SUMMARY*

RADIOACTIVE EFFLUENT RELEASE REPORT

FOR THE

NORTH ANNA POWER STATION

JULY 1, 1983 to DECEMBER 31, 1983

*This Summary of the North Anna Power Station Radioactive Effluent Release Report (3rd and 4th quarter, 1983) contains Sections 1, 2, 3, Appendix A, and excerpts from Appendix B of the full report. The full report is available for review at the North Anna Power Station.

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RADIOACTIVE EFFLUENT RELEASE REPORT

FOR THE

NORTH ANNA POWER STATION

JULY 1, 1983 TO DECEMBER 31, 1983

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FORWARD

This report is submitted as required by Appendix B to Operating license, Environmental Technical Specifications for North Anna Power Station Units 1 and 2, Virginia Electric and Power Company Docket Nos. 50-338, 50-339 Section 5.6.1.2.

RADIOACTIVE EFFLUENT RELEASE REPORT

FOR THE

NORTH ANNA POWER STATION

JULY 1, 1983 TO DECEMBER 31, 1983

INDEX

PURPOSE AND SCOPE

1. This report documents the release of radioactivity from the site for the previous semi-annual period with the dilution and dispersion of the liquid and gaseous radioactive effluents with the environs of the site and the assessment of radiation doses to individuals and populations from the effluents.

The report includes summaries of the quantities of radioactive liquid and gaseous effluents and solid waste released from the station as outlined in Regulatory Guide 1.21. "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants". Also included are summaries of the meteorological conditions concurrent with the release of gaseous effluents as outlined in Regulatory Guide 1.21, and summaries of calculated doses for individuals and populations from liquid and gaseous effluents following Reg. Guides 1.21 and 1.109 through 1.113. The site specific environmental parameters used for calculating dose from the effluents are included for reference. These environmental parameters are redetermined each year at the beginning of the growing/grazing season.

The radioactive liquid and gaseous effluent data, meteorological data, and dose calculations are summarized on a quarterly basis for all liquid and continuous gaseous releases. Intermittent gaseous releases are summarized separately along with the concurrent meteorological data and calculated radiation doses to individuals.

2. DATA COLLECTION AND ANALYSIS

2.1 EFFLUENT RELEASES

The radioactive effluents released to the environment from the station during the report period were sampled and analyzed for radioactivity in accordance with the Environmental Technical Specifications, Specifications 2.2.2 and 2.2.4.

Summaries of the quantities of radioactive materials in liquid and gaseous effluents released to the environment are included in Appendix A to this report as Tables 1A, 1B, 2A, 2B. The reported quantities of radioactive materials are measured levels. The Minimal Detectable Activity levels for individuals nuclides for liquid and gaseous effluents is included in Appendix A as Table 4.

2.2 METEOROLOGICAL MEASUREMENTS

Site meteorological conditions were measured during the report period and recorded as hourly average of wind speed, wind direction and differential temperature between the 150 foot and 35 foot level temperature sensors at the station meteorological tower.

Summaries of the meteorological conditions for the report period are included in Appendix B, for the release period under consideration as joint frequency distributions of wind speed and direction by stability class.

2.3 OFFSITE EXPOSURE ESTIMATES

Estimates of offsite exposures resulting from the releases of radioactive effluents to unrestricted areas during the report period were calculated following Reg. Guides 1.21 and 1.109 through 1.113. The result of these estimates is included as Appendix B to this report.

2.3.1 MAXIMUM INDIVIDUAL ESPOSURES

Estimates of maximum individuals offsite exposures were calculated using the critical receptor survey results to determine appropriate pathways. Maximum individual usage values and pathway parameters were taken from Reg. Guide 1.109, Table E-5 and E-15.

2.3.1.1 LIQUID EFFLUENT RELEASE EXPOSURE

Estimates of maximum individual offsite exposures were calculated for potable water, aquatic foods (sport fish), shoreline recreation, and contaminated foods.

No public drinking water supplies are drawn from North Anna Reservoir, however, the Hanover County, Doswell Treatment Plant withdraws downstream from the reservoir. This is the point of exposure for this pathway. A transit time of 5 days, including distribution, was estimated for this calculation. The pathway for contaminated foods is the access to the Waste Heat Treatment Facility by cattle located on pastures adjoining the facility.

Mixing ratios of 0.66 and 0.63 were used for the Waste Heat Treatment Facility and reservoir respectively (Ref. FSAR 11.2.7). No additional mixing ratio was assumed for the reservoir to North Anna River.

The result of these calculations is included in Appendix B, for the 3rd and 4th quarters.

2.3.1.2 GASEOUS EFFLUENT RELEASE EXPOSURES

Estimates of maximum individual offsite exposures were calculated for external exposure from noble gases, inhalation of radioactivity in air, deposition of radioactivity on the ground plane and consumption of deposited radioactivity from leafy vegetation, produce, cows milk, goats milk, and meat pathways. Calculations were performed for total-body and organ exposures as appropriate. These results are included in Appendix B, Sections II and III. In addition, the gamma and beta exposures to air at the site boundary was calculated and the result is included in Appendix B, Sections II and III. Calculations were performed for each sector of the environment surrounding the site, using meteorological data concurrent with the release period.

