	19	0.9	7	0.3	94	4.7
	WSW	0	0.0	1	0.0	14	0.7	27	1.3	28	1.4	19	0.9	9	0.4	98	4.9
	N.	0	0.0	- 3	0.1	9	0.4	31	1.5	37	1.8	43	2.1	37	1.8	160	8.0
	UNU	9	0.0	3	0.1	12	0.6	29	1.4	85	4.2	52	2.6	25	1.2	206	10.3
	NU	0	0.0	1	0.0	9	0.4	23	1.1	143	7.1	110	5.5	53	2.6	339	16.9
		0	0.0		0.0	18	0.9	31	1.5	58	2.9	49	2.4	22	1.1	179	8.9
	RNU		0.0		0.0	10				-							
		0	0.6	46	2.3	232	11.6	464	23.1	643	32.1	394	19,6	227	11.3	2006	100.0

MISSING HOURS: 178

MEAN WIND SPEED: 15.5

Table 5 Page 9 of 9

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

WIMD: 300 FT DELT* T: (300-33FT)

LE -1.9 DEG C/100M CLASS A LAPSE K'TE:

WIND SPEED GROUPS (MPH)

SUM PERCENT		0.5		0.5	5.0	9.3	0.0	9.0	9.0	0.0	0.0	5.0	6.3	6.3	7.0	1.0	1.2		8.8		
STAM P		10	ut	10	60		0	13	13	*	0	60	9	9	6	20	22		170		
GE 24.6	SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0		6.3		
8	SUM P	0	0	0	0	0	9	*	0	0	0	0	0	0	0	m	911		1		
18.6-24.5	SLM PERCENT	0.0	0.0	0.0	9.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.9	0.2	0.3		6.0		
18.6	SUM P	0	***	0	0	0	0	0	4	0	0	Ð	9	0	*	5	10		10		
12.6-18.5	SUM PERCENT	0.2	0.1	0.3	0.1	0.7	0.0	0.1	0.2	0.0	0.0	0.0	9.0	0.0	0.5	0.5	6.5		2.5		
12.6	SUM P	7	7	9	2	3	0	M	4	0	0	0	0	*	4	10	1		23		
7.6-12.5	SLAN PERCENT	5.3	0.0	0.2	0.3	0.1	0.0	0.2	0.5	0.0	0.0	0.1	9.1	6.0	0.1	0.0	0.3		5.1		
7.1	SUM	.0	4.00	4	9	M	9	10	4		0	۲.	2	0	2	gw	-		27	Table	
3.6-7.5	SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.0	0 0		6.0	÷	and the same
3,0	51.84	¢.	8	0	0	0	0	0	973	0	0	10	4	2	2	*	63		16		
.6-3.5	PERCENT	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		
0.6	SUM P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0		0		
9.0-0.5	SUM PERCENT	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		6.0		0.0	0	2100
0.0	SUM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0		
	DIRECTION	38	NNE	3K	ENE	343	3S3	SE	SSE	67	MSS.	MS	MSM	3	THE	2	Na.			MEAN LITTER SPEERS	No. of the same of

Page 1 of 9

HISSING:

ARTIFICIAL ISLAND 4/92-6/92

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

FELTA T: (300-33FT) MIND: 300 FT

CAPSE FATE: -1.8 TO -1.7 DEG C/100M

CLASS 8

WIND SPEED CROUPS (MPH)

	0	0.0-0.5	9.6	.6-3.5	15.	3.6-7.5	7.6	7.6-12.5	12.5	12.5-18.5	18.6	18.6-24.5	6E 24.6	9.9	SUM PERCENT	RCENT
DIRECTION	K15	SUM PERCENT	M Wis	PERCENT	21.8	PERCENT	SUM P	PERCENT	SUM P	SUM PERCENT	SUER PR	PERCENT	SUM PE	PERCENT		
*	0	0.0	0	0.0	-	0.0	10	9.5	2	0.1	0	0.0	0		13	9.0
NNE	6)	0.0	0	0.0	***	0.0	4	0.2	0	9.0		0.0	0	0.0	90	0.3
38	0	0.0	9	0.0	2	0.1	15	9.0	0	0.0	wx	0.0	0	0.0	15	0.7
ENE	0	0.0	0	0.0	0	0.0	2	0.1	**	0.0	0	0.0	۵	0.0	m	0.1
4	0	0.0	0	0.0	0	0.0	25	0.1	9	0.0	get.	0.0	0	0.0	7	0.2
353	0	9.0	0	0.0	0	9.6	2	0.1	0	0.0	0	0.0	0	0.0	rv.	0.1
38	0	0.0	0	0.0	0	0.0	**	0.0	N	1,1	9	0.3	0	0.0	0	9 0
558	0	0.0	0	0.0	N	0.1	*	0.1	9	0.2	pre .	0.0	0	0.0	10	0.5
ys	0	0.0	0	0.0	0	0.0	N	0.1	2	0.1	0	0.0	0	0.0	4	0.2
MSS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
PIS	0	0.0	*	0.0	2	0.1	0	0.0	0	0.0	0	0.0	0	0.0	m	0.1
MSM	0	0.0	911	0.0	40	9.0		0.0	0	0.0	0	0.0	0	0.0	10	0.5
э	0	0.0	0	0.0	7	5.0	m	6.1	0	0.0	0	0.0	0	0.0	7	0.3
PART	0	0.0	0	0 0	4	0.2	qiri	0.0	2	0.5	0	0.0	0	0.0	7	0.3
ME	0	0.0	0	0.0	2	0.1	67	0.7	10	9.0	9	0.3	0	0.0	21	1.0
MMM	0	0.0	0	0.0	9	9.3	11	6.5	7	0.2	T.	0.0		0.0	23	**
	0	0.0	2	0.1	32	5.5	09	2.9	52	1.2	17	8.0		0.0	137	9.9
MEAN LINES COLLES.	- DEED	23.5				100	makis	- 1								

