

SEMIANNUAL RADIOACTIVE EFFLUENT
RELEASE REPORT

3rd and 4th Quarters of 1989
1989 Meteorological Summary and Offsite Dose Assessment

Facility: Shoreham Nuclear Power Station, Unit 1

Licensee: Long Island Lighting Company, Inc.

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INTRODUCTION

This Semiannual Radioactive Effluent Release Report, submitted in accordance with Technical Specification 6.9.1.7, covers the periods from July 1, 1989, through September 30, 1989, and October 1, 1989, through December 31, 1989. Meteorological data summaries for the whole of 1989 are included as is an assessment of offsite doses due to liquid and gaseous effluents for the whole year. By contractual agreement with New York State the Long Island Lighting Company (LILCO) will transfer the Shoreham Nuclear Power Station to the Long Island Power Authority. LILCO cannot operate the plant in the interim. In order to protect plant systems and ready the plant for decommissioning, the fuel was transferred to the spent fuel pool in August, 1989 and plant layup activities began. Prior to defueling, the plant was in a cold shutdown condition for almost two years.

A. SUPPLEMENTAL INFORMATION

1. Regulatory Limits

Shoreham's effluent regulatory limits are defined in Facility Operating License NPF-82, Shoreham Nuclear Power Station, Appendix A, Technical Specifications.

- a) Limits for gaseous effluents and noble gases are covered by Technical Specifications 3.11.2.1 and 3.11.2.2.
- b&c) Iodines and particulates with half-lives greater than 8 days in gaseous effluents are addressed in Technical Specification 3.11.2.3.
- d) Liquid effluent limits are described in Technical Specifications 3.11.1.1 and 3.11.1.2
- e) In addition, with Shoreham's sampling and analysis program the following typical minimum detectable activities (MDA's) were achieved. These MDA's are less than the required lower limits of detection (LLD's)

Liquid:

Ce-141	3.3 E-8	uCi/ml
Co-58	3.3 E-8	uCi/ml
Cs-137	3.2 E-8	uCi/ml
Mn-54	2.9 E-8	uCi/ml
Mo-99	1.8 E-8	uCi/ml
Zn-65	7.3 E-8	uCi/ml

Gaseous:

Cs-137	1.1 E-13	uCi/cc
I-131	1.2 E-13	uCi/cc
I-133	7.5 E-13	uCi/cc
Mn-54	2.0 E-13	uCi/cc
Xe-133	2.5 E-13	uCi/cc
Zn-65	3.0 E-13	uCi/cc

2. Maximum Permissible Concentrations

a-d) Maximum permissible concentrations (MPC's) are those specified in 10 CFR 20, Appendix B, Table II, Column 2. If an isotope is listed with values for SOLUBLE and INSOLUBLE states, the more conservative value is utilized. For gaseous effluents, MPC's were not used. Direct calculations of dose were utilized to satisfy the dose rate limitations of Technical Specification 3.11.2.1.

3. Average Energy

No isotopes above minimum detectable activities were measured in gaseous effluents. Therefore, there is no reportable average energy for this time period.

4. Measurements and Approximations of Total Radioactivity

a-d) Samples were collected in the manner and with the frequency prescribed in Technical Specifications Surveillance Requirements 4.11.1.1.1 and 4.11.2.1.2. Samples were analyzed in accordance with Technical Specification Tables 4.11.1.1.1-1 and 4.11.2.1.2-1 regarding both type of analysis and level of sensitivity. Most samples were analyzed by gamma spectroscopy with a Germanium detector. A liquid scintillation counter was used to analyze for H-3 and Fe-55 while Sr-89,90 analyses were done by proportional counter. Samples analyzed for iron and strontium underwent a chemical separation prior to counting. Approved sample collection and analysis procedures were followed.

Analytical results are examined to ensure that the minimum sensitivity levels required by Technical Specifications lower limits of detection (LLD's) have been met. Any identifiable peaks above background are quantified.

The methods above were used for batch releases. The same methods were used for continuous discharges, but were combined with gross activity measurements on process streams and total flow for these streams.

No estimate of percent total error is provided in Table 1A because all values for gaseous effluents were determined to be less than required LLD's. For liquid measurements, the overall error is estimated from the tank sampling error and from counting error at values close to minimum detectable activities. This overall error is estimated to be approximately 50%.

5. Batch Releases

a) Liquid	3rd quarter	4th Quarter
1. Number of batches	5.20 E+1	7.00 E+1
2. Total Time (minutes)	8.06 E+3	1.15 E+4
3. Maximum Time (minutes)	1.82 E+2	2.25 E+2
4. Average Time (minutes)	1.55 E+2	1.64 E+2
5. Minimum Time (minutes)	2.00 E+1	3.40 E+1
6. Average Flow (gpm) (Dilution)	7.04 E+4	1.48 E+5

b) Gaseous - None

6. Abnormal Releases

a) Liquid - None

b) Gaseous - None

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B - GASEOUS EFFLUENTS

3rd and 4th Quarters of 1989

All samples of gaseous effluents were analyzed and determined to be at or below minimum detectable activities (MDA's) for all radionuclides listed in Shoreham's Technical Specifications. These MDA's were below the lower limits of detection required in Technical Specification Table 4.11.2.1.2-1. In addition, no other radionuclides were identified. Therefore, no entries were made in Tables 1A, 1B or 1C that follow.

Composite sample results for the fourth quarter of this reporting period are not available at this time. Third quarter composite results were used for the fourth quarter. When the actual results are available, any significant differences will be noted in supplements to this report. However, as stated previously, all results are at or below MDA's. No significant differences have been noted between previously reported composite results and actual results. All results have been at or below MDA's.

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

1989

GASEOUS EFFLUENTS—SUMMATION OF ALL RELEASES

	Unit	Quarter 3	Quarter 4	Est. Total Error, %
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A. Fission & activation gases

1. Total release	Ci	. E	. E	. E
2. Average release rate for period	µCi/sec	. E	. E	
3. Percent of Technical specification limit	%	. E	. E	

B. Iodines

1. Total iodine-131	Ci	. E	. E	. E
2. Average release rate for period	µCi/sec	. E	. E	
3. Percent of technical specification limit	%	. E	. E	

C. Particulates

1. Particulates with half-lives >8 days	Ci	. E	. E	. E
2. Average release rate for period	µCi/sec	. E	. E	
3. Percent of technical specification limit	%	. E	. E	
4. Gross alpha radioactivity	Ci	. E	. E	

D. Tritium

1. Total release	Ci	. E	. E	. E
2. Average release rate for period	µCi/sec	. E	. E	
3. Percent of technical specification limit	%	. E	. E	

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

GASEOUS EFFLUENTS—ELEVATED RELEASE

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4

1. Fission gases

krypton-85	Ci	. E	. E	. E	. E
krypton-85m	Ci	. E	. E	. E	. E
krypton-87	Ci	. E	. E	. E	. E
krypton-88	Ci	. E	. E	. E	. E
xenon-133	Ci	. E	. E	. E	. E
xenon-135	Ci	. E	. E	. E	. E
xenon-135m	Ci	. E	. E	. E	. E
xenon-138	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E

