ALABAMA POWER COMPANY

FARLEY NUCLEAR PLANT UNIT NO. ONE

LICENSE NO. NPF-2

AND

FARLEY NUCLEAR PLANT UNIT NO. TWO

LICENSE NO. NPF-8

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JANUARY 1, THROUGH JUNE 30, 1983

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INTRODUCTION

This revision to the Semi-Annual radioactive release report, for the period January 1 to June 30, 1983, is submitted in accordance with Appendix A of License No. NPF-2 and NPF-8. Appendix A will hereinafter be referred to as the Standard Technical Specifications or STS.

A single submittal is made for both units which combines those sections that are common. Separate tables of releases and totals are included where separate processing systems exist.

This report includes a summary of hourly meteorological measurements taken during each quarter in the six month reporting period. This data appears as joint frequency distributions of wind direction and wind speed by atmospheric stability class. Hourly meteorological data for batch releases are presented for the periods of actual release. All assessments of radiation doses are performed in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).

This revision was necessary due to skewed stability class data in the origional report as a result of a meteorological hardware failure and a data acquisition hardware deficiency. This revision also reflects the correction of several errors in the off-site dose calculation computer software. As a result of correcting the input data and the software errors, the calculated total curies of radioactive material released and resulting doses changed. In both the initial and revised reports, doses are well within the limits established by the Farley Nuclear Plant Technical Specifications.

SUPPLEMENTARY INFORMATION FOR EFFLUENT AND WASTE DISPOSAL

1. Regulatory Limits

a. Fission and Activation Gases

The release rate limit at any time of noble gases to areas at or beyond the site boundary shall be such that

$$10^{6}\,\frac{pCi}{uCi}\sum_{i}^{14} K_i\left[\sum_{v}^{2}\left[\overline{(X/Q)}_v\, Q_{iv}\right]\right] < 500 \text{ mrem/yr}$$

and

$$10^{6}\,\frac{pCi}{uCi}\sum_{i}^{14}\left[(L_i + 1.1\, M_i)\sum_{v}^{2}\left[\overline{(X/Q)}_v\, Q_{iv}\right]\right] < 3000 \text{ mrem/yr}$$

where the terms are defined in the ODCM.

b. Iodines and Particulates

The release rate limits for sampling period of all radioiodines and radioactive materials in particulate form and radionuclides other than noble gases released to the environs as part of the gaseous wastes from the site shall be such that

$$10^{6}\,\frac{pCi}{uCi}\sum_{i}^{18}\left[P_i\sum_{v}^{2}\left[\overline{(X/Q)}_{mv}\, Q_{iv}\right]\right] < 6.3 \text{ mrem/yr}$$

where the terms are defined in the ODCM.

c. Liquid Effluents

The concentration of radioactive materials released in liquid effluents to unrestricted areas from all reactors at the site shall not exceed at any time the values specified in 10 CFR Part 20, Appendix B, Table II, Column 2. The concentration of dissolved or entrained noble gases, released in liquid effluents to unrestricted areas from all reactors at the site, shall not exceed at any time 4 E-5 uCi/ml in water.

2. Maximum Permissible Concentrations

a. Airborne - The maximum permissible concentration of radioactive materials in gaseous effluents is limited by the dose rate restrictions of 10CFR20. In this case, the maximum permissible concentrations are actually determined by the dose factors in the ODCM.

b. Liquid - 10 CFR Part 20, Appendix B Table II, Column 2.*

*NOTE: The MPC chosen is the most conservative value of either the soluble or insoluble MPC for each isotope.

3. Average Energy
Not Applicable for Farley's STS.

4. Measurements and Approximations of Total Activity

The following discussion details the methods used to measure and approximate total activity for the following:

a. Fission and Activation Gases
b. Iodines
c. Particulates
d. Liquid Effluents

Tables 5 and 6 give sampling frequencies and minimum detectable concentration requirements for the analysis of liquid and gaseous effluent streams.

Values in the attached tables given as zero do not mean that the nuclides were not present. A zero indicates that the nuclide was not present at levels greater than the sensitivity requirements shown in Tables 5 and 6. For some nuclides, lower detection limits than required may be readily achievable; when a nuclide is measured below its stated limits, it is reported.

Fission and Activation Gases

The following noble gases are considered in evaluating gaseous airborne discharge:

Ar-41	Xe-131m
Kr-85m	Xe-133m
Kr-85	Xe-133
Kr-87	Xe-135m
Kr-88	Xe-135
Kr-89	Xe-137
Kr-90	Xe-138

Periodic grab samples from plant effluent streams are analyzed by a computerized pulse height analyzer system utilizing high resolution germanium detectors. (See Table 6 for sampling and analytical requirements). Isotopic values thus obtained are used for dose release rate calculatons as given in section 1a of this report. Only those nuclides that are detected are used in this computation. During the period between grab samples, the amount of radioactivity released is based on the effluent monitor readings. Monitors are assigned a calibration factor based upon the last isotopic analysis using the following relationship:

$CF_i = A_i / m$, where

CF_i = isotopic calibration factor for isotope i.

A_i = concentration of isoptope in the grab sample, in uCi/ml.

m = net monitor reading associated with the effluent stream.

These calibration factors along with the hourly effluent monitor readings are input to the laboratory computer where the release rates for individual nuclides are calculated and stored.

To ensure isotopic distributions do not change significantly during major operational occurences, the frequency of grab sampling is increased to satisfy the requirements of footnotes b & d of Table 4.11-2, "Radioactive Gaseous Waste Sampling and Analysis Program", (STS Table 4.11-2).

Particulate and Iodine

The radioiodines and radioactive materials in particulate forms to be considered are:

Mn-54	I-131
Fe-59	I-133
Co-58	Cs-134
Co-60	Cs-137
Zn-65	Ce-141
Sr-89	Ce-144
Sr-90	Other nuclides with half-life greater than 8 days
Mo-99	

Continuous Releases

Continuous sampling is performed on the continuous release points (i.e. the Plant Vent Stack, Containment Purge and the Turbine Building Vent). Particulate material is collected by filtration. Periodically these filters are removed and analyzed on the pulse height analyzer to identify and quantify radioactive materials collected on the filters. Particulate filters are then analyzed for gross alpha, and strontium as required. Gross alpha determinations are made using a 2 pi gas flow proportional counter. Sr-89 and 90 values are obtained by chemical separation and subsequent analysis using 2 pi gas flow proportional counters.

Batch Releases

The processing of batch type releases (from Containment Purge and Waste Gas Decay Tanks) is analogous to continuous releases, except that the release is not commenced until grab samples have been obtained and analyzed.

Liquid Effluents

The radionuclides listed below are considered when evaluating liquid effluents:

H-3	Ru-103
Cr-51	Ru-106
Mn-54	I-131
Fe-59	I-132
Co-58	I-133
Co-60	I-135
Zn-65	Cs-134
Sr-89	Cs-136
Sr-90	Cs-137
Sr-91	Ba-140
Mo-99	La-140
Tc-99m	Ce-141
	Ce-144

Batch Releases: Representative pre-release grab samples are obtained and analyzed per Table 5. Isotopic analyses are performed using the computerized pulse height analysis system previously described. Aliquots of each pre-release sample proportional to the waste volume released are composited in accordance with requirements in Table 5. Strontium and Iron determinations are made by performing a chemical separation and counting the isotope thus separated using a 2 pi gas flow proportional counter. Gross beta and gross alpha determinations are made using 2 pi gas flow proportional counters. Tritium concentrations are determined by using liquid scintillation techniques. Dissolved gases are determined employing grab sampling techniques and then counting on the pulse height analyzer.

Continuous Releases

Continuous Releases (from the Steam Generator Blowdown) are analogous to that of the batch releases except that they are to be analyzed on a weekly composite basis per Table 5.

5. Batch Release

a. Liquid	Quarter 1	Quarter 2
1. Number of batch releases:	120	116
2. Total time period for releases:	10290 min.	9717 min.
3. Maximum time period for a release:	210 min.	120 min.
4. Average time period for a release:	86 min.	84 min.
5. Minimum time period for a release:	41 min.	40 min.
6. Average stream flow during periods of release of effluent into a flowing stream:	*1.15E4 cfs	*1.15E4 cfs

b. Gaseous	Quarter 1	Quarter 2
1. Number of releases:	6	4
2. Total time period for releases:	4260 min.	2160 min.
3. Maximum time period for a release:	960 min.	780 min.
4. Average time period for a release:	710 min.	540 min.
5. Minimum time period for a release:	540 min.	60 min.