MEAN WIND SPEED: 11.5 MISSING: 5

Table 6 Page 2 of 9

ARTIFICIAL ISLAND 4/92-6/92

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHER;C STABILITY CLASS

WIND: 300 FT

DELTA T: (500-334.)

CLASS F LAPSE RATE: -1.6 TO -1.5 DEG E/150M

WIND SPEED GROUPS (MPH)

SOM PERCENI		9.0	0.1	0.5	0.2	1.0	7.0	7.0	6,3	6.2	3.2	* *	6.3	7.0	5.0	5.6	6.0	6.2
#75		12	m	11	5	2	-5	6	9	ď	5	4	7	0	0.	60	18	129
24.0	RCENT	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	0.1
33	SUM PERCENT	0	0	0	gin.	0	0	0	*	0	0	0	0	0	0	0	0	2
18.0-24.3	SUR PERCENT	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-	1.0
10.0	d Ans		0	2	M.	0	0	9	2	0	0	0	0	9	м	2	ru.	50
12.6-18.5	SUM PERCENT	0.0	0.0	0.1	0.0	0.0	9.0	0.0	9.6	0.0	9.0	0.0	0.0	0.1	9.1	9.0	0.3	7.1
17.	£15		0	2	gar.	**	2	0	go	***	ger		0	M	2	60	10	28
7.6-12.5	SUM PERCENT	0.3	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	6.2	0.1	0.1	0.3	7.0	2.2
	W.S.		94	3	0	\$ 15	M	2	*		-	3	4	2	N	9	8	97
3.6-7.3	SUM PERCENT	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	9.1	0.5	0.1	0.1	0.1	1.5
2.6	SIM P	4	2	N)	0	0		gar.	*	2	24	2	m	.4	2	PN	2	3
6-3.5	PERCENT	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	9.0	0.0	0.0	0.1
0	NOS.	6	0	0	0	0	0	0	0	0	**	*	0	0	O	0	0	2
0.0-0.5	SUM PERCENT	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	9.0	0.0	0.0
0	SUM	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	DIRECTION	2	ENE	NE	EME	NA.	35.3	35	355	10	MSS	SH	MSM	24	NWN	MM	NNC	

MEAN WIND SPEED: 11.7 MISSINGS

Page 3 of 9

Table 6

ARTIFICIAL ISLAND 4/92- 6/92

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED ST ATMOSPHERIC STABILITY CLASS

W186: 300 FT

DELTA T: (390-33FT)

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

WIND SPEED GROUPS (APH)

SUM PERCENT		21 1.0		7 1 02								20 1.4					31 1.5		738 35.7	
24.6	SUM PERCENT	0.0	0.0	0.1	5.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3		0.0	
ä	SUM P	0	0	N	N	0	0	y.	×	0	0	0	0	0		411	N		18	
18.6-24.5	SUR PERCENT	0	0	9.0	5.0	0.0	0.0	9.0	1.3	0.2	9.6	0.1	0.0	0.0	0.5	6.5	6.1		5.3	
18,4	SIR	26'1	47	60	90	0	G;	19	27	N,	0	2	0	0	12	10	24		109	
12.6-18.5	SUM PERCENT	0.3	9.2	0.8	0.2	6.5	0.8	1.1	2.2	1.6	0.8	0.3	0.0	0.1	9.0	6.0	0.5		11.0	
12.4	SUM	9	10	16	4	#** #**	11	22	45	37.	16	Pro	0	m	12	19	11		228	
7.6-12.5	SLEN PERCENT	0.3	0.5	¥	1.4	10	6.0	0.2	7.0	0.8	1.1	0.2	0.3	9.0	0.0	0.8	9.0		10.3	*
7.6	SUM P	40	10	27	50	27	12	N	10	16	22	7	9	40	*	16	04		212	
3.6-7.5	SLM PERCENT	0.2	0.5	0.7	6.0	1.4	0.1	0.2	0.3	5.0	0.3	0.5	0.3	4.0	0.5	9.0	0.3		7.6	
W.	d Wis	50	12	3.6	100	28	2	S	7-1	04	1	10	10	0	10	0	Per:		151	
.6-3.3	SRCENT	0.0	0.0	9.1	0.0	0.0	0.0	9.6	9.0	0.0	3.0	0.3	0.0	0.0	0.0	0.0	0.0		0.7	
9.6	Start P	-	gen	5 P3	0	-	0	0	0	4"	0	90	0		0	0	0		7,	
0.0-0.5	SUM PERCENT	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	SUM PI	0	0	n	0	0	0	0	ی	0	0	0	0	0	0	0	0		0	
	DIRECTION	*	XME	NE.	ENE	4	353	35	355	S	ASS	NS .	NSA	3	NAS	2	MMM			

