PILGRIM NUCLEAR POWER STATION

Radioactive Effluent and Waste Disposal Report including Meteorological Data

July 1 through December 31, 1991

BOSTON EDISON

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RADIOACTIVE EFFLUENT AND WASTE DISPOSAL REPORT

INCLUDING METEOROLOGICAL DATA

JULY 1 THROUGH DECEMBER 31, 1991

Prepared by: _____
K. J. Sejkora
Environmental Program Manager

Approved by: _____
C. S. Goddard
Radwaste/Chemistry Section Manager

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

BOSTON EDISON COMPANY
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Radioactive Effluent and Waste Disposal Report
including Meteorological Data
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INTRODUCTION

This report quantifies the radioactive gaseous, liquid, and radwaste releases, and summarizes the local meteorological data for the period from July 1 to December 31, 1991. This document has been prepared in accordance with the requirements set forth in the Pilgrim Nuclear Power Station (PNPS) Technical Specifications and Revision 1 of 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."

Amendment No. 116 to PNPS Technical Specifications, issued May 13, 1988, modified the reporting requirements for the semiannual Radioactive Effluent Release and Waste Disposal Report including Meteorological Data. The change allows for the submission of a supplement to the March semiannual report (reporting period for July through December) which would contain the dose assessments for the previous year. Accordingly, the attached report does not contain the radiological impact on humans, the atmospheric dispersion factors, nor the associated percent Technical Specification limits in Table 1A (as these limits are based on dose).

The quantity of radioactive material released from Pilgrim Station was determined from sample analyses of gaseous releases from the main stack, reactor building vent and turbine building, and liquid releases into the discharge canal. The quantity and volume of radioactive waste which was shipped off-site from Pilgrim Station for burial was determined from data contained on the radwaste shipping documentation. The meteorological data were obtained from instrumentation measurements from the 33 foot and 220 foot levels of the 220 foot meteorological tower located at Pilgrim Station.

GASEOUS EFFLUENTS

The gaseous radioactive releases from July 1 to December 31, 1991 are quantified in Tables 1A, 1B and 1C. Radioactive noble gases released during the period totaled 1.40E+3 curies. Releases of radioactive particulates and iodines from the main stack, reactor building vent, and turbine building, totalled 9.80E-2 curies, and tritium releases totalled 4.28E+0 curies. No gross alpha radioactivity was detected in gaseous effluents.

LIQUID EFFLUENTS

The liquid radioactive releases from July 1 to December 31, 1991 are quantified in Tables 2A and 2B. Liquid effluents into the discharge canal resulted in a total release to the environment (Cape Cod Bay) of 2.83E-2 curies of fission and activation products and 9.40E+0 curies of tritium. Dissolved and entrained gases in liquid effluents totalled 6.01E-3 curies during the period. No gross alpha radioactivity was detected in liquid effluents.

SOLID WASTE

The solid radioactive waste that has been shipped off-site for burial during the reporting period is described and quantified in Table 3. Approximately 210 cubic meters of solid waste was shipped off-site for burial with a total activity of approximately 4.30E+2 curies (major nuclides: Cr-51, Mn-54, Fe-55, Co-58, Co-60 and Cs-137). Pilgrim Station did not ship irradiated components off-site during the reporting period.

METEOROLOGICAL DATA

The meteorological data joint frequency distributions are listed in Tables 4A-1 and 4A-2. The percent data recovery for the period of July - December 1991 was 93.7% on the 33 foot elevation and 93.0% on the 220 foot elevation of the 220 foot meteorological tower at Pilgrim Station. Joint data recovery for the entire year of 1991 was 95.6% for the 33 foot level and 95.2% at the 220 foot level, exceeding the Regulatory Guide 1.23 annual data recovery goal of 90%.

The predominant wind direction was from the south-southwest, which occurred with a frequency of approximately 15% during this period. The predominant wind speed range at the 33 foot sensor was 4 to 7 mph, which occurred 55% of the time during this period. The predominant wind speed range at the 220 foot sensor was 13 to 18 mph, which occurred approximately 35% of the time. The predominant stability class was stability class E, which occurred about 37% of the time during this period.

CONCLUSION

The PNPS Technical Specifications contain limiting conditions for operations and operational objectives regarding radiological environmental releases. None of the limiting conditions for operation or operational objectives associated with liquid or gaseous effluents were exceeded during this reporting period, as confirmed by conservative dose assessments performed on a monthly basis during this period. Official dose assessments will be published in a supplement to this report due 90 days following January 1, 1992. Conformance to these PNPS Technical Specifications ensures that the releases of radioactive materials in gaseous and liquid effluents were kept as low as is reasonably achievable in accordance with the Nuclear Regulatory Commission's regulation 10 CFR 50, Appendix I. Furthermore, compliance with PNPS Technical Specifications demonstrates compliance with the Environmental Protection Agency's (EPA) federal environmental regulation 40 CFR 190.10, Subpart B.

1. INTRODUCTION

This report is issued for the period July 1 to December 31, 1991 in accordance with the Boston Edison Company's PNPS Technical Specifications and NRC 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," Revision 1 (Reference 1).

Amendment No. 116 to PNPS Technical Specifications, issued May 13, 1988, modified the reporting requirements for the semiannual Radioactive Effluent Release and Waste Disposal Report including Meteorological Data. The change allows for the submission of a supplement to the March semiannual report (reporting period for July through December) which would contain the dose assessments for the previous year. Accordingly, the attached report does not contain the radiological impact on humans, the atmospheric dispersion factors, nor the associated percent Technical Specification limits in Table 1A (as these limits are based on dose).

2. RADIOACTIVE EFFLUENT DATA

Radioactive liquid and gaseous releases for the period July 1 to December 31, 1991 are given in the standard NRC Regulatory Guide 1.21 format in Tables 1A, 1B, 1C, 2A, 2B, and the supplemental information form.

There were no unplanned or non-routine releases of radioactive effluents during this reporting period.

2.1 Gaseous Effluents

Most gaseous radioactivity is released from Pilgrim Station to the atmosphere from the main stack and the reactor building exhaust vent. Low levels of radionuclides were also detected in air exhausted from the turbine building. These releases were included in ground-level releases listed in Table 1C. These third and fourth quarter gaseous effluent releases for 1991 are summarized in Table 1A. Noble gases released during the period totaled 1.40E+3 curies, for an average release rate of 8.86E+1 µCi/sec. A total of 9.80E-2 curies of radioactive iodines and particulates with half-lives greater than 8 days was released at an average release rate of 6.20E-3 µCi/sec. No alpha radioactivity was detected during this reporting period. A total of 4.28E+0 curies of tritium was released at an average release rate of 2.71E-1 µCi/sec.

The main stack is an elevated release point with a height of approximately 400 feet above mean sea level. The main stack is located about 700 feet west-northwest of the reactor building. The third and fourth quarter elevated releases for 1991 are shown in Table 1B.

The majority of ground level releases during the period July-December 1991 occurred from the reactor building vent, but low levels of radionuclides were also detected in air exhausted from the turbine building. The reactor building exhaust vent is considered a ground level release point with a height of approximately 182 feet above mean sea level. The exhaust vent is located on the west corner of the reactor building. All ground level releases for the third and fourth quarters of 1991 are shown in Table 1C.

2.2 Liquid Effluents

Liquid radioactivity is released from Pilgrim Station to the Cape Cod Bay via the circulating water discharge canal. These effluent releases enter the Cape Cod Bay at the outfall of the canal which is located about 1100 feet north of the reactor building.

The liquid releases for the third and fourth quarters of 1991 are summarized in Table 2A. A total of approximately 2.4 million liters of radioactive liquid waste (prior to dilution) containing 2.83E-2 curies of fission and activation products (excluding tritium, gases, and alpha-emitting nuclides) was discharged with a total dilution volume of approximately 3.7 billion liters of water. The liquid effluents were released at an average concentration of fission and activation products of 7.69E-9 µCi/ml during the third and fourth quarters. A total of 9.40E+0 curies of tritium was released, for an average concentration of 2.56E-6 µCi/ml. Dissolved and entrained gases in liquid effluents totalled 6.01E-3 curies, for an average concentration of 1.63E-9 µCi/ml. Alpha radioactivity was not detected in liquid effluents during this reporting period. Quarterly release estimates and principal radionuclides in the liquid effluents are given in Table 2B.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information (1991)
July - December 1991

Facility Pilgrim Nuclear Power Station Licensee DPR-35

1. Regulatory Limits

a.	Fission and activation gases:	500 mrem/yr total body and 3000 mrem/yr for skin at site boundary.
b,c.	Iodines, particulates with half-lives >8 days, tritium:	1500 mrem/yr to any organ at site boundary.
d.	Liquid effluents:	0.06 mrem/month for total body and 0.20 mrem/month for any organ (without radwaste treatment).

2. Maximum Permissible Concentration

a.	Fission and activation gases:	10 CFR 20 Appendix B Table II
b.	Iodines:	10 CFR 20 Appendix B Table II
c.	Particulates, half-lives >8 days:	10 CFR 20 Appendix B Table II
d.	Liquid effluents:	2E-4 µCi/ml for entrained noble gases; 10 CFR 20 Appendix B Table II values for all other radionuclides.

3. Average Energy Not applicable

4. Methods used to determine radionuclide composition in effluents

a.	Fission and activation gases:	High-purity Ge gamma spectroscopy for all gamma emitters; radiochemistry analysis for H-3, Fe-55 (liquids only), Sr-89, and Sr-90.
b.	Iodines:	
c.	Particulates:	
d.	Liquid effluents:	

5. Batch Releases

a. Liquid

		Quarter 3rd	Quarter 4th
1.	Number of batch releases:	58	14
2.	Total time period for batch releases (minutes):	3.94E+3	8.65E+2
3.	Maximum time period for a batch release (minutes):	1.65E+2	9.00E+1
4.	Average time period for batch releases (minutes):	6.78E+1	6.18E+1
5.	Minimum time period for a batch release (minutes):	2.50E+1	3.00E+1
6.	Average stream flow during periods of release of effluent into a flowing stream (liter/min):	7.33E+8	1.08E+9

b. Gaseous: Not applicable

6. Abnormal Releases

a. Liquid: None
b. Gaseous: None

TABLE 1A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1991)
GASEOUS EFFLUENTS SUMMATION OF ALL RELEASES
July - December 1991

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
A. Fission and activation gases				
1. Total release	Ci	1.17E+03	2.32E+02	22%
2. Average release rate for period	µCi/sec	1.48E+02	2.94E+01	
3. Percent of Tech. Spec. limit	%	*	*	
B. Iodines				
1. Total iodine-131	Ci	3.47E-03	8.97E-03	20%
2. Average release rate for period	µCi/sec	4.40E-04	1.14E-03	
3. Percent of Tech. Spec. limit	%	*	*	
C. Particulates				
1. Particul. with half-lives>8 days	Ci	2.85E-03	4.10E-03	21%
2. Average release rate for period	µCi/sec	3.67E-04	5.20E-04	
3. Percent of Tech. Spec. limit	%	*	*	
4. Gross alpha radioactivity	Ci	NDA	NDA	
D. Tritium				
1. Total release	Ci	2.01E+00	2.27E+00	20%
2. Average release rate for period	µCi/sec	2.55E-01	2.88E-01	
3. Percent of Tech. Spec. limit	%	*	*	

Notes for Table 1A:

* Percent of Technical Specification Limit Values in Section A.3 through D.3 are to be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1992.

1. NDA is no detectable activity.

2. LLD for gross alpha listed as NDA is 1E-11 µCi/ml.

TABLE 1B
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1991)
GASEOUS EFFLUENTS - ELEVATED RELEASE
July - December 1991

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit	Quarter 3rd	Quarter 4th	Quarter	Quarter
				No Batch Mode Releases During Period	
1. Fission gases					
Kr-85m	Ci	6.71E+01	1.59E+01	N/A	N/A
Kr-87	Ci	1.66E+02	5.83E+00	N/A	N/A
Kr-88	Ci	1.75E+02	9.05E+00	N/A	N/A
Xe-133	Ci	2.79E+01	2.60E+01	N/A	N/A
Xe-135	Ci	2.21E+02	6.99E+00	N/A	N/A
Xe-135m	Ci	9.69E+01	2.78E+01	N/A	N/A
Xe-138	Ci	4.04E+02	1.05E+02	N/A	N/A
Total for period	Ci	1.16E+03	1.97E+02	N/A	N/A
2. Iodines					
I-131	Ci	3.02E-03	7.31E-03	N/A	N/A
I-133	Ci	1.79E-02	4.19E-02	N/A	N/A
Total for period	Ci	2.09E-02	4.92E-02	N/A	N/A
3. Particulates					
Mn-54	Ci	NDA	3.15E-06	N/A	N/A
Co-58	Ci	NDA	1.12E-06	N/A	N/A
Co-60	Ci	NDA	6.21E-06	N/A	N/A
Sr-89	Ci	5.13E-04	4.56E-04	N/A	N/A
Sr-90	Ci	2.76E-06	3.27E-06	N/A	N/A
Cs-134	Ci	NDA	NDA	N/A	N/A
Cs-137	Ci	NDA	NDA	N/A	N/A
Ba/La-140	Ci	9.45E-04	1.05E-03	N/A	N/A
Ce-141		NDA	1.00E-06	N/A	N/A
Total for period	Ci	1.46E-03	1.52E-03	N/A	N/A
4. Tritium					
H-3	Ci	2.00E-01	1.12E-01	N/A	N/A

Notes for Table 1B:

1. NDA is no detectable activity.

2. LLDs for nuclides listed as NDA are as follows:

Fission gases:	1E-4 µCi/ml
Iodines:	1E-12 µCi/ml
Particulates:	1E-11 µCi/ml

TABLE 1C
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1991)
GASEOUS EFFLUENTS - GROUND LEVEL RELEASE
July - December 1991

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit	Quarter 3rd	Quarter 4th	Quarter	Quarter
				No Batch Mode Releases During Period	
1. Fission gases					
Kr-85m	Ci	NDA	NDA	N/A	N/A
Kr-87	Ci	NDA	NDA	N/A	N/A
Kr-88	Ci	NDA	NDA	N/A	N/A
Xe-133	Ci	2.55E-01	1.82E+00	N/A	N/A
Xe-135	Ci	1.05E+01	2.80E+01	N/A	N/A
Xe-135m	Ci	NDA	5.14E+00	N/A	N/A
Xe-138	Ci	NDA	NDA	N/A	N/A
Total for period	Ci	1.08E+01	3.50E+01	N/A	N/A
2. Iodines					
I-131	Ci	4.54E-04	1.66E-03	N/A	N/A
I-133	Ci	3.63E-03	1.52E-02	N/A	N/A
Total for period	Ci	4.08E-03	1.68E-02	N/A	N/A
3. Particulates					
Co-60	Ci	2.14E-05	NDA	N/A	N/A
Sr-89	Ci	1.05E-03	5.73E-04	N/A	N/A
Sr-90	Ci	2.80E-06	2.97E-06	N/A	N/A
Cs-134	Ci	NDA	NDA	N/A	N/A
Cs-137	Ci	NDA	NDA	N/A	N/A
Ba/La-140	Ci	3.56E-04	2.01E-03	N/A	N/A
Total for period	Ci	1.43E-03	2.58E-03	N/A	N/A
4. Tritium					
H-3	Ci	1.81E+00	2.16E+00	N/A	N/A

Notes for Table 1C:

1. NDA is no detectable activity.

2. LLDs for nuclides listed as NDA are as follows:

   Fission gases: 1E-4 µCi/ml
   Iodines: 1E-12 µCi/ml
   Particulates: 1E-11 µCi/ml

TABLE 2A
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1991)
LIQUID EFFLUENTS SUMMATION OF ALL RELEASES
July - December 1991

	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, noble gases, or alpha)	Ci	2.72E-02	1.09E-03	12%
2. Average diluted concentration during period	µCi/ml	9.93E-09	1.16E-09	
3. Percent of applicable limit	%	*	*	
B. Tritium				
1. Total release	Ci	8.71E+00	6.86E-01	9.4%
2. Average diluted concentration during period	µCi/ml	3.18E-06	7.32E-07	
3. Percent of applicable limit	%	*	*	
C. Dissolved and entrained gases				
1. Total release	Ci	1.07E-03	4.94E-03	16%
2. Average diluted concentration during period	µCi/ml	3.89E-10	5.27E-09	
3. Percent of applicable limit	%	*	*	
D. Gross alpha radioactivity				
1. Total release	Ci	NDA	NDA	34%
E. Volume of waste released (prior to dilution)	liters	2.16E+06	2.23E+05	5.7%
F. Volume of dilution water used during period	liters	2.74E+09	9.37E+08	10%

Notes for Table 2A:

* Percent of Technical Specification Limit Values in Section A.3 through C.3 are to be provided in the annual supplemental dose assessment report to be issued prior to April 1, 1992.

1. NDA is no detectable activity.

2. LLD for gross alpha listed as NDA is 1E-7 µCi/ml.

TABLE 2B
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1990)
LIQUID EFFLUENTS
July - December 1991

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
		No Continuous Mode Releases During Period		3rd	4th
1. Fission and Activation Products					
Cr-51	Ci	N/A	N/A	6.24E-04	2.42E-04
Mn-54	Ci	N/A	N/A	1.17E-03	2.22E-05
Fe-55	Ci	N/A	N/A	5.74E-04	5.32E-05
Fe-59	Ci	N/A	N/A	4.77E-05	NDA
Co-58	Ci	N/A	N/A	4.51E-04	NDA
Co-60	Ci	N/A	N/A	7.53E-03	1.89E-04
Zn-65	Ci	N/A	N/A	NDA	NDA
Sr-89	Ci	N/A	N/A	NDA	NDA
Sr-90	Ci	N/A	N/A	5.32E-05	4.18E-06
Y-92	Ci	N/A	N/A	NDA	2.49E-04
Zr/Nb-95	Ci	N/A	N/A	1.04E-04	NDA
Mo-99/Tc-99m	Ci	N/A	N/A	1.94E-04	7.66E-05
Ru-103	Ci	N/A	N/A	3.81E-05	NDA
I-131	Ci	N/A	N/A	4.08E-07	NDA
Cs-134	Ci	N/A	N/A	7.53E-04	NDA
Cs-137	Ci	N/A	N/A	1.50E-02	9.94E-05
Ba/La-140	Ci	N/A	N/A	1.07E-04	1.12E-04
Ce-141	Ci	N/A	N/A	5.79E-05	NDA
Ce/Pr-144	Ci	N/A	N/A	2.17E-04	NDA
Np-239	Ci	N/A	N/A	2.47E-04	4.24E-05
Total for period	Ci	N/A	N/A	2.72E-02	1.09E-03
2. Dissolved and Entrained Noble Gases					
Xe-133	Ci	N/A	N/A	2.60E-04	8.46E-04
Xe-135	Ci	N/A	N/A	8.07E-04	4.09E-03
Total for period	Ci	N/A	N/A	1.07E-03	4.94E-03

Notes for Table 2B:

1. NDA is no detectable activity.

2. LLDs for nuclides listed as NDA are as follows:

Sr-89	5E-8 µCi/ml
I-131	1E-6 µCi/ml
Xe-133, 135	1E-5 µCi/ml
All Others	5E-7 µCi/ml

3. RADIOACTIVE WASTE DISPOSAL DATA

Radioactive wastes (Reference 2) which were shipped off-site for burial during the period July 1 to December 31, 1991 are given in Table 3, in the standard NRC Regulatory Guide 1.21 format.