2. Iodines

iodine-131	Ci	. E	. E	. E	. E
iodine-133	Ci	. E	. E	. E	. E
iodine-135	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E

3. Particulates

strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	. E	. E	. E	. E
cesium-137	Ci	. E	. E	. E	. E
barium-lanthanum-140	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E

TABLE 1C
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989
GASEOUS EFFLUENTS—GROUND-LEVEL RELEASES

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4

1. Fission gases

krypton-85	Ci	. E	. E	. E	. E
krypton-85m	Ci	. E	. E	. E	. E
krypton-87	Ci	. E	. E	. E	. E
krypton-88	Ci	. E	. E	. E	. E
xenon-133	Ci	. E	. E	. E	. E
xenon-135	Ci	. E	. E	. E	. E
xenon-135m	Ci	. E	. E	. E	. E
xenon-138	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E

2. Iodines

iodine-131	Ci	. E	. E	. E	. E
iodine-133	Ci	. E	. E	. E	. E
iodine-135	Ci	. E	. E	. E	. E
Total for period	Ci	. E	. E	. E	. E

3. Particulates

strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	. E	. E	. E	. E
cesium-137	Ci	. E	. E	. E	. E
barium-lanthanum-140	Ci	. E	. E	. E	. E
Others (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E

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C - LIQUID EFFLUENT

3rd and 4th Quarters of 1989

Tables 2A and 2B contain information on the liquid batch releases for the fourth quarter of 1989. There were no radionuclides above MDA in third and fourth quarter continuous liquid releases or third quarter batch releases, therefore, liquid discharge data for these releases are not included in the Table. Radionuclides that were at or below MDA, which were below the LLD's required in Technical Specification Table 4.11.1.1.1-1, are not included in the Tables.

Composite sample results for the fourth quarter are not available at this time. Third quarter composite results were used for the fourth quarter. When actual results are available, any significant differences will be noted in supplements to this report. No significant differences have been noted between 1989 first and second quarter reported composite results and actual results. All results have been at or below MDA's.

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT 1989

LIQUID EFFLUENTS—SUMMATION OF ALL RELEASES

Unit	Quarter 3	Quarter 4	Est. Total Error, %
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A. Fission and activation products

1. Total release (not including tritium, gases, alpha)	Ci	E	1.18 E-5	5.00 E+1
2. Average diluted concentration during period	μCi/ml	E	1.84 E-12	
3. Percent of applicable limit	%	E	6.12 E-6	

B. Tritium

1. Total release	Ci	. E	. E	. E
2. Average diluted concentration during period	μCi/ml	. E	. E	
3. Percent of applicable limit	%	. E	. E	

C. Dissolved and entrained gases

1. Total release	Ci	. E	. E	. E
2. Average diluted concentration during period	μCi/ml	. E	. E	
3. Percent of applicable limit	%	. E	. E	

D. Gross alpha radioactivity

1. Total release	Ci	. E	. E	. E
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E. Volume of waste released (prior to dilution)	liters	E	5.11 E+6	1.00 E+1
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F. Volume of dilution water used during period	liters	E	6.43 E+9	2.00 E+1
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TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

1989

LIQUID EFFLUENTS

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
strontium-89	Ci	. E	. E	. E	. E
strontium-90	Ci	. E	. E	. E	. E
cesium-134	Ci	. E	. E	. E	. E
cesium-137	Ci	. E	. E	. E	. E
iodine-131	Ci	. E	. E	. E	. E
cobalt-58	Ci	. E	. E	. E	. E
cobalt-60	Ci	. E	. E	. E	1.18 E ⁵
iron-59	Ci	. E	. E	. E	. E
zinc-65	Ci	. E	. E	. E	. E
manganese-54	Ci	. E	. E	. E	. E
chromium-51	Ci	. E	. E	. E	. E
zirconium-niobium-95	Ci	. E	. E	. E	. E
molybdenum-99	Ci	. E	. E	. E	. E
technetium-99m	Ci	. E	. E	. E	. E
barium-lanthanum-140	Ci	. E	. E	. E	. E
cerium-141	Ci	. E	. E	. E	. E
Other (specify)	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
	Ci	. E	. E	. E	. E
unidentified	Ci	. E	. E	. E	. E
Total for period (above)	Ci	. E	. E	. E	1.18 E ⁻⁵
xenon-133	Ci	. E	. E	. E	. E
xenon-135	Ci	. E	. E	. E	. E

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D - SOLID WASTE

3rd and 4th Quarters of 1989

Table 3 provides information on shipments of solid waste for the third and fourth quarters of 1989. All shipments consisted of dewatered Class A Resins, Filters and Evaporator Bottoms. There were no irradiated fuel shipments. Waste was shipped in 158.1 ft³ DOT Spec 7A High Integrity Containers (HIC's), approved by the South Carolina Department of Health and Environmental Conservation.

TABLE 3

*** REGULATORY GUIDE 1.21 REPORT ****
 SOLID WASTE SHIPPED OFFSITE FOR DISPOSAL
 ** DURING PERIOD FROM 7/1/89 to 12/31/89**

WASTE STREAM: Resins, Filters, & Evaporator Bottoms

<u>WASTE CLASS</u>	<u>CUBIC METERS</u>	<u>CURIES</u>	<u>% ERROR (CI)</u>
A	17.9	3.51E-02	+25%

** ESTIMATES OF MAJOR NUCLIDES BY WASTE CLASS & STREAM **
 WASTE STREAM: Resins, Filters & Evaporator Bottoms with .0% CUTOFF

<u>WASTE CLASS</u>	<u>NUCLIDE</u>	<u>ABUNDANCE</u>	<u>CURIES</u>
A	Co-60	27.912%	9.81E-03
	Fe-55	23.873%	8.39E-03
	Cr-51	18.634%	6.55E-03
	Co-58	14.054%	4.94E-03
	Zn-65	4.590%	1.61E-03
	Ag-110m	3.690%	1.30E-03
	Mn-54	2.632%	9.25E-04
	Fe-59	1.707%	6.00E-04
	Ni-63	1.094%	3.85E-04
	Pu-241	.817%	2.87E-04
	H-3	.281%	9.86E-05
	Ce-144	.275%	9.67E-05
	Sb-124	.138%	4.86E-05
	Nb-95	.116%	4.06E-05
	Cs-137	.083%	2.90E-05
	Co-57	.055%	1.92E-05
	Zr-95	.023%	8.19E-06
	Ni-59	.020%	6.92E-06
	Ce-141	.005%	1.68E-06
	Sr-90	.002%	8.17E-07
	Nb-94	.000%	1.43E-07
	C-14	.000%	1.12E-07
	Cm-242	.000%	0.00E+00
	I-129	.000%	0.00E+00
	Tc-99	.000%	0.00E+00