MEAN WIND SPEED: 12.7 RESTING: 25

Page 4 of 9 Table 6

ARTIFICIAL ISLAND 4/92- 6/92 JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS WIME: 300 FT

DELTA T: (300-33FT)

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

WIND SPEED GROUPS (MPH)

	0.0	0-0.5	0.6	-3.5	3.6	-7.5	7.6	-12.5	12.	6-18.5	18.6	-24.5	GE	24.6	SUM I	PERCENT
DIRECTION	SLM P	PERCENT	SUM P	PERCENT	SLIM P	ERCENT	SUM P	ERCENT	SUM I	PERCENT	SUM P	ERCENT	SUM 1	ERCENT		
*	0	0.0	3	0.1	7	0.3	8	0.4	14	0.7	5	0.2	0	0.0	37	1.8
MHE	0	0.0	4	0.2	4	0.2	6	0.3	7	0.3	5	0.2	0	0.0	26	1.3
NE	9	0.0	1	0.0	8	0.4	18	0.9	20	1.0	8	0.4	1	0.0	. 5è	2.7
ENE	0	0.0	- 1	0.0	10	0.5	11	0.5	11	0.5	3	0.1	0	0.0	36	1.7
E	9	0.0	0	0.0	3	0.1	18	0.9	11	0.5	0	0.0	- 0	0.0	32	1.5
ESE	0	0.0	1	0.0	2	0.1	11	0.5	6	0.3	8	0.4	- 1	0.0	29	1.4
SE	0	0.0	0	0.0	7	0.3	9	0.4	6	0.3	6	0.3	5	0.2	33	1.6
SSE	. 0	0.0	0	0.0	8	0.4	19	0.9	35	1.7	9	0.4	2	0.1	73	3.5
S .	0	0.0	2	0.1	9	0.4	13	0.6	11-	0.5	3	0.1	0	0.0	38	1.8
SSW	0	0.0	1	0.3	7	0.3	11	0.5	17	0.8	1	0.0	0	0.0	37	1.8
SW	0	0.0	3	0.1	9	0.4	9	0.4	17	0.8	16	0.8	1	0.0	55	2.7
WSW	0	0.0	1	0.0	5	0.2	15	0.7	2	0.1	1	0.0	0	0.0	24	1.2
V	0	0.0	1	0.0	. 6	0.3	15	0.7	7	0.3	0	0.0	. 0	0.0	29	1.4
LANU	0	0.0	0	0.0	6	0.3	14	0.7	8	0.4	3	0.1	0	0.0	31	1.5
WV	0	0.0	1	0.0		0.0	7	0.3	29	1.4	15	0.7	0	0.0	53	2.6
RMM	0	0.0	1	0.0	6	0.3	13	0.6	21	1.0	9	0.4	3	0.1	53	2.6
			26				107		222	10.7	-					
	0	0.0	20	1.0	98	4.7	197	9.5	222	10.7	92	4.5	13	0.6	642	31.1

MEAN WIND SPEED: 13.0 MISSING: 45 Table 6 Page 5 of 9

ARTIFICIAL ISLAND -192- 6/92

JOINT DISTRIBUTION OF WIND DERECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

ATMOSPHERIC STABILITY CLASS HIMD: 300 FT DELTA T: (\$00-35FT)

LAPSE RATE: 1.5 TO 4.0 DEG C/100M

WIND SPEED GROUPS (NPH)