6. Abnormal Releases

a. Liquid	
1. Number of releases:	None
2. Total activity released:	N/A

b. Gaseous	
1. Number of releases:	None
2. Total activity released:	N/A

* Annual Average River Flow Rate.

5. Batch Release

a. Liquid	Quarter 1	Quarter 2
1. Number of batch releases:	48	51
2. Total time period for releases:	3656 min.	4150 min.
3. Maximum time period for a release:	95 min.	105 min.
4. Average time period for a release:	76 min.	81 min.
5. Minimum time period for a release:	45 min.	50 min.
6. Average stream flow during periods of release of effluent into a flowing stream:	*1.15E4 cfs	*1.15E4 cfs

b. Gaseous	Quarter 1	Quarter 2
1. Number of releases:	0	0
2. Total time period for releases:	0	0
3. Maximum time period for a release:	0	0
4. Average time period for a release:	0	0
5. Minimum time period for a release:	0	0

6. Abnormal Releases

a. Liquid	
1. Number of releases:	None
2. Total activity released:	N/A

b. Gaseous	
1. Number of releases:	None
2. Total activity released:	N/A

* Annual Average River Flow Rate.

7. Estimate of Total Error

a. Liquid

1. The maximum error associated with volume and flow measurements, based upon plant calibration practice is estimated to be + or - 10%.

2. The average error associated with counting is estimated to be less than + or - 15%.

b. Gaseous

1. The maximum errors associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedure are collectively estimated to be:

Fission and Activation Gases	Iodines	Particulates	Tritium
75%	60%	50%	45%

2. The average error associated with counting is estimated to be:

Fission and Activation Gases	Iodines	Particulates	Tritium
6%	18%	19%	12%

c. Solid Radwaste

The error involved in determining the contents of solid radwaste shipments is estimated to be less than + or - 15%.

8. Solid Waste

See Table 3

9. Radiological Impact On Man

a. Water Related Exposure Pathways

	1st Quarter	2nd Quarter
Total Body =	3.0E-02 mrem	3.9E-03 mrem
Bone =	2.6E-02 mrem	3.1E-03 mrem
Liver =	4.0E-02 mrem	5.3E-03 mrem
Thyroid =	1.2E-03 mrem	5.1E-04 mrem
Kidney =	1.5E-02 mrem	2.1E-03 mrem
Lungs =	5.1E-03 mrem	9.4E-04 mrem
GI Tract =	3.3E-01 mrem	3.8E-02 mrem

b. Gaseous Related Exposure Pathways

	1st Quarter	2nd Quarter
Total Body =	9.0E-02 mrem	2.3E-01 mrem
Skin =	1.1E-01 mrem	5.8E-01 mrem

c. Particulate and Iodine

	3rd Quarter	4th Quarter
Organ Dose =	5.5E-01 mrem	1.9E-02 mrem

8. Solid Waste

See Table 3

9. Radiological Impact On Man

a. Water Related Exposure Pathways

	1st Quarter	2nd Quarter
Total Body =	5.8E-03 mrem	2.3E-03 mrem
Bone =	4.4E-03 mrem	1.2E-03 mrem
Liver =	7.7E-03 mrem	2.8E-03 mrem
Thyroid =	4.6E-04 mrem	3.9E-04 mrem
Kidney =	2.9E-03 mrem	1.1E-03 mrem
Lungs =	1.4E-03 mrem	5.3E-04 mrem
GI Tract =	9.1E-02 mrem	2.5E-02 mrem

b. Gaseous Related Exposure Pathways

	1st Quarter	2nd Quarter
Total Body =	1.0E-02 mrem	1.2E-02 mrem
Skin =	1.2E-02 mrem	9.9E-03 mrem

c. Particulate and Iodine

	3rd Quarter	4th Quarter
Organ Dose =	1.9E-03 mrem	2.9E-03 mrem

10. Meteorological Data

See Table 4A, "Cumulative Joint Frequency Distribution".

Continuous Release Mode:
1st Quarter, 1983
2nd Quarter, 1983

Batch Release Mode (Unit 1):
1st Quarter, 1983
2nd Quarter, 1983

11. Minimum Detectable Concentration (MDC)

Detectable limits for activity analyses are based upon the technical feasibility and on the potential significance in the environment of the quantities released. However, in practice, when an isotope's a posteriori MDC could not be met due to other nuclides being present in much greater concentrations, the a priori MDC as defined in the STS 4.11-1 a. is relied upon.

TABLE 1A-1Q1

GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

Farley Unit 1 - 1st Quarter, 1983

	UNITS	QTR 1	Est Error
A. Fission & activation gases:			
1. Total release	Ci	1.08E 04	4.69E 01
2. Average Release rate	uCi/sec	1.39E 03	
3. % of Technical specification	%	2.11E-02*	
	%	6.02E-02**	
B. Iodines			
1. Total iodine-131	Ci	4.38E-02	4.35E-04
2. Average Release rate	uCi/sec	5.64E-03	
3. % of Technical specification	%	1.72E-05***	
C. Particulates			
1. Particulates with T1/2>8 days	Ci	8.44E-04	5.66E-05
2. Average Release rate	uCi/sec	1.09E-04	
3. % of Technical specification	%	7.15E-07***	
4. Gross alpha radioactivity	Ci	0.00E 00	
D. Tritium			
1. Total release	Ci	2.63E 01	2.69E-01
2. Average Release rate	uCi/sec	3.38E 00	
3. % of Technical specification	%	3.14E-07***	

*: Whole body limit (<500 mrem/yr)
**: Extrem. limit (<3000 mrem/yr)
***: % of 6.3 mrem/yr for all 19 isotopes

TABLE 1A-1Q2

GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

Farley Unit 1 - 2nd Quarter, 1983

	UNITS	QTR 2	Est Error
A. Fission & activation gases:			
1. Total release	Ci	7.57E 03	6.86E 01
2. Average Release rate	uCi/sec	9.63E 02	
3. % of Technical specification	%	1.33E-02*	
	%	3.10E-02**	
B. Iodines			
1. Total iodine-131	Ci	1.12E-03	6.20E-05
2. Average Release rate	uCi/sec	1.43E-04	
3. % of Technical specification	%	4.34E-07***	
C. Particulates			
1. Particulates with T1/2>8 days	Ci	5.25E-06	2.16E-06
2. Average Release rate	uCi/sec	6.68E-07	
3. % of Technical specification	%	8.15E-07***	
4. Gross alpha radioactivity	Ci	0.00E 00	
D. Tritium			
1. Total release	Ci	4.38E 01	3.00E-01
2. Average Release rate	uCi/sec	5.57E 00	
3. % of Technical specification	%	5.16E-07***	

*: Whole body limit (<500 mrem/yr)
**: Extrem. limit (<3000 mrem/yr)
***: % of 6.3 mrem/yr for all 19 isotopes

TABLE 1A-2Q1

GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

Farley Unit 2 - 1st Quarter, 1983

	UNITS	QTR 1	Est Error
A. Fission & activation gases:			
1. Total release	Ci	1.16E 02	7.89E 00
2. Average Release rate	uCi/sec	1.50E 01	
3. % of Technical specification	%	6.16E-04*	
	%	1.05E-03**	
B. Iodines			
1. Total iodine-131	Ci	2.09E-06	4.15E-07
2. Average Release rate	uCi/sec	2.68E-07	
3. % of Technical specification	%	8.83E-10***	
C. Particulates			
1. Particulates with T1/2>8 days	Ci	6.12E-06	1.53E-04
2. Average Release rate	uCi/sec	7.87E-07	
3. % of Technical specification	%	1.07E-06***	
4. Gross alpha radioactivity	Ci	0.00E 00	
D. Tritium			
1. Total release	Ci	1.68E 01	4.54E-01
2. Average Release rate	uCi/sec	2.16E 00	
3. % of Technical specification	%	2.00E-07***	

*: Whole body limit (<500 mrem/yr)
**: Extrem. limit (<3000 mrem/yr)
***: % of 6.3 mrem/yr for all 19 isotopes