** SOLID WASTE DISPOSITION SUMMARY **

<u>NUMBER OF SHIPMENTS</u>	<u>MODE OF TRANSPORTATION</u>	<u>DESTINATION</u>
1	Truck	Barnwell
0	Truck	Richland
0	Truck	Beatty
0	Truck	Other

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E - RADIOLOGICAL IMPACT ON MAN

1989

During 1989 two liquid batch releases contained small quantities of Co-60. In April, a batch containing 6.01 uCi's was released and in December a batch containing 11.83 uCi's was released. There were no other radioactive effluent releases from Shoreham during 1989. Monthly dose calculations, performed in accordance with the ODCM, showed that the maximum whole body dose due to the April batch discharge was $4.4E-8$ mrem for a child, and the maximum organ dose was $3.4E-7$ mrem to the GI tract of an adult. The doses resulting from the December batch release were similarly low: $1.30 E-5$ mrem whole body for a child and $1.04 E-4$ mrem, GI tract, for an adult. Due to the insignificant doses involved, detailed annual doses due to swimming, boating, etc. were not calculated. Radiation doses to individuals and the population due to radioactive effluents from Shoreham were negligible.

Direct radiation (as measured on quarterly TLD's) made no contribution to offsite doses based on a comparison of 1989 dose rates with 1984 (preoperational) dose rates. The highest dose measured was 4.8 mrem/standard month (30.4 days) at indicator location 6A1 compared to the 1984 dose at the same maximum location of 5.1 mrem/standard month. Similarly, the average for all indicator locations was 3.6 mrem/standard month compared to a 1984 value of 3.9 mrem/ standard month.

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F - METEOROLOGICAL DATA

1989

Tables of cumulative joint frequency distribution of wind speed, wind direction, and atmospheric stability are given by quarter for release heights of 33 feet and 150 feet. The joint frequency distributions reflect all data that was determined to be valid by a meteorological consultant.

The percent recovery for joint wind speed, wind direction and delta temperature was 94% for the year.

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: A
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	6	3	0	0	0	9
NNE	0	1	6	4	0	0	0	11
NE	0	3	7	2	0	0	0	12
NNE	0	0	0	1	0	0	0	1
E	0	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	3	0	0	0	0	3
SSW	0	1	11	0	0	0	0	12
SW	0	0	5	0	0	0	0	5
WSW	0	0	2	0	0	0	0	2
W	0	0	4	0	0	0	0	4
WSW	0	0	16	1	1	0	0	18
W	0	1	12	4	5	0	0	22
WSW	0	2	10	3	5	0	0	20
VARIABLE								

TOTAL 120
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: B
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	1	1	1	0	3
NE	0	3	5	0	0	0	8
NNE	0	1	1	4	0	0	6
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	0	0	7	0	0	0	7
SW	0	0	4	0	0	0	4
WSW	0	1	0	0	0	0	1
W	0	1	2	0	0	0	3
WNW	0	1	7	3	1	0	12
W	0	2	3	0	1	0	6
W	0	0	0	3	0	0	3
VARIABLE							

TOTAL 55
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: C
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	1	0	0	0	0	0	1
NNE	0	2	1	4	0	0	0	7
NE	0	3	2	1	1	0	0	7
ENE	0	1	2	3	0	0	0	6
E	0	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	2	1	0	0	0	0	3
S	0	1	0	0	0	0	0	1
SSW	0	3	8	0	0	0	0	11
SW	0	0	2	0	0	0	0	2
WSW	0	2	0	0	0	0	0	2
W	0	0	1	0	0	0	0	1
WNW	0	1	7	0	0	0	0	8
W	0	4	3	1	0	0	0	8
WSW	0	0	2	1	0	0	0	3
VARIABLE								

TOTAL 61
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: 0
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)								TOTALS
	1-3	4-7	8-12	13-18	19-24	>24			
N	2	17	13	6	0	0	0	38	
NNE	3	24	25	32	5	0	0	89	
NE	4	12	26	25	1	0	0	66	
ENE	2	11	50	4	0	0	0	68	
E	1	12	9	0	0	0	0	22	
ESE	2	4	0	0	0	0	0	6	
SE	2	10	1	0	0	0	0	13	
SSE	7	8	7	0	0	0	0	22	
S	2	12	3	0	0	0	0	17	
SSH	3	22	23	6	0	0	0	54	
SH	0	10	5	0	0	0	0	15	
MCH	2	7	1	0	0	0	0	10	
M	0	15	10	0	0	0	0	25	
MW	2	28	43	21	6	0	0	100	
MW	2	19	14	14	10	1	1	60	
WSW	6	14	10	33	8	2	2	73	
VARIABLE									

TOTAL 678
 PERIODS OF CALM (HOURS): 1

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: E
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	4	14	17	11	0	0	0	46
NNE	2	12	15	8	0	0	0	38
NNE	3	16	11	9	3	0	0	42
ENE	9	8	10	6	0	0	0	33
E	8	15	3	0	0	0	0	27
ESE	8	4	0	0	0	0	0	12
SE	3	11	1	0	0	0	0	16
SSE	5	9	5	0	0	0	0	20
S	6	29	4	0	0	0	0	39
SSW	5	44	54	4	1	0	0	108
SW	9	22	6	0	0	0	0	37
WSW	4	25	4	0	0	0	0	35
W	4	30	13	0	0	0	0	47
WNW	5	37	25	7	0	0	0	74
NNW	3	34	32	7	0	0	0	76
VARIABLE	4	17	32	14	0	0	0	67

TOTAL 717
 PERIODS OF CALM (HOURS): 6

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: F
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTALS
	1-3	4-7	8-12	13-18	19-24				
N	2	2	1	0	0	0	0	0	5
NNE	0	5	2	0	0	0	0	0	7
NE	1	6	17	0	0	0	0	0	24
NNE	5	2	1	0	0	0	0	0	8
E	2	1	2	0	0	0	0	0	5
ESE	1	1	0	0	0	0	0	0	2
SE	6	1	0	0	0	0	0	0	8
SSE	5	8	5	0	0	0	0	0	20
S	9	33	8	1	0	0	0	0	51
SSW	14	45	17	3	0	0	0	0	80
SW	9	45	1	0	0	0	0	0	56
WSW	5	6	0	0	0	0	0	0	12
W	2	3	0	0	0	0	0	0	5
WNW	3	11	1	0	0	0	0	0	15
NW	2	6	0	0	0	0	0	0	9
NNW	3	7	3	0	0	0	0	0	13
VARIABLE									

TOTAL 320
 PERIODS OF CALM (HOURS): 7

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: G
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)					TOTALS
	1-3	4-7	8-12	13-18	19-24	
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NW	0	0	0	0	0	0
NNE	0	0	0	0	0	0
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	1	1	0	0	0	2
SSE	1	4	0	0	0	6
S	4	11	1	9	0	16
SSW	9	34	1	0	0	44
SW	3	17	0	0	0	22
WSW	5	0	0	0	0	5
W	1	0	0	0	0	3
WNW	3	1	0	0	0	4
WN	0	0	0	0	0	0
WNW	0	1	0	0	0	1
VARIABLE						