2.3.2 POPULATION EXPOSURES

Annual population integrated total-body and thyroid exposures were calculated for the population within a 50 mile radius of

the site. Tables E-4 and E-15 of Reg. Guide 1.109 were used to determine the usage values and pathways parameters for population exposures.

2.3.2.1 LIQUID EFFLUENT RELEASE POPULATION EXPOSURES

Average individual exposures resulting from the release of liquid effluents were calculated for potable water, aquatic foods, shoreline recreation, and contaminated foods. These results were incorporated along with the production and/or usage values for these pathways and age distribution fractions to calculate the population exposures from liquid pathways. This result is included as Appendix B, Sections II and III.

2.3.2.2 GASEOUS EFFLUENT RELEASE POPULATION EXPOSURES

Estimate of the average adult, teen and child exposure were calculated for total-body and thyroid external exposures from noble gas submersion and deposition on the ground plane and exposure from inhalation of radioactivity. Estimates were calculated for each sector and subregion with the 50 mile radius of the site.

Each subsector individual exposure was multiplied by the estimate age dependent population for the subregion (Ref. FSAR 2.1.3), to yield the population exposures for each subregion and pathway. These results are included in Appendix B for each continuous and batch release.

Estimates of the average adult, teen and child total-body and thyroid exposures for the 50 mile region were

calculated for the produce, milk, and meat pathways. These estimates were incorporated with crop data for the region and age dependent population estimates to estimate the MAN-REM and MAN-THYROID-REM from the terrestrial food pathway. This result is included in Appendix B for each batch and continuous release.

2.4 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A summary of solid waste and/or irradiated fuel shipments from the station during the report period is included in Appendix A, Table 3.

3. RESULTS AND EVALUATION

3.1 LIQUID EFFLUENT RELEASES

Calculated estimated offsite exposures for liquid effluents for the 3rd and4th quarters of 1983resulted in estimates of less than 1 mrem for the maximum individual total body or organ dose.

Calculated estimated offsite population exposures for this period resulted in doses of 3.25E-land 1.09E0 Man-Rem Total-Body dose during the 3rd and 4th quarters and 8.16E-land 7.24E-1 Man-Thyroid-Rem dose for the 3rd and 4th quarters respectively from liquid.

3.2 GASEOUS EFFLUENT RELEASES

Estimates of offsite exposures for continuous gaseous effluents for the 3rd and4th quarters of 1983 resulted in estimate of

less than 1 mrem for the maximum individual total-body or organ dose.

Dose estimates were calculated for 17 batch releases during the 3rd quarter and 15 batch releases during the 4th quarter of 1983. The dose estimates were 9.62E-3 mrem for the maximum individual total-body and 2.83E-1 mrem for the maximum individual organ dose. Calculated estimated offsite population exposures for this period resulting from gaseous releases resulted in estimated doses of 9.68E0 Man-Rem total-body by the noble gas pathway and 1.14E0 Thyroid-Rem by the cow milk pathway for all gaseous releases.

APPENDIX A

RADIOACTIVE EFFLUENT RELEASE REPORT

FOR THE

NORTH ANNA POWER STATION

JULY 1, 1983 TO DECEMBER 31, 1983

EFFLUENT RELEASE DATA

TABLE 1A
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1983)
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASE
NORTH ANNA POWER STATION
DOCKET 50-338

	UNIT	3rd QUARTER	4th QUARTER	EST. TOTAL ERROR %
A. Fission & Activation gases				
1. Total release	Ci	6.93E+3	8.89E+3	1.50E+1
2. Average release rate for period	µCi/sec	8.72E+2	1.12E+3	
3. Percent of Technical Specification limit Total Body %	%	6.89E-2	1.67E-1	
3. Percent of Technical Specification limit Total Skin %	%	3.35E-2	7.27E-2	
B. Iodines				
1. Total Iodine-131	Ci	2.60E-2	3.35E-2	1.50E+1
2. Average release rate for period	µCi/sec	3.27E-3	4.41E-3	
3. Percent of Technical Specification limit	%	6.50E-1	8.38E-1	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci	6.68E-2	5.12E-2	1.50E+1
2. Average release rate for period	µCi/sec	8.40E-3	6.44E-3	
3. Percent of Technical Specification limit	%	3.45E-1	2.64E-1	
4. Gross Alpha radioactivity	Ci	2.19E-4	1.57E-4	
D. Tritium				
1. Total release	Ci	5.16E0	2.06E+1	1.50E+1
2. Average release rate for period	µCi/sec	6.49E-1	2.59E0	
3. Percent of Technical Specification limit	%	--------	--------	

TABLE 1B
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1983)
GASEOUS EFFLUENTS-GROUND-LEVEL RELEASES
NORTH ANNA POWER STATION
DOCKET 50-338