TABLE 1A-2Q2

GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

Farley Unit 2 - 2nd Quarter, 1983

	UNITS	QTR 2	Est Error
A. Fission & activation gases:			
1. Total release	Ci	7.12E 01	7.73E 00
2. Average Release rate	uCi/sec	9.05E 00	
3. % of Technical specification	%	7.30E-04*	
	%	1.29E-03**	
B. Iodines			
1. Total iodine-131	Ci	3.87E-06	7.72E-07
2. Average Release rate	uCi/sec	4.92E-07	
3. % of Technical specification	%	1.50E-09***	
C. Particulates			
1. Particulates with T1/2>8 days	Ci	1.84E-06	5.62E-07
2. Average Release rate	uCi/sec	2.34E-07	
3. % of Technical specification	%	2.78E-07***	
4. Gross alpha radioactivity	Ci	0.00E 00	
D. Tritium			
1. Total release	Ci	3.18E 01	3.95E-01
2. Average Release rate	uCi/sec	4.04E 00	
3. % of Technical specification	%	3.74E-07***	

*: Whole body limit (<500 mrem/yr)
**: Extrem. limit (<3000 mrem/yr)
***: % of 6.3 mrem/yr for all 19 isotopes

TABLE 1B-1Q1

GASEOUS EFFLUENTS--ELEVATED RELEASE

Farley Unit 1 - 1st Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 1	BATCH Mode QTR# 1
1. Fission gases			
Ar-41	Ci	9.66E 00	0.00E 00
Xe-135M	Ci	1.25E 01	0.00E 00
Kr-85	Ci	0.00E 00	9.46E 00
Xe-138	Ci	1.54E 01	0.00E 00
Kr-87	Ci	2.27E 01	0.00E 00
Kr-85M	Ci	5.69E 01	5.46E-03
Xe-135	Ci	1.05E 03	0.00E 00
Xe-133M	Ci	7.23E 00	2.05E-02
Kr-88	Ci	5.61E 01	0.00E 00
Xe-131M	Ci	0.00E 00	8.02E 03
Xe-133	Ci	1.51E 03	5.18E 01
Total for period	Ci	2.74E 03	8.08E 03
2. Iodines			
I-133	Ci	8.13E-03	1.70E-09
I-131	Ci	4.38E-02	6.84E-08
Total for period	Ci	5.20E-02	7.01E-08
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	2.16E-07	2.71E-09
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	5.57E-06	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	1.72E-02	0.00E 00
I-131	Ci	8.38E-04	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	1.81E-02	2.71E-09

* Isotope with half-life less then 8 days

TABLE 1B-1Q2

GASEOUS EFFLUENTS--ELEVATED RELEASE

Farley Unit 1 - 2nd Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 2	BATCH Mode QTR# 2
1. Fission gases			
Kr-85	Ci	0.00E 00	1.86E-01
Xe-138	Ci	0.00E 00	7.01E-04
Kr-87	Ci	0.00E 00	0.00E 00
Kr-85M	Ci	0.00E 00	1.46E-01
Xe-135	Ci	3.69E 02	7.48E 00
Xe-133M	Ci	0.00E 00	9.17E-01
Kr-88	Ci	0.00E 00	0.00E 00
Xe-131M	Ci	0.00E 00	1.19E-03
Xe-133	Ci	7.15E 03	2.88E 01
Total for period	Ci	7.52E 03	3.76E 01
2. Iodines			
I-133	Ci	8.24E-04	0.00E 00
I-131	Ci	1.12E-03	0.00E 00
Total for period	Ci	1.95E-03	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	2.57E-06	5.06E-09
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	5.77E-09
Cs-134	Ci	0.00E 00	2.30E-09
* I-133	Ci	6.13E-05	0.00E 00
I-131	Ci	2.64E-06	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	6.65E-05	1.31E-08

* Isotope with half-life less then 8 days

TABLE 1B-2Q1

GASEOUS EFFLUENTS--ELEVATED RELEASE

Farley Unit 2 - 1st Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 1	BATCH Mode QTR# 1
1. Fission gases			
Ar-41	Ci	1.05E 01	0.00E 00
Xe-138	Ci	0.00E 00	0.00E 00
Kr-87	Ci	0.00E 00	0.00E 00
Xe-135	Ci	2.33E 00	0.00E 00
Xe-133M	Ci	0.00E 00	0.00E 00
Kr-88	Ci	0.00E 00	0.00E 00
Xe-133	Ci	1.03E 02	0.00E 00
Total for period	Ci	1.16E 02	0.00E 00
2. Iodines			
I-133	Ci	1.89E-07	0.00E 00
I-131	Ci	2.04E-06	0.00E 00
Total for period	Ci	2.23E-06	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	2.62E-06	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	2.13E-06	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	1.24E-06	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	5.99E-06	0.00E 00

* Isotope with half-life less then 8 days

TABLE 1B-2Q2

GASEOUS EFFLUENTS--ELEVATED RELEASE

Farley Unit 2 - 2nd Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 2	BATCH Mode QTR# 2
1. Fission gases			
Ar-41	Ci	1.03E 01	0.00E 00
Xe-138	Ci	0.00E 00	0.00E 00
Kr-87	Ci	0.00E 00	0.00E 00
Xe-135	Ci	2.92E 01	0.00E 00
Xe-133M	Ci	0.00E 00	0.00E 00
Kr-88	Ci	0.00E 00	0.00E 00
Xe-133	Ci	3.17E 01	0.00E 00
Total for period	Ci	7.12E 01	0.00E 00
2. Iodines			
I-133	Ci	2.50E-08	0.00E 00
I-131	Ci	3.87E-06	0.00E 00
Total for period	Ci	3.89E-06	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	8.88E-07	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	9.51E-07	0.00E 00
Co-58	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	1.36E-03	0.00E 00
I-131	Ci	0.00E 00	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	1.36E-03	0.00E 00

* Isotope with half-life less then 8 days

TABLE 1C-1Q1

GASEOUS EFFLUENTS--GROUND RELEASE

Farley Unit 1 - 1st Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 1	BATCH Mode QTR# 1
1. Fission gases			
Ar-41	Ci	7.73E-04	0.00E 00
Xe-135M	Ci	1.00E-03	0.00E 00
Xe-138	Ci	1.23E-03	0.00E 00
Kr-87	Ci	1.81E-03	0.00E 00
Kr-85M	Ci	4.55E-03	0.00E 00
Xe-135	Ci	9.90E-02	0.00E 00
Xe-133M	Ci	5.79E-04	0.00E 00
Kr-88	Ci	4.49E-03	0.00E 00
Xe-133	Ci	1.30E-01	0.00E 00
Total for period	Ci	2.43E-01	0.00E 00
2. Iodines			
I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	5.11E-08	0.00E 00
Total for period	Ci	5.11E-08	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	3.10E-08	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	1.67E-08	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	8.87E-08	0.00E 00
I-131	Ci	8.63E-10	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	1.37E-07	0.00E 00

* Isotope with half-life less then 8 days

TABLE 1C-1Q2

GASEOUS EFFLUENTS--GROUND RELEASE

Farley Unit 1 - 2nd Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 2	BATCH Mode QTR# 2
1. Fission gases			
Xe-138	Ci	0.00E 00	0.00E 00
Kr-87	Ci	0.00E 00	0.00E 00
Xe-135	Ci	6.13E-02	0.00E 00
Xe-133M	Ci	0.00E 00	0.00E 00
Kr-88	Ci	0.00E 00	0.00E 00
Xe-133	Ci	1.10E 01	0.00E 00
Total for period	Ci	1.11E 01	0.00E 00
2. Iodines			
I-133	Ci	1.95E-09	0.00E 00
I-131	Ci	1.07E-07	0.00E 00
Total for period	Ci	1.09E-07	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	3.45E-08	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	5.15E-10	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	3.50E-08	0.00E 00

* Isotope with half-life less then 8 days

TABLE 1C-2Q1

GASEOUS EFFLUENTS--GROUND RELEASE

Farley Unit 2 - 1st Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 1	BATCH Mode QTR# 1
1. Fission gases			
Ar-41	Ci	2.12E-03	0.00E 00
Xe-138	Ci	0.00E 00	0.00E 00
Kr-87	Ci	0.00E 00	0.00E 00
Xe-135	Ci	0.00E 00	0.00E 00
Xe-133M	Ci	0.00E 00	0.00E 00
Kr-88	Ci	0.00E 00	0.00E 00
Xe-133	Ci	0.00E 00	0.00E 00
Total for period	Ci	2.12E-03	0.00E 00
2. Iodines			
I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	4.42E-08	0.00E 00
Total for period	Ci	4.42E-08	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	9.64E-08	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	1.45E-08	0.00E 00
Zr-95	Ci	1.62E-08	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	3.99E-09	0.00E 00
Ce-141	Ci	2.57E-09	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	1.34E-07	0.00E 00