TOTAL 103
 PERIODS OF CALM (HOURS): 5

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: A
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						>24	TOTALS
	1-3	4-7	8-12	13-18	19-24			
N	0	1	0	0	0	0	0	1
NNE	0	2	0	0	0	0	0	2
NE	0	2	1	0	0	0	0	3
NNE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	0	1
SE	1	0	0	0	0	0	0	1
SSE	0	1	0	0	0	0	0	1
S	0	0	2	0	0	0	0	2
SSW	0	0	3	0	0	0	0	3
SW	0	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0	0
W	0	0	4	0	0	0	0	4
WSW	0	1	14	3	0	0	0	18
W	0	0	14	7	0	0	0	21
WSW	0	0	0	3	0	0	0	3
VARIABLE								

TOTAL 62
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: B
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	5	0	0	0	0	5
SSW	0	0	6	0	0	0	0	6
SW	0	0	1	0	0	0	0	1
WSW	0	0	0	0	0	0	0	0
W	0	0	1	0	0	0	0	1
WSW	0	0	12	0	0	0	0	12
W	0	0	5	2	0	0	0	7
WSW	0	1	1	0	0	0	0	2
VARIABLE								

TOTAL 34
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: C
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	1	0	0	0	0	0	1
NNE	0	4	2	0	0	0	0	6
N E	0	0	2	0	0	0	0	2
ENE	0	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	1	1	0	0	0	0	2
S	0	2	4	0	0	0	0	6
SSH	0	1	2	0	0	0	0	3
SH	0	0	1	0	0	0	0	1
HCH	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0
NW	0	3	13	0	0	0	0	16
NN	0	2	4	0	0	0	0	6
NNW	0	0	7	0	0	0	0	7
VARIABLE	0	0	0	0	0	0	0	0

TOTAL 51
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: 0
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	8	24	0	0	0	0	0	32
NNE	4	29	4	0	0	0	0	37
NE	0	9	3	0	0	0	0	12
NNE	3	5	0	0	0	0	0	8
E	1	1	1	0	0	0	0	3
ESE	1	8	1	0	0	0	0	10
SE	0	15	18	1	0	0	0	34
SSE	1	24	11	0	0	0	0	36
S	1	34	31	0	0	0	0	66
SSW	2	23	29	6	0	0	0	60
SW	0	5	6	0	0	0	0	11
WSW	1	11	2	0	0	0	0	14
W	1	9	15	0	0	0	0	25
WNW	3	33	27	4	0	0	0	67
W	2	49	11	1	0	0	0	63
WNW	9	46	8	4	2	0	0	69
VARIABLE								

TOTAL 547
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: E
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-16	19-24	>24		
N	9	13	1	2	0	0	0	26
NNE	9	25	4	1	0	0	0	39
N E	5	19	10	0	0	0	0	35
ENE	15	22	6	0	0	0	0	44
E	19	15	3	0	0	0	0	37
ESE	10	15	3	0	0	0	0	28
SE	18	33	8	0	0	0	0	59
SSE	16	44	4	1	0	0	0	65
S	17	120	46	2	0	0	0	185
SSW	10	31	15	1	0	0	0	57
SW	13	13	1	0	0	0	0	28
WSW	10	16	2	0	0	0	0	28
W	10	41	12	0	0	0	0	63
WSW	10	27	25	1	0	0	0	64
W	7	20	23	6	0	0	0	56
W	7	21	21	11	2	0	0	62
VARIABLE								

TOTAL 876
 PERIODS OF CALM (HOURS): 5

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: F
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	4	1	0	1	0	0	0	9
NNE	6	0	0	1	0	0	0	7
NNE	5	8	4	0	0	0	0	19
ENE	4	10	3	1	0	0	0	20
E	5	5	0	0	0	0	0	12
ESE	5	1	0	0	0	0	0	6
SE	9	4	5	0	0	0	0	22
SSE	7	18	2	0	0	0	0	27
S	17	25	6	1	0	0	0	50
SSW	9	16	1	0	0	0	0	27
SH	12	4	0	0	0	0	0	16
WSW	13	5	0	0	0	0	0	21
W	11	4	0	0	0	0	0	16
WSW	2	9	1	0	0	0	0	12
WSW	7	10	3	0	0	0	0	20
VARIABLE	4	6	1	0	0	0	0	11

TOTAL 295
 PERIODS OF CALM (HOURS): 19

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: 6
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	1
NE	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	1
E	0	0	0	0	0	0	0	2
ESE	3	0	0	0	0	0	0	4
SE	3	0	0	0	0	0	0	5
SSE	7	3	0	0	0	0	0	11
S	13	14	0	0	0	0	0	30
SSW	21	6	0	0	0	0	0	33
SW	16	13	0	0	0	0	0	31
WSW	3	0	0	0	0	0	0	3
W	1	0	0	0	0	0	0	4
WNW	1	1	0	0	0	0	0	4
W	0	0	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0	1
VARIABLE								

TOTAL 131
 PERIODS OF CALM (HOURS): 26

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: A
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	0	0	0	0	0
NNE	0	2	1	0	0	0	0	3
NE	0	0	10	0	0	0	0	10
ENE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WSW	0	0	3	0	0	0	0	3
W	0	0	6	0	0	0	0	6
VARIABLE								

TOTAL 22
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
STABILITY CLASS: B
ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTALS
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	
NE	0	1	7	0	0	0	0	8	
NNE	0	1	0	0	0	0	0	1	
E	0	1	0	0	0	0	0	1	
ESE	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	0	
S	0	1	0	0	0	0	0	1	
SSW	0	1	2	0	0	0	0	3	
SW	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	
WNW	0	0	1	0	0	0	0	1	
WNW	0	0	0	0	1	0	0	1	
VARIABLE	0	0	0	0	1	0	0	1	

TOTAL 16
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: C
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	1	1	0	0	0	0	0	2
NNE	0	4	3	0	0	0	0	7
NNE	0	3	5	0	0	0	0	8
ENE	1	1	0	0	0	0	0	2
E	0	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	4	1	0	0	0	0	5
SW	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0
W	0	0	4	0	0	0	0	4
WNW	0	0	1	0	0	0	0	1
VARIABLE								

TOTAL 50
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: 0
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	6	22	5	1	0	0	0	34
NNE	11	26	5	0	0	0	0	42
NE	3	20	12	0	0	0	0	35
ENE	1	14	1	0	0	0	0	16
E	0	7	1	0	0	0	0	8
ESE	1	3	0	0	0	0	0	4
SE	1	5	0	0	0	0	0	6
SSE	0	13	2	0	0	0	0	15
S	0	27	5	1	0	0	0	33
SSW	0	17	18	1	0	0	0	36
SW	0	8	1	0	0	0	0	9
WSW	2	1	0	0	0	0	0	3
W	1	1	0	0	0	0	0	2
WNW	0	56	3	1	0	0	0	60
NW	3	50	13	0	0	0	0	66
NNW	8	40	9	2	0	0	0	59
VARIABLE								