The semiannual total quantity of radioactivity in curies and the total volume in cubic meters for the following categories or waste types are listed in Table 3:

a. Spent resins, filter sludges, evaporator bottoms;

b. Dry compressible waste, contaminated equipment, etc.;

c. Irradiated components, control rods, etc.; and,

d. Other.

During July 1 to December 31, 1991 approximately 4.23E+2 curies of spent resins, filter sludges, etc. with a total volume of about 9.59E+1 cubic meters were shipped from Pilgrim Station to an approved burial site. Approximately 7.23E+0 curies in dry compressible waste, contaminated equipment, etc. with a total volume of about 1.14E+2 cubic meters was shipped off-site for processing and/or burial during this period. Irradiated components and other miscellaneous low-level waste were not disposed of off-site during this reporting period. Irradiated fuel shipments were not made during this period.

Eighteen shipments to Barnwell, SC (Chem Nuclear Systems, Inc.), eight shipments to Oak Ridge, TN (six to Scientific Ecology Group; two to Quadrex Corp.), and two shipments to Wampum, PA (Alaron Corp.) were made during the period July 1 to December 31, 1991. Estimates of major radionuclides shipped off-site are listed in Table 3.

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1991)
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
JULY - DECEMBER 1991

1. SOLID WASTE SHIPPED OFF SITE FOR BURIAL OR DISPOSAL

TYPE OF WASTE		UNITS	6 MONTH PERIOD	EST. TOTAL ERROR %
a.	Spent resins, filter, sludges evaporator bottoms, etc.	m^3 Ci	9.59E+01 4.23E+02	± 25%
b.	Dry compressible waste, contaminated equipment, etc.	m^3 Ci	1.14E+02 7.23E+00	± 25%
c.	Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	N/A
d.	Other (describe) miscellaneous low level waste	m^3 Ci	0.00E+00 0.00E+00	N/A

TABLE 3 (Continued)

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION (by type of waste)

a. Spent resin, filter sludges, evaporator bottoms, etc.

NUCLIDE NAME	CURIES	PERCENT ABUNDANCE
H-3	3.85E-02	9.00E-03
C-14	1.76E-01	4.20E-02
Cr-51	9.04E+01	2.14E+01
Mn-54	4.57E+01	1.08E+01
Fe-55	6.35E+01	1.50E+01
Co-58	1.22E+01	2.88E+00
Fe-59	2.82E+00	6.68E-01
Co-60	1.61E+02	3.81E+01
Ni-63	3.77E+00	8.92E-01
Zn-65	3.34E+00	7.90E-01
Sr-89	4.37E-01	1.03E-01
Sr-90	1.81E-01	4.30E-02
Nb-95	5.53E-01	1.31E-01
Tc-99	4.53E-04	<1.00E-03
Ag-110m	6.62E-01	1.57E-01
I-129	1.54E-02	4.00E-03
I-131	1.60E+00	3.78E-01
Cs-134	4.10E+00	9.70E-01
Cs-137	2.17E+01	5.13E+00
Ba-140	7.73E+00	1.83E+00
La-140	1.30E-01	3.10E-02
Ce-141	8.24E-01	1.95E-01
Ce-144	1.95E+00	4.60E-01
Pu-238	1.16E-03	<1.00E-03
Pu-239/240	1.71E-03	<1.00E-03
Am-241	2.42E-03	<1.00E-03
Pu-241	2.09E-01	4.90E-02
Cm-243/244	6.79E-05	<1.00E-03
TOTAL	4.23E+02	1.00E+02

TABLE 3 (Continued)

b. Dry compressible waste, contaminated equipment, etc.

NUCLIDE NAME	CURIES	PERCENT ABUNDANCE
H-3	7.25E-04	1.00E-02
C-14	1.45E-03	2.00E-02
Cr-51	4.81E-01	6.65E+00
Mn-54	2.11E-01	2.92E+00
Fe-55	2.97E+00	4.11E+01
Co-57	7.25E-04	1.00E-02
Co-58	1.37E-01	1.89E+00
Fe-59	4.57E-02	6.31E-01
Ni-59	1.45E-03	2.00E-02
Co-60	2.40E+00	3.32E+01
Ni-63	2.07E-01	2.86E+00
Zn-65	2.54E-02	3.51E-01
Sr-89	3.63E-03	5.01E-02
Sr-90	6.53E-03	9.02E-02
Tc-99	1.45E-03	2.00E-02
Ag-110m	7.25E-04	1.00E-02
Sb-124	2.90E-03	4.01E-02
I-129	7.25E-04	1.00E-02
Cs-134	1.02E-02	1.40E-01
Cs-137	6.60E-01	9.13E+00
Ce-144	2.83E-02	3.91E-01
Pu-238	7.25E-04	1.00E-02
Pu-239/240	7.25E-04	1.00E-02
Am-241	7.25E-04	1.00E-02
Pu-241	3.19E-02	4.41E-01
Cm-242	7.25E-04	1.00E-02
Cm-243/244	7.25E-04	1.00E-02
TOTAL	7.23E+00	1.00E+02

c. Irradiated components, control rods, etc.

NUCLIDE NAME	CURIES	PERCENT ABUNDANCE
Total	0.000	N/A

d. Other (describe miscellaneous low-level waste).

NUCLIDE NAME	CURIES	PERCENT ABUNDANCE
Total	0.000	N/A

TABLE 3 (Continued)

3. SOLID WASTE DISPOSITION

Number of Shipments	Mode Of Transportation	Destination
18	Tractor-Trailer	CNSI, Barnwell, SC
6	Tractor-Trailer	SEG, Oak Ridge, TN+
2	Tractor-Trailer	Quadrex, Oak Ridge,TN*
2	Tractor-Trailer	Alaron, Wampum, PA ++

\+ Contaminated wastes are shipped to Scientific Ecology Group, Oak Ridge TN for volume reduction processes. After processing the remaining wastes are shipped to either Chem Nuclear Systems Inc., Barnwell, SC or U.S. Ecology Inc., Beatty, Nevada for burial under Boston Edison's burial allocation.

* Contaminated wastes are shipped to Quadrex Corp., Oak Ridge, TN; for volume reduction/salvage. After processing the remaining wastes are shipped to Chem Nuclear Systems Inc., Barnwell, SC for burial under Boston Edison's burial allocation.

++ Contaminated wastes are shipped to Alaron Corp., Wampum, PA; for volume reduction/salvage. After processing the remaining wastes they are shipped to Barnwell, SC for burial under Boston Edison's burial allocation.

4. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode Of Transportation	Destination
NONE	N/A	N/A

4. METEOROLOGICAL DATA

Meteorological data (Reference 3) for the period July 1 to December 31, 1991 is given in Tables 4A-1 and 4A-2 in the standard joint frequency distribution format as given in NRC Regulatory Guide 1.21.

The predominant wind direction was from the south-southwest, which occurred with a frequency of about 15% during this period. The predominant wind speed range at the 33 foot sensor was 4 to 7 mph, which occurred with a frequency of 55% during this period. The predominant wind speed range at the 220 foot sensor was 13 to 18 mph, which occurred approximately 35% of the time. The predominant stability class was stability class E, which occurred about 37% of the time during this period.

There were a few instances where the data recorded by the 220 foot tower were not continuous. Typically, data losses were due to loss of power, malfunction of the sensors, and/or malfunction of the digital data loggers. The net result is that the data recovery for the period of July through December 1991 was 93.7% on the 33 foot elevation and 93.0% on the 220 foot elevation of the 220 foot meteorological tower at Pilgrim Station.

When averaged over the entire period of January-December 1991, the annual joint data recovery was 95.6% at the 33 foot level and 95.2% at the 220 foot level. This exceeds the 90% or greater annual data recovery goal specified in Regulatory Guide 1.23.

TABLE 4A-1

DISTRIBUTION OF WIND DIRECTIONS AND SPEEDS FOR THE 33 FT. LEVEL OF THE 220 FT. TOWER

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 14.00

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	10	5	2	1	0	1	0	0	0	1	0	0	0	3	1	2	0	26
(1)	3.42	1.71	.68	.34	.00	.34	.00	.00	.00	.34	.00	.00	.00	1.03	.34	.68	.00	8.90
(2)	.48	.24	.10	.05	.00	.05	.00	.00	.00	.05	.00	.00	.00	.14	.05	.10	.00	1.25
4-7	27	33	26	26	9	2	1	0	4	15	21	18	20	13	8	12	0	235
(1)	9.25	11.30	8.90	8.90	3.08	.68	.34	.00	1.37	5.14	7.19	6.16	6.85	4.45	2.74	4.11	.00	80.48
(2)	1.29	1.58	1.25	1.25	.43	.10	.05	.00	.19	.72	1.01	.86	.96	.62	.38	.58	.00	11.27
8-12	4	0	0	0	0	0	0	0	2	19	4	1	0	0	0	0	0	30
(1)	1.37	.00	.00	.00	.00	.00	.00	.00	.68	6.51	1.37	.34	.00	.00	.00	.00	.00	10.27
(2)	.19	.00	.00	.00	.00	.00	.00	.00	.10	.91	.19	.05	.00	.00	.00	.00	.00	1.44
13-18	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00	.00	.00	.00	.00	.34
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.05
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	41	38	28	27	9	3	1	0	6	36	25	19	20	16	9	14	0	292
(1)	14.04	13.01	9.59	9.25	3.08	1.03	.34	.00	2.05	12.33	8.56	6.51	6.85	5.48	3.08	4.79	.00	100.00
(2)	1.97	1.82	1.34	1.29	.43	.14	.05	.00	.29	1.73	1.20	.91	.96	.77	.43	.67	.00	14.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 3.50

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	1.37	.00	.00	.00	.00	.00	.00	.00	.00	1.37
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05
C-3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	5	0	9
(1)	.00	1.37	.00	.00	1.37	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.74	6.85	.00	12.33
(2)	.00	.05	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.24	.00	.43
4-7	0	2	3	4	1	3	0	1	5	3	8	6	10	4	0	4	0	54
(1)	.00	2.74	4.11	5.48	1.37	4.11	.00	1.37	6.85	4.11	10.96	8.22	13.70	5.48	.00	5.48	.00	73.97
(2)	.00	.10	.14	.19	.05	.14	.00	.05	.24	.14	.38	.29	.48	.19	.00	.19	.00	2.59
8-12	0	0	0	0	0	0	0	0	1	6	2	0	0	0	0	0	0	9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	1.37	8.22	2.74	.00	.00	.00	.00	.00	.00	12.33
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.05	.29	.10	.00	.00	.00	.00	.00	.00	.43
13-18	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	0	3	3	4	2	3	0	1	7	9	10	6	10	4	2	9	0	73
(1)	.00	4.11	4.11	5.48	2.74	4.11	.00	1.37	9.59	12.33	13.70	8.22	13.70	5.48	2.74	12.33	.00	100.00
(2)	.00	.14	.14	.19	.10	.14	.00	.05	.34	.43	.48	.29	.48	.19	.10	.43	.00	3.50

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 2.45

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	1	2	1	1	0	0	0	0	0	0	0	0	1	0	2	1	0	9
(1)	1.96	3.92	1.96	1.96	.00	.00	.00	.00	.00	.00	.00	.00	1.96	.00	3.92	1.96	.00	17.65
(2)	.05	.10	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.10	.05	.00	.43
4-7	0	2	4	2	4	1	1	0	2	5	7	4	1	2	1	0	0	36
(1)	.00	3.92	7.84	3.92	7.84	1.96	1.96	.00	3.92	9.80	13.73	7.84	1.96	3.92	1.96	.00	.00	70.59
(2)	.00	.10	.19	.10	.19	.05	.05	.00	.10	.24	.34	.19	.05	.10	.05	.00	.00	1.73
8-12	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	6
(1)	.00	.00	.00	.00	.00	.00	.00	.00	1.96	9.80	.00	.00	.00	.00	.00	.00	.00	11.76
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.05	.24	.00	.00	.00	.00	.00	.00	.00	.29
13-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	1	4	5	3	4	1	1	0	3	10	7	4	2	2	3	1	0	51
(1)	1.96	7.84	9.80	5.88	7.84	1.96	1.96	.00	5.88	19.61	13.73	7.84	3.92	3.92	5.88	1.96	.00	100.00
(2)	.05	.19	.24	.14	.19	.05	.05	.00	.14	.48	.34	.19	.10	.10	.14	.05	.00	2.45

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-1 (continued)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 14.10

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	7	4	8	8	2	8	11	6	0	5	1	0	7	5	2	6	0	80
(1)	2.38	1.36	2.72	2.72	.68	2.72	3.74	2.04	.00	1.70	.34	.00	2.38	1.70	.68	2.04	.00	27.21
(2)	.34	.19	.38	.38	.10	.38	.53	.29	.00	.24	.05	.00	.34	.24	.10	.29	.00	3.84
4-7	4	4	13	7	14	12	1	2	21	44	16	12	6	3	1	0	0	160
(1)	1.36	1.36	4.42	2.38	4.76	4.08	.34	.68	7.14	14.97	5.44	4.08	2.04	1.02	.34	.00	.00	54.42
(2)	.19	.19	.62	.34	.67	.58	.05	.10	1.01	2.11	.77	.58	.29	.14	.05	.00	.00	7.67
8-12	1	0	0	0	0	0	0	0	1	39	7	2	0	0	1	3	0	54
(1)	.34	.00	.00	.00	.00	.00	.00	.00	.34	13.27	2.38	.68	.00	.00	.34	1.02	.00	18.37
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.05	1.87	.34	.10	.00	.00	.05	.14	.00	2.59
13-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	12	8	21	15	16	20	12	8	22	88	24	14	13	8	4	9	0	294
(1)	4.08	2.72	7.14	5.10	5.44	6.80	4.08	2.72	7.48	29.93	8.16	4.76	4.42	2.72	1.36	3.06	.00	100.00
(2)	.58	.38	1.01	.72	.77	.96	.58	.38	1.06	4.22	1.15	.67	.62	.38	.19	.43	.00	14.10

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-1 (continued)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 36.31

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	2	0	1	0	0	2	0	0	1	1	0	1	0	0	9
(1)	.13	.00	.00	.26	.00	.13	.00	.00	.26	.00	.00	.13	.13	.00	.13	.00	.00	1.19
(2)	.05	.00	.00	.10	.00	.05	.00	.00	.10	.00	.00	.05	.05	.00	.05	.00	.00	.43
C-3	4	10	14	5	10	18	21	23	20	6	8	13	21	15	14	7	0	229
(1)	.53	1.32	1.85	.66	1.32	2.38	2.77	3.04	2.64	.79	1.06	1.72	2.77	1.98	1.85	.92	.00	30.25
(2)	.19	.48	.67	.24	.48	.86	1.01	1.10	.96	.29	.38	.62	1.01	.72	.67	.34	.00	10.98
4-7	4	13	12	8	12	19	6	13	48	123	46	45	14	8	14	17	0	407
(1)	.53	1.72	1.59	1.06	1.59	2.51	.79	1.72	6.34	16.25	6.08	5.94	1.85	1.06	1.85	2.25	.00	53.76
(2)	.19	.62	.58	.38	.58	.91	.29	.62	2.30	5.90	2.21	2.16	.67	.38	.67	.82	.00	19.52
8-12	0	3	0	0	0	0	0	2	2	10	25	1	0	0	7	1	0	111
(1)	.00	.40	.00	.00	.00	.00	.00	.26	.26	9.25	3.30	.13	.00	.00	.92	.13	.00	14.66
(2)	.00	.14	.00	.00	.00	.00	.00	.10	.10	3.36	1.20	.05	.00	.00	.34	.05	.00	5.32
13-18	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.13
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.05
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	9	26	26	40	22	38	27	38	72	199	80	60	36	23	36	25	0	757
(1)	1.19	3.43	3.43	5.28	2.91	5.02	3.57	5.02	9.51	26.29	10.57	7.93	4.76	3.04	4.76	3.30	.00	100.00
(2)	.43	1.25	1.25	1.92	1.06	1.82	1.29	1.82	3.45	9.54	3.84	2.88	1.73	1.10	1.73	1.20	.00	36.31