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
1. Fission Gases					
Krypton-85	Ci	2.74E0	1.54E0		3.61E-1
Krypton-85m	Ci	1.51E+1	1.84E+2		1.65E-2
Krypton-87	Ci	1.19E+1	7.92E+1		2.42E-2
Krypton-88	Ci	2.16E+1	3.04E+2		3.54E-2
Xenon-131m	Ci	3.03E+1	2.19E+1		4.24E-3
Xenon-133	Ci	5.60E+3	4.56E+3	3.71E-2	2.79E+2
Xenon-133m	Ci	6.10E+1	3.99E+1		2.44E-2
Xenon-135	Ci	7.58E+2	1.74E+3	6.52E-3	1.21E0
Xenon-135m	Ci	4.18E+2	1.64E+3	1.61E-1	1.15E-2
Xenon-138	Ci	1.23E+1	3.06E+1		
Others (specify) Ar-41	Ci	2.08E0	8.58E0	3.01E-5	3.06E-3
Unidentified	Ci				
Total for Period	Ci	6.93E+3	8.61E+3	2.05E-1	2.81E+2
2. Iodines					
Iodine-131	Ci	2.19E-2	3.16E-2	4.05E-3	1.91E-3
Iodine-132	Ci	4.29E-4	1.83E-4	2.45E-3	8.19E-5
Iodine-133	Ci	2.82E-2	8.09E-3	2.00E-3	2.25E-3
Iodine-134	Ci	4.36E-6	2.08E-5	8.25E-5	7.16E-5
Iodine-135	Ci	3.94E-3	1.18E-3	9.91E-4	1.66E-4
Total for Period	Ci	5.45E-2	4.11E-2	9.57E-3	4.48E-3
3. Particulates					
Strontium-89	Ci		1.70E-6		
Strontium-90	Ci				
Cesium-134	Ci		5.91E-4	3.09E-4	5.25E-5
Cesium-137	Ci	4.46E-4	1.85E-3	8.24E-4	1.96E-4
Barium-lanthanum-140	Ci				7.15E-7
Others (specify)	Ci				
Na-24	Ci			2.47E-5	4.78E-5
Co-58	Ci		1.39E-3	1.97E-5	6.30E-6
Co-60	Ci	6.29E-4	1.34E-3	7.98E-7	3.27E-5
Sb-122	Ci		4.53E-5	1.29E-4	6.12E-6
Ag-110m	Ci			9.16E-6	3.95E-8
Cs-136	Ci			9.19E-5	1.80E-6
Cs-138	Ci	4.84E-2	8.74E-1	7.36E-5	1.02E-3
Rb-88	Ci	6.11E-1	7.05E0	3.78E-4	1.33E-5
Rb-89	Ci	8.39E-3	1.40E-2	1.85E-6	3.64E-6
Unidentified	Ci				

TABLE 1B
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1983)
GASEOUS EFFLUENTS-GROUND-LEVEL RELEASES
NORTH ANNA POWER STATION
DOCKET 50-338

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE 3rd QUARTER	CONTINUOUS MODE 4th QUARTER	BATCH MODE 3rd QUARTER	BATCH MODE 4th QUARTER
3. Particulates (continue)					
Tc-99m	Ci		9.75E-7		2.04E-9
Fe-59	Ci				1.28E-7
Zr-95	Ci				1.53E-7
Mn-54	Ci		4.47E-10		1.29E-7
Nb-95	Ci			6.75E-7	8.09E-8
Sr-91	Ci				8.40E-9
Te-132	Ci	1.24E-4	5.23E-3	2.23E-7	1.67E-7
Te-131m	Ci	1.29E-6	2.26E-5		
Y-91	Ci	4.29E-4	1.60E-4		
Sr-85	Ci		1.60E-7		
La-142	Ci	3.24E-7	9.46E-5	2.68E-6	
Cu-64	Ci	3.03E-4			
Te-129	Ci		5.33E-5		
	Ci				
H-3	Ci	4.82E0	1.00E+1	3.39E-1	1.06E+1
Alpha	Ci	2.19E-4	1.57E-4		
	Ci				
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TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1983)
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
NORTH ANNA POWER STATION
DOCKET 50-338

	UNIT	3rd QUARTER	4th QUARTER	EST. TOTAL ERROR %
A. Fission & Activation products				
1. Total release (not including tritium, gases, alpha)	Ci	7.36E-1	1.63E0	1.50E+1
2. Average diluted concentration during period	µCi/ml	7.74E-10	2.35E-9	
3. Percent of applicable limit	%	9.56E-2	5.90E-2	
B. Tritium				
1. Total release	Ci	4.70E+2	7.63E+2	1.50E+1
2. Average diluted concentration during period	µCi/ml	4.95E-7	1.10E-6	
3. Percent of applicable limit	%	1.65E-2	3.67E-2	
C. Dissolved and entrained gases				
1. Total release	Ci	2.81E0	2.93E0	1.50E+1
2. Average diluted concentration during period	µCi/ml	2.96E-9	4.23E-9	
3. Percent of applicable limit	%	7.39E-3	1.06E-2	
D. Gross Alpha radioactivity				
1. Total release	Ci	------	-------	1.50E+1
E. Volume of waste released (prior to dilution)	Liters	7.53E+7	7.27E+7	2.00E0
F. Volume of dilution water used during period	Liters	9.50E+11	6.93E+11	2.00E0