TOTAL 428
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: E
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	9	19	21	1	0	0	0	51
NNE	8	7	21	0	0	0	0	36
NE	10	20	20	0	0	0	0	50
ENE	12	49	11	0	0	0	0	72
E	15	21	1	0	0	0	0	37
ESE	17	14	0	0	0	0	0	32
SE	15	9	1	0	0	0	0	25
SSE	27	16	4	0	0	0	0	47
S	22	118	16	5	0	0	0	162
SSW	20	45	8	4	0	0	0	77
SW	6	9	0	0	0	0	0	15
WSW	10	11	0	0	0	0	0	21
W	14	9	0	0	0	0	0	23
WNW	15	34	4	0	0	0	0	53
WW	12	24	6	5	0	0	0	47
WVARIABLE	7	22	54	18	4	0	0	103

TOTAL 851
 PERIODS OF CALM (HOURS): 3

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: F
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	6	1	0	0	0	0	8
NNE	4	2	0	0	3	0	0	7
NE	2	6	8	1	0	0	0	18
NNE	3	6	1	0	0	0	0	11
E	4	3	0	0	0	0	0	7
ESE	10	3	0	0	0	0	0	13
SE	17	7	0	0	0	0	0	26
SSE	18	11	0	0	0	0	0	29
S	28	102	1	0	0	0	0	131
SSW	32	39	5	0	0	0	0	76
SW	23	9	0	0	0	0	0	33
WSW	14	2	0	0	0	0	0	18
W	7	3	0	0	0	0	0	11
WSW	6	8	0	0	0	0	0	14
W	6	12	0	0	0	0	0	19
VARIABLE	1	6	4	0	0	0	0	11

TOTAL 432
 PERIODS OF CALM (HOURS): 11

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: 6
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	1
E	1	0	0	0	0	0	1
ESE	12	0	0	0	0	0	12
SE	10	2	0	0	0	0	12
SSE	21	4	0	0	0	0	25
S	27	40	0	0	0	0	67
SSW	45	29	0	0	0	0	76
SW	36	4	0	0	0	0	42
WSW	10	1	0	0	0	0	11
W	2	0	0	0	0	0	3
WSW	2	0	0	0	0	0	2
WNW	0	0	0	0	0	0	0
WNW	2	2	0	0	0	0	4
VARIABLE							

TOTAL 258
 PERIODS OF CALM (HOURS): 6

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
STABILITY CLASS: A
ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)					TOTALS
	1-3	4-7	8-12	13-18	19-24	
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NW	0	0	2	1	0	3
ENE	0	0	0	0	0	0
E	0	0	1	0	0	1
ESE	0	0	0	0	0	0
SE	0	0	0	0	0	0
SSE	0	0	0	0	0	0
S	0	0	0	0	0	0
SSW	0	0	0	0	0	0
SW	0	0	1	0	0	1
WSW	0	0	0	0	0	0
W	0	0	0	0	0	0
WSW	0	0	2	0	0	2
WNW	0	0	1	0	0	1
VARIABLE	1	0	2	0	0	3

TOTAL HOURS: 11
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: B
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	1	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	2	0	0	0	2
NNE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	1	2	0	0	0	3
SSW	0	0	0	0	0	0	0
SW	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WSW	0	0	4	0	0	0	4
W	0	2	2	0	0	0	4
WSW	0	0	3	0	0	0	3

TOTAL 21
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: C
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	1	1	0	0	0	0	2
NNE	0	0	1	1	0	0	0	2
NE	0	1	2	0	0	0	0	3
NNE	0	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	0	1
SE	0	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0	0
S	0	1	2	0	0	0	0	3
SSW	0	2	0	0	0	0	0	2
SW	0	0	3	0	0	0	0	3
WSW	0	0	0	0	0	0	0	0
W	0	0	3	0	0	0	0	3
WSW	0	0	13	1	0	0	0	14
WNW	0	0	5	5	6	0	0	10
WNW	0	1	3	2	0	0	0	6
VARIABLE								

TOTAL 51 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: 0
 ELEVATION: 53

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	8	14	2	1	0	0	25	
NNE	6	13	16	8	0	0	44	
NE	2	11	5	0	0	0	18	
ENE	1	4	1	0	0	0	6	
E	1	4	0	0	0	0	5	
ESE	0	6	0	0	0	0	6	
SE	0	9	0	0	0	0	9	
SSE	3	5	1	0	0	0	9	
S	4	18	3	0	0	0	25	
SSW	0	14	19	0	0	0	33	
SW	1	11	8	0	0	0	20	
WSW	0	11	6	0	0	0	17	
W	1	13	20	1	0	0	35	
WNW	2	18	50	38	16	1	125	
W	5	30	31	20	11	5	103	
WNW	10	31	16	5	0	0	62	
VARIABLE								

TOTAL 542
 PERIODS OF CALM (HOURS): 2

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: E
 ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	5	2	18	7	0	0	33	
NNE	2	8	30	28	0	0	69	
NNE	3	1	18	27	12	0	61	
ENE	2	5	5	15	0	0	28	
E	9	11	9	0	0	0	30	
ESE	19	7	1	0	0	0	28	
SE	8	22	7	0	0	0	37	
SSE	14	15	7	4	3	0	43	
S	3	57	23	2	2	0	89	
SSW	10	79	49	5	0	0	143	
SW	12	46	12	0	0	0	70	
WSW	9	32	7	0	0	0	48	
W	8	27	36	1	0	0	72	
WNW	1	33	77	68	10	0	189	
W	2	23	75	52	4	1	157	
WNW	2	11	39	29	3	0	85	
VARIABLE								

TOTAL 1182
 PERIODS OF CALM (HOURS): 8

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
STABILITY CLASS: F
ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
NNE	1	0	1	0	0	0	3
E	0	1	0	0	0	0	1
ESE	6	1	1	0	0	0	8
SE	3	4	0	0	0	0	7
SSE	7	3	2	0	0	0	12
S	5	10	1	0	0	0	16
SSW	7	26	1	3	0	0	37
SW	5	30	0	0	0	0	35
WSW	6	4	0	0	0	0	10
W	8	4	0	0	0	0	14
WSW	9	2	0	0	0	0	11
WNW	6	1	0	0	0	0	7
WNW	1	2	0	0	0	0	3
VARIABLE							

TOTAL 166
PERIODS OF CALM (HOURS): 4

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
STABILITY CLASS: G
ELEVATION: 33

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NW	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	1	0	0	0	0	0	1
SE	6	1	0	0	0	0	7
SSE	13	6	0	0	0	0	20
S	12	20	0	0	0	0	32
SSW	28	30	0	0	0	0	58
SW	14	19	0	0	0	0	33
WSW	15	1	0	0	0	0	19
W	3	0	0	0	0	0	4
WNW	1	0	0	0	0	0	2
WW	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0