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 22.35

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	1	0	1	1	[illegible]	0	0	0	1	1	1	0	0	6
(1)	.00	.00	.00	.00	.21	.00	.21	.21	.00	.00	.00	.00	.21	.21	.21	.00	.00	1.29
(2)	.00	.00	.00	.00	.05	.00	.05	.05	.00	.00	.00	.00	.05	.05	.05	.00	.00	.29
C-3	4	1	4	4	8	7	2	7	20	9	7	17	14	17	20	13	0	154
(1)	.86	.21	.86	.86	1.72	1.50	.43	1.50	4.29	1.93	1.50	3.65	3.00	3.65	4.29	2.79	.00	33.05
(2)	.19	.05	.19	.19	.38	.34	.10	.34	.96	.43	.34	.82	.67	.82	.96	.62	.00	7.39
4-7	16	11	3	1	1	6	2	8	19	49	65	38	2	3	12	9	0	245
(1)	3.43	2.36	.64	.21	.21	1.29	.43	1.72	4.08	10.52	13.95	8.15	.43	.64	2.58	1.93	.00	52.58
(2)	.77	.53	.14	.05	.05	.29	.10	.38	.91	2.35	3.12	1.82	.10	.14	.58	.43	.00	11.75
8-12	0	1	0	0	0	0	0	3	4	28	21	0	0	0	0	0	0	57
(1)	.00	.21	.00	.00	.00	.00	.00	.64	.86	6.01	4.51	.00	.00	.00	.00	.00	.00	12.23
(2)	.00	.05	.00	.00	.00	.00	.00	.14	.19	1.34	1.01	.00	.00	.00	.00	.00	.00	2.73
13-18	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.43	.00	.00	.43	.00	.00	.00	.00	.00	.86
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.10	.00	.00	.00	.00	.00	.19
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	20	13	7	5	10	13	5	19	45	86	93	57	17	21	33	22	0	466
(1)	4.29	2.79	1.50	1.07	2.15	2.79	1.07	4.08	9.66	18.45	19.96	12.23	3.65	4.51	7.08	4.72	.00	100.00
(2)	.96	.62	.34	.24	.48	.62	.24	.91	2.16	4.12	4.46	2.73	.82	1.01	1.58	1.06	.00	22.35

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-1 (continued)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.29

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	1	0	;	1	0	0	0	1	0	1	0	0	0	5
(1)	.00	.00	.00	.00	.66	.00	.66	.66	.00	.00	.00	.66	.00	.66	.00	.00	.00	3.29
(2)	.00	.00	.00	.00	.05	.00	.05	.05	.00	.00	.00	.05	.00	.05	.00	.00	.00	.24
C-3	0	0	0	0	0	1	0	0	1	9	7	8	7	3	0	0	0	36
(1)	.00	.00	.00	.00	.00	.66	.00	.00	.66	5.92	4.61	5.26	4.61	1.97	.00	.00	.00	23.68
(2)	.00	.00	.00	.00	.00	.05	.00	.00	.05	.43	.34	.38	.34	.14	.00	.00	.00	1.73
4-7	5	3	0	0	0	0	0	0	0	6	64	8	0	1	0	0	0	87
(1)	3.29	1.97	.00	.00	.00	.00	.00	.00	.00	3.95	42.11	5.26	.00	.66	.00	.00	.00	57.24
(2)	.24	.14	.00	.00	.00	.00	.00	.00	.00	.29	3.07	.38	.00	.05	.00	.00	.00	4.17
8-12	0	0	0	0	1	0	0	0	0	7	12	0	0	0	0	0	0	20
(1)	.00	.00	.00	.00	.66	.00	.00	.00	.00	4.61	7.89	.00	.00	.00	.00	.00	.00	13.16
(2)	.00	.00	.00	.00	.05	.00	.00	.00	.00	.34	.58	.00	.00	.00	.00	.00	.00	.96
13-18	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.66	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.66
(2)	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
19-24	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
(1)	.00	.00	.00	.00	.66	.66	.00	.66	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.97
(2)	.00	.00	.00	.00	.05	.05	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	5	3	0	0	4	2	1	2	1	22	83	17	7	5	0	0	0	152
(1)	3.29	1.97	.00	.00	2.63	1.32	.66	1.32	.66	14.47	54.61	11.18	4.61	3.29	.00	.00	.00	100.00
(2)	.24	.14	.00	.00	.19	.10	.05	.10	.05	1.06	3.98	.82	.34	.24	.00	.00	.00	7.29

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) * 100.00

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	2	2	1	2	2	3	0	0	2	2	2	2	0	0	21
(1)	.05	.00	.00	.10	.10	.05	.10	.10	.14	.00	.00	.10	.10	.10	.10	.00	.00	1.01
(2)	.05	.00	.00	.10	.10	.05	.10	.10	.14	.00	.00	.10	.10	.10	.10	.00	.00	1.01
0-3	26	23	29	39	21	35	34	36	41	30	23	38	50	43	41	34	0	543
(1)	1.25	1.10	1.39	1.87	1.01	1.68	1.63	1.73	1.97	1.44	1.10	1.82	2.40	2.06	1.97	1.63	.00	26.04
(2)	1.25	1.10	1.39	1.87	1.01	1.68	1.63	1.73	1.97	1.44	1.10	1.82	2.40	2.06	1.97	1.63	.00	26.04
4-7	56	68	61	53	41	43	11	24	99	245	227	131	53	34	36	42	0	1224
(1)	2.69	3.26	2.93	2.54	1.97	2.06	.53	1.15	4.75	11.75	10.89	6.28	2.54	1.63	1.73	2.01	.00	58.71
(2)	2.69	3.26	2.93	2.54	1.97	2.06	.53	1.15	4.75	11.75	10.89	6.28	2.54	1.63	1.73	2.01	.00	58.71
8-12	5	4	0	0	1	0	0	5	11	174	71	4	0	0	8	4	0	287
(1)	.24	.19	.00	.00	.05	.00	.00	.24	.53	8.35	3.41	.19	.00	.00	.38	.19	.00	13.76
(2)	.24	.19	.00	.00	.05	.00	.00	.24	.53	8.35	3.41	.19	.00	.00	.38	.19	.00	13.76
13-18	0	0	0	0	1	0	0	0	2	1	1	2	0	0	0	0	0	7
(1)	.00	.00	.00	.00	.05	.00	.00	.00	.10	.05	.05	.10	.00	.00	.00	.00	.00	.34
(2)	.00	.00	.00	.00	.05	.00	.00	.00	.10	.05	.05	.10	.00	.00	.00	.00	.00	.34
19-24	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
(1)	.00	.00	.00	.00	.05	.05	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
(2)	.00	.00	.00	.00	.05	.05	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	88	95	90	94	67	80	47	68	156	450	322	177	105	79	87	80	0	2085
(1)	4.22	4.56	4.32	4.51	3.21	3.84	2.25	3.26	7.48	21.58	15.44	8.49	5.04	3.79	4.17	3.84	.00	100.00
(2)	4.22	4.56	4.32	4.51	3.21	3.84	2.25	3.26	7.48	21.58	15.44	8.49	5.04	3.79	4.17	3.84	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 5.60

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0-3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5
(1)	.87	.87	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.61	.00	.00	4.35
(2)	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.00	.24
4-7	8	8	2	3	0	8	1	0	0	4	1	0	12	11	12	11	0	81
(1)	6.96	6.96	1.74	2.61	.00	6.96	.87	.00	.00	3.48	.87	.00	10.43	9.57	10.43	9.57	.00	70.43
(2)	.39	.39	.10	.15	.00	.39	.05	.00	.00	.19	.05	.00	.58	.54	.58	.54	.00	3.94
8-12	1	2	1	0	0	1	0	0	0	3	0	0	0	6	6	1	0	21
(1)	.87	1.74	.87	.00	.00	.87	.00	.00	.00	2.61	.00	.00	.00	5.22	5.22	.87	.00	18.26
(2)	.05	.10	.05	.00	.00	.05	.00	.00	.00	.15	.00	.00	.00	.29	.29	.05	.00	1.02
13-18	0	7	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8
(1)	.00	6.09	.00	.00	.00	.00	.00	.00	.00	.87	.00	.00	.00	.00	.00	.00	.00	6.96
(2)	.00	.34	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.39
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	10	18	3	3	0	9	1	0	0	8	1	0	12	17	21	12	0	115
(1)	8.70	15.65	2.61	2.61	.00	7.83	.87	.00	.00	6.96	.87	.00	10.43	14.78	18.26	10.43	.00	100.00
(2)	.49	.88	.15	.15	.00	.44	.05	.00	.00	.39	.05	.00	.58	.83	1.02	.58	.00	5.60

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) * 3.12

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	5
(1)	3.13	1.56	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.56	1.56	.00	7.81
(2)	.10	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.24
4-7	0	1	1	0	1	1	0	0	3	3	5	0	0	6	2	2	0	25
(1)	.00	1.56	1.56	.00	1.56	1.56	.00	.00	4.69	4.69	7.81	.00	.00	9.38	3.13	3.13	.00	39.06
(2)	.00	.05	.05	.00	.05	.05	.00	.00	.15	.15	.24	.00	.00	.29	.10	.10	.00	1.22
8-12	0	6	2	0	0	0	0	0	0	10	2	1	1	4	1	2	0	29
(1)	.00	9.38	3.13	.00	.00	.00	.00	.00	.00	15.63	3.13	1.56	1.56	6.25	1.56	3.13	.00	45.31
(2)	.00	.29	.10	.00	.00	.00	.00	.00	.00	.49	.10	.05	.05	.19	.05	.10	.00	1.41
13-18	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
(1)	1.56	6.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.81
(2)	.05	.19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	3	12	3	0	1	1	0	0	3	13	7	1	1	10	4	5	0	64
(1)	4.69	18.75	4.69	.00	1.56	1.56	.00	.00	4.69	20.31	10.94	1.56	1.56	15.63	6.25	7.81	.00	100.00
(2)	.15	.58	.15	.00	.05	.05	.00	.00	.15	.63	.34	.05	.05	.49	.19	.24	.00	3.12

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

* C= CALM (WIND SPEED LESS THAN OR EQUAL TO .9% MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) * 3.65

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0-3	1	1	1	0	0	0	0	0	0	0	1	0	0	3	1	0	0	8
(1)	1.33	1.33	1.33	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	4.00	1.33	.00	.00	10.67
(2)	.05	.05	.05	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.15	.05	.00	.00	.39
4-7	0	1	0	3	0	1	3	0	4	2	3	1	2	5	6	0	0	31
(1)	.00	1.33	.00	4.00	.00	1.33	4.00	.00	5.33	2.67	4.00	1.33	2.67	6.67	8.00	.00	.00	41.33
(2)	.00	.05	.00	.15	.00	.05	.15	.00	.19	.10	.15	.05	.10	.24	.29	.00	.00	1.51
8-12	1	3	2	0	0	0	0	0	0	1	2	6	6	3	0	1	0	25
(1)	1.33	4.00	2.67	.00	.00	.00	.00	.00	.00	1.33	2.67	8.00	8.00	4.00	.00	1.33	.00	33.33
(2)	.05	.15	.10	.00	.00	.00	.00	.00	.00	.05	.10	.29	.29	.15	.00	.05	.00	1.22
13-18	1	6	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10
(1)	1.33	8.00	2.67	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	.00	13.33
(2)	.05	.29	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.49
19-24	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	1.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.33
(2)	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	3	12	5	3	0	1	3	0	4	3	6	7	8	12	7	1	0	75
(1)	4.00	16.00	6.67	4.00	.00	1.33	4.00	.00	5.33	4.00	8.00	9.33	10.67	16.00	9.33	1.33	.00	100.00
(2)	.15	.58	.24	.15	.00	.05	.15	.00	.19	.15	.29	.34	.39	.58	.34	.05	.00	3.65

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

* C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 24.73

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0-3	2	3	4	0	1	0	1	3	0	0	1	2	5	3	6	3	0	34
(1)	.39	.59	.79	.00	.20	.00	.20	.59	.00	.00	.20	.39	.98	.59	1.18	.59	.00	6.69
(2)	.10	.15	.19	.00	.05	.00	.05	.15	.00	.00	.05	.10	.24	.15	.29	.15	.00	1.66
4-7	5	3	1	6	5	2	10	1	16	12	16	13	28	28	28	6	0	180
(1)	.98	.59	.20	1.18	.98	.39	1.97	.20	3.15	2.36	3.15	2.56	5.51	5.51	5.51	1.18	.00	35.43
(2)	.24	.15	.05	.29	.24	.10	.49	.05	.78	.58	.78	.63	1.36	1.36	1.36	.29	.00	8.76
8-12	2	35	9	0	0	0	2	2	6	21	9	4	37	40	47	4	0	218
(1)	.39	6.89	1.77	.00	.00	.00	.39	.39	1.18	4.13	1.77	.79	7.28	7.87	9.25	.79	.00	42.91
(2)	.10	1.70	.44	.00	.00	.00	.10	.10	.29	1.02	.44	.19	1.80	1.95	2.29	.19	.00	10.61
13-18	4	37	7	2	0	0	0	0	0	2	2	0	10	3	2	1	0	70
(1)	.79	7.28	1.38	.39	.00	.00	.00	.00	.00	.39	.39	.00	1.97	.59	.39	.20	.00	13.78
(2)	.19	1.80	.34	.10	.00	.00	.00	.00	.00	.10	.10	.00	.49	.15	.10	.05	.00	3.41
19-24	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
(1)	.00	.98	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.18
(2)	.00	.24	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.29
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	13	83	21	9	6	2	13	6	22	35	28	19	80	74	83	14	0	500
(1)	2.56	16.34	4.13	1.77	1.18	.39	2.56	1.18	4.33	6.89	5.51	3.74	15.75	14.57	16.34	2.76	.00	100.00
(2)	.63	4.04	1.02	.44	.29	.10	.63	.29	1.07	1.70	1.36	.93	3.89	3.60	4.04	.68	.00	24.73

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 38.27

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.13	.00	.00	.25
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05	.00	.00	.10
C-3	3	7	3	1	0	6	4	8	6	11	12	12	3	11	11	4	0	102
(1)	.38	.89	.38	.13	.00	.76	.51	1.02	.76	1.40	1.53	1.53	.38	1.40	1.40	.51	.00	12.98
(2)	.15	.34	.15	.05	.00	.29	.19	.39	.29	.54	.58	.58	.15	.54	.54	.19	.00	4.97
4-7	7	9	8	3	3	10	21	40	44	35	52	92	78	39	31	17	0	489
(1)	.89	1.15	1.02	.38	.38	1.27	2.67	5.09	5.60	4.45	6.62	11.70	9.92	4.96	3.94	2.16	.00	62.21
(2)	.34	.44	.39	.15	.15	.49	1.02	1.95	2.14	1.70	2.53	4.48	3.80	1.90	1.51	.83	.00	23.81
8-12	2	9	5	0	0	0	3	0	6	45	34	23	20	11	11	2	0	171
(1)	.25	1.15	.64	.00	.00	.00	.38	.00	.76	5.73	4.33	2.93	2.54	1.40	1.40	.25	.00	21.76
(2)	.10	.44	.24	.00	.00	.00	.15	.00	.29	2.19	1.66	1.12	.97	.54	.54	.10	.00	8.33
13-18	1	7	0	2	6	2	0	0	0	1	0	0	0	0	0	0	0	19
(1)	.13	.89	.00	.25	.76	.25	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	2.42
(2)	.05	.34	.00	.10	.29	.10	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.93
19-24	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
(1)	.00	.38	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.38
(2)	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	13	35	16	6	9	18	28	48	57	92	98	127	101	61	54	23	0	786
(1)	1.65	4.45	2.04	.76	1.15	2.29	3.56	6.11	7.25	11.70	12.47	16.16	12.85	7.76	6.87	2.93	.00	100.00
(2)	.63	1.70	.78	.29	.44	.88	1.36	2.34	2.78	4.48	4.77	6.18	4.92	2.97	2.63	1.12	.00	38.27

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
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C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 20.98

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	0	0	0	1	0	2	0	0	0	1	1	0	1	0	7
(1)	.23	.00	.00	.00	.00	.00	.23	.00	.46	.00	.00	.00	.23	.23	.00	.23	.00	1.62
(2)	.05	.00	.00	.00	.00	.00	.05	.00	.10	.00	.00	.00	.05	.05	.00	.05	.00	.34
C-3	1	1	1	4	1	1	5	13	9	11	13	21	6	10	3	0	0	100
(1)	.23	.23	.23	.93	.23	.23	1.16	3.02	2.09	2.55	3.02	4.87	1.39	2.32	.70	.00	.00	23.20
(2)	.05	.05	.05	.19	.05	.05	.24	.63	.44	.54	.63	1.02	.29	.49	.15	.00	.00	4.87
4-7	10	3	10	5	1	2	5	17	33	23	37	32	9	4	5	9	0	205
(1)	2.32	.70	2.32	1.16	.23	.46	1.16	3.94	7.66	5.34	8.58	7.42	2.09	.93	1.16	2.09	.00	47.56
(2)	.49	.15	.49	.24	.05	.10	.24	.83	1.61	1.12	1.80	1.56	.44	.19	.24	.44	.00	9.98
8-12	3	9	0	0	0	1	4	2	1	10	22	12	1	2	1	2	0	70
(1)	.70	2.09	.00	.00	.00	.23	.93	.46	.23	2.32	5.10	2.78	.23	.46	.23	.46	.00	16.24
(2)	.15	.44	.00	.00	.00	.05	.19	.10	.05	.49	1.07	.58	.05	.10	.05	.10	.00	3.41
13-18	0	26	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
(1)	.00	6.03	2.78	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	8.82
(2)	.00	1.27	.58	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.85
19-24	0	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
(1)	.00	1.86	.70	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.55
(2)	.00	.39	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.54
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	15	47	26	9	2	4	15	32	45	44	72	65	17	17	9	12	0	431
(1)	3.48	10.90	6.03	2.09	.46	.93	3.48	7.42	10.44	10.21	16.71	15.08	3.94	3.94	2.09	2.78	.00	100.00
(2)	.73	2.29	1.27	.44	.10	.19	.73	1.56	2.19	2.14	3.51	3.16	.83	.83	.44	.58	.00	20.98

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C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 3.65

