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PALO VERDE NUCLEAR GENERATING STATION
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102-03923-AKK/SAB/CJJ
April 29, 1997

U. S. Nuclear Regulatory Commission
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Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Annual Radioactive Effluent Release Report for 1996

In accordance with PVNGS Technical Specifications 6.9.1.8 and 6.14, enclosed please find the Annual Radioactive Effluent Release Report for 1996.

Should you have any questions, please contact Scott A. Bauer at (602) 393-5978.

Sincerely,

Angela K Krainik

AKK/SAB/CJJ/cj

Enclosure

cc: E. W. Merschoff (all with enclosure)
K. E. Johnston
K. E. Perkins
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1996
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

PALO VERDE NUCLEAR GENERATING STATION
UNITS 1, 2, AND 3

PALO VERDE NUCLEAR GENERATING STATION
UNITS 1, 2 AND 3

1996

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

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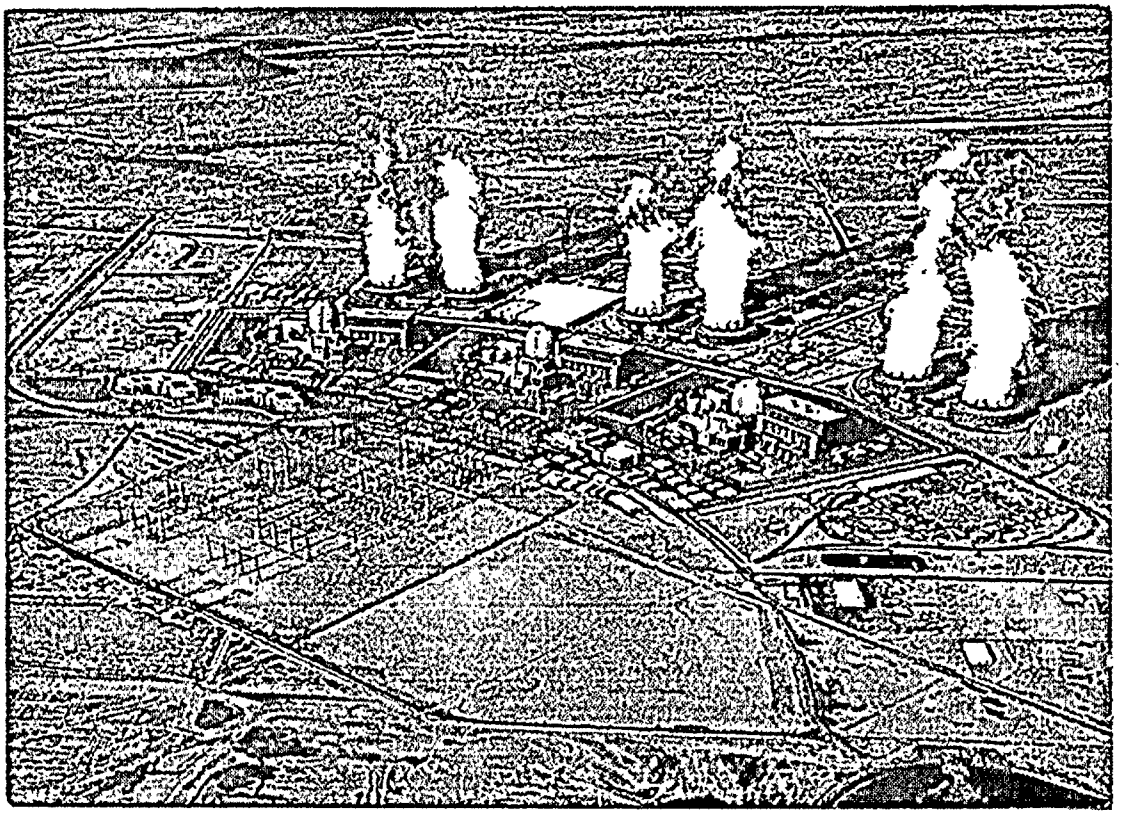

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INTRODUCTION

This report summarizes effluent and waste disposal source term data, meteorological data and doses from radioactive effluents for the Palo Verde Nuclear Generating Station (PVNGS) for the period of January through December 1996. The data presented meets the reporting requirements of Regulatory Guide 1.21 (Revision 1, June 1974) of the U.S. Nuclear Regulatory Commission and the PVNGS Technical Specifications.