TOTAL 178
PERIODS OF CALM (HOURS): 6

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: A
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	6	6	2	0	0	12
NE	0	0	4	8	1	0	0	13
ENE	0	0	5	3	0	0	0	8
E	0	0	1	0	1	0	0	2
ESE	0	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	2	0	0	0	2
SSW	0	0	0	9	0	0	0	9
SW	0	0	2	6	1	0	0	9
WSW	0	0	1	0	1	0	0	2
W	0	0	1	6	0	0	0	7
WSW	0	0	3	10	2	2	2	17
W	0	0	4	13	2	4	4	23
W	0	0	7	3	2	3	3	5
VARIABLE								

TOTAL 120
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/69 TO 3/31/89
 STABILITY CLASS: B
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	2	0	0	0	2
NNE	0	1	1	2	1	0	0	5
NNE	0	0	4	1	0	0	0	5
ENE	0	0	2	0	4	0	0	6
E	0	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	1	7	0	0	0	8
SW	0	0	1	3	0	0	0	4
WSW	0	0	2	0	0	0	0	2
W	0	0	0	3	0	0	0	3
WNW	0	0	4	4	2	2	12	24
W	0	0	4	0	0	0	0	4
WNW	0	0	0	1	0	0	0	1
VARIABLE	0	0	0	0	0	0	0	0

TOTAL 55
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
STABILITY CLASS: C
ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	1	1	0	0	0	0	2
NNE	0	0	2	1	4	0	0	7
NE	0	2	3	0	1	0	0	6
NNE	0	0	1	0	4	0	0	5
E	0	0	1	1	1	0	0	3
ESE	0	0	0	0	0	0	0	0
SE	0	0	2	0	0	0	0	2
SSE	0	0	1	0	0	0	0	1
S	0	0	1	0	0	0	0	1
SSW	0	0	4	4	0	0	0	8
SW	0	0	1	2	2	0	0	5
WSW	0	0	1	1	1	0	0	3
W	0	0	1	0	1	0	0	2
WSW	0	0	5	4	0	0	0	9
W	0	0	3	3	0	0	0	6
WSW	0	0	1	1	1	0	0	3
VARIABLE								

TOTAL 61
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: 0
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	12	13	12	7	2	46
NNE	1	14	12	28	26	6	87
NE	1	11	17	11	11	0	51
ENE	1	6	12	35	6	0	60
E	0	4	17	15	1	0	37
ESE	0	4	2	0	0	0	6
SE	1	5	6	1	0	0	13
SSE	0	3	6	6	0	0	15
S	0	5	8	4	0	0	17
SSW	0	5	19	25	1	5	55
SW	1	3	6	6	2	0	18
WSW	0	3	11	8	0	0	22
W	0	5	16	23	1	8	53
WNW	2	6	22	23	17	8	78
WW	2	8	13	12	13	11	59
WNW	1	8	9	15	21	6	60
VARIABLE							

TOTAL 677
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: E
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	5	20	15	6	3	49	
NNE	1	5	17	6	5	0	34	
NW	1	6	12	6	7	0	32	
ESE	0	8	15	6	11	0	40	
E	0	4	19	4	1	0	28	
ESE	0	5	5	0	0	0	10	
SE	3	5	7	0	0	0	15	
SSE	0	1	12	8	1	0	22	
S	0	2	10	4	0	0	16	
SSW	0	5	26	35	25	3	94	
SW	0	5	15	37	3	0	60	
WSW	0	2	23	14	1	0	40	
W	0	9	31	17	3	1	61	
WSW	1	4	28	29	8	0	70	
WNW	0	7	32	23	5	2	69	
WNW	0	3	37	22	12	0	74	
VARIABLE								

TOTAL 714
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
 STABILITY CLASS: F
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	1	4	1	0	0	6
NNE	0	3	5	2	0	0	10
NE	0	1	6	10	0	0	17
ENE	1	3	3	5	0	0	12
E	0	2	2	3	0	0	7
ESE	0	3	1	0	0	0	4
SE	1	4	0	0	0	0	5
SSE	0	3	11	7	0	0	21
S	2	2	10	8	4	1	27
SSW	0	7	27	21	9	1	65
SW	0	3	29	25	0	0	57
WSW	0	5	24	7	0	0	36
W	1	3	12	1	0	0	17
WNW	0	3	11	1	0	0	15
WW	0	3	7	0	0	0	10
WNW	0	3	5	1	0	0	9
VARIABLE							

TOTAL 318
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/ 1/89 TO 3/31/89
STABILITY CLASS: G
ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0	0
N E	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	0	1
SE	0	1	1	0	0	0	0	2
SSE	0	2	1	6	1	0	0	10
S	0	2	5	1	0	0	0	8
SSW	0	3	5	13	1	0	0	22
SW	1	8	13	11	0	0	0	33
WSW	1	3	7	1	0	0	0	12
W	1	3	2	0	0	0	0	6
WSW	0	1	2	0	0	0	0	3
WNW	1	1	1	0	0	0	0	3
WNW	1	0	0	0	0	0	0	2
VARIABLE	1	0	0	0	1	0	0	2

TOTAL 103
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: A
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	1	0	0	0	0	1
NNE	0	0	2	0	0	0	2
NE	1	1	0	0	0	0	2
NNE	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	1	1	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	1	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	3	2	5
SW	0	0	0	2	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	1	6	2	0	9
WNW	0	0	2	10	1	0	13
W	0	0	4	13	1	1	19
WNW	0	0	0	3	2	0	5
VARIABLE							

TOTAL PERIODS OF CALM (HOURS): 62 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: B
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	9-12	13-16	19-24	>24		
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	1	3	0	0	0	4
SSW	0	0	0	5	0	0	0	5
SW	0	0	1	2	0	0	0	3
WSW	0	0	0	0	0	0	0	0
W	0	0	0	2	0	0	0	2
WNW	0	0	5	6	0	0	0	11
W	0	0	3	2	0	0	0	5
WNW	0	0	2	0	2	0	0	4
VARIABLE								

TOTAL 34 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: C
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	1	0	0	0	1
NE	0	2	5	0	0	0	7
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	1	0	0	0	2
S	0	0	0	1	0	0	1
SSW	0	0	4	4	0	0	8
SW	0	0	0	1	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	2	0	0	2
WNW	0	0	9	5	0	0	15
WW	0	0	5	1	0	0	6
VARIABLE	0	0	5	1	0	0	6

TOTAL 51 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: 0
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	3	17	0	1	1	0	22
NNE	0	21	0	0	0	0	21
NE	0	19	13	0	0	0	32
NNE	0	11	6	0	0	0	17
E	0	6	1	2	0	0	9
ESE	1	5	2	0	0	0	8
SE	0	6	11	4	0	0	21
SSE	0	7	24	9	0	0	40
S	0	2	32	9	0	0	43
SSW	0	5	25	31	2	4	67
SW	0	2	11	28	0	0	41
WSW	1	0	10	9	0	0	20
W	0	2	7	15	2	0	26
WSW	0	15	34	19	2	0	70
WNW	1	43	26	5	1	0	76
WNW	1	29	8	3	3	2	46
VARIABLE							