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0-3	0	0	0	0	0	0	0	1	1	2	1	1	3	0	0	0	0	9
(1)	.00	.00	.00	.00	.00	.00	.00	1.33	1.33	2.67	1.33	1.33	4.00	.00	.00	.00	.00	12.00
(2)	.00	.00	.00	.00	.00	.00	.00	.05	.05	.10	.05	.05	.15	.00	.00	.00	.00	.44
4-7	0	0	0	0	0	0	1	0	1	4	13	8	1	0	0	0	0	28
(1)	.00	.00	.00	.00	.00	.00	1.33	.00	1.33	5.33	17.33	10.67	1.33	.00	.00	.00	.00	37.33
(2)	.00	.00	.00	.00	.00	.00	.05	.00	.05	.19	.63	.39		.00	.00	.00	.00	1.36
8-12	1	6	0	0	0	0	0	0	0	0	11	4	0	0	0	1	0	23
(1)	1.33	8.00	.00	.00	.00	.00	.00	.00	.00	.00	14.67	5.33	.00	.00	.00	1.33	.00	30.67
(2)	.05	.29	.00	.00	.00	.00	.00	.00	.00	.00	.54	.19	.00	.00	.00	.05	.00	1.12
13-18	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
(1)	.00	20.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	20.00
(2)	.00	.73	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.73
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	1	21	0	0	0	0	1	1	2	6	25	13	4	0	0	1	0	75
(1)	1.33	28.00	.00	.00	.00	.00	1.33	1.33	2.67	8.00	33.33	17.33	5.33	.00	.00	1.33	.00	100.00
(2)	.05	1.02	.00	.00	.00	.00	.05	.05	.10	.29	1.22	.63	.19	.00	.00	.05	.00	3.65

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

0= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

33.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	0	0	0	1	0	3	0	0	0	1	1	1	1	0	9
(1)	.05	.00	.00	.00	.00	.00	.05	.00	.15	.00	.00	.00	.05	.05	.05	.05	.00	.44
(2)	.05	.00	.00	.00	.00	.00	.05	.00	.15	.00	.00	.00	.05	.05	.05	.05	.00	.44
0-3	10	14	9	5	2	7	10	25	16	24	28	36	17	27	25	8	0	263
(1)	.49	.68	.44	.24	.10	.34	.49	1.22	.78	1.17	1.36	1.75	.83	1.31	1.22	.39	.00	12.80
(2)	.49	.68	.44	.24	.10	.34	.49	1.22	.78	1.17	1.36	1.75	.83	1.31	1.22	.39	.00	12.80
4-7	30	25	22	20	10	24	41	58	101	83	127	146	130	93	84	45	0	1039
(1)	1.46	1.22	1.07	.97	.49	1.17	2.00	2.82	4.92	4.04	6.18	7.11	6.33	4.53	4.09	2.19	.00	50.58
(2)	1.46	1.22	1.07	.97	.49	1.17	2.00	2.82	4.92	4.04	6.18	7.11	6.33	4.53	4.09	2.19	.00	50.58
8-12	10	70	19	0	0	2	9	4	13	90	80	50	65	66	66	13	0	557
(1)	.49	3.41	.93	.00	.00	.10	.44	.19	.63	4.38	3.89	2.43	3.16	3.21	3.21	.63	.00	27.12
(2)	.49	3.41	.93	.00	.00	.10	.44	.19	.63	4.38	3.89	2.43	3.16	3.21	3.21	.63	.00	27.12
13-18	7	102	21	4	6	2	0	0	0	4	2	0	10	4	2	1	0	165
(1)	.34	4.97	1.02	.19	.29	.10	.00	.00	.00	.19	.10	.00	.49	.19	.10	.05	.00	8.03
(2)	.34	4.97	1.02	.19	.29	.10	.00	.00	.00	.19	.10	.00	.49	.19	.10	.05	.00	8.03
19-24	0	17	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	21
(1)	.00	.83	.15	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.02
(2)	.00	.83	.15	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.02
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	58	228	74	30	18	35	61	87	133	201	237	232	223	191	178	68	0	2054
(1)	2.82	11.10	3.60	1.46	.88	1.70	2.97	4.24	6.48	9.79	11.54	11.30	10.86	9.30	8.67	3.31	.00	100.00
(2)	2.82	11.10	3.60	1.46	.88	1.70	2.97	4.24	6.48	9.79	11.54	11.30	10.86	9.30	8.67	3.31	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-2

DISTRIBUTION OF WIND DIRECTIONS AND SPEEDS
FOR THE 220 FT. LEVEL OF THE 220 FT. TOWER

PILGRIM JUL91-SEP91 NET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 13.99

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
4-7	18	13	6	9	5	1	0	0	1	2	0	0	1	2	5	5	0	68
(1)	6.06	4.38	2.02	3.03	1.68	.34	.00	.00	.34	.67	.00	.00	.34	.67	1.68	1.68	.00	22.90
(2)	.85	.61	.28	.42	.24	.05	.00	.00	.05	.09	.00	.00	.05	.09	.24	.24	.00	3.20
8-12	19	3	13	7	10	4	2	0	4	7	11	17	3	11	1	15	0	127
(1)	6.40	1.01	4.38	2.36	3.37	1.35	.67	.00	1.35	2.36	3.70	5.72	1.01	3.70	.34	5.05	.00	42.76
(2)	.89	.14	.61	.33	.47	.19	.09	.00	.19	.33	.52	.80	.14	.52	.05	.71	.00	5.98
13-18	6	1	1	0	0	0	0	0	11	8	11	6	10	8	3	12	0	77
(1)	2.02	.34	.34	.00	.00	.00	.00	.00	3.70	2.69	3.70	2.02	3.37	2.69	1.01	4.04	.00	25.93
(2)	.28	.05	.05	.00	.00	.00	.00	.00	.52	.38	.52	.28	.47	.38	.14	.57	.00	3.63
19-24	2	0	0	0	0	0	0	0	3	9	0	1	0	1	0	4	0	20
(1)	.67	.00	.00	.00	.00	.00	.00	.00	1.01	3.03	.00	.34	.00	.34	.00	1.35	.00	6.73
(2)	.09	.00	.00	.00	.00	.00	.00	.00	.14	.42	.00	.05	.00	.05	.00	.19	.00	.94
GT 24	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00	.00	.00	1.01	.00	1.35
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.14	.00	.19
ALL SPEEDS	46	17	20	16	15	5	2	0	19	27	22	24	14	22	9	39	0	297
(1)	15.49	5.72	6.73	5.39	5.05	1.68	.67	.00	6.40	9.09	7.41	8.08	4.71	7.41	3.03	13.13	.00	100.00
(2)	2.17	.80	.94	.75	.71	.24	.09	.00	.89	1.27	1.04	1.13	.66	1.04	.42	1.84	.00	13.99

(1) PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD
(2) PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 3.49

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
0-3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.35	.00	.00	.00	.00	.00	.00	1.35
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.05
4-7	3	1	2	3	2	0	0	0	0	0	0	0	0	2	3	1	0	17
(1)	4.05	1.35	2.70	4.05	2.70	.00	.00	.00	.00	.00	.00	.00	.00	2.70	4.05	1.35	.00	22.97
(2)	.14	.05	.09	.14	.09	.00	.00	.00	.00	.00	.00	.00	.00	.09	.14	.05	.00	.80
8-12	0	0	1	0	0	4	1	1	3	1	5	6	5	1	2	2	0	32
(1)	.00	.00	1.35	.00	.00	5.41	1.35	1.35	4.05	1.35	6.76	8.11	6.76	1.35	2.70	2.70	.00	43.24
(2)	.00	.00	.05	.00	.00	.19	.05	.05	.14	.05	.24	.28	.24	.05	.09	.09	.00	1.51
13-18	0	0	0	0	0	0	0	0	6	7	2	0	5	1	0	0	0	21
(1)	.00	.00	.00	.00	.00	.00	.00	.00	8.11	9.46	2.70	.00	6.76	1.35	.00	.00	.00	28.38
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.28	.33	.09	.00	.24	.05	.00	.00	.00	.99
19-24	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.35	.00	.00	1.35	.00	.00	.00	.00	2.70
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05	.00	.00	.00	.00	.09
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.35	.00	1.35
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.05
ALL SPEEDS	3	1	3	3	2	4	1	1	9	9	8	6	11	4	5	4	0	74
(1)	4.05	1.35	4.05	4.05	2.70	5.41	1.35	1.35	12.16	12.16	10.81	8.11	14.86	5.41	6.76	5.41	.00	100.00
(2)	.14	.05	.14	.14	.09	.19	.05	.05	.42	.42	.38	.28	.52	.19	.24	.19	.00	3.49

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-2 (continued)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 2.50

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.89	.00	.00	.00	1.89
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05
4-7	1	2	1	1	2	0	0	0	0	0	0	0	4	0	1	1	0	13
(1)	1.89	3.77	1.89	1.89	3.77	.00	.00	.00	.00	.00	.00	.00	7.55	.00	1.89	1.89	.00	24.53
(2)	.05	.09	.05	.05	.09	.00	.00	.00	.00	.00	.00	.00	.19	.00	.05	.05	.00	.61
8-12	0	1	2	0	0	5	0	0	3	2	2	3	1	1	1	2	0	23
(1)	.00	1.89	3.77	.00	.00	9.43	.00	.00	5.66	3.77	3.77	5.66	1.89	1.89	1.89	3.77	.00	43.40
(2)	.00	.05	.09	.00	.00	.24	.00	.00	.14	.09	.09	.14	.05	.05	.05	.09	.00	1.08
13-18	0	0	1	0	0	0	0	0	5	2	5	0	0	1	0	0	0	14
(1)	.00	.00	1.89	.00	.00	.00	.00	.00	9.43	3.77	9.43	.00	.00	1.89	.00	.00	.00	26.42
(2)	.00	.00	.05	.00	.00	.00	.00	.00	.24	.09	.24	.00	.00	.05	.00	.00	.00	.66
19-24	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	1.89	1.89	.00	.00	.00	.00	.00	.00	.00	3.77
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.09
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	1	3	4	1	2	5	0	0	9	5	7	3	5	3	2	3	0	53
(1)	1.89	5.66	7.55	1.89	3.77	9.43	.00	.00	16.98	9.43	13.21	5.66	9.43	5.66	3.77	5.66	.00	100.00
(2)	.05	.14	.19	.05	.09	.24	.00	.00	.42	.24	.33	.14	.24	.14	.09	.14	.00	2.50

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 NET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = [illegible]

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	1	3	3	0	0	0	0	0	0	0	1	0	1	1	1	0	11
(1)	.00	.33	1.00	1.00	.00	.00	.00	.00	.00	.00	.00	.33	.00	.33	.33	.33	.00	3.67
(2)	.00	.05	.14	.14	.00	.00	.00	.00	.00	.00	.00	.05	.00	.05	.05	.05	.00	.52
4-7	5	4	6	6	9	5	3	1	3	3	1	0	1	7	3	2	0	59
(1)	1.67	1.33	2.00	2.00	3.00	1.67	1.00	.33	1.00	1.00	.33	.00	.33	2.33	1.00	.67	.00	19.67
(2)	.24	.19	.28	.28	.42	.24	.14	.05	.14	.14	.05	.00	.05	.33	.14	.09	.00	2.78
8-12	8	1	5	2	6	15	17	4	16	12	5	9	2	5	0	1	0	108
(1)	2.67	.33	1.67	.67	2.00	5.00	5.67	1.33	5.33	4.00	1.67	3.00	.67	1.67	.00	.33	.00	36.00
(2)	.38	.05	.24	.09	.28	.71	.80	.19	.75	.57	.24	.42	.09	.24	.00	.05	.00	5.09
13-18	0	2	0	0	0	2	0	2	24	40	13	4	7	2	1	2	0	99
(1)	.00	.67	.00	.00	.00	.67	.00	.67	8.00	13.33	4.33	1.33	2.33	.67	.33	.67	.00	33.00
(2)	.00	.09	.00	.00	.00	.09	.00	.09	1.13	1.88	.61	.19	.33	.09	.05	.09	.00	4.66
19-24	0	0	0	0	0	0	0	0	0	12	0	2	0	1	0	3	0	18
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	.00	.67	.00	.33	.00	1.00	.00	6.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.57	.00	.09	.00	.05	.00	.14	.00	.85
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	5
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.33	1.33	.00	1.67
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.19	.00	.24
ALL SPEEDS	13	8	14	11	15	22	20	7	43	67	19	16	10	16	6	13	0	300
(1)	4.33	2.67	4.67	3.67	5.00	7.33	6.67	2.33	14.33	22.33	6.33	5.33	3.33	5.33	2.00	4.33	.00	100.00
(2)	.61	.38	.66	.52	.71	1.04	.94	.33	2.03	3.16	.89	.75	.47	.75	.28	.61	.00	14.13

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-2 (continued)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISYRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 35.99

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
(1)	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	.00	.26
(2)	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.09
C-3	2	2	3	5	1	1	0	1	0	2	2	1	1	3	1	1	0	26
(1)	.26	.26	.39	.65	.13	.13	.00	.13	.00	.26	.26	.13	.13	.39	.13	.13	.00	3.40
(2)	.09	.09	.14	.24	.05	.05	.00	.05	.00	.09	.09	.05	.05	.14	.05	.05	.00	1.22
4-7	2	4	6	10	16	14	13	3	6	4	4	4	4	5	5	5	0	105
(1)	.26	.52	.79	1.31	2.09	1.83	1.70	.39	.79	.52	.52	.52	.52	.65	.65	.65	.00	13.74
(2)	.09	.19	.28	.47	.75	.66	.61	.14	.28	.19	.19	.19	.19	.24	.24	.24	.00	4.95
8-12	4	12	10	11	15	21	17	10	19	15	11	12	10	22	6	10	0	205
(1)	.52	1.57	1.31	1.44	1.96	2.75	2.23	1.31	2.49	1.96	1.44	1.57	1.31	2.88	.79	1.31	.00	26.83
(2)	.19	.57	.47	.52	.71	.99	.80	.47	.89	.71	.52	.57	.47	1.04	.28	.47	.00	9.66
13-18	4	3	3	0	2	9	16	14	29	84	30	30	22	9	10	4	0	269
(1)	.52	.39	.39	.00	.26	1.18	2.09	1.83	3.80	10.99	3.93	3.93	2.88	1.18	1.31	.52	.00	35.21
(2)	.19	.14	.14	.00	.09	.42	.75	.66	1.37	3.96	1.41	1.41	1.04	.42	.47	.19	.00	12.67
19-24	3	0	0	0	0	0	1	3	5	95	12	1	2	1	16	2	0	141
(1)	.39	.00	.00	.00	.00	.00	.13	.39	.65	12.43	1.57	.13	.26	.13	2.09	.26	.00	18.46
(2)	.14	.00	.00	.00	.00	.00	.05	.14	.24	4.47	.57	.05	.09	.05	.75	.09	.00	6.64
GT 24	1	0	0	0	0	0	0	1	0	0	1	1	0	1	8	3	0	16
(1)	.13	.00	.00	.00	.00	.00	.00	.13	.00	.00	.13	.13	.00	.13	1.05	.39	.00	2.09
(2)	.05	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05	.05	.00	.05	.38	.14	.00	.75
ALL SPEEDS	16	21	22	26	34	46	47	32	59	200	60	49	39	41	46	26	0	764
(1)	2.09	2.75	2.88	3.40	4.45	6.02	6.15	4.19	7.72	26.18	7.85	6.41	5.10	5.37	6.02	3.40	.00	100.00
(2)	.75	.99	1.04	1.22	1.60	2.17	2.21	1.51	2.78	9.42	2.83	2.31	1.84	1.93	2.17	1.22	.00	35.99

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS P[illegible]
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PE[illegible]OD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 22.70

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00	.21
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.05
0-3	2	0	3	0	1	1	1	1	0	0	0	1	0	0	2	2	0	14
(1)	.41	.00	.62	.00	.21	.21	.21	.21	.00	.00	.00	.21	.00	.00	.41	.41	.00	2.90
(2)	.09	.00	.14	.00	.05	.05	.05	.05	.00	.00	.00	.05	.00	.00	.09	.09	.00	.66
4-7	4	2	3	6	2	5	5	3	5	4	6	4	3	4	9	8	0	73
(1)	.83	.41	.62	1.24	.41	1.04	1.04	.62	1.04	.83	1.24	.83	.62	.83	1.87	1.66	.00	15.15
(2)	.19	.09	.14	.28	.09	.24	.24	.14	.24	.19	.28	.19	.14	.19	.42	.38	.00	3.44
8-12	5	2	1	0	1	8	5	3	9	6	4	5	10	9	17	10	0	95
(1)	1.04	.41	.21	.00	.21	1.66	1.04	.62	1.87	1.24	.83	1.04	2.07	1.87	3.53	2.07	.00	19.71
(2)	.24	.09	.05	.00	.05	.38	.24	.14	.42	.28	.19	.24	.47	.42	.80	.47	.00	4.47
13-18	20	5	0	1	3	2	8	10	9	24	31	28	25	21	15	11	0	213
(1)	4.15	1.04	.00	.21	.62	.41	1.66	2.07	1.87	4.98	6.43	5.81	5.19	4.36	3.11	2.28	.00	44.19
(2)	.94	.24	.00	.05	.14	.09	.38	.47	.42	1.13	1.46	1.32	1.18	.99	.71	.52	.00	10.03
19-24	1	0	0	0	1	1	5	5	2	46	11	3	1	0	2	3	0	81
(1)	.21	.00	.00	.00	.21	.21	1.04	1.04	.41	9.54	2.28	.62	.21	.00	.41	.62	.00	16.80
(2)	.05	.00	.00	.00	.05	.05	.24	.24	.09	2.17	.52	.14	.05	.00	.09	.14	.00	3.82
GT 24	0	0	0	0	0	0	1	1	1	0	0	2	0	0	0	0	0	5
(1)	.00	.00	.00	.00	.00	.00	.21	.21	.21	.00	.00	.41	.00	.00	.00	.00	.00	1.04
(2)	.00	.00	.00	.00	.00	.00	.05	.05	.05	.00	.00	.09	.00	.00	.00	.00	.00	.24
ALL SPEEDS	32	9	7	7	8	17	25	23	26	80	52	43	39	34	45	35	0	482
(1)	6.64	1.87	1.45	1.45	1.66	3.53	5.19	4.77	5.39	16.60	10.79	8.92	8.09	7.05	9.34	7.26	.00	100.00
(2)	1.51	.42	.33	.33	.38	.80	1.18	1.08	1.22	3.77	2.45	2.03	1.84	1.60	2.12	1.65	.00	22.70