* Isotope with half-life less then 8 days

TABLE 1C-2Q2

GASEOUS EFFLUENTS--GROUND RELEASE

Farley Unit 2 - Quarter, 1983

Nuclides Released	Unit	CONTINUOUS Mode QTR# 2	BATCH Mode QTR# 2
1. Fission gases			
Ar-41	Ci	6.11E-04	0.00E 00
Xe-138	Ci	0.00E 00	0.00E 00
Kr-87	Ci	0.00E 00	0.00E 00
Xe-135	Ci	2.28E-03	0.00E 00
Xe-133M	Ci	0.00E 00	0.00E 00
Kr-88	Ci	0.00E 00	0.00E 00
Xe-133	Ci	5.22E-03	0.00E 00
Total for period	Ci	8.11E-03	0.00E 00
2. Iodines			
I-133	Ci	0.00E 00	0.00E 00
I-131	Ci	0.00E 00	0.00E 00
Total for period	Ci	0.00E 00	0.00E 00
3. Particulates			
* Mo-99	Ci	0.00E 00	0.00E 00
Co-60	Ci	4.25E-09	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Co-58	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
* I-133	Ci	3.29E-07	0.00E 00
I-131	Ci	0.00E 00	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Total for period	Ci	3.34E-07	0.00E 00

* Isotope with half-life less then 8 days

TABLE 2A-1

LIQUID EFFLUENT--SUMMATION OF ALL RELEASES
Farley Unit 1 - 1st Half, 1983

	UNIT	Qrtr 1, 83	Qrtr 2, 83
A. Fission and Activation Products			
1. Total release Note (4)	Ci	3.97E-02	8.27E-03
2. Average diluted concentration During Period Note (1)	uCi/ml	3.50E-08	7.08E-09
3. Percent of applicable limit During Period Note (1)	%	1.69E-01	4.17E-02
B. Tritium			
1. Total release Note (4)	Ci	5.06E 01	5.68E 01
2. Average diluted concentration During Period Note (1)	uCi/ml	4.46E-05	4.89E-05
3. Percent of applicable limit During Period Note (1)	%	1.49E 00	1.63E 00
C. Dissolved and Entrained Gases			
1. Total release Note (4)	Ci	2.16E 00	1.34E 00
2. Average diluted concentration During Period Note (1)	uCi/ml	1.91E-06	1.16E-06
3. Percent of applicable limit During Period Note (1)	%	4.76E 00	2.89E 00
D. Gross Alpha Radioactivity			
1. Total release Note (4)	Ci	4.95E-05	4.03E-05
E. Volume of Waste Water Note (2)			
1. WMT	liters	1.81E 06	1.77E 06
2. SGBD and Turbine Bldg Sumps	liters	1.16E 08	1.55E 08
3. Liquid Radioactive Effluent TOTAL Note (3)	liters	1.81E 06	1.77E 06
F. Volume of Dilution Water During Quarter	liters	4.21E 09	4.47E 09

NOTE:

(1) During period of discharge
(2) Prior to dilution
(3) Steam Generator Blowdown and Turbine Building Sump releases are excluded from Total Liquid Radioactive Effluent volume in accordance with 10 CFR 20, Appendix B, Note 5.
(4) Steam Generator Blowdown and Turbine Building Sump release curie amounts and doses were measured and are included in these totals and in Table 2B-1C in accordance with Table 4.11-1, Footnote E of Joseph M. Farley Nuclear Plant Unit Number 1 Technical Specifications (Appendix A of License No. NPF-2).

TABLE 2A-2

LIQUID EFFLUENTS--SUMMATION OF ALL RELEASES
Farley Unit 2 - 1st Half, 1983

	UNIT	Qrtr 1, 83	Qrtr 2, 83
A. Fission and Activation Products			
1. Total release Note (4)	Ci	1.43E-02	3.12E-03
2. Average diluted concentration During Period Note (1)	uCi/ml	3.07E-08	6.13E-09
3. Percent of applicable limit During Period Note (1)	%	1.66E-01	7.22E-02
B. Tritium			
1. Total release Note (4)	Ci	2.46E 01	4.03E 01
2. Average diluted concentration During Period Note (1)	uCi/ml	5.28E-05	7.96E-05
3. Percent of applicable limit During Period Note (1)	%	1.76E 00	2.65E 00
C. Dissolved and Entrained Gases			
1. Total release Note (4)	Ci	4.46E-01	5.64E-01
2. Average diluted concentration During Period Note (1)	uCi/ml	9.61E-07	1.11E-06
3. Percent of applicable limit During Period Note (1)	%	2.40E 00	2.79E 00
D. Gross Alpha Radioactivity			
1. Total release Note (4)	Ci	2.38E-05	1.99E-05
E. Volume of Waste Water Note (2)			
1. WMT	liters	6.91E 05	7.67E 05
2. SGBD and Turbine Bldg Sumps	liters	4.82E 07	4.95E 07
3. Liquid Radioactive Effluent TOTAL Note (3)	liters	6.91E 05	7.67E 05
F. Volume of Dilution Water During Quarter	liters	4.30E 09	3.49E 09

NOTE:

(1) During period of discharge
(2) Prior to dilution
(3) Steam Generator Blowdown and Turbine Building Sump releases are excluded from Total Liquid Radioactive Effluent volume in accordance with 10 CFR 20, Appendix B, Note 5.
(4) Steam Generator Blowdown and Turbine Building Sump release curie amounts and doses were measured and are included in these totals and in Table 2B-2C in accordance with Table 4.11-1, Footnote E of Joseph M. Farley Nuclear Plant Unit Number 2 Technical Specifications (Appendix A of License No. NPF-8).

TABLE 2B-1B

LIQUID EFFLUENTS--BATCH
Farley Unit 1 - 1st Half, 1983

Nuclides Released	Unit	Qrtr 1, 1983	Qrtr 2, 1983
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Fe-55	Ci	1.14E-03	5.75E-04
Co-57	Ci	0.00E 00	0.00E 00
Ce-144	Ci	2.01E-03	3.60E-04
Tc-99M	Ci	3.23E-04	0.00E 00
Ce-141	Ci	1.35E-03	4.24E-05
Np-239	Ci	4.04E-03	0.00E 00
Cr-51	Ci	2.16E-03	0.00E 00
I-131	Ci	1.79E-04	3.02E-05
Ru-103	Ci	2.66E-03	1.65E-04
I-133	Ci	8.21E-05	5.38E-05
Ba-140	Ci	0.00E 00	0.00E 00
As-76	Ci	0.00E 00	0.00E 00
Cs-134	Ci	9.74E-04	6.58E-05
Ru-106	Ci	4.98E-04	0.00E 00
Cs-137	Ci	1.24E-03	2.19E-04
Mo-99	Ci	3.09E-05	0.00E 00
Zr-95	Ci	4.75E-03	4.31E-04
Nb-95	Ci	5.95E-03	8.95E-04
I-132	Ci	1.37E-03	0.00E 00
Co-58	Ci	2.71E-03	1.01E-03
Cs-136	Ci	2.15E-05	3.08E-06
Mn-54	Ci	5.68E-05	3.91E-05
Ag-110M	Ci	1.38E-03	2.54E-04
Sr-91	Ci	0.00E 00	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
I-135	Ci	9.74E-06	1.77E-05
Fe-59	Ci	8.26E-07	0.00E 00
Co-60	Ci	2.38E-03	1.50E-03
Na-24	Ci	0.00E 00	7.21E-07
La-140	Ci	1.15E-03	1.07E-04
Zr-97	Ci	6.50E-05	2.11E-05
Te-132	Ci	2.45E-05	0.00E 00
TOTALS	Ci	3.66E-02	5.79E-03
Xe-133	Ci	2.16E 00	1.34E 00
Xe-135	Ci	7.78E-03	6.72E-05
TOTALS	Ci	2.16E 00	1.34E 00
H-3	Ci	5.06E 01	5.68E 01