TOTAL 559
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: E
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	3	7	12	5	3	3	33	
NNE	0	10	9	2	1	0	22	
NE	2	19	19	5	0	0	45	
ENE	2	8	24	13	3	0	50	
E	1	18	21	11	3	0	54	
ESE	0	20	7	5	0	0	32	
SE	1	22	19	5	0	0	47	
SSE	0	19	30	7	0	0	56	
S	0	17	34	28	1	2	82	
SSW	3	15	59	74	7	0	158	
SW	1	9	21	23	0	0	54	
WSW	0	5	12	6	0	0	23	
W	1	10	25	19	2	0	57	
WNW	1	11	28	31	1	0	72	
NNW	0	5	17	22	4	0	48	
NW	2	10	28	26	3	0	69	
VARIABLE								

TOTAL 902
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 6/ 1/89 TO 6/30/89
STABILITY CLASS: F
ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTALS
	1-3	4-7	8-12	13-18	19-24				
N	0	4	0	0	1	0	0	13	
NNE	0	2	3	1	1	0	0	7	
N E	0	5	6	3	0	0	0	14	
ENE	0	5	15	8	0	0	0	28	
E	0	5	8	4	1	0	0	18	
ESE	0	8	2	0	0	0	0	10	
SE	0	10	6	2	0	0	0	18	
SSE	0	6	11	6	0	0	0	23	
S	2	2	6	7	0	0	0	17	
SSW	1	8	23	8	4	0	0	44	
SW	0	4	10	12	0	0	0	26	
WSW	0	3	12	3	0	0	0	18	
W	0	4	10	1	0	0	0	15	
WSW	0	6	15	0	0	0	0	21	
W	0	5	16	2	0	0	0	23	
W	0	3	9	5	0	0	0	17	
VARIABLE									

TOTAL 312
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/ 1/89 TO 6/30/89
 STABILITY CLASS: 6
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	3	7	0	0	0	0	0	10
NNE	3	3	2	0	0	0	0	8
NW	0	0	1	0	0	0	0	1
ENE	0	1	1	0	0	0	0	2
E	0	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	0	2
SE	1	2	0	0	0	0	0	3
SSE	0	4	2	2	0	0	0	8
S	3	7	3	3	6	0	0	16
SSW	0	5	4	2	0	0	0	11
SW	0	6	11	4	0	0	0	21
WSW	1	0	10	5	0	0	0	16
W	0	4	10	0	0	0	0	14
WSW	0	3	6	0	0	0	0	9
W	1	3	0	0	0	0	0	4
WSW	1	6	2	0	0	0	0	9
VARIABLE								

TOTAL 136
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: A
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	1	1	0	0	0	2
NE	0	0	0	0	0	0	0	0
ENE	0	0	2	0	0	0	0	2
E	0	0	5	6	0	0	0	11
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSH	0	0	0	0	0	0	0	0
SH	0	0	0	0	0	0	0	0
NCH	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0
NCH	0	0	0	0	0	0	0	0
NCH	0	0	0	0	0	0	0	0
NCH	0	0	3	0	0	0	0	3
NCH	0	0	3	1	0	0	0	4
VARIABLE								

TOTAL PERIODS OF CALM (HOURS): 22 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
STABILITY CLASS: B
ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-16	19-24	>24	
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	4	0	0	0	4
NNE	0	0	0	4	0	0	4
E	0	0	1	1	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	0	3	0	0	0	3
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	1	2	0	0	3
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
WN	0	0	1	0	0	0	1
WNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0

TOTAL 16
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: C
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	0	0	0	0	0
NNE	0	0	3	0	0	0	0	3
NE	0	2	7	0	0	0	0	9
NNE	0	0	1	5	0	0	0	6
E	0	0	0	0	0	0	0	0
ESE	0	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	2	0	0	0	0	2
SW	0	0	1	1	1	0	0	3
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WNW	0	1	0	1	0	0	0	2
VARIABLE	0	1	0	1	0	0	0	2

TOTAL 30
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: D
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	1	17	11	6	0	0	0	35
NNE	1	35	5	2	0	0	0	43
NE	1	17	12	2	0	0	0	32
NNE	3	7	14	12	0	0	0	36
E	0	2	7	3	0	0	0	12
ESE	0	3	2	0	0	0	0	5
SE	0	1	3	0	0	0	0	4
SSE	0	2	7	0	0	0	0	9
S	0	1	7	2	0	0	0	10
SSW	0	2	15	13	6	1	0	37
SW	0	4	9	18	5	0	0	36
WSW	0	1	5	0	0	0	0	6
W	0	0	4	1	0	0	0	5
WNW	0	5	60	6	1	0	0	72
WW	0	23	20	5	0	0	0	48
WVARIABLE	0	28	5	5	0	0	0	38

TOTAL 428
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: E
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	1	8	13	31	4	0	57	
NNE	2	8	19	9	1	0	39	
NNE	2	8	10	17	2	0	39	
ENE	0	3	20	43	2	0	68	
E	2	11	24	25	1	0	63	
ESE	0	13	15	3	0	0	31	
SE	0	16	7	0	0	0	23	
SSE	1	17	16	0	0	1	35	
S	1	14	19	4	6	2	46	
SSW	0	17	62	39	8	5	131	
SW	1	7	39	26	6	0	79	
WSW	0	7	11	3	0	0	21	
W	0	8	30	4	0	0	42	
WNW	1	22	25	12	0	0	60	
WNW	1	13	11	11	4	0	40	
WNW	2	13	20	27	12	3	77	
VARIABLE								

TOTAL 851
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: F
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	1	5	8	2	0	0	16	
NNE	1	2	4	1	0	0	8	
NE	0	3	5	2	1	0	11	
NNE	1	0	7	8	1	0	17	
E	0	1	8	3	0	0	12	
ESE	0	3	7	1	0	0	11	
SE	1	15	7	0	0	0	23	
SSE	1	11	15	0	0	0	27	
S	0	8	16	10	0	0	34	
SSW	1	10	47	26	0	0	84	
SW	0	5	42	25	3	0	75	
WSW	0	4	23	11	0	0	38	
W	1	6	20	0	0	0	27	
WSW	0	2	15	2	0	0	19	
W	1	2	11	1	0	0	15	
WSW	0	8	6	1	0	0	15	
VARIABLE								