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.21

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
(1)	.65	.00	.00	.00	.00	.00	.00	.00	.00	.00	.65	.00	.00	.00	.00	.00	.00	1.31
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.09
C-3	0	1	1	0	1	0	0	1	1	1	0	0	0	1	1	1	0	9
(1)	.00	.65	.65	.00	.65	.00	.00	.65	.65	.65	.00	.00	.00	.65	.65	.65	.00	5.88
(2)	.00	.05	.05	.00	.05	.00	.00	.05	.05	.05	.00	.00	.00	.05	.05	.05	.00	.42
4-7	1	2	0	0	2	3	2	1	2	0	4	2	2	0	4	1	0	26
(1)	.65	1.31	.00	.00	1.31	1.96	1.31	.65	1.31	.00	2.61	1.31	1.31	.00	2.61	.65	.00	16.99
(2)	.05	.09	.00	.00	.09	.14	.09	.05	.09	.00	.19	.09	.09	.00	.19	.05	.00	1.22
8-12	0	0	0	0	0	0	0	2	4	14	4	9	11	3	5	1	0	53
(1)	.00	.00	.00	.00	.00	.00	.00	1.31	2.61	9.15	2.61	5.88	7.19	1.96	3.27	.65	.00	34.64
(2)	.00	.00	.00	.00	.00	.00	.00	.09	.19	.66	.19	.42	.52	.14	.24	.05	.00	2.50
13-18	3	0	0	0	0	0	0	0	0	4	15	13	5	3	1	0	0	44
(1)	1.96	.00	.00	.00	.00	.00	.00	.00	.00	2.61	9.80	8.50	3.27	1.96	.65	.00	.00	28.76
(2)	.14	.00	.00	.00	.00	.00	.00	.00	.00	.19	.71	.61	.24	.14	.05	.00	.00	2.07
19-24	4	0	0	0	0	0	0	0	0	3	6	0	0	0	0	1	0	14
(1)	2.61	.00	.00	.00	.00	.00	.00	.00	.00	1.96	3.92	.00	.00	.00	.00	.65	.00	9.15
(2)	.19	.00	.00	.00	.00	.00	.00	.00	.00	.14	.28	.00	.00	.00	.00	.05	.00	.66
GT 24	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0	0	0	5
(1)	.00	.00	.00	.65	1.31	.65	.00	.65	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.27
(2)	.00	.00	.00	.05	.09	.05	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
ALL SPEEDS	9	3	1	1	5	4	2	5	7	22	30	24	18	7	11	4	0	153
(1)	5.88	1.96	.65	.65	3.27	2.61	1.31	3.27	4.58	14.38	19.61	15.69	11.76	4.58	7.19	2.61	.00	100.00
(2)	.42	.14	.05	.05	.24	.19	.09	.24	.33	1.04	1.41	1.13	.85	.33	.52	.19	.00	7.21

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM JUL91-SEP91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) * 100.00

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0	5
(1)	.05	.00	.00	.00	.00	.05	.00	.00	.00	.00	.05	.00	.00	.00	.00	.09	.00	.24
(2)	.05	.00	.00	.00	.00	.05	.00	.00	.00	.00	.05	.00	.00	.00	.00	.09	.00	.24
C-3	5	4	10	8	3	2	1	3	1	3	3	3	1	6	5	5	0	63
(1)	.24	.19	.47	.38	.14	.09	.05	.14	.05	.14	.14	.14	.05	.28	.24	.24	.00	2.97
(2)	.24	.19	.47	.38	.14	.09	.05	.14	.05	.14	.14	.14	.05	.28	.24	.24	.00	2.97
4-7	34	28	24	35	38	28	23	8	17	13	15	10	15	20	30	23	0	361
(1)	1.60	1.32	1.13	1.65	1.79	1.32	1.08	.38	.80	.61	.71	.47	.71	.94	1.41	1.08	.00	17.00
(2)	1.60	1.32	1.13	1.65	1.79	1.32	1.08	.38	.80	.61	.71	.47	.71	.94	1.41	1.08	.00	17.00
8-12	36	19	32	20	32	57	42	20	58	57	42	61	42	52	32	41	0	643
(1)	1.70	.89	1.51	.94	1.51	2.68	1.98	.94	2.73	2.68	1.98	2.87	1.98	2.45	1.51	1.93	.00	30.29
(2)	1.70	.89	1.51	.94	1.51	2.68	1.98	.94	2.73	2.68	1.98	2.87	1.98	2.45	1.51	1.93	.00	30.29
13-18	33	11	5	1	5	13	24	26	84	169	107	81	74	45	30	29	0	737
(1)	1.55	.52	.24	.05	.24	.61	1.13	1.22	3.96	7.96	5.04	3.82	3.49	2.12	1.41	1.37	.00	34.72
(2)	1.55	.52	.24	.05	.24	.61	1.13	1.22	3.96	7.96	5.04	3.82	3.49	2.12	1.41	1.37	.00	34.72
19-24	10	0	0	0	1	1	6	8	11	167	29	7	4	3	18	13	0	278
(1)	.47	.00	.00	.00	.05	.05	.28	.38	.52	7.87	1.37	.33	.19	.14	.85	.61	.00	13.09
(2)	.47	.00	.00	.00	.05	.05	.28	.38	.52	7.87	1.37	.33	.19	.14	.85	.61	.00	13.09
GT 24	1	0	0	1	2	1	1	3	1	1	1	3	0	1	9	11	0	36
(1)	.05	.00	.00	.05	.09	.05	.05	.14	.05	.05	.05	.14	.00	.05	.42	.52	.00	1.70
(2)	.05	.00	.00	.05	.09	.05	.05	.14	.05	.05	.05	.14	.00	.05	.42	.52	.00	1.70
ALL SPEEDS	120	62	71	65	81	103	97	68	172	410	198	165	136	127	124	124	0	2123
(1)	5.65	2.92	3.34	3.06	3.82	4.85	4.57	3.20	8.10	19.31	9.33	7.77	6.41	5.98	5.84	5.84	.00	100.00
(2)	5.65	2.92	3.34	3.06	3.82	4.85	4.57	3.20	8.10	19.31	9.33	7.77	6.41	5.98	5.84	5.84	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 5.80

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4-7	3	1	1	2	0	0	0	0	0	0	0	0	0	1	4	1	0	13
(1)	2.61	.87	.87	1.74	.00	.00	.00	.00	.00	.00	.00	.00	.00	.87	3.48	.87	.00	11.30
(2)	.15	.05	.05	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.20	.05	.00	.66
8-12	6	0	0	0	1	1	0	0	3	1	1	2	4	5	2	3	0	29
(1)	5.22	.00	.00	.00	.87	.87	.00	.00	2.61	.87	.87	1.74	3.48	4.35	1.74	2.61	.00	25.22
(2)	.30	.00	.00	.00	.05	.05	.00	.00	.15	.05	.05	.10	.20	.25	.10	.15	.00	1.46
13-18	0	0	0	0	0	7	1	0	0	0	0	2	13	7	7	8	0	45
(1)	.00	.00	.00	.00	.00	6.09	.87	.00	.00	.00	.00	1.74	11.30	6.09	6.09	6.96	.00	39.13
(2)	.00	.00	.00	.00	.00	.35	.05	.00	.00	.00	.00	.10	.66	.35	.40	.00	.00	2.27
19-24	0	2	0	0	0	1	0	0	1	2	0	0	2	3	2	3	0	16
(1)	.00	1.74	.00	.00	.00	.87	.00	.00	.87	1.74	.00	.00	1.74	2.61	1.74	2.61	.00	13.91
(2)	.00	.10	.00	.00	.00	.05	.00	.00	.05	.10	.00	.00	.10	.15	.10	.15	.00	.81
GT 24	8	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	0	12
(1)	6.96	.00	.00	.00	.00	.00	.00	00	.00	.87	.00	.00	.00	1.74	.87	.00	.00	10.43
(2)	.40	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.10	.05	.00	.00	.61
ALL SPEEDS	17	3	1	2	1	9	1	0	4	4	1	4	19	18	16	15	0	115
(1)	14.78	2.61	.87	1.74	.87	7.83	.87	.00	3.48	3.48	.87	3.48	16.52	15.65	13.91	13.04	.00	100.00
(2)	.86	.15	.05	.10	.05	.45	.05	.00	.20	.20	.05	.20	.96	.91	.81	.76	.00	5.80

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
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C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 3.23

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4-7	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	6
(1)	1.56	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.56	3.13	3.13	.00	9.38
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.10	.10	.00	.30
8-12	0	1	0	0	1	0	0	0	3	1	3	0	0	2	1	1	0	13
(1)	.00	1.56	.00	.00	1.56	.00	.00	.00	4.69	1.56	4.69	.00	.00	3.13	1.56	1.56	.00	20.31
(2)	.00	.05	.00	.00	.05	.00	.00	.00	.15	.05	.15	.00	.00	.10	.05	.05	.00	.66
13-18	3	0	0	0	0	1	0	2	2	3	2	1	2	4	1	0	0	21
(1)	4.69	.00	.00	.00	.00	1.56	.00	3.13	3.13	4.69	3.13	1.56	3.13	6.25	1.56	.00	.00	32.81
(2)	.15	.00	.00	.00	.00	.05	.00	.10	.10	.15	.10	.05	.10	.20	.05	.00	.00	1.06
19-24	1	6	0	0	0	0	0	0	1	7	0	0	1	0	1	0	0	17
(1)	1.56	9.38	.00	.00	.00	.00	.00	.00	1.56	10.94	.00	.00	1.56	.00	1.56	.00	.00	26.56
(2)	.05	.30	.00	.00	.00	.00	.00	.00	.05	.35	.00	.00	.05	.00	.05	.00	.00	.86
GT 24	4	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	7
(1)	6.25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.13	1.56	.00	.00	10.94
(2)	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.05	.00	.00	.35
ALL SPEEDS	9	7	0	0	1	1	0	2	6	11	5	1	3	9	6	3	0	64
(1)	14.06	10.94	.00	.00	1.56	1.56	.00	3.13	9.38	17.19	7.81	1.56	4.69	14.06	9.38	4.69	.00	100.00
(2)	.45	.35	.00	.00	.05	.05	.00	.10	.30	.55	.25	.05	.15	.45	.30	.15	.00	3.23

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 3.63

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	1.39	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.39
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
4-7	1	0	1	1	0	0	0	0	0	0	1	0	1	3	3	0	0	11
(1)	1.39	.00	1.39	1.39	.00	.00	.00	.00	.00	.00	1.39	.00	1.39	4.17	4.17	.00	.00	15.28
(2)	.05	.00	.05	.05	.00	.00	.00	.00	.00	.00	.05	.00	.05	.15	.15	.00	.00	.55
8-12	0	0	0	0	2	1	0	0	5	1	2	0	2	3	2	0	0	18
(1)	.00	.00	.00	.00	2.78	1.39	.00	.00	6.94	1.39	2.78	.00	2.78	4.17	2.78	.00	.00	25.00
(2)	.00	.00	.00	.00	.10	.05	.00	.00	.25	.05	.10	.00	.10	.15	.10	.00	.00	.91
13-18	1	0	0	0	0	1	2	0	1	2	2	6	2	0	2	0	0	19
(1)	1.39	.00	.00	.00	.00	1.39	2.78	.00	1.39	2.78	2.78	8.33	2.78	.00	2.78	.00	.00	26.39
(2)	.05	.00	.00	.00	.00	.05	.10	.00	.05	.10	.10	.30	.10	.00	.10	.00	.00	.96
19-24	0	3	0	0	0	0	0	0	0	1	0	3	0	1	1	1	0	10
(1)	.00	4.17	.00	.00	.00	.00	.00	.00	.00	1.39	.00	4.17	.00	1.39	1.39	1.39	.00	13.89
(2)	.00	.15	.00	.00	.00	.00	.00	.00	.00	.05	.00	.15	.00	.05	.05	.05	.00	.50
GT 24	7	2	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	13
(1)	9.72	2.78	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.39	1.39	1.39	.00	1.39	.00	18.06
(2)	.35	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.05	.00	.05	.00	.66
ALL SPEEDS	10	5	1	1	2	2	2	0	6	4	5	10	6	8	8	2	0	72
(1)	13.89	6.94	1.39	1.39	2.78	2.78	2.78	.00	8.33	5.56	6.94	13.89	8.33	11.11	11.11	2.78	.00	100.00
(2)	.50	.25	.05	.05	.10	.10	.10	.00	.30	.20	.25	.50	.30	.40	.40	.10	.00	3.63

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

+ C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 23.66

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	0	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0	4
(1)	.00	.00	.00	.43	.00	.00	.00	.21	.00	.00	.21	.00	.00	.00	.00	.00	.00	.85
(2)	.00	.00	.00	.10	.00	.00	.00	.05	00	.00	.05	.00	.00	.00	.00	.00	.00	.20
4-7	1	3	1	2	2	0	1	1	0	1	2	2	6	3	4	1	0	30
(1)	.21	.64	.21	.43	.43	.00	.21	.21	.00	.21	.43	.43	1.28	.64	.85	.21	.00	6.40
(2)	.05	.15	.05	.10	.10	.00	.05	.05	.00	.05	.10	.10	.30	.15	.20	.05	.00	1.51
8-12	1	1	1	2	2	6	3	2	14	9	9	9	11	17	12	1	0	100
(1)	.21	.21	.21	.43	.43	1.28	.64	.43	2.99	1.92	1.92	1.92	2.35	3.62	2.56	.21	.00	21.32
(2)	.05	.05	.05	.10	.10	.30	.15	.10	.71	.45	.45	.45	.55	.86	.61	.05	.00	5.05
13-18	8	9	0	0	0	4	4	4	10	8	10	9	17	9	13	4	0	109
(1)	1.71	1.92	.00	.00	.00	.85	.85	.85	2.13	1.71	2.13	1.92	3.62	1.92	2.77	.85	.00	23.24
(2)	.40	.45	.00	.00	.00	.20	.20	.20	.50	.40	.50	.45	.86	.45	.66	.20	.00	5.50
19-24	7	25	0	0	0	2	0	2	4	19	1	4	18	43	15	2	0	142
(1)	1.49	5.33	.00	.00	.00	.43	.00	.43	.85	4.05	.21	.85	3.84	9.17	3.20	.43	.00	30.28
(2)	.35	1.26	.00	.00	.00	.10	.00	.10	.20	.96	.05	.20	.91	2.17	.76	.10	.00	7.16
GT 24	40	3	2	0	0	0	0	0	0	0	0	4	9	14	10	2	0	84
(1)	8.53	.64	.43	.00	.00	.00	.00	.00	.00	.00	.00	.85	1.92	2.99	2.13	.43	.00	17.91
(2)	2.02	.15	.10	.00	.00	.00	.00	.00	.00	.00	.00	.20	.45	.71	.50	.10	.00	4.24
ALL SPEEDS	57	41	4	6	4	12	8	10	28	37	23	28	61	86	54	10	0	469
(1)	12.15	8.74	.85	1.28	.85	2.56	1.71	2.13	5.97	7.89	4.90	5.97	13.01	18.34	11.51	2.13	.00	100.00
(2)	2.88	2.07	.20	.30	.20	.61	.40	.50	1.41	1.87	1.16	1.41	3.08	4.34	2.72	.50	.00	23.66

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

\+ C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 38.70

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	1	2	0	1	0	2	1	0	0	1	0	1	1	1	0	0	0	11
(1)	.13	.26	.00	.13	.00	.26	.13	.00	.00	.13	.00	.13	.13	.13	.00	.00	.00	1.43
(2)	.05	.10	.00	.05	.00	.10	.05	.00	.00	.05	.00	.05	.05	.05	.00	.00	.00	.55
4-7	2	3	2	0	2	2	7	7	2	4	5	4	4	1	1	2	0	48
(1)	.26	.39	.26	.00	.26	.26	.91	.91	.26	.52	.65	.52	.52	.13	.13	.26	.00	6.26
(2)	.10	.15	.10	.00	.10	.10	.35	.35	.10	.20	.25	.20	.20	.05	.05	.10	.00	2.42
8-12	5	1	3	3	2	4	6	11	13	21	13	16	19	18	15	10	0	160
(1)	.65	.13	.39	.39	.26	.52	.78	1.43	1.69	2.74	1.69	2.09	2.48	2.35	1.96	1.30	.00	20.86
(2)	.25	.05	.15	.15	.10	.20	.30	.55	.66	1.06	.66	.81	.96	.91	.76	.50	.00	8.07
13-18	8	3	2	0	1	10	22	33	28	47	50	46	58	29	23	12	0	372
(1)	1.04	.39	.26	.00	.13	1.30	2.87	4.30	3.65	6.13	6.52	6.00	7.56	3.78	3.00	1.56	.00	48.50
(2)	.40	.15	.10	.00	.05	.50	1.11	1.66	1.41	2.37	2.52	2.32	2.93	1.46	1.16	.61	.00	18.77
19-24	2	6	1	0	0	4	5	0	6	38	20	22	14	16	13	6	0	153
(1)	.26	.78	.13	.00	.00	.52	.65	.00	.78	4.95	2.61	2.87	1.83	2.09	1.69	.78	.00	19.95
(2)	.10	.30	.05	.00	.00	.20	.25	.00	.30	1.92	1.01	1.11	.71	.81	.66	.30	.00	7.72
GT 24	11	0	1	0	0	0	0	0	0	2	0	0	1	3	4	1	0	23
(1)	1.43	.00	.13	.00	.00	.00	.00	.00	.00	.26	.00	.00	.13	.39	.52	.13	.00	3.00
(2)	.55	.00	.05	.00	.00	.00	.00	.00	.00	.10	.00	.00	.05	.15	.20	.05	.00	1.16
ALL SPEEDS	29	15	9	4	5	22	41	51	49	113	88	89	97	68	56	31	0	767
(1)	3.78	1.96	1.17	.52	.65	2.87	5.35	6.65	6.39	14.73	11.47	11.60	12.65	8.87	7.30	4.04	.00	100.00
(2)	1.46	.76	.45	.20	.25	1.11	2.07	2.57	2.47	5.70	4.44	4.49	4.89	3.43	2.83	1.56	.00	38.70

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 4A-2 (continued)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 21.19