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APPENDIX A

SOURCE TERMS
AND
EFFLUENT AND WASTE DISPOSAL REPORTS

1.0 REGULATORY LIMITS

1.1 Liquid Releases

1.1.1 PVNGS ODCM Requirement 3.2

The concentration of radioactive material discharged from secondary system liquid waste to the circulating water system shall be limited to:

5.0E-07 µCi/ml for the principal gamma emitters (except Ce-144)

3.0E-06 µCi/ml for Ce-144

1.0E-06 µCi/ml for I-131.

1.0E-03 µCi/ml for H-3

The concentration of radioactive material discharged from secondary system liquid waste to the onsite evaporation ponds shall be limited to:

2.0E-06 µCi/ml for Cs-134

2.0E-06 µCi/ml for Cs-137

The concentrations specified in 10 CFR Part 20.1001-20.2401, Appendix B, Table 2, Column 2, for all other isotopes

1.1.2 PVNGS ODCM Requirement 4.4

The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, to areas at and beyond the SITE BOUNDARY shall be limited:

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

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

1.2 Gaseous Releases

1.2.1 PVNGS ODCM Requirement 3.1

The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to the following:

a. For noble gases: Less than or equal to 500 mrems/yr to the total body and less than or equal to 3000 mrems/yr to the skin, and

b. For I-131 and I-133, for tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrems/yr to any organ.

1.2.2 PVNGS ODCM Requirement 4.1

The air dose due to noble gases released in gaseous effluents, from each reactor unit, to areas at and beyond the SITE BOUNDARY shall be limited to the following:

a. During any calendar quarter: Less than or equal to 5 mrads for gamma radiation and less than or equal to 10 mrads for beta radiation and,

b. During any calendar year: Less than or equal to 10 mrads for gamma radiation and less than or equal to 20 mrads for beta radiation.

1.2.3 PVNGS ODCM Requirement 4.2

The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each reactor unit, to areas at and beyond the SITE BOUNDARY shall be limited to the following:

a. During any calendar quarter: Less than or equal to 7.5 mrems to any organ and,
b. During any calendar year: Less than or equal to 15 mrems to any organ.

1.2.4 PVNGS ODCM Requirement 4.3

The GASEOUS RADWASTE SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent air doses due to gaseous effluent releases, from each reactor unit, from the site, when averaged over 31 days, would exceed 0.2 mrad for gamma radiation and 0.4 mrad for beta radiation. The VENTILATION EXHAUST TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected doses due to gaseous effluent releases, from each reactor unit, to areas at and beyond the SITE BOUNDARY when averaged over 31 days, would exceed 0.3 mrem to any organ of a MEMBER OF THE PUBLIC.

1.3 Total Dose

1.3.1 PVNGS ODCM Requirement 5.1

The annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to direct radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrems to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

2.0 MAXIMUM PERMISSIBLE CONCENTRATIONS

Air: Release Concentrations are limited to dose rate limits described in section 1.2.1 of this report.

3.0 AVERAGE ENERGY

The average energy ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases is not applicable to PVNGS.

4.0 MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY IN GASEOUS EFFLUENTS

For continuous releases, sampling is in accordance with PVNGS ODCM Table 3-1. Particulate and iodine radionuclides are sampled continuously at the Plant Vent and Fuel Building exhaust points. The particulate filters and charcoal cartridges are exchanged for analysis four times per month. Noble gas and tritium are sampled at least once per 31 days. The hourly average Radiation Monitoring System (RMS) effluent monitor readings are used, when available, to account for increases and decreases in noble gas concentrations between noble gas grab samples. The tritium concentration is assumed constant between sampling periods.