TABLE 2B-2B

LIQUID EFFLUENTS--BATCH
Farley Unit 2 - 1st Half, 1983

Nuclides Released	Unit	Qrtr 1, 1983	Qrtr 2, 1983
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Fe-55	Ci	6.05E-04	3.12E-05
Co-57	Ci	0.00E 00	0.00E 00
Ce-144	Ci	7.75E-04	2.20E-04
Tc-99M	Ci	8.68E-05	0.00E 00
Ce-141	Ci	6.31E-04	3.34E-05
Np-239	Ci	1.14E-03	0.00E 00
Cr-51	Ci	9.79E-04	1.38E-05
I-131	Ci	8.36E-05	5.31E-05
Ru-103	Ci	1.26E-03	1.34E-04
I-133	Ci	5.77E-05	5.79E-05
Ba-140	Ci	1.67E-05	0.00E 00
As-76	Ci	0.00E 00	0.00E 00
Cs-134	Ci	2.33E-04	3.89E-06
Ru-106	Ci	6.74E-05	0.00E 00
Cs-137	Ci	2.35E-04	2.17E-05
Mo-99	Ci	0.00E 00	0.00E 00
Zr-95	Ci	1.82E-03	3.19E-04
Nb-95	Ci	2.21E-03	5.87E-04
I-132	Ci	9.48E-04	0.00E 00
Co-58	Ci	1.22E-03	5.62E-04
Cs-136	Ci	6.67E-06	0.00E 00
Mn-54	Ci	4.68E-05	2.77E-05
Ag-110M	Ci	4.31E-04	1.09E-04
Sr-91	Ci	0.00E 00	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
I-135	Ci	0.00E 00	1.31E-05
Fe-59	Ci	3.92E-06	0.00E 00
Co-60	Ci	6.49E-04	3.24E-04
Na-24	Ci	1.73E-04	0.00E 00
La-140	Ci	3.73E-04	3.79E-05
Zr-97	Ci	1.94E-05	6.86E-06
Te-132	Ci	2.02E-04	0.00E 00
Sb-124	Ci	1.49E-05	0.00E 00
TOTALS	Ci	1.43E-02	2.56E-03
Xe-133	Ci	4.46E-01	5.64E-01
Xe-135	Ci	9.76E-04	2.27E-05
TOTALS	Ci	4.46E-01	5.64E-01
H-3	Ci	2.46E 01	4.03E 01

TABLE 2B-1C

LIQUID EFFLUENTS--CONTINUOUS
Farley Unit 1 - 1st Half, 1983

Nuclides Released	Unit	Qrtr 1, 1983	Qrtr 2, 1983
Sr-89	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
H-3	Ci	1.09E 01	7.14E-01
Fe-55	Ci	2.59E-03	1.07E-03
Ce-144	Ci	0.00E 00	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Np-239	Ci	1.93E-05	4.43E-04
Ru-103	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Mo-99	Ci	0.00E 00	0.00E 00
Nb-95	Ci	9.40E-06	0.00E 00
I-132	Ci	0.00E 00	3.91E-04
Co-58	Ci	0.00E 00	0.00E 00
Cs-136	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Co-60	Ci	0.00E 00	5.79E-04
Zr-97	Ci	4.64E-04	0.00E 00
TOTALS	Ci	3.07E-03	2.48E-03
Xe-133	Ci	1.29E-04	0.00E 00
H-3	Ci	1.09E-02	8.30E-02

NOTE:

Although Steam Generator Blowdown and Turbine Building Sump releases were excluded from total liquid radioactive effluent volume in accordance with 10 CFR 20, Appendix B, Note 5, curie amounts and doses from these releases were measured and are reported here in accordance with Table 4.11-1, Footnote E of Joseph M. Farley Nuclear Plant Unit Number 1 Technical Specification (Appendix A of License No. NPF-2).

TABLE 2B-2C

LIQUID EFFLUENTS--CONTINUOUS
Farley Unit 2 - 1st Half, 1983

Nuclides Released	Unit	Qrtr 1, 1983	Qrtr 2, 1983
Sr-90	Ci	0.00E 00	0.00E 00
Sr-90	Ci	0.00E 00	0.00E 00
Fe-55	Ci	0.00E 00	0.00E 00
Ce-144	Ci	0.00E 00	0.00E 00
Ce-141	Ci	0.00E 00	0.00E 00
Ru-103	Ci	0.00E 00	0.00E 00
Cs-134	Ci	0.00E 00	0.00E 00
Cs-137	Ci	0.00E 00	0.00E 00
Mo-99	Ci	0.00E 00	0.00E 00
I-132	Ci	0.00E 00	0.00E 00
Co-58	Ci	0.00E 00	0.00E 00
Cs-136	Ci	0.00E 00	0.00E 00
Mn-54	Ci	0.00E 00	0.00E 00
Zn-65	Ci	0.00E 00	0.00E 00
Fe-59	Ci	0.00E 00	0.00E 00
Co-60	Ci	0.00E 00	1.63E-05
TOTALS	Ci	0.00E 00	1.63E-05
Xe-133	Ci	0.00E 00	9.19E-04
H-3	Ci	0.00E 00	0.00E 00

NOTE:

Although Steam Generator Blowdown and Turbine Building Sump releases were excluded from total liquid radioactive effluent volume in accordance with 10 CFR 20, Appendix B, Note 5, curie amounts and doses from these releases were measured and are reported here in accordance with Table 4.11-1, Footnote E of Joseph M. Farley Nuclear Plant Unit Number 2 Technical Specification (Appendix A of License No. NPF-8).

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1983)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

(JANUARY 1, THROUGH JUNE 30)

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

1. Type of Waste	UNITS	PERIOD 6-MONTHS
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3	3.310E 01
	Ci	7.880E 02
b. Dry compressible waste, comtaminated equipment, etc.	m^3	1.903E 02
	Ci	2.232E 01
c. Irradiated components, control rods, etc.	m^3	None
	Ci	None
d. Other (described)	m^3	None
	Ci	None

2. Estimate of major nuclide composition

	ISOTOPES	%
a.	Co-58	2.7
	Co-60	95.4
b.	Co-58	24.5
	Co-60	44.8
	Ce-144	5.5
	I-131	11.1
	Cs-137	11.2

TABLE 3 (con't)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1983)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

(JANUARY 1, THROUGH JUNE 30)

3.	Solid Waste Disposition	
	a. Number of Shipments	17
	b. Mode of Transportation	Chem-Nuclear Transport (7) Hittman Transport (10)
	c. Destination	Chem-Nuclear Systems, Inc. Barnwell, South Carolina
4.	Type of Containers	
	a. (1a)	170 cf. steel liners (dewatered resin & charcoal media) 120 cf. High Integrity Containers (Spent filters) 55 cf. High Integrity Containers (Spent filters)
	b. (1b)	55 gallon steel drum 112 cf. wooden boxes
5.	Solidification Agents	
	a. (1a)	CEMENT
	b. (1b)	N/A

B. IRRADIATED FUEL SHIPMENTS (Disposition)

1.	Number of Shipments	None
2.	Mode of Transportation	N/A
3.	Destination	N/A

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: A
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	8	21	2	0	0	0	31
ENE	7	4	0	0	0	0	11
E	0	1	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	9	16	4	0	0	0	29
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	7	14	3	0	0	0	24
SW	1	1	0	0	0	0	2
WSW	4	2	0	0	0	0	6
W	25	43	0	0	0	0	69
WNW	8	3	0	0	0	0	11
NW	1	2	0	0	0	0	3
NNW	29	12	0	0	0	0	41
VARIABLE	201	105	3	0	0	0	309
Total	101	120	9	0	0	0	230

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: A
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	1	0	0	0	0	5
NNE	2	0	0	0	0	0	2
NE	10	2	0	0	0	0	12
ENE	2	3	0	0	0	0	5
E	2	1	0	0	0	0	3
ESE	0	1	0	0	0	0	1
SE	10	13	3	0	0	0	26
SSE	0	2	0	0	0	0	2
S	0	0	0	0	0	0	0
SSW	5	5	1	0	0	0	11
SW	1	1	0	0	0	0	2
WSW	5	0	0	0	0	0	5
W	22	16	0	0	0	0	38
WNW	6	4	0	0	0	0	10
NW	1	4	0	0	0	0	5
NNW	25	13	0	0	0	0	38
VARIABLE	246	126	2	0	0	0	374
Total	95	66	4	0	0	0	165

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: B
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	1	0	0	0	0	3
NNE	1	2	0	0	0	0	3
NE	20	23	1	0	0	0	44
ENE	2	9	0	0	0	0	11
E	0	1	0	0	0	0	1
ESE	0	2	0	0	0	0	2
SE	5	9	8	0	0	0	22
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	1	0	0	0	2
SW	0	0	0	0	0	0	0
WSW	1	1	0	0	0	0	2
W	13	13	2	0	0	0	28
WNW	0	0	0	0	0	0	0
NW	1	1	0	0	0	0	2
NNW	29	25	0	0	0	0	54
VARIABLE	98	42	3	0	0	0	143
Total	74	88	12	0	0	0	174