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
(2)	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
C-3	0	0	1	0	0	1	0	1	1	3	1	1	2	0	0	0	0	11
(1)	.00	.00	.24	.00	.00	.24	.00	.24	.24	.71	.24	.24	.48	.00	.00	.00	.00	2.62
(2)	.00	.00	.05	.00	.00	.05	.00	.05	.05	.15	.05	.05	.10	.00	.00	.00	.00	.55
4-7	0	1	1	2	3	3	1	3	2	4	8	3	2	5	5	2	0	45
(1)	.00	.24	.24	.48	.71	.71	.24	.71	.48	.95	1.90	.71	.48	1.19	1.19	.48	.00	10.71
(2)	.00	.05	.05	.10	.15	.15	.05	.15	.10	.20	.40	.15	.10	.25	.25	.10	.00	2.27
8-12	1	3	8	4	1	0	5	12	11	8	13	7	11	12	8	8	0	112
(1)	.24	.71	1.90	.95	.24	.00	1.19	2.86	2.62	1.90	3.10	1.67	2.62	2.86	1.90	1.90	.00	26.67
(2)	.05	.15	.40	.20	.05	.00	.25	.61	.55	.40	.66	.35	.55	.61	.40	.40	.00	5.65
13-18	3	2	2	0	0	1	15	28	11	25	12	10	9	9	5	2	0	134
(1)	.71	.48	.48	.00	.00	.24	3.57	6.67	2.62	5.95	2.86	2.38	2.14	2.14	1.19	.48	.00	31.90
(2)	.15	.10	.10	.00	.00	.05	.76	1.41	.55	1.26	.61	.50	.45	.45	.25	.10	.00	
19-24	3	13	0	0	0	0	8	1	0	9	18	5	1	2	1	7	0	68
(1)	.71	3.10	.00	.00	.00	.00	1.90	.24	.00	2.14	4.29	1.19	.24	.48	.24	1.67	.00	16.19
(2)	.15	.66	.00	.00	.00	.00	.40	.05	.00	.45	.91	.25	.05	.10	.05	.35	.00	3.43
GT 24	13	29	0	0	0	0	2	0	0	0	0	1	0	1	0	3	0	49
(1)	3.10	6.90	.00	.00	.00	.00	.48	.00	.00	.00	.00	.24	.00	.24	.00	.71	.00	11.67
(2)	.66	1.46	.00	.00	.00	.00	.10	.00	.00	.00	.00	.05	.00	.05	.00	.15	.00	2.47
ALL SPEEDS	20	48	13	6	4	5	31	45	25	49	52	27	25	29	19	22	0	420
(1)	4.76	11.43	3.10	1.43	.95	1.19	7.38	10.71	5.95	11.67	12.38	6.43	5.95	6.90	4.52	5.24	.00	100.00
(2)	1.01	2.42	.66	.30	.20	.25	1.56	2.27	1.26	2.47	2.62	1.36	1.26	1.46	.96	1.11	.00	21.19

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 3.7E

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	1.33	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.33
(2)	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
0-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	1.33
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05
4-7	0	0	0	0	0	0	0	1	0	0	0	0	1	2	2	0	0	6
(1)	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	.00	.00	1.33	2.67	2.67	.00	.00	8.00
(2)	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.05	.10	.10	.00	.00	.30
8-12	0	0	0	0	0	0	0	1	4	3	3	3	1	1	0	0	0	16
(1)	.00	.00	.00	.00	.00	.00	.00	1.33	5.33	4.00	4.00	4.00	1.33	1.33	.00	.00	.00	21.33
(2)	.00	.00	.00	.00	.00	.00	.00	.05	.20	.15	.15	.15	.05	.05	.00	.00	.00	.81
13-18	0	0	0	0	0	1	0	2	0	1	5	2	3	2	0	0	0	16
(1)	.00	.00	.00	.00	.00	1.33	.00	2.67	.00	1.33	6.67	2.67	4.00	2.67	.00	.00	.00	21.33
(2)	.00	.00	.00	.00	.00	.05	.00	.10	.00	.05	.25	.10	.15	.10	.00	.00	.00	.81
19-24	1	0	0	0	0	0	0	0	0	1	9	1	0	0	0	0	0	12
(1)	1.33	.00	.00	.00	.00	.00	.00	.00	.00	1.33	12.00	1.33	.00	.00	.00	.00	.00	16.00
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.45	.05	.00	.00	.00	.00	.00	.61
GT 24	17	4	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	23
(1)	22.67	5.33	.00	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	.00	1.33	.00	.00	30.67
(2)	.86	.20	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05	.00	.00	1.16
ALL SPEEDS	18	4	0	1	0	1	0	4	4	5	18	6	5	5	4	0	0	75
(1)	24.00	5.33	.00	1.33	.00	1.33	.00	5.33	5.33	6.67	24.00	8.00	6.67	6.67	5.33	.00	.00	100.00
(2)	.91	.20	.00	.05	.00	.05	.00	.20	.20	.25	.91	.30	.25	.25	.20	.00	.00	3.78

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .9E MPH)

PILGRIM OCT91-DEC91 MET DATA JOINT FREQUENCY DISTRIBUTION (220-FOOT TOWER)

220.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED(MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
(1)	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10
(2)	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10
C-3	2	2	1	3	0	3	1	2	1	4	2	2	3	1	1	0	0	28
(1)	.10	.10	.05	.15	.00	.15	.05	.10	.05	.20	.10	.10	.15	.05	.05	.00	.00	1.41
(2)	.10	.10	.05	.15	.00	.15	.05	.10	.05	.20	.10	.10	.15	.05	.05	.00	.00	1.41
4-7	8	8	6	7	7	5	9	12	4	9	16	9	14	16	21	8	0	159
(1)	.40	.40	.30	.35	.35	.25	.45	.61	.20	.45	.81	.45	.71	.81	1.06	.40	.00	8.02
(2)	.40	.40	.30	.35	.35	.25	.45	.61	.20	.45	.81	.45	.71	.81	1.06	.40	.00	8.02
8-12	13	6	12	9	9	12	14	26	53	44	44	37	48	58	40	23	0	448
(1)	.66	.30	.61	.45	.45	.61	.71	1.31	2.67	2.22	2.22	1.87	2.42	2.93	2.02	1.16	.00	22.60
(2)	.66	.30	.61	.45	.45	.61	.71	1.31	2.67	2.22	2.22	1.87	2.42	2.93	2.02	1.16	.00	22.60
13-18	23	14	4	0	1	25	44	69	52	86	81	76	104	60	51	26	0	716
(1)	1.16	.71	.20	.00	.05	1.26	2.22	3.48	2.62	4.34	4.09	3.83	5.25	3.03	2.57	1.31	.00	36.13
(2)	1.16	.71	.20	.00	.05	1.26	2.22	3.48	2.62	4.34	4.09	3.83	5.25	3.03	2.57	1.31	.00	36.13
19-24	14	55	1	0	0	7	13	3	12	77	48	35	36	65	33	19	0	418
(1)	.71	2.77	.05	.00	.00	.35	.66	.15	.61	3.88	2.42	1.77	1.82	3.28	1.66	.96	.00	21.09
(2)	.71	2.77	.05	.00	.00	.35	.66	.15	.61	3.88	2.42	1.77	1.82	3.28	1.66	.96	.00	21.09
GT 24	100	38	3	0	0	0	2	0	0	3	1	6	11	23	17	7	0	211
(1)	5.05	1.92	.15	.00	.00	.00	.10	.00	.00	.15	.05	.30	.55	1.16	.86	.35	.00	10.65
(2)	5.05	1.92	.15	.00	.00	.00	.10	.00	.00	.15	.05	.30	.55	1.16	.86	.35	.00	10.65
ALL SPEEDS	160	123	28	20	17	52	83	112	122	223	192	165	216	223	163	83	0	1982
(1)	8.07	6.21	1.41	1.01	.86	2.62	4.19	5.65	6.16	11.25	9.69	8.32	10.90	11.25	8.22	4.19	.00	100.00
(2)	8.07	6.21	1.41	1.01	.86	2.62	4.19	5.65	6.16	11.25	9.69	8.32	10.90	11.25	8.22	4.19	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

5. OFF-SITE DOSE CALCULATION MANUAL REVISIONS

The PNPS Off-site Dose Calculation Manual (ODCM) was revised two times during the time frame of July-December, 1991.

Revision 4 went into effect in late September, 1991. The following revisions were made:

- Updated to reflect changes in station organization
- Revised all pages that contained equations and definitions to include machine generated scientific characters
- Address required sampling of gardens identified during the annual garden census
- Expanded the definition of "Lower Limit of Detection" in Appendix B.

Revision 5 went into effect in late October, 1991. This revision addresses monitor setpoints for the Steam Jet Air Ejector Monitor.

A complete copy of the revisions is included as Appendices A and B.

6. REFERENCES

1. U. S. Nuclear Regulatory Commission, "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", Regulatory Guide 1.21, Revision 1, June 1974.

2. A. R. Williams memorandum to L. A. Loomis, "Effluent and Waste Disposal Semiannual Report Reg. Guide 1.21 (Table 3)", dated January 23, 1992.

3. T. A. Messier memorandum to K. J. Sejkora, "PNPS Met Data JFD Tables July 1991 - December 1991", dated February 11, 1992.

APPENDIX A

PILGRIM NUCLEAR POWER STATION

OFFSITE DOSE CALCULATION MANUAL

APPROVED BY: Larry A. Sorrini 9/25/91
CHEMISTRY DIVISION MANAGER date

APPROVED BY: M.D. Marcin 9/26/91
RADIOLOGICAL SECTION MANAGER date

REVIEWED BY: Robert G. Dey for J.A. Scott 9-25-91
ORC CHAIRMAN date
ORC meeting 91-137

Rev. 0 was originally reviewed by ORC
on June 10, 1983

ORC REVIEW REQUIRED

Changes to this document shall be reviewed by the Operations Review Committee and submitted to the Nuclear Regulatory Commission in the next Semiannual Effluent Release Report. All such changes shall be recorded below.

RECORD OF DOCUMENT CHANGES

REV. NO.	IDENTIFICATION OF CHANGE	DATE APPROVED	DOCUMENT SECTION AND PAGE
0	Original Submittal	6/10/83	All Sections
1	Update of TLD and Air Sampler Locations	6/01/87	7.0/7-7 & 7-8
2	Changes in response to NRC questions on PNPS ODCM (TAC #63012). Changes in response to technical review performed by BECo Radiological Section.	7/15/88	All Sections
3.	Changes in response to NRC comments on PNPS ODCM Rev. 2 (TAC #69867). Correct typographical error in Table A-3. Incorporate new TLD locations. Change responsible division.	7/12/89	Preliminary pages, 3.3, 4.2, 6.1, 7.0 (7-3 & 7-5), 8.1, A-3
4.	Update signature page to reflect new responsible organization. Update record of document changes. Renumber pages iii through vii to include list of effective page revisions. Revise pages containing equations and definitions to include machine-generated scientific characters. Address gardens identified during 1990 garden census in Table 7-5 in accordance with Technical Specification 7.1.B.2. Expand definition of Lower Limit of detection in Appendix B.	9/27/91	Page i through vii; pages 13-15, 17-23 25-28, 30-32, 49, and A-4; Appendix B.

LIST OF EFFECTIVE PAGE REVISIONS

Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.
i	4	18	4	42	3	A-4	4	A-28	3		
ii	4	19	4	43	3	A-5	3	A-29	3		
iii	4	20	4	44	3	A-6	3	A-30	3		
iv	4	21	4	45	3	A-7	3	A-31	3		
v	4	22	4	46	3	A-8	3	A-32	3		
vi	4	23	4	47	3	A-9	3	A-33	3		
vii	4	24	3	48	3	A-10	3	A-34	3		
1	3	25	4	49	4	A-11	3	A-35	3		
2	3	26	4	50	3	A-12	3	A-36	3		
3	3	27	4	51	3	A-13	3	B-1	4		
4	3	28	4	52	3	A-14	3	B-2	4		
5	3	29	3	53	3	A-15	3	B-3	4		
6	3	30	4	54	3	A-16	3				
7	3	31	4	55	3	A-17	3				
8	3	32	4	56	3	A-18	3				
9	3	33	3	57	3	A-19	3				
10	3	34	3	58	3	A-20	3				
11	3	35	3	59	3	A-21	3				
12	3	36	3	60	3	A-22	3				
13	4	37	3	61	3	A-23	3				
14	4	38	3	62	3	A-24	3				
15	4	39	3	A-1	3	A-25	3				
16	3	40	3	A-2	3	A-26	3				
17	4	41	3	A-3	3	A-27	3				

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF FIGURES

LIST OF TABLES

4.0 Calculations Methods

This section presents the calculational specifics required to demonstrate compliance with each of the Technical Specifications for limiting conditions for operation and operational objectives identified in Section 2 of this document.

The equations in this section are based on the equations and calculational methods described in Reference 1, unless otherwise specified. These equations have, in some cases, been presented in a slightly different form in an effort to simplify their use. The subscripts used are "a" for age group, "j" for organ, "i" for radionuclide, "p" for pathway and "l" for location. Capital letters have been used on the dose/dose rate, use factor, concentration, and dose conversion factor abbreviations to designate pathways. "A" is for aquatic foods, "S" for shoreline deposits, "W" for swimming, "Y" for yachting/boating, "N" for noble gas, "G" for ground plane deposition, "B" for breathing/inhalation, "L" for leafy vegetation, "R" for root crops/non-leafy vegetation, "M" for milk, and "C" for meat.

The descriptions of constants, variables, and parameters in this section are also based on those described in Reference 1, unless otherwise specified. The descriptions have, in some cases, been modified to describe the constant, variable, and parameter specific application in the corresponding equation. In addition, some of the constants and variables values have been revised to include more site specific values, to include more technically correct information, or to provide uniformity (e.g., λ_i values always presented in hr^{-1}). Values for parameters which only have a single value will appear along with the definition. For those parameters which can take on different values for different conditions, the appropriate value will appear in the referenced tables. All numerical contants have been derived from the indicated base conversion factors and are represented in scientific notation to the third significant digit.

4.1 Concentrations of Liquid Effluents

The following equation shall be used to determine the discharge flow rate such that concentrations of radioactive effluents released to unrestricted areas do not exceed the concentration limits specified in 10CFR20 Appendix B, Table II, Column 2:

$$DFR = CW \div \sum_i (C_{wi} / MPC_i)$$

where:

DFR = Maximum discharge release rate of liquid effluent, (gal/min).

CW = Flow rate of dilution water, (gal/min).
C_{wi} = Concentration of nuclide i in the liquid waste discharge volume prior to any dilution as determined by current isotopic analysis for gamma emmitting nuclides and most recent results from pure beta and alpha emitters, (μCi/ml).

MPC_i = Maximum Permissible Concentration of each nuclide i from 10CFR20 Appendix B, Table II, Column 2, (μCi/ml).

4.2 Liquid Effluents Dose Assessment Methodology

The following equations shall be used to estimate the annual dose rates due to release of radioactive liquid effluents. All input parameters (i.e. activity and volume) must be normalized to a 1 year release period. Modification of final results is necessary for comparison to dose rate limits for periods different than one year. For comparison to monthly limits and quarterly limits, results would be scaled by 1/12 and 1/4, respectively. To determine the dose or dose commitment for a desired period, multiply the annual dose rate by the fraction of the year for the dose period desired. For purposes of projecting resulting dose estimates for the subsequent month, the release rates and concentrations are assumed to be equal to the previous month's release.

Pathways assuming internal deposition of radionuclides (i.e., ingestion) involve the use of a 50-year committed dose conversion factor. This entire prospective dose will be assigned to the individual for the year of intake (Reference 1). For pathways involving external radiation to the total body (i.e., shoreline activity, swimming, boating), the dose to all other organs is assumed equal to that for the total body (Reference 1, Appendix E).

Summation of the dose rates from the equations below should be performed for all significant pathways.

4.2.1 Liquid Pathways Annual Dose Rates

4.2.1.1 Aquatic Food Ingestion (Fish, Shellfish)

$$DA_{ajp} = UA_{ap} \sum_i CA_{ip} DFI_{aij}$$

where:

$$CA_{ip} = CW_{i1} B_{ip} e^{-\lambda_i t_h}$$

$$CW_{i1} = 1.00E12 \, Q_i \, (M_1/V) \, e^{-\lambda_i t_1}$$

Above equations derived from Reference 1 equations 2 and A-3.

4.2.1.2 Shoreline Deposits (Discharge Canal and Recreational Area)

$$DS_{ajl} = US_{al} W_l \sum_i CS_{il} DFG_{ij}$$

where:

$$CS_{il} = 2.89 CW_{il} (1 - e^{-\lambda_i t_b}) + \lambda_i$$

CW_{il} = same as indicated in equation 4.2.1.1

Above equation derived from Ref. 1 equations A-4 through A-7.

4.2.1.3 Swimming (White Horse Beach)

$$DW_{ajl} = UW_{al} \sum_i CW_{il} DFW_{ij}$$

where:

CW_{il} = same as indicated in equation 4.2.1.1

Above equations derived from Reference 14 equation 41 on page 151 .

4.2.1.4 Yachting/Boating (Cape Cod Bay)

$$DY_{ajl} = 0.50 UY_{al} \sum_i CW_{il} DFW_{ij}$$

where:

CW_{il} = same as indicated in equation 4.2.1.1

Above equations derived from Reference 14 equation 41 on page 151 .

4.2.2 Definitions:

B_{ip} is the equilibrium bioaccumulation factor for radionuclide i, in aquatic foods pathway p, expressed as the concentration in biota 'pCi/kg), divided by the concentration in waCi/liter) from Tat e A-1, (liters/kg);

CA_{ip} is the concentration of radionulcide i in pathway p of aquatic foods, (pCi/kg);

CS_{il} is the effective surface concentration of radionuclide i in sediments at location l, (pCi/m^2);

US_{al} is the use factor (amount of time) an individual in age group a, engages in shoreline activities at location l, from Table E-5 for maximum individual, Table E-4 for average individual, (hr/yr);

UW_{al} is the use factor (amount of time) an individual in age group a, engages in swimming at location l, from Table E-5 for maximum individual, Table E-4 for average individual, (hr/yr);

UY_{al} is the use factor (amount of time) an individual in age group a, engages in yachting/boating at location l, from Table E-5 for maximum individual, Table E-4 for average individual, (hr/yr);

V is the total annual discharge rate of liquid effluent + condensor cooling/dilution water, (liters/yr);

W_l is the shoreline width factor for location l, from Table A-3, (dimensionless);

λ_i is the radioactive decay constant of radionuclide i, (hr^{-1});

0.50 is a scaling factor for yachting/boating assuming that doses received while on the surface of the water are 1/2 of doses received while immersed in water from Reference 14, (dimensionless);

2.89 is the factor to convert for transfer of nuclides from water to sediment, equal to 100 liters/m^2-day from Reference 16 multiplied by 1 day/24 hr and by ln 2 (to convert reciprocal λ_i to halflife), as calcuated in Reference 1 equation A-5, (liter/m^2-hr);

1.00E12 is the factor to convert from Ci to pCi, (pCi/Ci);

4.3 Gaseous Effluents Dose Assessment Methodology

The following equations shall be used to estimate the annual dose rates due to release of radioactive gaseous effluents. All input parameters (ie, activity and volume) must be normalized to a 1 year release period. Modification of final results is necessary for comparison to dose rate limits for periods different than one year. For comparison to monthly limits and quarterly limits, results would be scaled by 1/12 and 1/4, respectively. To determine the dose or dose commitment for a desired period multiply the annual dose rate by the fraction of the year for the dose period desired.