	SUM PERCENT														
	0.0	SUM PER	PERCENT	SUM P	SUM PERCENT	SIM PETCENT	CENT	SUM FI	SUM FERCENI	SUM	SUM PERCENT	SUM	SUM PERCENT		
	0 0	2	0.1	0	0.0	8	0.2	40	0.3	0	0.0	0	0.0	13	0
	0.0	2	0.1	0	0.0	9	0.3	9	0.3	-	0.0	0	9.0	15	0
	9.0	0	0.0	1	0.0	-17	0.2	2	0.1	**	0.0	0	0.0	40	0
	0.0	*	0.0	0	0.0	2	6.1	2	0.1	*	0.0	0	0.0	9	.0
	0.0	2	0.1	0	0.0	2	0.1	9	0.0	0	0.0	0	0.0	7	0.2
	0.0		0.0	**	0.0	2	0.1	***	0.0	~	0.1	9	0.0	7	0.3
	0.0	0	0.0	2	0.1	4	0.2	2	0.2	***	0.0	2	0.1	17	0.7
	0.0		0.0	M	0.1	1	0.3	04	9.0	9	0.3	9	0.3	32	-
0 5	0.0	0	0.0	147	0.1	2	0.1	м	0.1	2	0.1	0	0.0	1.5	0.5
	0.0	yes	0.0	P7	6.1	9	0.3	NA.	9.2	4	0.2	0	0.0	19	0.9
	0.0	0	0.0	0	0.0	9	0.3	in	0.2	M	0.1	0	0.0	375	
	0.0	0	0.0	0	6.3	10	6.0	440	0.0	2	0.1	0	0.0	13	_
	0.0	0	0.0	0	0.0	10	0.2	9	0.3	0	0.0	0	0.0	11	
	0.0	0	0.0	4	9.5	1/1	0.2	9	0.3	**	0.0	0	0.0	16	
	0.0	0	0.0	600	0.0	N,	0.2	9	0.3	N	9.1	0	0.0	17	0.7
	0.0	0	0.0	MA.	0.2	9	8.3	N	9.1	0	0.0	0	0.0	13	
0	0.0	10	0.5	23	1.1	78	3.8	65	3.1	56	1.3	8	5.0	210	10

MEAN WIND SPEED: 13.1 HISSING: 18

Table 6 Page 6 of 9

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABLLITY CLASS

ATMOSPHERIC STABILITY CLASS WIND: 300 FT DELTA 7: (300-33FT)

LAPSE RATE: GT 4.0 DEG. C/100M

(11)

WIND SPEED GROUPS (NPH)

SUM PERCENT		0.0	0.3	0.0	0.9	0.2	6.1	0.1	0.5	0.3	0.5	9.2	9.1	0.5	6.1	9.0	0.1		3.5	
S		0	3		**	-0	360	24	10	9	10	50	2	10	2	60	2		70	
GE 24.6	SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.3	
ß	SIA P	0	0	0	0	0	0		4		0	0	0	0	0	0	0		40	
18.6-24.5	SLM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0		0.3	
18.6	SUM	0	**	0	0	0	0	0	2	-	0	0	0	2	*	0	0			
12.6-18.5	SUM PERCENT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.3	0.0	0.0	0.3	0.1	0.2	9.1		1.5	
12.	S7.08	0		0	0	0	gar	-	M	·	9	*		Pre.	2	8	IN.		31	
7.6-12.5	SUM PERCENT	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0		6.0	
7.6	SUM	0	-	0	***	2	**	0	911	×	N	-	upon	0	0	m	0		60	
3.6-7.5	SUM PERCENT	0.0	0.0	9.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0		9.6	
10	20.00	0	0	***	0	***	gh	0	0	0	gas.	M	0	***	0	0	0		90	
0.6-3.5	PERCENT	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	
0.6	S MINS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
0.0-0.5	SUM PERCENT	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	SUM P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
	DIRECTION	*	NNE	3K	ENE	w	ESE	SE	SSE	US.	MSS	MS	MSM	3	NACA	NA.	NNN			