TOTAL 432
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/ 1/89 TO 9/30/89
 STABILITY CLASS: G
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	6	3	0	0	0	0	9
NNE	0	4	0	0	0	0	0	4
NE	1	1	0	0	0	0	0	2
ENE	0	3	0	1	0	0	0	4
E	0	4	9	0	0	0	0	13
ESE	1	4	9	0	0	0	0	14
SE	4	7	4	0	0	0	0	15
SSE	0	9	12	0	0	0	0	21
S	0	2	16	2	0	0	0	20
SSW	0	3	23	7	0	0	0	33
SW	1	4	26	11	0	0	0	42
WSW	1	6	19	4	0	0	0	30
W	1	5	18	0	0	0	0	24
WSW	1	5	5	0	0	0	0	11
WNW	0	7	0	0	0	0	0	7
WNW	1	7	1	0	0	0	0	9
VARIABLE								

TOTAL 258
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: A
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NNE	0	0	2	1	0	0	3
ENE	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	1	0	1
WSW	0	0	0	0	0	0	0
W	0	0	1	0	0	0	1
WSW	0	0	0	1	0	0	1
WNW	0	0	1	1	0	0	2
W	0	0	1	1	0	0	2
VARIABLE	0	0	1	1	0	0	1

TOTAL 10
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
STABILITY CLASS: B
ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	0	0	2	6	0	0	2
NNE	0	0	0	0	0	0	0
NENE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	0	0	0	2
SSW	0	0	0	2	0	0	2
SW	0	0	0	0	0	0	0
WSW	0	0	1	2	0	0	3
W	0	0	0	0	0	0	0
WNN	0	0	2	3	1	0	6
WN	0	0	0	1	0	0	1
WNW	0	0	2	0	0	0	2
VARIABLE	0	0	0	0	0	0	0

TOTAL 20
PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: C
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	3	0	0	0	0	3
NNE	0	0	0	1	0	0	0	1
N E	0	0	0	1	0	0	0	1
ENE	0	0	2	0	0	0	0	2
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	2	0	0	0	0	2
SSE	0	0	0	0	0	0	0	0
S	0	1	0	0	0	0	0	1
SSH	0	0	2	2	0	0	0	4
SW	0	0	1	2	0	0	0	3
WSW	0	0	0	2	0	0	0	2
W	0	0	1	3	0	0	0	4
WSW	0	1	1	7	2	0	0	11
W	0	0	2	6	3	0	0	11
WSW	0	0	1	2	1	0	0	4
VARIABLE								

TOTAL 49
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: 0
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	2	9	6	5	0	0	22
NNE	0	20	1	20	1	0	42
NE	3	6	9	4	1	0	23
ENE	1	3	7	0	0	0	11
E	0	1	5	0	0	0	6
ESE	0	4	4	0	0	0	8
SE	1	2	11	0	0	0	14
SSE	0	4	2	0	3	0	9
S	1	2	9	1	5	0	18
SSW	3	5	10	8	1	0	27
SW	1	3	10	9	9	0	32
WSW	0	8	16	12	2	0	38
W	2	11	12	16	9	0	50
WNW	1	14	17	24	20	10	86
WW	2	20	19	23	17	39	120
WNW	1	7	15	9	1	3	36
VARIABLE							

TOTAL 542
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: E
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-24	>24	
N	1	9	10	30	7	0	57
NNE	1	3	11	20	12	0	47
NE	1	3	14	37	14	9	78
NNE	0	1	6	8	9	11	35
E	0	10	12	13	3	0	38
ESE	0	7	19	7	0	0	33
SE	0	11	15	9	0	0	35
SSE	2	12	11	17	5	0	47
S	0	6	20	10	2	9	47
SSW	0	3	22	59	14	1	99
SW	0	5	40	59	14	3	121
WSW	1	7	27	20	20	0	75
W	3	9	33	36	22	1	104
WSW	3	9	26	57	35	20	150
WNW	1	1	36	51	39	9	137
WNW	0	4	16	47	9	1	77
VARIABLE							

TOTAL 1180
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: F
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)						TOTALS
	1-3	4-7	8-12	13-18	19-26	>26	
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
NNE	0	0	2	0	0	0	2
E	0	7	1	2	0	0	10
ESE	0	0	5	3	0	0	8
SE	0	4	1	0	2	0	7
SSE	0	4	6	2	2	2	16
S	0	2	5	3	0	0	10
SSW	0	0	3	11	0	0	14
SW	0	1	16	4	0	0	21
WSW	0	2	30	6	0	0	40
W	0	4	17	0	0	0	21
WSW	0	1	10	0	0	0	11
W	0	0	5	0	0	0	5
WSW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0

TOTAL 166
 PERIODS OF CALM (HOURS): 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/ 1/89 TO 12/31/89
 STABILITY CLASS: G
 ELEVATION: 150

WIND DIRECTION	WIND SPEED (MPH)							TOTALS
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	4	0	0	0	0	0	4
NNE	1	0	0	0	0	0	0	1
NE	1	0	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0	0
E	0	4	0	0	0	0	0	4
ESE	2	2	6	0	0	0	0	10
SE	0	5	9	3	0	0	0	17
SSE	1	7	18	2	0	0	0	28
S	0	10	9	8	0	0	0	27
SSW	2	9	9	5	0	0	0	25
SW	0	1	12	7	0	0	0	20
WSW	1	1	11	1	0	0	0	14
W	0	3	11	0	0	0	0	14
WSW	0	7	7	0	0	0	0	14
W	0	3	0	0	0	0	0	3
WSW	0	2	0	0	0	0	0	2
VARIABLE								

TOTAL 178
 PERIODS OF CALM (HOURS): 0

SEMIANNUAL RADIOACTIVE EFFLUENT
RELEASE REPORT

G - PCP & ODCM REVISIONS, REMP NON COMPLIANCES AND
MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS

According to Technical Specification 6.9.1.7, the Semiannual Radioactive Effluent Release Report shall include any changes to the Process Control Program (PCP) and to the Offsite Dose Calculation Manual (ODCM) made during the reporting period.

A. & B. There were no changes made to the PCP or ODCM during this reporting period.

Action Statement c of Technical Specification 3.12.1 and a and b of Technical Specification 3.12.2 require certain items of REMP noncompliance to be reported in the Semiannual Radioactive Effluent Release Report.

C. There were no such REMP noncompliances during this reporting period.

Technical Specification 6.15 states that the Semiannual Radioactive Effluent Release Report shall include major changes to radioactive waste treatment systems.

D. There were no major changes to radioactive waste treatment systems during this reporting period.

SEMIANNUAL RADIOACTIVE EFFLUENT
RELEASE REPORT

H - MISCELLANEOUS SPECIAL REPORTS

3rd and 4th Quarters of 1989

Action Statement b. of Technical Specifications 3.3.7.10 requires that when certain liquid effluent monitoring instrumentation remains inoperable beyond a specified period time, the reason why the inoperability was not corrected within that time should be explained in this report.

On September 15, 1989 the RHR Heat exchanger service water radiation monitors, 1D11PNL-23A and B, were declared inoperable. The RHR Heat Exchangers were out of service at the time and they will remain out of service as part of the effort to protect the plant in its defueled condition. There is, therefore, no potential release path and the monitors will continue to be inoperable.