Pathways assuming internal deposition of radionuclides (i.e., inhalation, ingestion) involve the use of a 50-year committed dose conversion factor. This entire prospective dose will be assigned to the individual for the year of intake (Reference 1). For pathways involving external radiation to the total body (i.e., noble gas total body dose, ground plane deposition), the dose to all other organs is assumed equal to that for the total body (Reference 1, Appendix E).

Summation of the doses rates from the equations below should be performed for all significant pathways and all release points from which significant radioactive effluent releases have occurred (i.e., Main Stack and Reactor Building Exhaust Vent).

4.3.1 Gaseous Pathways Annual Dose Rates from Noble Gases

4.3.1.1 Gamma Air Dose

$$DN_\gamma = \sum_i C_{i\gamma} \; DFN_{i\gamma}$$

where:

$$C_{i\gamma} = 3.17E4 \; [X/Q]_\gamma \; Q_i$$

Above equations derived from Ref. 1 equations 6, 7, B-1, B-2, B-4, and B-5, as well as References 3 and 4.

4.3.1.2 Beta Air Dose

$$DN_\beta = \sum_i C_{i\beta} \; DFN_{i\beta}$$

where:

$$C_{i\beta} = 3.17E4 \; [X/Q]_c \; Q_i$$

Above equations derived from Ref. 1 equations 7, B-4, and B-5.

4.3.1.3 Total Body Dose

$$DN_{TB} = S \sum_i C_{i\gamma} \; DFN_{iTB}$$

where:

C_i = Same as indicated in equation 4.3.1.1.

Above equations derived from Ref. 1 equations 8, 10, B-1, B-2, B-4, B-5, B-6, and B-8, as well as References 3 and 4.

4.3.1.4 Skin Dose

$$DN_S = \sum_i C_{i\beta} \; DFN_{iS} + 1.11 \; S \; DN_\gamma$$

where:

$C_{i\beta}$, DN_γ = same as indicated above in equations 4.3.1.2 and 4.3.1.1, respectively.

Above equations derived from Ref. 1 equations 6, 7, 9, 11, B-1, B-2, B-4, B-7, and B-9, as well as References 3 and 4.

4.3.2 Gaseous Pathways Annual Dose Rates from Iodine 131 and 133, Particulates with a Half-life Greater than 8 Days, and Tritium.

PNPS Technical Specifications do not consider doses from C-14 and I-135 for compliance. However, equations for these radionuclides are included in this section for completeness.

4.3.2.1 Ground Plane Deposition

$$DG_j = S \sum_i CG_i \; DFG_{ij}$$

where:

$$CG_i = 1.00E12 \; [D/Q] \; Q_i \; (1 - e^{-\lambda_i t_b}) \div \lambda_i$$

Above equations derived from Ref. 1 equations 12, C-1, and C-2.

4.3.2.2 Breathing/Inhalation

$$DB_{aj} = UB_a \sum_i CB_i \; DFB_{aij}$$

where:

$CB_i = 3.17E4 \; [X/Q]_c \; Q_i$ for H-3, C-14

$CB_i = 3.17E4 \; [X/Q]_d \; Q_i$ for particulates with $T_{1/2}$ >8d and I-131, I-133, and I-135.

Above equations derived from Ref. 1 equations 13, C-3, and C-4.

4.3.2.3 Leafy Vegetation Ingestion

$$DL_{aj} = UL_a \, f_1 \sum_i CL_i \, DFI_{aij}$$

where:

CL_i = leafy vegetation concentration as calculated below.

Above equation derived from Ref. 1 equations 14 and C-13.

where:

$CH_i, CL_i, CP_i, CR_i = 1.19E7 \, Q_i \, [X/Q]_c \div H$ for H - 3

$CH_i, CL_i, CP_i, CR_i = 2.18E7 \, p \, Q_i \, [X/Q]_c$ for C - 14

$$CH_i, CL_i, CP_i, CR_i = 5.71E7 \; [D/Q] \; Q_i \; \star$$

$$\left[\frac{r_I \, (1 - e^{-\lambda_{Ei} t_e})}{Y_v \, \lambda_{Ei}} + \frac{B_{iv} \, (1 - e^{-\lambda_i t_b})}{P \, \lambda_i} \right] e^{-\lambda_i t_h}$$

for I-131, I-133, and I-135

$$CH_i, CL_i, CP_i, CR_i = 1.14E8 \; [D/Q] \; Q_i \; \star$$

$$\left[\frac{r_p \, (1 - e^{-\lambda_{Ei} t_e})}{Y_v \, \lambda_{Ei}} + \frac{B_{iv} \, (1 - e^{-\lambda_i t_b})}{P \, \lambda_i} \right] e^{-\lambda_i t_h}$$

for particulates with $T_{1/2} > 8$ days

Above equations derived from Ref. 1 equations C-5 through C-9.

4.3.2.4 Root Crop Non-Leafy Vegetation Ingestion

$$DR_{aj} = UR_a \, f_r \sum_i CR_i \, DFI_{aij}$$

where:

CR_i = root crop concentration as calculated in 4.3.2.3.

Above equations derived from Ref. 1 equations 14 and C-13.

4.3.2.5 Milk Ingestion

$$DM_{aj} = UM_a \sum_i CM_i \, DFI_{aij}$$

where:

$$CM_i = F_{im} \, CF_i \, Q_f \, e^{-\lambda_i t_f}$$

$$CF_i = f_p f_s CP_i + (CH_i(1-f_p)) + CH_i f_p (1-f_s)$$

CP_i, CH_i = concentration in pasture grass and harvested/stored feed as calculated in equation 4.3.2.3.

Above equations derived from Ref. 1 equations 14, C-10, C-11, and C-13

4.3.2.6 Meat Ingestion

$$DC_{aj} = UC_a \sum_i CC_i \, DFI_{aij}$$

where:

$$CC_i = F_{if} \, CF_i \, Q_f \, e^{-\lambda_i t_s}$$

CF_i = concentration in forage as calculated in equation 4.3.2.5

Above equations derived from Ref. 1 equations 14, C-12, and C-13

4.3.3 Definitions

B_{iv} - is the concentration factor for uptake of radionuclide i, from soil in the edible portions of crops, in pCi/kg (wet weight) per pCi/kg dry soil, from Table E-1, (kg/kg);

$C_{i\beta}$ - is the effective semi-infinite cloud concentration of noble gas i, for the purpose of calculating beta air dose, (pCi/m^3);

$C_{i\gamma}$ - is the effective finite cloud concentration of noble gas i for the purpose of calculating gamma air dose, (pCi/m^3);

CB_i - is the ground-level airborne concentration of radionuclide i, (pCi/m^3);

CC_i - is the concentration of radionuclide i in meat, (pCi/kg);

CF_i - is the concentration of radionuclide i on forage, (pCi/kg);

CG_i - is the ground plane concentration of radionuclide i, ($pCi-hr/m^2-yr$);

CH_i - is the concentration of radionuclide i on harvested/stored feed, (pCi/kg);

CM_i - is the concentration of radionuclide i in milk, (pCi/liter);

CL_i - is the concentration of radionuclide i in leafy vegetables, (pCi/kg);

CP_i - is the concentration of radionuclide i on pasture grass, (pCi/kg);

CR_i - is the concentration of radionuclide i in root crops/non-leafy vegetables, (pCi/kg);

DB_{aj} - is the total annual dose rate from breathing/ inhalation to organ j, of an individual in age group a, (mrem/yr);

DC_{aj} - is the total annual dose rate from ingestion of meat to organ j; of an individual in age group a, (mrem/yr);

DFB_{aij} - is the inhalation 50-year committed dose conversion factor for organ j, of individuals in age group a, from radionuclide i, from Tables E-7 through E-10, (mrem/pCi);

DFG_{ij} - is the open field ground plane dose conversion factor for organ j, from radionuclide i, from Table E-6, ($mrem-m^2/pCi-hr$);

DFI_{aij} - is the ingestion 50-year committed dose conversion factor for organ j, for individuals in age group a, from radionuclide i, organ j, from Table E-11 through E-14, (mrem/pCi);

DFN_{iS} - is the beta skin dose conversion factor for a semi-infinite cloud of noble gas i, which includes the attenuation by the outer "dead" layer of skin, from Table B-1, (mrem-m^3/pCi-yr);

DFN_{iTB} - is the total body dose conversion factor for a semi-infinite cloud of noble gas i, which includes the attenuation of 5 g/cm^2 of tissue, from Table B-1, (mrem-m^3/pCi-yr);

$DFN_{i\beta}$- is the beta air dose conversion factor from a semi-infinite cloud of noble gas i, from Table B-1, (mrad-m^3/pCi-yr);

$DFN_{i\gamma}$ - is the gamma air dose conversion factor from a semi-infinite cloud of noble gas i, from Table B-1, (mrad-m^3/pCi-yr);

DG_j - is the total annual dose rate to organ j from direct exposure to the contaminated ground plane from all radionuclides, (mrem/yr);

DL_{aj} - is the total annual dose rate from ingestion of leafy vegetables to the organ j, of an individual in age group a, (mrem/yr);

DM_{aj} - is the total annual dose rate from ingestion of milk to the organ j, of an individual in age group a, (mrem/yr);

DN_S - is the total annual skin dose rate due to immersion in a finite cloud of noble gases, (mrem/yr);

DN_{TB} - is the annual total body dose rate due to immersion in a finite cloud of noble gases, (mrem/yr);

DN_β - is the annual beta air dose rate to a semi-infinite cloud of noble gases, (mrad/yr);

DN_γ - is the annual gamma air dose rate due to a finite cloud of noble gases, (mrad/yr);

DR_{aj} - is the total annual dose rate from ingestion of root crop or non-leafy vegetables to the organ j, of an individual in age group a, (mrem/yr);

[D/Q] - is the deposition rate considering depletion at the receptor location in question, from Table 5-1, (m^{-2});

t_e - is the time period that crops are exposed to radionuclide deposition during the growing season, from Table E-15, (hr);

t_f - is the average transport time of the activity from the feed into the milk and to the receptor from Table E-15, (hr);

t_h - is the holdup time that represents the time interval between harvest and consumption of the food, from Table E-15, (hr);

t_s - is the average time for radionuclides to pass from feed through meat to the consuming individual, (hr; assumed to be 480 hr = 20 days);

UB_a - is the annual breathing rate, for individuals in the age group a, from Table E-5 for maximum individual, Table E-4 for average individual, (m^3/yr);

UC_a - is the annual intake of meat, for individuals in age group a, from Table E-5 for maximum individual, Table E-4 for average individual, (kg/yr);

UL_a - is the annual intake of leafy vegetables, for individuals in the age group a, from Table E-5 for maximum individual, Table E-4 for average individual, (kg/yr);

UM_a - is the annual intake of milk, for individuals in the age group a, from Table E-5 for maximum individual, Table E-4 for average individual, (liter/yr);

UR_a - is the annual intake of root crops/non-leafy vegetables for individuals in the age group a, from Table E-5 for maximum individual, Table E-4 for average individual, (kg/yr);

Y_v - is the agricultural productivity/yield, from Table E-15, (kg/m^2, wet weight);

$[X/Q]_c$ - is the appropriate value of undepleted atmospheric dispersion factor used to estimate ground level airborne concentration of gaseous, (i.e., non-particulate) radionuclides, from Table 5-1, (sec/m^3);

$[X/Q]_d$ - is the appropriate value of the average gaseous dispersion factor corrected for depletion of particulates and radioiodines, from Table 5-1, (sec/m^3);

$[X/Q]_\gamma$ - is the appropriate value of gamma atmospheric dispersion factor used to estimate ground level gamma dose rate from an elevated or ground level plume as calculated in References 3 and 4, from Table 5-1, (sec/m^3);

λ_i - is the radioactive decay constant of radionuclide i, (hr^{-1});

λ_{Ei} - is the effective removal rate constant for radionuclide i from crops, in hr^{-1}, where $\lambda_{Ei} = \lambda_i + \lambda_w$, λ_i is the radioactive decay constant, and λ_w is the removal rate constant for physical loss by weathering $\lambda_w = 0.0021\ hr^{-1}$, ($hr^{-1}$);

1.11 - is the average ratio of the tissue to air energy absorption coefficients, (mrem/mrad);

3.17E4 is equal to 1.00E12 pCi/Ci divided by 3.15E7 sec/yr, (pCi-yr/Ci-Sec)

1.19E7 - is equal to 1.00E12 pCi/Ci divided by 3.15E7 sec/yr and multiplied by 1.00E3 g/kg and by 0.5 g H-3 in plant water per g H-3 in atmospheric water from Reference 23 (dimensionless) and by 0.75 g water per g plant (dimensionless), as calculated in Reference 1 equation C-9, (pCi-yr-g/Ci-sec-kg);

2.18E7 - is equal to 1.00E12 pCi/Ci divided by 3.15E7 sec/yr and multipled by 1.00E3 g/kg and by 0.11 g Carbon/g plant mass from References 24 and 25 divided by 0.16 g Carbon/m^3 of air, as calculated in Reference 1 equation C-8, ($pCi-yr-m^3/Ci-sec-kg$):

5.71E7 - is the conversion factor to correct for activity, time units, and elemental forms of radioiodines, equal to the particulate radionuclide conversion factor 1.14E8 multiplied by an elemental iodine fraction of 0.5 from Reference 26, (pCi-yr/Ci-hr);

1.14E8 - is the conversion factor to correct activity units and time units for particulate radionuclides, equal to 1.00E12 pCi/Ci multiplied by 1 yr/8760 hr, (pCi-yr/Ci-hr);

1.00E12 - is the conversion factor to correct for activity units, (pCi/Ci);

4.4 Total Dose to a Member of the Public

The purpose of this section is to describe the method used to calculate the cumulative dose contributions from liquid and gaseous effluents in accordance with PNPS Technical Specifications for total dose. This method can also be used to demonstrate compliance with the Environmental Protection Agency (EPA) 40CFR190, "Environmental Standards for the Uranium Fuel Cycle".

Compliance with the PNPS Technical Specifications dose objectives for the maximum individual demonstrates compliance with the EPA limits to any member of the public, since the design dose objectives from 10CFR50 Appendix I are much lower than the 40CFR190 dose limits to the general public. With the operational objectives in PNPS Technical Specifications sections 7.2.A, 7.3.A and 7.4.A being exceeded by a factor of two, a special analysis must be performed. The purpose of this special analasis is to demonstrate if the total dose to any member of the public (real individual) from all uranium fuel cycle sources (including all real pathways and direct radiation) is limited to less than or equal to 25 mrem per year to the total body or any organ except for the thyroid which is limited to 75 mrem per year.

If required, the total dose to a member of the public will be calculated for all significant effluent release points for all real pathways including direct radiation. Only effluent releases from PNPS (Pilgrim Station) need to be considered since no other nuclear fuel cycle facilities exist within a 50 mile radius. The calculations will be based on the equations contained in this section, with the exception that the usage factors and other site specific parameters will be modified using more realistic assumptions, where appropriate.

The direct radiation component from the facility can be determined by using environmental TLD results. These results will be corrected for natural background and for actual occupancy time of the recreational areas accessible to the general public at the location of maximum direct radiation. It is recognized that by including the results from the environmental TLDs into the sum of total dose component, the direct radiation dose may be overestimated. The TLD measurements may include the exposure from noble gases, ground plane deposition, and shoreline deposition, which have already been included in the summation of the significant dose pathways to the general public. However, this conservative method can be used, if required, as well as any other method for estimating the direct radiation dose from contained radioactive sources within the facility. The methodology used to incorporate the direct radiation component into total dose estimates will be outlined whenever total doses are reported.

Therefore, the total dose will be determined based on the most realistic site specific data and parameters to assess the real dose to any member of the general public.

5.0 Receptor Locations, Hydrology, and Meteorology

The purpose of this section is to identify those receptor locations which represent critical pathway locations and the methods used to estimate dilution and dispersion factors for these locations.

For the dose calculations from liquid effluents, the maximum individual is assumed to: 1) ingest fish and shellfish from the discharge canal, 2) receive direct radiation from shoreline deposits at both the discharge canal and PNPS shoreline recreational area, and 3) receive external radiation while swimming at White Horse Beach as well as while boating on the Cape Cod Bay. The doses are calculated for the various age groups (i.e., infant, child, teenager and adult), as well as for the various organs, (i.e., bone, liver, thyroid, kidney, lung, gastrointestinal tract/lower large intestine, skin, and total body). The maximum total body and organ doses are selected from the totals of the various age group and organ doses calculated as described above.

For liquid effluent pathways, Table A-3 lists the conservative values for the mixing ratio and shore width factor for the various aquatic receptor locations.

For the dose calculations for gaseous effluents, the maximum individual is assumed to reside at the receptor location that provides the highest dose from the dose contributions from all gaseous release points where significant releases have occurred. The locations selected in Table 5-1 are the site boundary, a garden at the site boundary, and the nearest milk animal at the Plimoth Plantation. The dose calculations are performed for each release point and totalled for the following dose pathways; 1) noble gas immersion, 2) ground plane deposition, 3) inhalation, and 4) ingestions of leafy vegetable, root crops/non-leafy vegetables, milk, and meat. The doses are also calculated for the various age groups and for the various organs as described for liquid effluents. The maximum total body, skin, and organ doses are selected from the totals of the various age group and organ doses calculated as described above.