MEAN WIND SPEED: 14.8 MISSING: 4

Table 6 Page 7 of 9 ARTIFICIAL ISLAND 4/92- 6/92

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	13.6	-24.5	GE :	24.6	SUM 5	PERCENT
DIRECTION	SUM PI	ERCEMT	SUM P	ERCENT	SUM P	ERCENT	SUM F	PERCENT	SUM P	ERCENT	SUM P	ERCENT	SUM P	ERCENT		
н	0	0.0	6	0.3	17	0.8	42	2.0	33	1.6	8	0.4	0	0.0	106	5.1
NNE	0	0.0	7	0.3	15	0.9	29	1.4	21	1.0	14	0.7	- 0	0.0	89	4.3
NE	0	0.0	4	0.2	29	1.4	69	3.3	46	2.2	20	1.0	3	0.1	171	8.3
ENE	0	0.0	2	0.1	28	1.4	51	- 2.5	21	1.0	15	0.7	3	0.1	120	5.8
£	0	0.0	3	0.1	32	1.5	57	2.8	27	1.3	1	0.0	0	0.0	120	5.8
ESE	0	0.0	2	0.1	7	0.3	37	1.8	25	1.2	10	0.5		0.0	82	4.0
SE	0	0.0	0	0.0	15	0.7	26	1.3	39	1.9	40	1.9	16	0.8	136	6.6
SSE	0	0.0	1	0.0	22	1.1	43	2.1	101	4.9	51	2.5	18	0.9	236	11.4
5	0	0.0	3	0.1	23	1.1	39	1.9	52	2.5	11	0.5	1	0.0	129	6.2
SSW	0	0.0	3	0.1	20	1.0	43	2.1	45	2.2	14	0.7	. 0	0.0	125	6.1
SW	0	0.0	11	0.5	32	1.5	25	1.2	31	1.5	21	1.0	1	0.0	121	5.9
FILER	0	0.0	2	0.1	26	1.3	39	1.9	- 6	0.2	- 3	0.1	- 0	0.0	74	3.6
u u	0	0.0	2	0.1	29	1.4	33	1.6	27	1.3	2	0.1	. 0	0.0	93	4.5
UNU	0	0.0	0	0.0	28	1.4	25	1.2	36	1.7	20	1.0	- 1	0.0	110	5.3
NU	0	0.0	1	0.0	16	0.8	43	2.1	85	4.1	40	1.9	4	0.2	189	9.1
HNU	0	0.0		0.0	26	1.3	54	2.6	57	2.8	20	1.0	7	0.3	165	5.0
nnu																
	0	0.0	48	2.3	368	17.8	655	31.7	650	31.5	290	14.0	55.	2.7	2166	100.0

MISSING HOURS: 118

MEAN WIND SPEED: 12.8

Table 6

Page 8 of 9

ARTIFICIAL ISLAND 4/92- 6/92 JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS WIND: 300 FT

DELTA T: (300-33FT)

DIRECTION VS SPEED ONLY

W'ND SPEED GROUPS (MPH)