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT (1983)

LIQUID EFFLUENTS

NORTH ANNA POWER STATION

DOCKET 50-338

NUCLIDES RELEASED	UNIT	CONTINUOUS MODE 3rd QUARTER	CONTINUOUS MODE 4th QUARTER	BATCH MODE QUARTER	BATCH MODE QUARTER
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci	1.36E-1	5.00E-1		
Cesium-137	Ci	2.34E-1	8.44E-1		
Iodine-131	Ci	2.63E-1	9.18E-2		
Iodine-133	Ci	2.15E-3	3.33E-3		
Iodine-135	Ci				
Cobalt-58	Ci	4.42E-3	9.03E-3		
Cobalt-60	Ci	4.62E-2	5.98E-2		
Iron-59	Ci				
Zinc-65	Ci				
Manganese-54	Ci	8.46E-3	5.00E-4		
Chromium-51	Ci				
Zirconium-Niobium-95	Ci		8.00E-5		
Molybedenum-99	Ci				
Technetium-99	Ci				
Barium-lanthanum-140	Ci		2.68E-3		
Cerium-141	Ci				
Other (specify)	Ci				
Cs-136	Ci	1.48E-2	3.38E-2		
Na-24	Ci	7.01E-3	1.40E-3		
Sb-122	Ci	1.59E-?	5.95E-2		
Sb-124	Ci	2.69E-3	1.36E-3		
Ag-110m	Ci	9.26E-4	6.23E-4		
Cd-109	Ci		8.56E-3		
Rb-88	Ci		1.28E-2		
Cs-138	Ci		1.20E-4		
Unidentified	Ci				
Total For Period (above)	Ci	7.36E-1	1.63E0		
Xenon-131m	Ci	4.39E-3	3.98E-2		
Xenon-133	Ci	2.73E0	2.41E0		
Xenon-133m	Ci	6.62E-3	1.85E-2		
Xenon-135	Ci	6.45E-2	4.33E-1		
Xenon-135m	Ci	4.93E-3	3.06E-2		
	Ci				
Tritium	Ci	4.70E+2	7.63E+2		
Alpha	Ci	< MDA	< MDA		

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

JULY 1, 1983 TO DECEMBER 31, 1983

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

1. Type of Waste	Unit	6-Month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	7.17E+1 1.68E+2	1.0E+1
b. Dry compressible waste, contaminated equipment, etc.	m^3 Ci	1.58E+2 3.31E+1	1.0E+1
c. Irradiated components, control rods, etc.	m^3 Ci	3.88E+1 9.61E+2	1.0E+1
d. Other (describe)	m^3 Ci		

2. Estimate of major nuclide composition (by type of waste)

a.	Mn-54	%	4.13E0
	Co-58	%	2.529E+1
	Co-60	%	5.446E+1
	Cs-134	%	8.80E0
	Cs-137	%	7.32E0
b.	Co-58	%	9.6E0
	Co-60	%	2.713E+1
	Mn-54	%	1.9E0
	Cs-134	%	1.84E+1
	Cs-137	%	2.97E+1
	I-131	%	1.327E+1
c.	Mn-54	%	6.0E0
	Fe-55	%	5.46E+1
	Co-58	%	9.9E0
	Co-60	%	2.95E+1

3. Solid Waste Disposition

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
thirty-one (31)	Private vehicle	Barnwell, S.C.

B. IRRADIATED FUEL SHIPMENTS (disposition)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION

TABLE 4

MINIMAL DETECTABLE ACTIVITY LEVELS (uCi/ml)

NUCLIDE	GASEOUS EFFLUENTS	LIQUID EFFLUENTS
Ar-41	3.80 E-7	
Kr-85m	5.65 E-5	
Kr-85	1.43 E-4	
Kr-87	1.28 E-6	
Kr-88	1.57 E-6	
Xe-131m	1.76 E-5	2.81 E-6
Xe-133	1.12 E-6	2.02 E-7
Xe-133m	3.94 E-6	5.41 E-7
Xe-135	5.59 E-7	6.28 E-8
Xe-135m	2.85 E-6	1.33 E-7
Xe-138	9.63 E-6	
I-131	1.73 E-13	6.61 E-8
I-132	1.75 E-13	5.08 E-8
I-133	1.40 E-13	5.78 E-8
I-134	2.89 E-13	
I-135	9.33 E-13	2.77 E-7
Co-58	1.18 E-13	5.27 E-8
Co-60	1.33 E-13	7.28 E-8
Cs-134	1.26 E-13	
Cs-137	1.56 E-13	
Cs-138	3.11 E-13	
Mn-54	1.09 E-13	5.82 E-8
Zn-65	3.53 E-13	
Nb-95	1.20 E-13	5.17 E-8
Rb-88	1.36 E-12	
Na-24	1.82 E-13	4.91 E-8
Sb-122	1.97 E-13	8.34 E-8
Te-131m	3.41 E-13	1.31 E-7
La-142	2.47 E-13	
H-3	1.02 E-9	3.21 E-6
Alpha	2.75 E-15	8.88 E-9