For batch releases, sampling is also in accordance with PVNGS ODCM Table 3-1. For containment purges, the noble gas concentration is adjusted to account for decreases or increases in concentration during the purge using RMS readings. The volume of air released during the purge is determined using the exhaust fan rated flow rate. For Waste Gas Decay Tank releases, the volume released is corrected to standard pressure.

The Lower Limit of Detection (LLD) of a measurement system is defined in Table 3-1 of the PVNGS ODCM. An average LLD for each radionuclide is provided in Table 3.

5.0 BATCH RELEASES

5.1 Gaseous.

Batch release durations are presented in Table 2.

5.2 Liquid

None.

6.0 ABNORMAL RELEASES

None.

7.0 OFFSITE DOSE CALCULATION MANUAL AND PROCESS CONTROL PROGRAM (PCP) REVISIONS

7.1 There were no revisions to the ODCM.

7.2 There were no revisions to the PCP (76PR-9RW01).

8.0 EFFLUENTS AND SOLID WASTES

8.1 Gaseous Effluents

Gaseous effluent information is presented in Table 1 through Table 37. Included in these tables are summaries of the effluents and estimated total error.

8.2 Liquid Effluents

There were no liquid effluent releases beyond the Site Boundary from PVNGS.

8.3 Solid Waste

Solid waste shipments are summarized in Table 38.

9.0 MISCELLANEOUS INFORMATION

9.1 EVAPORATION PONDS

Releases made to the Evaporation Ponds are limited to the concentrations specified in PVNGS ODCM Requirement 3.2. The Evaporation Ponds were monitored in accordance with PVNGS ODCM Requirement 6.1.

The average historical evaporation is approximately 12 inches, per pond, for each of the first and fourth quarters, and 33 inches, per pond, for each of the second and third quarters. This equates to 3.09E+11 cc evaporated from Pond One for each of the first and fourth quarters and 8.50E+11 cc evaporated from Pond One for each of the second and third quarters. The amount evaporated from Pond Two is 2.89E+11 cc for each of the first and fourth quarters and 7.96E+11 cc for each of the second and third quarters. Using a site boundary X/Q of 5.0E-05 sec/m^3 for the evaporation ponds and equation 4-3 from the ODCM, the dose from the evaporation ponds to a hypothetical individual at the site boundary, for all pathways, is summarized in Table 1.

9.2 REPORT ADDENDUM

None.

10.0 DISCUSSION

10.1 Unit One

Unit One operated at 100% with a refueling outage (U1R6) from September 21, 1996 to October 30, 1996. Maintenance on the Waste Gas system(GR) during the refueling outage required the release of WGDT A prior to the normal 45 day hold up. The release of this decay tank (Permit 961155) accounted for 49.9 curies of Xe-133 of the total 250 curies of noble gas released from Unit One in 1996.

10.2 Unit Two

Unit Two operated at 100% power with a refueling outage (U2R6) from March 16, 1996 to May 4, 1996.

10.3 Unit Three

Unit Three operated at 100% power for the year without a refueling outage.

10.3.1 Unit Three Tracer Gas Testing

On January 17, 1996, procedure 74TI-9RC01, "Tracer Gas Test" was performed to evaluate the feasibility and practicality of gas tagging for the identification of failed fuel. Approximately 50 cc's of xenon gas were injected with the following mix: Xe-124 8.67%, Xe-126 3.38%, Xe-128 14.39%, Xe-129 65.34%, Xe-130 2.99%, Xe-132 1.21%, Xe-134 0.03%.

10.4 General

PVNGS does not have a liquid release pathway. Removal of tritium is performed by operation of the Boric Acid Concentrator (BAC) in the release mode. Comparison of PVNGS annual tritium curies released to other utilities should be made only after summing both liquid and gaseous tritium curies released.