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: B
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	1	0	0	0	0	4
NNE	2	0	0	0	0	0	2
NE	20	3	0	0	0	0	23
ENE	0	6	0	0	0	0	6
E	1	0	0	0	0	0	1
ESE	1	0	0	0	0	0	1
SE	9	10	5	0	0	0	24
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	2	6	0	0	0	0	8
SW	2	0	0	0	0	0	2
WSW	1	0	0	0	0	0	1
W	4	1	0	0	0	0	5
WNW	2	1	0	0	0	0	3
NW	1	1	0	0	0	0	2
NNW	38	11	0	0	0	0	49
VARIABLE	139	47	0	0	0	0	186
Total	86	40	5	0	0	0	131

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: C
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	0	4	0	0	0	0	4
NE	14	28	8	0	0	0	50
ENE	9	17	0	0	0	0	26
E	0	0	0	0	0	0	0
ESE	1	4	0	0	0	0	5
SE	2	10	1	0	0	0	13
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	7	9	1	0	0	0	17
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	15	14	0	0	0	0	29
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	22	5	0	0	0	0	27
VARIABLE	68	42	1	0	0	0	111
Total	72	93	10	0	0	0	175

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: C
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	3	0	0	0	0	6
NNE	2	0	0	0	0	0	2
NE	12	11	0	0	0	0	23
ENE	10	15	0	0	0	0	25
E	3	0	0	0	0	0	3
ESE	3	0	0	0	0	0	3
SE	7	7	0	0	0	0	14
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	5	5	1	0	0	0	11
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	8	2	0	0	0	0	10
WNW	3	0	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	21	6	0	0	0	0	27
VARIABLE	115	44	0	0	0	0	159
Total	77	49	1	0	0	0	127

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: D
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	0	0	0	0	0	3
NNE	3	0	0	0	0	0	3
NE	39	11	6	0	0	0	56
ENE	11	2	0	0	0	0	13
E	1	1	0	0	0	0	2
ESE	4	3	0	0	0	0	7
SE	6	4	2	0	0	0	12
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	13	20	2	0	0	0	35
SW	1	1	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	22	4	0	0	0	0	26
WNW	1	1	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	25	2	0	0	0	0	27
VARIABLE	113	41	4	0	0	0	158
Total	129	49	10	0	0	0	188

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: D
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	11	1	0	0	0	0	12
ENE	5	4	0	0	0	0	9
E	3	0	0	0	0	0	3
ESE	2	0	0	0	0	0	2
SE	8	3	0	0	0	0	11
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	16	7	0	0	0	0	23
SW	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	14	0	0	0	0	0	14
WNW	2	0	0	0	0	0	2
NW	1	0	0	0	0	0	1
NNW	41	6	0	0	0	0	47
VARIABLE	190	29	0	0	0	0	219
Total	104	23	0	0	0	0	127

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: E
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	6	4	0	0	0	0	10
ENE	11	1	0	0	0	0	12
E	0	0	0	0	0	0	0
ESE	2	5	0	0	0	0	7
SE	3	1	0	0	0	0	4
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	6	20	1	0	0	0	27
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	46	19	0	0	0	0	65
WNW	1	0	0	0	0	0	1
NW	3	0	0	0	0	0	3
NNW	37	2	0	0	0	0	39
VARIABLE	90	24	0	0	0	0	114
Total	116	52	1	0	0	0	169

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: E
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	1	0	0	0	0	0	1
NE	3	1	0	0	0	0	4
ENE	6	0	0	0	0	0	6
E	2	0	0	0	0	0	2
ESE	4	0	0	0	0	0	4
SE	4	1	0	0	0	0	5
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	21	5	0	0	0	0	26
SW	1	1	0	0	0	0	2
WSW	1	0	0	0	0	0	1
W	33	1	0	0	0	0	34
WNW	4	0	0	0	0	0	4
NW	1	0	0	0	0	0	1
NNW	41	3	0	0	0	0	44
VARIABLE	145	3	0	0	0	0	148
Total	123	12	0	0	0	0	135

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: F
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	5	1	0	0	0	0	6
ENE	3	0	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	2	0	0	0	0	0	2
SE	4	0	0	0	0	0	4
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	14	4	0	0	0	0	18
SW	2	0	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	24	11	0	0	0	0	35
WNW	0	0	0	0	0	0	0
NW	1	0	0	0	0	0	1
NNW	31	1	0	0	0	0	32
VARIABLE	53	5	0	0	0	0	58
Total	86	17	0	0	0	0	103

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: F
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	0	0	0	0	0	1
SSW	6	0	0	0	0	0	6
SW	4	0	0	0	0	0	4
WSW	1	0	0	0	0	0	1
W	35	0	0	0	0	0	35
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	28	1	0	0	0	0	29
VARIABLE	82	1	0	0	0	0	83
Total	77	1	0	0	0	0	78

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: G
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	8	0	0	0	0	0	8
ENE	15	1	0	0	0	0	16
E	0	0	0	0	0	0	0
ESE	6	6	0	0	0	0	12
SE	2	0	0	0	0	0	2
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	22	4	0	0	0	0	26
SW	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	29	6	0	0	0	0	35
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	35	0	0	0	0	0	35
VARIABLE	91	2	0	0	0	0	93
Total	118	17	0	0	0	0	135

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: G
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	0	0	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	3	0	0	0	0	0	3
E	3	0	0	0	0	0	3
ESE	2	0	0	0	0	0	2
SE	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	0	0	0	0	0	1
SSW	6	0	0	0	0	0	6
SW	1	0	0	0	0	0	1
WSW	1	0	0	0	0	0	1
W	36	0	0	0	0	0	36
WNW	2	0	0	0	0	0	2
NW	1	0	0	0	0	0	1
NNW	34	0	0	0	0	0	34
VARIABLE	133	0	0	0	0	0	133
Total	95	0	0	0	0	0	95

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: A
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	4	0	0	0	0	0	4
NE	45	16	0	0	0	0	61
ENE	23	0	0	0	0	0	23
E	10	1	0	0	0	0	11
ESE	11	1	0	0	0	0	12
SE	28	42	0	0	0	0	70
SSE	0	1	0	0	0	0	1
S	0	4	0	0	0	0	4
SSW	22	24	12	0	0	0	58
SW	3	2	0	0	0	0	5
WSW	0	2	0	0	0	0	2
W	7	19	2	0	0	0	28
WNW	6	2	0	0	0	1	9
NW	5	1	0	0	0	0	6
NNW	37	7	0	0	0	0	44
VARIABLE	369	101	9	1	0	0	480
Total	203	122	14	0	0	1	340

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: A
ELEVATION:10.0m

	Wind Speed (mph) at 10.0m level						
Wind Direction	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	9	0	0	0	0	0	9
NE	5	0	0	0	0	0	5
ENE	19	0	0	0	0	0	19
E	9	0	0	0	0	0	9
ESE	7	0	0	0	0	0	7
SE	32	35	0	0	0	0	67
SSE	2	1	0	0	0	0	3
S	0	4	0	0	0	0	4
SSW	15	25	8	0	0	0	48
SW	7	2	0	0	0	0	9
WSW	6	2	0	0	0	0	8
W	29	20	0	0	0	0	49
WNW	3	0	0	0	0	0	3
NW	3	0	0	0	0	0	3
NNW	46	3	0	0	0	0	49
VARIABLE	424	101	1	0	0	0	526
Total	194	92	8	0	0	0	294

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: B
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
NE	14	4	0	0	0	0	18
ENE	13	7	0	0	0	0	20
E	2	1	0	0	0	0	3
ESE	2	3	0	0	0	0	5
SE	5	10	0	0	0	0	15
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	3	10	2	0	0	0	15
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	8	0	0	0	0	9
WNW	0	0	0	0	0	0	0
NW	2	0	0	0	0	0	2
NNW	8	1	0	0	0	0	9
VARIABLE	46	15	0	0	0	0	61
Total	50	45	3	0	0	0	98

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: B
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	4	0	0	0	0	0	4
ENE	7	0	0	0	0	0	7
E	8	1	0	0	0	0	9
ESE	1	0	0	0	0	0	1
SE	6	13	0	0	0	0	19
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	4	8	0	0	0	0	12
SW	3	0	0	0	0	0	3
WSW	1	0	0	0	0	0	1
W	7	3	0	0	0	0	10
WNW	0	0	0	0	0	0	0
NW	1	0	0	0	0	0	1
NNW	7	0	0	0	0	0	7
VARIABLE	71	12	0	0	0	0	83
Total	51	25	0	0	0	0	76