APPENDIX B EXCERPTS

ANNUAL ENVIRONMENTAL SURVEY DATA FOR 1983

AND

METEOROLOGICAL DATA SUMMARIES

SECTION I

North Anna Power Station

ANNUAL ENVIRONMENTAL SURVEY DATA FOR 1983

SECTOR	NEAREST RESIDENT	NEAREST SITE BOUNDARY	MILKCOW	MEAT AMINAL	MILK GOAT	VEG. GARDEN > 500 ft^2
N	2.48 km	1.40 km	3.28 km	3.28 km		2.48 km
NNE	1.76 km	1.36 km		4.16 km		2.64 km
NE	2.00 km	1.32 km		3.60 k		1.92 km
ENE	3.60 km	1.31 km	7.20 km	4.16 km		3.60 km
E	2.08 km	1.33 km		2.08 km		2.08 km
ESE	2.32 km	1.37 km		6.88 km	7.84 km	6.88 km
SE	2.32 km	1.41 km		2.24 km		2.40 km
SSE	1.52 km	1.47 km		2.32 km		3.20 km
S	1.52 km	1.52 km		2.40 km		2.40 km
SSW	2.16 km	1.62 km	5.92 km	3.60 km		2.16 km
SW	2.40 km	1.70 km		2.64 km		2.40 km
WSW	2.24 km	1.75 km		2.80 km		2.80 km
W	2.56 km	1.71 km		7.20 km		7.20 km
WNW	1.84 km	1.64 km		4.96 km		4.32 km
NW	1.92 km	1.56 km		3.36 km		3.36 km
NNW	3.60 km	1.45 km		3.68 km		3.60 km

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345.00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551.00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : A
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1.40E 01	4.00E 01	5.10E 01	2.00E 00	0.00E-01	0.00E-01	1.07E 02
NNE	6.00E 00	1.90E 01	2.00E 01	4.00E 00	0.00E-01	0.00E-01	4.90E 01
NE	1.00E 01	2.20E 01	7.00E 00	0.00E-01	0.00E-01	0.00E-01	3.90E 01
ENE	1.90E 01	1.30E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	3.40E 01
E	3.00E 01	2.30E 01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	5.70E 01
ESE	2.70E 01	3.10E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	5.90E 01
SE	1.00E 01	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.70E 01
SSE	1.10E 01	1.60E 01	1.00E 00	1.00E 00	0.00E-01	0.00E-01	2.90E 01
S	1.50E 01	6.50E 01	5.00E 00	0.00E-01	1.00E 00	0.00E-01	8.60E 01
SSW	1.00E 01	5.60E 01	7.00E 00	0.00E-01	1.00E 00	0.00E-01	7.40E 01
SW	6.00E 00	3.10E 01	6.00E 00	0.00E-01	0.00E-01	0.00E-01	4.30E 01
WSW	2.00E 00	1.10E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.40E 01
W	6.00E 00	1.20E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.80E 01
WNW	1.50E 01	3.10E 01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	5.00E 01
NW	1.60E 01	2.60E 01	8.00E 00	1.00E 00	0.00E-01	0.00E-01	5.10E 01
NNW	2.10E 01	1.90E 01	2.30E 01	6.00E 00	0.00E-01	0.00E-01	6.30E 01
TOT	2.18E 02	4.22E 02	1.40E 02	1.40E 01	2.00E 00	0.00E-01	7.96E 02

PERIODS OF CALM(HOURS) : 1.500E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEOROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4243:00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551:00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : B
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4.00E 00	1.60E 01	6.00E 00	0.00E-01	0.00E-01	0.00E-01	2.60E 01
NNE	1.00E 00	1.10E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	1.40E 01
NE	1.00E 00	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	5.00E 00
ENE	3.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.00E 00
E	1.00E 00	4.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
ESE	1.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
SE	2.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
SSE	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.30E-01	0.00E-01	2.00E 00
S	3.00E 00	4.00E 00	5.00E 00	0.00E-01	0.00E-01	0.00E-01	1.30E 01
SSW	5.00E 00	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 01
SW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
WSW	3.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
W	0.00E-01	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	2.00E 00
WNW	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
NW	2.00E 00	3.00E 00	1.00E 00	1.00E 00	0.00E-01	0.00E-01	7.00E 00
NNW	1.00E 00	1.10E 01	8.00E 00	0.00E-01	0.00E-01	0.00E-01	2.00E 01
TOT	2.30E 01	7.00E 01	2.50E 01	1.00E 00	0.00E-01	0.00E-01	1.25E 02