	0.0	-0.5	0.6	-3.5	3.6	-7.5	7.6	-12.5	12.6	5-18.5	18.6	-24.5	GE .	24.6	SUM	PERCENT
ECTION	SLM P	ERCENT	SLM P	ERCENT	SUM P	PERCENT	SUM F	PERCENT	SUM F	PERCENT	SUM P	ERCENT	SUM P	ERCENT		
м	0	0.0	6	0.3	17	0.8	42	2.0	33	1.6	8	0.4	0	0.0	106	5.1
	0	0.0	7	0.3	18	0.9	29	1.4	21	1.0	14	0.7	0	0.0	89	4.3
	0	0.0	4	0.2	29	1.4	69	3.3	46	2.2	20	1.0	3	0.1	171	8.2
	0	0.0	2	0.1	28	1.4	51	2.5	21	1.0	15	0.7	3	0.1	120	5.8
	0		3	0.1	32	1.5	57	2.7	27	1.3	. 1	0.0	0	0.0	120	5.8
	0		2	0.1	7	0.3	37	1.8	25	1.2	10	0.5	5	0.0	82	4.0
			0	0.0	15	0.7	26	1.3	40	1.9	40	1.9	16	8.9	137	6.6
			1	0.0	22	1.1	43	2.1	101	4.9	51	2.5	18	0.9	236	11.4
			3		23	1.1	39	1.9	52	2.5	1.1	0.5	1	0.0	129	6.2
			3		20		46	2.2	45	2.2	14	0.7	0	0.0	128	6.2
			11		32		28	1.4	31	1.5	21	1.0	3	0.0	124	6.0
			2		26		39	1.9	6	0.2	3	0.1	- 0	0.0	74	3.6
	0	0.0	2	0.1	29	1.4	33	1.6	27	1.3	2	0.1	0	0.0	93	4.5
	n	0.0	0	0.0	28	1.4	25	1.2	36	1.7	20	1.0	3	0.0	110	5.3
	0		1	0.0	16	0.8	43	2.1	85	4.1	40	1.9	4	0.2	189	9.1
NNH	0	0.0	1	0.0	26	1.3	54	2.6	57	2.7	20	1.0	7	0.3	165	8.0
	0	0.0	48	2.3	368	17.8	661	31.9	651	31.4	290	14.0	55	2.7	2073	100.0
	N NNE NE ENE E SE SE SE SW SW WSW WSW NNW NNW	ECTION SUM PI	SUM PERCENT N	SUM PERCENT SUM PERCENT	N	M 0 0.0 6 0.3 17 MME 0 0.0 7 0.3 18 ME 0 0.0 4 0.2 29 ENE 0 0.0 2 0.1 28 E 0 0.0 3 0.1 32 ESE 0 0.0 0 0.0 15 SSE 0 0.0 1 0.0 22 S 0 0.0 3 0.1 23 SSW 0 0.0 3 0.1 20 SW 0 0.0 1 0.5 32 MSW 0 0.0 2 0.1 26 MMW 0 0.0 2 0.1 26 MMW 0 0.0 1 0.0 16 MMW 0 0.0 1 0.0 26	N 0 0.0 6 0.3 17 0.8 NNE 0 0.0 7 0.3 18 0.9 NE 0 0.0 4 0.2 29 1.4 ENE 0 0.0 2 0.1 28 1.4 E 0 0.0 3 0.1 32 1.5 ESE 0 0.0 2 0.1 7 0.3 SE 0 0.0 1 0.0 22 1.1 SSE 0 0.0 3 0.1 32 1.5 SSE 0 0.0 3 0.1 23 1.1 SSW 0 0.0 3 0.1 20 1.0 SW 0 0.0 1 0.5 32 1.5 MSM 0 0.0 2 0.1 26 1.3 W 0 0.0 2 0.1 26 1.3 NMW 0 0.0 1 0.0 28 1.4 NMW 0 0.0 1 0.0 16 6.8 NMW 0 0.0 1 0.0 26 1.3	N 0 0.0 6 0.3 17 0.8 42 NNE 0 0.0 7 0.3 18 0.9 29 NE 0 0.0 4 0.2 29 1.4 69 ENE 0 0.0 3 0.1 32 1.5 57 ESE 0 0.0 2 0.1 7 0.3 37 SE 0 0.0 1 0.0 22 1.1 43 SSE 0 0.0 1 0.0 22 1.1 43 SSE 0 0.0 3 0.1 23 1.1 39 SSW 0 0.0 3 0.1 20 1.0 46 SW 0 0.0 1 0.5 32 1.5 28 MSW 0 0.0 2 0.1 26 1.3 39 W 0 0.0 2 0.1 26 1.3 39 W 0 0.0 2 0.1 26 1.3 39 NMW 0 0.0 1 0.0 28 1.4 25 NMW 0 0.0 1 0.0 16 0.8 43 NMW 0 0.0 1 0.0 26 1.3 54	N 0 0.0 6 0.3 17 0.8 42 2.0 NME 0 0.0 7 0.3 18 0.9 29 1.4 NE 0 0.0 2 0.1 28 1.4 51 2.5 E 0 0.0 3 0.1 32 1.5 57 2.7 ESE 0 0.0 0 0.0 15 0.7 26 1.3 SE 0 0.0 1 0.0 22 1.1 43 2.1 SE 0 0.0 3 0.1 23 1.1 39 1.9 SSM 0 0.0 3 0.1 23 1.1 39 1.9 SSM 0 0.0 3 0.1 0.5 32 1.5 28 1.4 MSM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 39 1.9 MMM 0 0.0 2 0.1 26 1.3 54 2.6	NO 0.0 6 0.3 17 0.8 42 2.0 33 NNE 0 0.0 7 0.3 18 0.9 29 1.4 21 NE 0 0.0 4 0.2 29 1.4 69 3.3 46 ENE 0 0.0 2 0.1 28 1.4 51 2.5 21 E 0 0.0 3 0.1 32 1.5 57 2.7 27 ESE 0 0.0 2 0.1 7 0.3 37 1.8 25 SE 0 0.0 0 0.0 15 0.7 26 1.3 40 SSE 0 0.0 3 0.1 23 1.1 39 1.9 52 SSM 0 0.0 3 0.1 23 1.1 39 1.9 52 SSM 0 0.0 3 0.1 23 1.5 28 1.4 31 MSM 0 0.0 11 0.5 32 1.5 28 1.4 31 MSM 0 0.0 2 0.1 26 1.3 39 1.9 4 W 0 0.0 2 0.1 26 1.3 39 1.9 4 W 0 0.0 2 0.1 26 1.3 39 1.9 4 NMM 0 0.0 1 0.0 28 1.4 25 1.2 36 NMM 0 0.0 1 0.0 26 1.3 54 2.6 57	N 0 0.0 6 0.3 17 0.8 42 2.0 33 1.6 NNE 0 0.0 7 0.3 18 0.9 29 1.4 21 1.0 NE 0 0.0 2 0.1 28 1.4 51 2.5 21 1.0 ENE 0 0.0 3 0.1 32 1.5 57 2.7 27 1.3 ESE 0 0.0 2 0.1 7 0.3 37 1.8 25 1.2 SE 0 0.0 0 0.0 15 0.7 26 1.3 40 1.9 SSE 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 SSW 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 SSW 0 0.0 3 0.1 20 1.0 46 2.2 45 2.2 SW 0 0.0 11 0.5 32 1.5 28 1.4 31 1.5 MSW 0 0.0 2 0.1 26 1.3 39 1.9 4 9.2 W 0 0.0 2 0.1 26 1.3 39 1.9 4 9.2 W 0 0.0 2 0.1 26 1.3 39 1.9 4 9.2 W 0 0.0 2 0.1 26 1.3 39 1.9 4 9.2 W 0 0.0 1 0.0 28 1.4 25 1.2 36 1.7 NW 0 0.0 1 0.0 26 1.3 54 2.6 57 2.7	NO 0.0 6 0.3 17 0.8 42 2.0 33 1.6 8 NNE 0 0.0 7 0.3 18 0.9 29 1.4 21 1.0 14 NE 0 0.0 2 0.1 28 1.4 51 2.5 21 1.0 15 E 0 0.0 3 0.1 32 1.5 57 2.7 27 1.3 1 ESE 0 0.0 2 0.1 7 0.3 37 1.8 25 1.2 10 SE 0 0.0 1 0.0 22 1.1 43 2.1 101 4.9 51 SSE 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 11 SSN 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 11 SSN 0 0.0 3 0.1 23 1.5 28 1.4 31 1.5 21 MSN 0 0.0 11 0.5 32 1.5 28 1.4 31 1.5 21 MSN 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 UNN 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 UNN 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 UNN 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 UNN 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 UNN 0 0.0 2 0.1 29 1.4 33 1.6 27 1.3 2 UNN 0 0.0 1 0.0 28 1.4 25 1.2 36 1.7 20 NM 0 0.0 1 0.0 28 1.4 25 1.2 36 1.7 20 NM 0 0.0 1 0.0 26 1.3 54 2.6 57 2.7 20	N 0 0.0 6 0.3 17 0.8 42 2.0 33 1.6 8 0.4 NNE 0 0.0 7 0.3 18 0.9 29 1.4 21 1.0 14 0.7 NE 0 0.0 2 0.1 28 1.4 51 2.5 21 1.0 15 0.7 ESE 0 0.0 2 0.1 7 0.3 37 1.8 25 1.2 10 0.5 SE 0 0.0 10 0.0 15 0.7 26 1.3 40 1.9 40 1.9 SSE 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 11 0.5 SSW 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 11 0.5 SSW 0 0.0 3 0.1 23 1.1 39 1.9 52 2.5 11 0.5 SSW 0 0.0 3 0.1 23 1.5 26 1.4 51 1.5 21 1.0 0.5 NSW 0 0.0 11 0.5 32 1.5 28 1.4 51 1.5 21 1.0 0.5 NSW 0 0.0 2 0.1 28 1.1 39 1.9 52 2.5 11 0.5 NSW 0 0.0 11 0.5 32 1.5 28 1.4 51 1.5 21 1.0 0.5 NSW 0 0.0 11 0.5 32 1.5 28 1.4 51 1.5 21 1.0 0.5 NSW 0 0.0 2 0.1 26 1.3 39 1.9 52 2.5 11 0.5 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 2 0.1 26 1.3 39 1.9 4 0.2 3 0.1 NSW 0 0.0 1 0.0 28 1.4 25 1.2 36 1.7 20 1.0 NSW 0 0.0 1 0.0 26 1.3 54 2.1 85 4.1 40 1.9 NSW 0 0.0 1 0.0 26 1.3 54 2.1 85 4.1 40 1.9 NSW 0 0.0 1 0.0 26 1.3 54 2.6 57 2.7 20 1.0	NO 0.0 6 0.3 17 0.8 42 2.0 33 1.6 8 0.4 0 NNE 0 0.0 7 0.3 18 0.9 29 1.4 21 1.0 14 0.7 0 NE 0 0.0 4 0.2 29 1.4 69 3.3 46 2.2 20 1.0 3 ENE 0 0.0 2 0.1 28 1.4 51 2.5 21 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MISSING HOURS: 111