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: C
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	13	0	0	0	0	0	13
ENE	1	0	0	0	0	0	1
E	3	0	0	0	0	0	3
ESE	1	0	0	0	0	0	1
SE	6	21	0	0	0	0	27
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	14	20	2	0	0	0	36
SW	0	0	0	0	0	0	0
WSW	0	1	0	0	0	0	1
W	3	2	0	0	0	0	5
WNW	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
NNW	13	2	0	0	0	0	15
VARIABLE	54	15	4	0	0	0	73
Total	58	47	2	0	0	0	107

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: C
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	8	0	0	0	0	0	8
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	2	0	0	0	0	0	2
SE	16	16	1	0	0	0	33
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	16	8	2	0	0	0	26
SW	2	0	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	14	2	0	0	0	0	16
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	7	0	0	0	0	0	7
VARIABLE	76	8	0	0	0	0	84
Total	67	26	3	0	0	0	96

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: D
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	9	0	0	0	0	0	9
ENE	10	0	0	0	0	0	10
E	2	1	0	0	0	0	3
ESE	19	1	0	0	0	0	20
SE	9	19	1	0	0	0	29
SSE	1	1	0	0	0	0	2
S	0	0	0	0	0	0	0
SSW	21	32	0	0	0	0	53
SW	1	1	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	2	1	0	0	0	0	3
WNW	1	0	0	0	0	0	1
NW	2	2	0	0	0	0	4
NNW	24	2	0	0	0	0	26
VARIABLE	119	30	2	0	0	0	151
Total	101	60	1	0	0	0	162

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: D
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	3	0	0	0	0	0	3
ENE	3	1	0	0	0	0	4
E	0	0	0	0	0	0	0
ESE	4	0	0	0	0	0	4
SE	31	9	0	0	0	0	40
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	30	5	0	0	0	0	35
SW	4	0	0	0	0	0	4
WSW	2	0	0	0	0	0	2
W	21	2	0	0	0	0	23
WNW	0	0	0	0	0	0	0
NW	3	0	0	0	0	0	3
NNW	15	0	0	0	0	0	15
VARIABLE	166	12	1	0	0	0	179
Total	117	17	0	0	0	0	134

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: E
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	27	0	0	0	0	0	27
ENE	4	0	0	0	0	0	4
E	0	0	0	0	0	0	0
ESE	4	0	0	0	0	0	4
SE	6	10	0	0	0	0	16
SSE	0	0	0	0	0	0	0
S	1	1	0	0	0	0	2
SSW	42	35	2	0	0	0	79
SW	0	2	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	12	13	0	0	0	0	25
WNW	1	0	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	38	0	0	0	0	0	38
VARIABLE	156	19	0	0	0	0	175
Total	136	61	2	0	0	0	199

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: E
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	3	0	0	0	0	0	3
ENE	2	0	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	17	1	0	0	0	0	18
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	40	7	0	0	0	0	47
SW	4	0	0	0	0	0	4
WSW	1	0	0	0	0	0	1
W	29	0	0	0	0	0	29
WNW	2	0	0	0	0	0	2
NW	3	0	0	0	0	0	3
NNW	33	0	0	0	0	0	33
VARIABLE	227	2	0	0	0	0	229
Total	136	9	0	0	0	0	145

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: F
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	13	0	0	0	0	0	13
ENE	3	0	0	0	0	0	3
E	0	0	0	0	0	0	0
ESE	3	0	0	0	0	0	3
SE	6	3	0	0	0	0	9
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	9	16	0	0	0	0	25
SW	2	0	0	0	0	0	2
WSW	0	0	0	0	0	0	0
W	11	7	0	0	0	0	18
WNW	0	0	0	0	0	0	0
NW	1	0	0	0	0	0	1
NNW	24	0	0	0	0	0	24
VARIABLE	42	2	1	0	0	0	45
Total	72	26	0	0	0	0	98

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: F
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	2	0	0	0	0	0	2
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	5	0	0	0	0	0	5
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	16	1	0	0	0	0	17
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	20	0	0	0	0	0	20
WNW	0	0	0	0	0	0	0
NW	1	0	0	0	0	0	1
NNW	25	0	0	0	0	0	25
VARIABLE	71	0	0	0	0	0	71
Total	71	1	0	0	0	0	72

Periods of calm(hours): 0
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: G
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	7	0	0	0	0	0	7
ENE	5	0	0	0	0	0	5
E	1	0	0	0	0	0	1
ESE	7	0	0	0	0	0	7
SE	5	1	0	0	0	0	6
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	11	4	0	0	0	0	15
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	27	13	0	0	0	0	40
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	29	2	0	0	0	0	31
VARIABLE	77	2	1	0	0	0	80
Total	93	20	0	0	0	0	113

Periods of calm(hours): 2
Hours of missing data: 0

Table 4A-CQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Nuclear Plant - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: CONTINOUS
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: G
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	3	0	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	14	0	0	0	0	0	14
SW	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	28	0	0	0	0	0	28
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	15	0	0	0	0	0	15
VARIABLE	125	1	0	0	0	0	126
Total	64	0	0	0	0	0	64

Periods of calm(hours): 5
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: A
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	2	0	0	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	2	1	0	0	0	0	3
NW	0	1	0	0	0	0	1
NNW	2	1	0	0	0	0	3
VARIABLE	10	5	0	0	0	0	15
Total	7	3	0	0	0	0	10

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: A
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	3	0	0	0	0	0	3
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	1	0	0	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	2	1	0	0	0	0	3
VARIABLE	11	4	0	0	0	0	15
Total	8	2	0	0	0	0	10

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: B
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	1	0	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	0	0	0	0	0	0	0
Total	3	1	0	0	0	0	4

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: B
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	1	0	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	2	0	0	0	0	0	2
Total	2	0	0	0	0	0	2

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: C
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	1	1	0	0	0	0	2
SE	0	1	0	0	0	0	1
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	0	0	0
WSW	0	0	0	0	0	0	0
W	3	2	0	0	0	0	5
WNW	0	0	0	0	0	0	0
NW	0	1	0	0	0	0	1
NNW	1	0	0	0	0	0	1
VARIABLE	2	2	0	0	0	0	4
Total	5	6	0	0	0	0	11

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: C
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
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	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	10	2	0	0	0	0	12
Total	2	1	0	0	0	0	3

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: D
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	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	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	2	0	0	0	0	0	2
VARIABLE	6	1	0	0	0	0	7
Total	3	0	0	0	0	0	3

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: D
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	0	0	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	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	7	0	0	0	0	0	7
Total	3	0	0	0	0	0	3

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 1-83 } 3-31-83
STABILITY CLASS: E
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	5	0	0	0	0	0	5
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	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	6	1	0	0	0	0	7
Total	7	0	0	0	0	0	7

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: E
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	2	0	0	0	0	0	2
E	1	0	0	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	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	10	0	0	0	0	0	10
Total	4	0	0	0	0	0	4

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: F
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: F
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 1 -1-83 } 3-31-83
STABILITY CLASS: G
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	9	0	0	0	0	0	9
Total	1	0	0	0	0	0	1

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ1

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 1st Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: { -1-83 } 3-31-83
STABILITY CLASS: G
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
VARIABLE	8	0	0	0	0	0	8
Total	2	0	0	0	0	0	2

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: A
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	2	2	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	4	0	0	0	0	4
VARIABLE	1	4	0	0	0	0	5
Total	0	6	2	0	0	0	8

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: A
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	4	0	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	2	6	0	0	0	0	8
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	1	0	0	0	0	1
Total	2	10	0	0	0	0	12

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: B
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	4	0	0	0	0	4
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	0	4	1	0	0	0	5

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: B
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	3	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	1	0	0	0	0	1
Total	0	4	0	0	0	0	4

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: C
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	5	0	0	0	0	5
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	2	0	0	0	0	2
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	4	1	0	0	0	5
Total	0	8	0	0	0	0	8

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: C
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	9	0	0	0	0	10
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	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	2	0	0	0	0	2
Total	2	9	0	0	0	0	11

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: D
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	1	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	2	0	0	0	0	2
Total	0	1	1	0	0	0	2

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: D
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	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	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	3	0	0	0	0	3
Total	0	1	0	0	0	0	1