PERIODS OF CALM(HOURS) 1.000E 00
HOURS OF INVALID DATA 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345:00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551:00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : C
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	5.00E 00	3.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 01
NNE	2.00E 00	6.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	9.00E 00
NE	5.00E 00	1.30E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.80E 01
ENE	3.00E 00	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 01
E	0.00E-01	5.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	6.00E 00
ESE	2.00E 00	2.00E 00	1.00E 00	0.00E-01	0.00E-01	6.00E-01	5.00E 00
SE	0.00E-01	2.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	3.00E 00
SSE	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
S	5.00E 00	9.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.40E 01
SSW	8.00E 00	6.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.40E 01
SW	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
WSW	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
W	0.00E-01	0.00E-01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 00
WNW	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
NW	4.00E 00	5.00E 00	0.00E-01	1.00E 00	0.00E-01	0.00E-01	1.00E 01
NNW	1.00E 00	1.50E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	1.80E 01
TOT	4.30E 01	7.50E 01	9.00E 00	1.00E 00	0.00E-01	0.00E-01	1.28E 02

PERIODS OF CALM(HOURS): 6.000E 00
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345:00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551:00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : D
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1.00E 01	1.40E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	2.60E 01
NNE	8.00E 00	6.00E 00	2.00E 00	1.00E 00	0.00E-01	0.00E-01	1.70E 01
NE	9.00E 00	8.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.70E 01
ENE	5.00E 00	8.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.30E 01
E	1.20E 01	1.00E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	2.30E 01
ESE	7.00E 00	1.00E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.80E 01
SE	1.20E 01	3.10E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	4.40E 01
SSE	1.40E 01	1.30E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.70E 01
S	3.30E 01	3.10E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.40E 01
SSW	2.10E 01	2.90E 01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	5.40E 01
SW	2.00E 01	1.30E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	3.50E 01
WSW	9.00E 00	9.00E 00	4.00E 00	0.00E-01	0.00E-01	0.00E-01	2.20E 01
W	9.00E 00	5.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	1.60E 01
WNW	2.50E 01	2.30E 01	0.00E-01	0.00E-01	1.00E 00	0.00E-01	4.90E 01
NW	1.60E 01	1.40E 01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	3.30E 01
NNW	8.00E 00	1.90E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	2.80E 01
TOT	2.18E 02	2.43E 02	2.30E 01	1.00E 00	1.00E 00	0.00E-01	4.86E 02

PERIODS OF CALM(HOURS): 2.800E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345:00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551:00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : E
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	5.00E 00	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	9.00E 00
NNE	7.00E 00	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.40E 01
NE	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
ENE	3.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
E	6.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	8.00E 00
ESE	6.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	7.00E 00
SE	4.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
SSE	1.30E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.40E 01
S	2.90E 01	9.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.80E 01
SSW	1.60E 01	2.10E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.70E 01
SW	1.20E 01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.50E 01
WSW	7.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	8.00E 00
W	3.90E 01	1.50E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.40E 01
WNW	7.40E 01	2.30E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	9.70E 01
NW	8.00E 00	4.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.20E 01
NNW	5.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	8.00E 00
TOT	2.39E 02	9.30E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	3.35E 02

PERIODS OF CALM(HOURS): 3.500E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345:00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551:00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : F
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
NNE	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
NE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ENE	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
E	0.00E-01	0.00E-01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 00
ESE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SSE	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
S	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	7.00E 00
SSW	7.00E 00	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.20E 01
SW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
WSW	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
W	1.60E 01	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.30E 01
WNW	4.10E 01	6.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.70E 01
NW	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	7.00E 00
NNW	0.00E-01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0 00E-01	1.00E 00
TOT	8.60E 01	2.10E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.08E 02

PERIODS OF CALM(HOURS) : 2.400E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD : QUARTER # 3
REPORT START TIME : 4345.00 HRS = 01:00AM JULY 1, 1983
REPORT END TIME : 6551.00 HRS = 11:00PM SEPTEMBER 30, 1983
STABILITY CLASS : G
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NNE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ENE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
E	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ESE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SSE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
S	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
SSW	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
SW	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
WSW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W	3.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.00E 00
WNW	2.30E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.30E 01
NW	2.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
NNW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TOT	3.10E 01	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.60E 01

PERIODS OF CALM(HOURS) : 9.000E 00
HOURS OF INVALID DATA : 0.000E-01
HOURS OF GOOD DATA : 2.153E 03 = 97.6% OF TOTAL HOURS