MEAN WIND SPEED: 12.8

Table 6 Page 9 of 9 AMENDMENT TO RERR - 5

HOPE CREEK GENERATING STATION

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JANUARY JUNE 1988 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

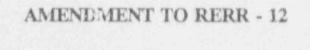
SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1.	Тур	e of waste	Units(1)	6-month period	Est. Total Error, %
	a.	Spent resins, filters, sludges, evaporator bottoms	m3 C1	7.92E+01 2.58E+03	25
	b.	Dry compressible waste, contaminated equipment.	m3 Ci	9.14E+01 2.95E+00	25
	c.	Irradiated components, control rods	m3 Ci	0.00E+00 0.00E+00	25
	d.	Others (described) Oil	m3 Ci	0.00E+00 0.00E+00	25

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

		RESINS		LAW
	(%)	(Ci)	(%)	(Ci)
Chromium-51	3.2	8.26E+01	62.4	1.84E+00
Iron-55	8.1	2.09E+02	7.7	2.30E-01
Iron-59	2.0	5.16E+01	2.6	7.70E-02
Manganese-54	4.0	1.03E+02	9.0	2.60E-01
Cobalt-58	1.3	3.35E+01	14.6	4.31E-01
Cobalt-60	2.4	6.19E+01	2.1	6.20E-02
Nickel-63	0.0	0.00E+00	0.0	0.00E+00
Zinc-65	78.8	2.03E+03	1.6	4.70E-02

⁽¹⁾ Volumes are measured, activities are estimated



8.0 MODIFICATION TO PREVIOUS RADIOACTIVE EFFLUENT RELEASE REPORTS

Our last report (RERR-11) did not include the quarterly Sr-89, Sr-90 and Fe-55 composite data for the first half of 1991. Amended pages to RERR-11 are included at the end of this report.