In order to estimate atmospheric dispersion and deposition factors for each of these locations, a computer code supplied by the Yankee Atomic Electric Company was used. The code, AEOLUS (Reference 3), was used to calculate quarterly average values of dispersion and deposition factors.

Meteorological data for a three year period, January 1, 1977 to December 31, 1979, were used for these analyses. The most conservative quarterly average values of ground level average atmospheric dispersion factor before depletion $[X/Q]_c$, ground level average atmospheric dispersion factor after depletion $[X/Q]_d$, average gamma dilution factor $[X/Q]_\gamma$, and average deposition rate [D/Q] for the three year period were chosen for each of the critical receptor locations.

TABLE 5-1
CRITICAL RECEPTOR LOCATIONS AND ATMOSPHERIC DISPERSION FACTORS

Atmospheric Dispersion Factor
1) Reactor Building Vent
2) Main Stack

Technical Specification Section	$[X/Q]_c$ (sec/m^3)	$[X/Q]_d$ (sec/m^3)	$[X/Q]_Y$ (sec/m^3)	[D/Q] (1/m^2)
3.8.D Gaseous Effluent Dose Rate				
Site Boundary(1)	1) 7.40E-06	7.04E-06	4.69E-06	5.22E-08
	2) 4.69E-07	4.69E-07	1.68E-06	2.92E-09
Nearest Garden(2)	1) 7.40E-06	7.04E-06	4.69E-06	5.22E-08
	2) 4.69E-07	4.69E-07	1.68E-06	2.92E-09
Nearest Milk Animal(3)	1) 4.29E-07	4.21E-07	1.70E-07	7.93E-10
	2) 3.73E-08	3.70E-08	3.22E-08	2.46E-10
3.8.F Gaseous Effluent Treatment				
Site Boundary(1)	1) 7.40E-06	N/A	4.69E-06	N/A
	2) 4.69E-07	N/A	1.68E-06	N/A
7.4 Dose - Iodine-131, Iodine-133, Radioactive Materials in Particulate Form, and Tritium				
Site Boundary(1)	1) 7.40E-06	7.04E-06	N/A	5.22E-08
	2) 4.69E-07	4.69E-07	N/A	2.92E-09
Nearest Garden(2)	1) 7.40E-06	7.04E-06	N/A	5.22E-08
	2) 4.69E-07	4.69E-07	N/A	2.92E-09
Nearest Milk Animal(3)	1) 4.29E-07	4.21E-07	N/A	7.93E-10
	2) 3.73E-08	3.70E-08	N/A	2.46E-10

TABLE 5-1 (Continued)
CRITICAL RECEPTOR LOCATIONS AND ATMOSPHERIC DISPERSION FACTORS

Atmospheric Dispersion Factor
1) Reactor Building Vent
2) Main Stack

Technical Specification Section		$[X/Q]_c$ (sec/m^3)	$[X/Q]_d$ (sec/m^3)	$[X/Q]_Y$ (sec/m^3)	[D/Q] (1/m^2)
7.5	Total Dose				
	Site Boundary(1)	1) 7.40E-06	7.04E-06	4.69E-06	5.22E-08
		2) 4.69E-07	4.69E-07	1.68E-06	2.92E-09
	Nearest Garden(2)	1) 7.40E-06	7.04E-06	4.69E-06	5.22E-08
		2) 4.69E-07	4.69E-07	1.68E-06	2.92E-09
	Nearest Milk Animal(3)	1) 4.29E-07	4.21E-07	1.70E-07	7.93E-10
		2) 3.73E-08	3.70E-08	3.22E-08	2.46E-10

NOTES:

(1) "Site Boundary" means the location at or beyond the boundary of the restricted area with the highest calculated dispersion and/or deposition factor.

(2) "Nearest Garden" is considered to be the same as the site boundary due to the abundance of small gardens near Pilgrim Station.

(3) "Nearest Milk Animal" is presently considered to be at the Plimoth Plantation, 2.2 miles west of Pilgim Station.

6.0 MONITOR SETPOINTS

6.1 Liquid Effluent Monitor

The setpoint for the liquid effluent & monitor (see Section 3.2.3) is established as follows:

1) Prior to a liquid batch release, the waste discharge tank is recirculated for at least 60 minutes and a sample is taken.

2) The liquid effluent sample is analyzed (see Section 3.3) to determine the concentrations of each detectable isotope in µCi/ml. (See Appendix B for the definitions of lower limit of detection.)

3) The efficiency (in counts/sec per µCi/ml) of the liquid discharge monitor is calculated based on prior release experience.

4) The setpoint for the liquid effluent monitor is calculated as follows:

a) Monitor setpoint based on activity concentration

$$c = \frac{CF}{f}$$

Where:

c = the setpoint of the radioactivity monitor measuring the radiocativity concentration in the effluent line prior to dilution and subsequent release; the setpoint, which is proportional to the volumetric flow of the effluent line and inversely proportional to the volumetric flow of the dilution stream plus the effluent stream, represents a value, which if exceeded, would result in concentrations exceeding the limits of 10 CFR 20 in the unrestricted area, (µCi/ml);

C = the effluent concentration limit implementing 10 CFR 20 for the site (µCi/ml);

Where:

$$C = \sum_i C_{wi} \div \sum_i (C_{wi}/MPC_i)$$

C_{wi} = concentration of nuclide i in the liquid waste discharge volume prior to any dilution as determined by current isotopic analysis for gamma emitting nuclides and most recent results from pure beta emitters as specified in Table 4.11-2 of PNPS Effluent Controls, (µCi/ml);

TABLE 7-5
PILGRIM NUCLEAR POWER STATION
TERRESTRIAL AND AQUATIC SAMPLING
LOCATIONS

Sampling Location (Designation)	Distance and Direction from Reactor
TERRESTRIAL	
Cranberries	
Manomet Pt. Bog* (MR)	2.4 Miles SE
Bartlett Rd. Bog* (BT)	2.7 Miles SSE
Pine St. Bog Control* (PS)	16 Miles WNW
Forage	
Plymouth County Farm* (CF)	3.5 Miles W
Davis Farm (DF)	3.1 Miles S
Whitman Farm Control* (WF)	20 Miles WNW
Milk	
Plymouth County Farm* (CF)	3.5 Miles W
Whitman Farm Control* (WF)	20 Miles WNW
Surface Water	
Discharge Canal* (DIS)	0.13 Miles N
Bartlett Pond* (BP)	1.7 Miles SE
Powder Point Control* (PP)	7.9 Miles NNW
Vegetation	
Plymouth County Farm* (CF)	3.5 Miles W
Bridgewater Farm Cont.* (BF)	20 Miles W

Additional samples of vegetables/vegetation will be collected each year at or near selected gardens identified during the most recent land use census. The locations of these selected gardens are listed in the station procedure describing crop sampling.

* Indicates sampling locations required by PNPS Technical Specifications

TABLE B-1
DOSE FACTORS FOR EXPOSURE TO A SEMI-INFINITE CLOUD OF NOBLE GASES*

Nuclide	β-air ($DFN_{i\beta}$) mrad-m^3/pCi-yr	β-skin (DFN_{is}) mrem-m^3/pCi-yr	γ-air ($DFN_{i\gamma}$) mrad-m^3/pCi-yr	γ-body (DFN_{iTB}) mrem-m^3/pCi-yr
Kr-83m	2.88E-04	---	1.93E-05	7.56E-08
Kr-85m	1.97E-03	1.46E-03	1.23E-03	1.17E-03
Kr-85	1.95E-03	1.34E-03	1.72E-05	1.61E-05
Kr-87	1.03E-02	9.73E-03	6.17E-03	5.92E-03
Kr-88	2.93E-03	2.37E-03	1.52E-02	1.47E-02
Kr-89	1.06E-02	1.01E-02	1.73E-02	1.66E-02
Kr-90	7.83E-03	7.29E-03	1.63E-02	1.56E-02
Xe-131m	1.11E-03	4.76E-04	1.56E-04	9.15E-05
Xe-133m	1.48E-03	9.94E-04	3.27E-04	2.51E-04
Xe-133	1.05E-03	3.06E-04	3.53E-04	2.94E-04
Xe-135m	7.39E-04	7.11E-04	3.36E-03	3.12E-03
Xe-135	2.46E-03	1.86E-03	1.92E-03	1.81E-03
Xe-137	1.27E-02	1.22E-02	1.51E-03	1.42E-03
Xe-138	4.75E-03	4.13E-03	9.21E-03	8.83E-03
Ar-41	3.28E-03	2.69E-03	9.30E-03	8.84E-03

* Data presented in this table are from Reference 1.

APPENDIX B

Definition of Lower Limit of Detection

For purposes of analyzing effluents and environmental samples for radioactivity, the lower limit of detection (LLD) is defined as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability, with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

It should be recognized that the listed LLD is defined as an a priori (before the fact) limit representing the capability of the measurement system or analytical process, and not as an a posteriori (after the fact) limit for a particular measurement. Analyses should be performed in such a manner that the stated LLDs will be achieved under routine conditions. Usually, samples are counted for a period of time sufficient to ensure that the listed LLDs, based on normal analytical and counting parameters, are achieved.

Printouts of analytical results typically list the a posteriori minimum detectable concentration (MDC) which was actually achieved on a particular measurement. In those cases where a given sample MDC is less than or equal to the listed a priori LLD, the required LLD has been achieved. Occasionally background fluctuations, unavoidable small sample sizes, the presence of interfering radionuclides, or other uncontrollable circumstances may result in the MDC for a particular measurement not meeting the listed LLD. In such cases, the contributing factors shall be identified and described in the Semiannual Radioactive Effluent and Waste Disposal Report (for effluents) or the Annual Radiological Environmental Monitoring Report (for environmental samples).

The value of the counting standard deviation (s_b) used in the calculation of the LLD for a particular measurement system should be based on the actual observed standard deviation of the background counting rate or of the counting rate of an appropriate blank sample, rather than on an unverified, theoretically-predicted variance. One acceptable method for deriving s_b is as follows:

$$s_b = [B/T]^{1/2}$$

Where:

s_b - is the standard deviation of the background counting rate or of the counting rate of an appropriate blank sample (counts/minute);

B - is the background counting rate or counting rate of an appropriate blank sample (counts/minute);

T - is the counting time interval for sample analysis (minutes).

Lower Limit of Detection For Effluent Samples

For a particular measurement system or analytical process which may include radiochemical separation used to analyze effluent samples, the lower limit of detection is calculated as follows:

$$LLD_i = \frac{4.66\ s_b}{(E\ V\ 2.22E6\ Y\ e^{-\lambda_i t})}$$

Where:

LLDi - is the *a priori* lower limit of detection for radionuclide i, (μCi/ml or μCi/g);

4.66 - is the combined numerical constant corresponding to 95% probability of detection, with 5% probability of falsely identifying background as a "real" signal;

s_b - is the standard deviation of the background counting rate or of the counting rate of an appropriate blank sample, (counts/minute);

E - is the counting efficiency, (counts/disintegration);

V - is the sample size, (milliliters or grams);

2.22E6 - is the conversion factor for disintegrations/minute per μCi;

Y - is the fractional radiochemical yield, when applicable;

λ_i - is the radioactive decay constant for radionuclide i, (hr^{-1});

t - is the elapsed time between the midpoint of sample collection and time of counting, (hr).

Typical values of E, V, Y, and t used for normal effluent sample analyses should be used in this calculation.

Lower Limit of Detection For Environmental Samples

For a particular measurement system or analytical process which may include radiochemical separation used to analyze effluent samples, the lower limit of detection is calculated as follows:

$$LLD_i = \frac{4.66\ s_b}{(E\ V\ 2.22\ Y\ e^{-\lambda_i t})}$$

Where:

LLDi - is the *a priori* lower limit of detection for radionuclide i, (pCi/liter, pCi/m^3, or pCi/kg);

4.66 - is the combined numerical constant corresponding to 95% probability of detection, with 5% probability of falsely identifying background as a "real" signal;

s_b - is the standard deviation of the background counting rate or of the counting rate of an appropriate blank sample, (counts/minute);

E - is the counting efficiency, (counts/disintegration);

V - is the sample size, (liters, cubic meters, or kilograms);

2.22 - is the conversion factor for disintegrations/minute per pCi;

Y - is the fractional radiochemical yield, when applicable;

λ_i - is the radioactive decay constant for radionuclide i, (hr^{-1});

t - is the elapsed time between environmental sample collection or end of the sample collection period, and time of counting, (hr).

Typical values of E, V, Y, and t used for normal effluent sample analyses should be used in this calculation.

APPENDIX B

PILGRIM NUCLEAR POWER STATION

OFFSITE DOSE CALCULATION MANUAL

APPROVED BY: Larry A Fromm / 10/30/91
CHEMISTRY DIVISION MANAGER — date

APPROVED BY: Laurie Wetherell / 10/30/91
RADIOLOGICAL SECTION MANAGER — date

REVIEWED BY: [signature] / 10/30/91
ORC CHAIRMAN — date

Rev. 0 was originally reviewed by ORC
on June 10, 1983

ORC REVIEW REQUIRED

Changes to this document shall be reviewed by the Operations Review Committee and submitted to the Nuclear Regulatory Commission in the next Semiannual Effluent Release Report. All such changes shall be recorded below.

RECORD OF DOCUMENT CHANGES

REV. NO.	IDENTIFICATION OF CHANGE	DATE APPROVED	DOCUMENT SECTION AND PAGE
0	Original Submittal	6/10/83	All Sections
1	Update of TLD and Air Sampler Locations	6/01/87	7.0/7-7 & 7-8
2	Changes in response to NRC questions on PNPS ODCM (TAC #63012). Changes in response to technical review performed by BECo Radiological Section.	7/15/88	All Sections
3.	Changes in response to NRC comments on PNPS ODCM Rev. 2 (TAC #69867). Correct typographical error in Table A-3. Incorporate new TLD locations. Change responsible division.	7/12/89	Preliminary pages, 3.3, 4.2, 6.1, 7.0 (7-3 & 7-5), 8.1, A-3
4.	Update signature page to reflect new responsible organization. Update record of document changes. Renumber pages iii through vii to include list of effective page revisions. Revise pages containing equations and definitions to include machine-generated scientific characters. Address gardens identified during 1990 garden census in Table 7-5 in accordance with Technical Specification 7.1.B.2. Expand definition of Lower Limit of detection in Appendix B.	9/27/91	Page i through vii; pages 13-15, 17-23 25-28, 30-32, 49, and A-4; Appendix B.
5.	Add Steam Jet Air Ejector Monitor to section addressing monitor setpoints.	10/30/91	Pages i, ii, iii, v, 34a

LIST OF EFFECTIVE PAGE REVISIONS

Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.	Page	Rev.
i	5	18	4	41	3	A-3	3	A-27	3		
ii	5	19	4	42	3	A-4	3	A-28	3		
iii	5	20	4	43	3	A-5	3	A-29	3		
iv	4	21	4	44	3	A-6	3	A-30	3		
v	5	22	4	45	3	A-7	3	A-31	3		
vi	4	23	4	46	3	A-8	3	A-32	3		
vii	4	24	3	47	3	A-9	3	A-33	3		
1	3	25	4	48	3	A-10	3	A-34	3		
2	3	26	4	49	4	A-11	3	A-35	3		
3	3	27	4	50	3	A-12	3	A-36	3		
4	3	28	4	51	3	A-13	3	B-1	4		
5	3	29	3	52	3	A-14	3	B-2	4		
6	3	30	4	53	3	A-15	3	B-3	4		
7	3	31	4	54	3	A-16	3				
8	3	32	4	55	3	A-17	3				
9	3	33	3	56	3	A-18	3				
10	3	34	3	57	3	A-19	3				
11	3	34a	5	58	3	A-20	3				
12	3	35	3	59	3	A-21	3				
13	4	36	3	60	3	A-22	3				
14	4	37	3	61	3	A-23	3				
15	4	38	3	62	3	A-24	3				
16	3	39	3	A-1	3	A-25	3				
17	4	40	3	A-2	3	A-26	3				

TABLE OF CONTENTS (continued)

6.3 Steam Jet Air Ejector Monitor

The steam jet air ejector (SJAE) monitor is used to measure the release rate of noble gases in main condenser offgas prior to its further treatment and release from the main stack. This monitor's primary function is to provide alarm and isolation of this process flow stream in the event of excessively high release rates of noble gases from the condenser and recombiner. The maximum allowable release rate of noble gases in the SJAE offgas is 500,000 µCi/sec, as established in Technical Specification 3.8.G. For conservatism, the Hi-Hi alarm is set at 75% of this limit, or 375,000 µCi/sec.

Since this gaseous stream undergoes further processing downstream of the SJAE monitor and is ultimately released via the main stack and monitored by the main stack gaseous effluent monitor, the SJAE monitor does not strictly qualify as a primary effluent monitor. Therefore, it is not normally recognized as such. However, the methodology for establishment of alarm setpoints is included in this section for completeness. These setpoints are established as follows:

1) A grab sample of the SJAE offgas is collected. The SJAE monitor reading (mR/hr) is recorded in conjunction with this sample.

2) Isotopic analyses are performed on the offgas sample and the total noble gas concentration (µCi/cc) is coupled with the flow rate (CFM) to calculate the SJAE release rate (µCi/sec).

3) The release rate (µCi/sec) is divided by the monitor reading (mR/hr) to determine the SJAE monitor conversion factor (µCi/sec/mR/hr).

4) The Hi-Hi alarm setpoint (mR/hr) is determined by dividing the maximum tolerable release rate of 375,000 µCi/sec by the SJAE monitor conversion factor (µCi/sec/mR/hr).

5) The Hi alarm setpoint is set at 50% of the corresponding Hi-Hi alarm setpoint.

Grab samples of the SJAE offgas are collected: 1) at least once every 31 days; or, 2) if the gross radioactivity release rate increases by 50% or more over the previous day (after factoring out changes in reactor thermal power level). Upon collection of these grab samples, new values are established for the total noble gas concentration, SJAE monitor conversion factor, and alarm setpoints. Typically, existing setpoints will be used unless the newly calculated setpoints yield lower values. In this case, the setpoints will be lowered to the newer, more conservative values.