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: E
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: E
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	1

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: F
ELEVATION:45.7m

Wind Direction	Wind Speed (mph) at 45.7m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: F
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: G
ELEVATION:45.7m

	Wind Speed (mph) at 45.7m level						
Wind Direction	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	2	0	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	1	0	0	0	0	0	1
Total	0	2	0	0	0	0	2

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4A-1BQ2

CUMULATIVE JOINT FREQUENCY DISTRIBUTION

Farley Unit 1 - 2nd Quarter, 1983

HOURS AT EACH WIND SPEED AND DIRECTION

RELEASE MODE: BATCH
PERIOD OF RECORD: 4 -1-83 } 6-30-83
STABILITY CLASS: G
ELEVATION:10.0m

Wind Direction	Wind Speed (mph) at 10.0m level						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	1	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	2	0	0	0	0	0	2
Total	1	0	0	0	0	0	1

Periods of calm(hours): 0
Hours of missing data: 0

TABLE 4B

CLASSIFICATION OF ATMOSPHERIC STABILITY

Stability Classification	Pasquill Categories	$\theta\sigma^a$ (degrees)	Temperature change with height (^{0} C/100m)
Extremely unstable	A	25.0	<-1.9
Moderately unstable	B	20.0	-1.9 to -1.7
Slightly unstable	C	15.0	-1.7 to -1.5
Neutral	D	10.0	-1.5 to -0.5
Slightly stable	E	5.0	-0.5 to 1.5
Moderately stable	F	2.5	1.5 to 4.0
Extremely stable	G	1.7	>4.0

[a] Standard deviation of horizontal wind direction fluctuation over a period of 15 minutes to 1 hour. The values shown are average for each stability classification.

TABLE 5

RADIAOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM
FARLEY NUCLEAR PLANT - UNIT 1 & 2

Liquid Release Type	Sampling Frequency	Mimimum Analysis Frequency	Type of Activity Analysis	Minimum Detectable Concentration (MDC)(uCi/ml) [a,g]
A. Batch Waste Release Tanks [c]	P Each Batch	P Each Batch	Principal Gamma Emmiters [e]	5E-07
			I-131	1E-06
	One Batch/M	M	Dissolved & Entrained Gases (Gamma Emitters)	1E-05
	P Each Batch	M Composite [b]	H-3	1E-05
			Gross Alpha	1E-07
	P Each Batch	Q Composite [b]	Sr-89, Sr-90	5E-08
			Fe-55	1E-06
B. Continuous Releases [d,f]	D Grab Sample	Q Composite [b]	Principal Gamma Emitters [e]	5E-07
			I-131	1E-06
1. Steam Generator Blowdown	M Grab Sample	M	Dissolved & Entrained Gases (Gamma Emitters)	1E-05
	D Grab Sample	M Composite [b]	H-3	1E-05
			Gross Alpha	1E-07
	D Grab Sample	Q Composite [b]	Sr-89, Sr-90	5E-08
			Fe-55	1E-06
2. Turbine Building Sump	P Grab Sample	W Composite [b]	Principle Gamma Emmitters [e]	5E-07
			H-3	1E-05

TABLE 5 (Continued)

TABLE NOTATION

a. The MDC is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$MDC = 4.66\, s_b \,/\, E * V * 2.22X10^{6} * Y * \exp(-\lambda\Delta t)$$

where:

MDC is the "a priori" lower limit of detection as defined above (as microcurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units mass or volume),

$2.22x10^{6}$ is the number of transformations per minute per microcurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between midpoint of sample collection and time of counting (for plant effluents, not environmental samples).

The value of s_b used in the calculation of the MDC for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. Typical values of E, V, Y, and Δt shall be used in the calculation.

TABLE 5 (Continued)

TABLE NOTATION

b. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.

c. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated, and then thoroughly mixed, by a method described in the ODCM, to assure representative sampling.

d. A continuous release is the discharge of liquid wastes of a nondiscrete volume; e.g., from a volume of system that has an input flow during the effluent release.

e. The principal gamma emitters for which the MDC specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifable, together with the above nuclides, shall also be identified and reported.

f. Sampling will be performed only if the effluent will be discharged to the environment.

g. Deviation from the MDC requirements of Table 4.11-1 shall be reported per Specification 6.9.1.8 in lieu of any other report.

TABLE 6

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM
FARLEY NUCLEAR PLANT - UNITS 1 & 2

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Minimum Detectable Concentration (MDC)(uCi/ml) [a,h]
A. Waste Gas Storage Tank	Each Tank Grab Sample [b] P	Each Tank P	Principle Gamma Emitters [g,h]	1E-04
B. Containment Purge	Each Purge Grab Sample [b] P	Each Purge Grab Sample [b] P	Principle Gamma Emitters [g,j]	1E-04
			H-3	1E-06
C. Condenser Steam Jet Air Ejector Plant Vent Stack	M-Grab Sample [b,c,e]	M [b]	Principle Gamma Emitters [g,j]	1E-04
			H-3	1E-06
D. Plant Vent Stack Containment Purge	Continuous [f] Charcoal	Charcoal Sample W [d]	I-131	1E-12
			I-133	1E-10
	Continuous [f]	Particulate Sample W [d]	Principle Gamma Emitters (I-131, Others) [g]	1E-11
	Continuous [f]	W Composite Particulate Sample [i]	Gross Alpha	1E-11
	Continuous [f]	Q Composite Particulate Sample [i]	Sr-89, Sr-90	1E-11
	Continuous [f]	Noble Gas Monitor	Noble Gases Gross Beta & Gamma	1E-06

TABLE 6 (Continued)

TABLE NOTATION

a. The MDC is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$MDC = \frac{4.66\, s_b}{E * V * 2.22 \times 10^6 * Y * \exp(-\lambda \Delta t)}$$

where:

MDC is the "a priori" lower limit of detection as defined above (as microcurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute),

E is the counting efficiency (as counts per transformation),

V is the sample size (in units mass or volume),

2.22×10^6 is the number of transformations per minute per microcurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt is the elapsed time between midpoint of sample collection and time of counting (for plant effluents, not environmental samples).

The value of s_b used in the calculation of the MDC for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. Typical values of E, V, Y, and Δt shall be used in the calculation.

TABLE 6 (Continued)

TABLE NOTATION

b. Analyses shall also be performed following shutdown from > or = 15% RATED THERMAL POWER, startup to > or = 15% RATED THERMAL POWER a THERMAL POWER change exceeding 15% of the RATED THERMAL POWER within a one hour period.

c. Tritium grab samples shall be taken from the plant vent stack at least once per 24 hours when the refueling canal is flooded.

d. Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing (or after removal from sampler). Sampling shall also be performed at least once per 24 hours for at least 2 days following each shutdown from > or = 15% RATED THERMAL POWER, startup to > or = 15% RATED THERMAL POWER or THERMAL POWER change exceeding 15% of RATED THERMAL POWER in one hour and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding MDC may be increased by a factor of 10.

e. Tritium grab samples shall be taken at least once per 7 days from the ventilation exhaust from the spent fuel pool area, whenever spent fuel is in the spent fuel pool.

f. The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.11.2.1, 3.11.2.2 and 3.11.2.3.

g. The principle gamma emitters for which the MDC specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144 for particulate emmissions. This list does not mean that only these nuclides are to be detected and reported. Other which are measureable and identifiable, together with the above nuclides, shall also be identified and reported.

h. Deviations from MDC requirements of Table 4.11-2 shall be reported per Specification 6.9.1.8 in lieu of any other report.

i. A composite particulate sample is one in which the quantity of air sampled is proportional to the quantity of air discharged. Either a specimen which is representative of the air discharged may be accumulated and analyzed or the individual samples may be analyzed and weighted in proportion to their respective volume discharged.

j. The principal gamma emitters for which the MDC specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for gaseous emissions. This does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable together with the above nuclides, shall also be identified and reported.

TABLE 7

LIQUID DISCHARGES NOT MEETING SPECIFIED DETECTION LIMITS
Farley Units 1 & 2 - 2nd half, 1983

Batch #	N/A*
Date	N/A
Count Time in Seconds	N/A
Volume Discharged in Gallons	N/A
Dilution Water in GAllons	N/A
Total Isotopic Acitvity (uCi/ml)	N/A
Isotope of Interest	N/A
MDC Measured	N/A
% of Total Isotopic Activity	N/A
% of Total Dose	N/A

* No liquid discharges made that did not meet specified detection limits.