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : A
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.00E-01	2.00E 01	4.20E 01	1.00E 01	0.00E-01	0.00E-01	7.20E 01
NNE	2.00E 00	1.50E 01	2.60E 01	1.00E 00	0.00E-01	0.00E-01	4.40E 01
NE	1.00E 00	1.20E 01	1.30E 01	0.00E-01	0.00E-01	0.00E-01	2.60E 01
ENE	1.00E 01	9.00E 00	7.00E 00	0.00E-01	0.00E-01	0.00E-01	2.60E 01
E	1.20E 01	8.00E 00	1.10E 01	1.00E 00	0.00E-01	0.00E-01	3.20E 01
ESE	1.10E 01	5.00E 00	8.00E 00	1.00E 00	0.00E-01	0.00E-01	2.50E 01
SE	4.00E 00	9.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.40E 01
SSE	1.00E 00	9.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	1.20E 01
S	7.00E 00	1.00E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.80E 01
SSW	1.00E 00	1.90E 01	1.60E 01	0.00E-01	0.00E-01	0.00E-01	3.60E 01
SW	7.00E 00	1.60E 01	1.00E 01	0.00E-01	0.00E-01	0.00E-01	3.30E 01
WSW	5.00E 00	1.30E 01	1.00E 01	4.00E 00	0.00E-01	0.00E-01	3.20E 01
W	6.00E 00	1.50E 01	1.50E 01	0.00E-01	0.00E-01	0.00E-01	3.60E 01
WNW	7.00E 00	7.00E 00	1.50E 01	1.20E 01	7.00E 00	0.00E-01	4.80E 01
NW	5.00E 00	1.50E 01	1.10E 01	5.00E 00	0.00E-01	0.00E-01	3.60E 01
NNW	1.10E 01	1.70E 01	1.60E 01	4.00E 00	1.00E 00	0.00E-01	4.90E 01
TOT	9.00E 01	1.99E 02	2.04E 02	3.80E 01	8.00E 00	0.00E-01	5.39E 02

PERIODS OF CALM(HOURS): 6.000E 00
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : B
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1.00E 00	4.10E 01	2.50E 01	3.00E 00	0.00E-01	0.00E-01	7.00E 01
NNE	2.00E 00	2.60E 01	1.70E 01	0.00E-01	0.00E-01	0.00E-01	4.50E 01
NE	0.00E-01	9.00E 00	1.10E 01	0.00E-01	0.00E-01	0.00E-01	2.00E 01
ENE	1.00E 00	1.00E 01	5.00E 00	1.00E 00	0.00E-01	0.00E-01	1.70E 01
E	5.00E 00	1.00E 01	9.00E 00	2.00E 00	0.00E-01	0.00E-01	2.60E 01
ESE	0.00E-01	5.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	7.00E 00
SE	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
SSE	0.00E-01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
S	2.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
SSW	3.00E 00	3.00E 00	4.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 01
SW	1.00E 00	6.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	8.00E 00
WSW	0.00E-01	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
W	2.00E 00	2.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	5.00E 00
WNW	1.00E 00	2.00E 00	1.00E 00	2.00E 00	0.00E-01	0.00E-01	6.00E 00
NW	3.00E 00	9.00E 00	2.00E 00	1.00E 00	0.00E-01	0.00E-01	1.50E 01
NNW	3.00E 00	1.20E 01	9.00E 00	4.00E 00	0.00E-01	0.00E-01	2.80E 01
TOT	2.50E 01	1.45E 02	8.70E 01	1.30E 01	0.00E-01	0.00E-01	2.70E 02

PERIODS OF CALM(HOURS): 2.000E 00
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : C
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4.00E 00	1.90E 01	7.00E 00	0.00E-01	0.00E-01	0.00E-01	3.00E 01
NNE	6.00E 00	1.00E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.60E 01
NE	5.00E 00	5.00E 00	8.00E 00	1.00E 00	0.00E-01	0.00E-01	1.90E 01
ENE	4.00E 00	7.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.20E 01
E	2.00E 00	4.00E 00	0.00E-01	5.00E 00	0.00E-01	0.00E-01	1.10E 01
ESE	4.00E 00	5.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 01
SE	2.00E 00	1.00E 01	0.00E-01	1.00E 00	0.00E-01	0.00E-01	1.30E 01
SSE	3.00E 00	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.00E 00
S	2.00E 00	4.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.00E 00
SSW	1.00E 00	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	5.00E 00
SW	1.00E 00	1.10E 01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	1.50E 01
WSW	0.00E-01	2.00E 00	5.00E 00	0.00E-01	0.00E-01	0.00E-01	7.00E 00
W	5.00E 00	1.00E 00	3.00E 00	2.00E 00	0.00E-01	0.00E-01	1.10E 01
WNW	1.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
NW	3.00E 00	1.00E 01	1.00E 00	2.00E 00	0.00E-01	0.00E-01	1.60E 01
NNW	3.00E 00	1.10E 01	1.00E 00	4.00E 00	3.00E 00	0.00E-01	2.20E 01
TOT	4.60E 01	1.07E 02	3.10E 01	1.50E 01	3.00E 00	0.00E-01	2.02E 02