Additionally, calculational errors were found after REPR-10 was submitted. Corrected values 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. Calculated doses to individuals are as shown below.

Total body dose to an individual: 6.04E-02 mrem Highest organ dose: 1.73E-01 mrem to the Liver

Dose to the 6 million individuals living within the 50 mile radius of the plant site:

Total population dose: 4.96E-01 person-rem

Average population dose: 8.31E-35 mrem/person

Air Pathways

The calculated doses to individuals via the air pathway are shown below:

Total body dose: 3.87E-01 mrem

Skin dose: 8.42E-01 mrem

Highest organ dose due to radioiodines and particulates with half lives greater than 8 days:

5.37E-05 mrem to the Liver.

Dose to the 6 million individuals living within the 50 mile radius of the plant site:

Total population dose: 1.97E-01 person-rem

Average population dose: 3.68E-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, and natural background radiation.

TLD data for the six month reporting period is given below:

TLD	Location	Measurement
2S-2	0.3 mile	5.0 mrad/month
55-1	0.9 mile	4.7 mrad/month

HOPE CREEK GENERATING STATION

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JULY - DECEMBER 1991

LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

		Units	3rd Quarter	4th Quarter	Est. Total Error %
Α.	Fission and activation products 1. Total release (not including tritium,				
	gases, alpha) 2. Average diluted	Ci	1.71E-01	2.25E-01	25
	concentration during period 3. Percent of technical	$\mu \text{Ci/mL}$	8.40E 6	1.22E-07	
	specification limit (T.S. 3.11.1.2.(a))	*	1.42E+00	2.23E+00	
В.	Tritium 1. Total release 2. Average diluted	Cí	3.82E+00	6.62E+00	25
	concentration during period 3. Percent of technical specification limit	μCi/mL	1.87E-06	3.60E-06	
	(T.S. 3.11.1.1)		1.63E-03	6.30E-04	
C.	Dissolved and entrained noble gases 1. Total release 2. Average diluted	Ci	3.47E-03	3.45E-03	25
	concentration during period 3. Percent of technical specification limit	$\mu \text{Ci/mL}$	1.70E-10	1.88E-10	
	(T.S. 3.11.1.1)	1	1.71E-04	6.20E-04	
D.	Gross alpha activity 1. Potal release	Ci	0.00E+00	0.00E+00	
E.	Volume of waste release (prior to dilution - Batch Release)	liters	3.21E+06	3.94E+06	
F.	Volume of dilution water used during entire perio		1.7°E+10	1.442+10	

HOPE CREEK GENEP TING STATION

"ABLE 28

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT JULY - DECEMBER 1991

LIQUID EFFLUENTS

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		3rd Quarter	4th Quarter	3rd rter	4th Ouarter
Niobium-95	Ci	0.00E+00	0.00E+00	5.23E-06	1.49E-05
Chromium-51	Ci	0.00E+00	0.00E+00	1.00E-02	2.59E-02
Manganese-54	Ci	0.00E+00	0.00E+00	5.02E-03	9.80E-03
Iron-55	Ci	0.00E+00	0.00E+00	1.41E-01	1.73E-01
Iron-59	C2	0.00E+00	0.00E+00	8.98E-04	1.04E-03
Cobalt-58	Ci	0.00E+00	0.00E+0U	1.43E-04	2.06E-04
Cobalt-60	Ci	0.00E+00	0.00E+C3	1.21E-03	2.30E-03
Zinc-65	Ci	0.00E+00	0.00E+00	1.28E-02	1.17E-02
Silver-110m	Ci	0.00E+00	0.00E+00	2.73E-04	5.92E-04
Strontium-91	Ci	0.00E+00	0.00E+00	4.67E-06	0.00E+00
Strontium-92	Ci	0 00E+00	0.00E+00	2.61E-05	1.36E-04
Mercury-203	Ci	3 00E+00	0.00E+00	2.76E-06	0.00E+00
Cesium-137	Ci	0.00E+00	0.00E+00	0.00E+00	1.08E-05
TOTALS	ci	0.00E+00	0.005+00	1.71E-01	2.75E-01
			01002100	21724-02	61728-02
Tritium	Ci	0.00E+00	0.00E+00	3.82E+00	6.62E+00
Xenon-133	Ci	0.00E+00	0.00E+00	7.36E-04	5.02E-04
Xenon-135	Ci	0.00E+00	0.00E+00	2.74E-03	2.95E-03
TOTALS	Ci	0.00E+00	0.00E+00	3.82E+00	6.62E+00