PERIODS OF CALM(HOURS): 7.000E 00
HOURS OF INVALID DATA : 1.000E 00

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : D
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	9.00E 00	1.30E 01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	2.60E 01
NNE	5.00E 00	7.00E 00	6.00E 00	1.00E 00	0.00E-01	0.00E-01	1.90E 01
NE	6.00E 00	9.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.50E 01
ENE	8.00E 00	9.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.70E 01
E	1.10E 01	1.70E 01	2.00E 00	1.00E 00	0.00E-01	0.00E-01	3.10E 01
ESE	8.00E 00	1.20E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 01
SE	1.50E 01	1.40E 01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	3.20E 01
SSE	2.20E 01	1.10E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.30E 01
S	2.40E 01	3.40E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.80E 01
SSW	1.40E 01	4.10E 01	6.00E 00	0.00E-01	0.00E-01	0.00E-01	6.10E 01
SW	1.20E 01	3.20E 01	1.30E 01	1.00E 00	0.00E-01	0.00E-01	5.80E 01
WSW	9.00E 00	2.10E 01	1.30E 01	2.00E 00	0.00E-01	0.00E-01	4.50E 01
W	1.60E 01	1.80E 01	8.00E 00	4.00E 00	0.00E-01	0.00E-01	4.60E 01
WNW	1.30E 01	9.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	2.40E 01
NW	1.40E 01	1.00E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	2.50E 01
NNW	8.00E 00	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.50E 01
TOT	1.94E 02	2.64E 02	5.80E 01	9.00E 00	0.00E-01	0.00E-01	5.25E 02

PERIODS OF CALM(HOURS): 1.900E 01
HOURS OF INVALID DATA : 1.000E 00

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : E
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.00E-01	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	4.00E 00
NNE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NE	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
ENE	3.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
E	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
ESE	9.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.10E 01
SE	5.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	7.00E 00
SSE	9.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 01
S	2.30E 01	8.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.10E 01
SSW	3.20E 01	3.60E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	6.90E 01
SW	2.00E 01	3.30E 01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	5.70E 01
WSW	8.00E 00	2.00E 01	3.00E 00	0.00E-01	0.00E-01	0.00E-01	3.10E 01
W	2.90E 01	1.50E 01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	4.50E 01
WNW	3.80E 01	4.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	4.30E 01
NW	1.50E 01	2.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.80E 01
NNW	1.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
TOT	1.98E 02	1.27E 02	1.20E 01	0.00E-01	0.00E-01	0.00E-01	3.37E 02

PERIODS OF CALM(HOURS): 4.700E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY : METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT
: EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD : QUARTER # 4
REPORT START TIME : 6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME : 8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS : F
ELEVATION : 10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NNE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ENE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
E	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
ESE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SSE	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
S	4.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	5.00E 00
SSW	9.00E 00	6.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.50E 01
SW	1.00E 00	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
WSW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
W	7.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	7.00E 00
WNW	2.60E 01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.80E 01
NW	6.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	6.00E 00
NNW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TOT	5.70E 01	1.10E 01	0.00E-01	0.00E-01	0.00E-01	0.00 -01	6.80E 01

PERIODS OF CALM(HOURS): 1.400E 01
HOURS OF INVALID DATA : 0.000E-01

APPROVED BY: TITLE: DATE:

REPORT CATEGORY	:	METEROLOGICAL DATA. QUARTERLY TOTALS OF HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD	:	QUARTER # 4
REPORT START TIME	:	6553:00 HRS = 01:00AM OCTOBER 1, 1983
REPORT END TIME	:	8734:00 HRS = 10:00PM DECEMBER 30, 1983
STABILITY CLASS	:	G
ELEVATION	:	10 METERS

WIND SPEED(MPH) AT 10 METER LEVEL

	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0.00E-01	0.00E-01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	2.00E 00
NNE	0.00E-01	0.00E-01	0.00E-01	1.00E 00	0.00E-01	0.00E-01	1.00E 00
NE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ENE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
E	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ESE	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.00E 00
SE	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SSE	0.00E-01	0.00E-01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	2.00E 00
S	0.00E-01	0.00E-01	1.00E 00	0.00E-01	0.00E-01	0.00E-01	1.00E 00
SSW	2.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	3.00E 00
SW	0.00E-01	4.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	4.00E 00
WSW	0.00E-01	2.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.00E 00
W	1.00E 00	3.00E 00	1.00E 00	0.00E-01	0.00E-01	0.00E-01	5.00E 00
WNW	1.60E 01	5.00E 00	0.00E-01	0.00E-01	0.00E-01	0.00E-01	2.10E 01
NW	1.30E 01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	1.30E 01
NNW	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TOT	3.30E 01	1.50E 01	6.00E 00	1.00E 00	0.00E-01	0.00E-01	5.50E 01

PERIODS OF CALM(HOURS)	:	6.000E 00
HOURS OF INVALID DATA	:	0.000E-01
HOURS OF GOOD DATA	:	2.097E 03 = 96.1% OF TOTAL HOURS

APPROVED BY: TITLE: DATE:

PRR
Docket

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

P12:08

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

February 29, 1984

Mr. James P. O'Reilly
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Serial No. 094
NO/JHL:acm
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Dear Mr. O'Reilly:

Enclosed is a summary report for the Radioactive Effluent Release Report for North Anna Power Station for the period July 1, 1983 to December 31, 1983. The complete Radioactive Effluent Release Report will be maintained at North Anna Power Station for your inspection.

Very truly yours,

W. L. Stewart

Enclosure (2 copies)

cc: Mr. R. C. DeYoung, Director
Office of Inspection and Enforcement
Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. M. W. Branch
NRC Resident Inspector
North Anna Power Station

DESIGNATED ORIGINAL

Certified By

IE25
1/1
84-360