Table 1: Evaporation Pond Data					
Evaporation Pond 1	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Historical volume of water evaporated (ml)	3.09E+11	8.50E+11	8.50E+11	3.09E+11	
Tritium Concentration (uCi/cc)	7.60E-07	9.84E-07	1.44E-06	9.18E-07	
Tritium Curies	2.35E-01	8.36E-01	1.22E+00	2.84E-01	2.58E+00
Evaporation Pond 2	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Historical volume of water evaporated (ml)	2.89E+11	7.96E+11	7.96E+11	2.89E+11	
Tritium Concentration (uCi/cc)	8.57E-07	1.23E-06	8.84E-07	9.44E-07	
Tritium curies	2.48E-01	9.79E-01	7.04E-01	2.73E-01	2.20E+00
Dose (mRem)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Pond 1	3.26E-03	1.16E-02	1.70E-02	3.94E-03	3.58E-02
Pond 2	3.44E-03	1.36E-02	9.78E-03	3.79E-03	3.06E-02
Total	**6.70E-03**	**2.52E-02**	**2.68E-02**	**7.73E-03**	**6.64E-02**

Table 2: Batch Release Data			
All times are in hours	Unit 1	Unit 2	Unit 3
January - June			
Number of batch releases	49	49	29
Total time period for batch releases	2204.99	2246.21	460.91
Maximum time period for a batch release	168	168	143
Average time period for a batch release	45.00	45.84	15.89
Minimum time period for a batch release	0.10	0.06	0.15
July - December			
Number of batch releases	48	27	36
Total time period for batch releases	2282.68	657.26	1420.09
Maximum time period for a batch release	168	168	167.94
Average time period for a batch release	47.56	24.34	39.45
Minimum time period for a batch release	0.07	0.02	0.18
January - December			
Number of batch releases	97	76	65
Total time period for batch releases	4487.66	3103.47	1880.99
Maximum time period for a batch release	168	168	167.94
Average time period for a batch release	46.26	40.84	28.94
Minimum time period for a batch release	0.07	0.02	0.15

Table 3: Units 1, 2 & 3 Gaseous Effluents Average Lower Limit Of Detection					
µCi/cc					
Nuclide	Continuous	Batch	Nuclide	Continuous	Batch
Antimony-122	2.20E-13	1.90E-11	Argon-41	4.50E-08	4.50E-08
Antimony-124	8.40E-14	1.70E-11	Krypton-85	7.40E-06	7.40E-06
Barium-140	3.40E-13	5.70E-11	Krypton-85m	2.20E-08	2.20E-08
Bromine-82	3.30E-13	1.40E-11	Krypton-87	5.70E-08	5.70E-08
Cerium-141	8.70E-14	3.10E-11	Krypton-88	7.40E-08	7.40E-08
Cerium-144	3.60E-13	6.50E-11	Xenon-125	2.20E-08	2.20E-08
Cesium-134	1.00E-13	2.60E-11	Xenon-127	2.10E-08	2.10E-08
Cesium-137	8.10E-14	1.70E-11	Xenon-131m	9.10E-07	9.10E-07
Cesium-138	5.20E-10	7.30E-10	Xenon-133	6.30E-08	6.30E-08
Chromium-51	6.90E-13	1.40E-10	Xenon-133m	1.90E-07	1.90E-07
Cobalt-58	8.50E-14	1.70E-11	Xenon-135	2.00E-08	2.00E-08
Cobalt-60	1.00E-13	1.90E-11	Xenon-135m	8.90E-08	8.90E-08
Iron-59	1.70E-13	3.20E-11	Xenon-138	2.00E-07	2.00E-07
Lanthanum-140	2.80E-13	2.10E-11	Iodine-131	8.00E-14	7.00E-12
Manganese-54	8.30E-14	1.70E-11	Iodine-132	6.60E-12	1.90E-11
Molybdenum-99	2.40E-13	2.80E-11	Iodine-133	4.70E-13	1.10E-11
Niobium-95	8.70E-14	1.80E-11	Iodine-134	5.90E-11	8.20E-11
Rubidium-88	1.90E-08	1.90E-08	Iodine-135	7.00E-12	5.50E-11
Ruthenium-103	7.40E-14	1.50E-11			
Strontium-89	2.15E-15	(1)			
Strontium-90	5.60E-16	(1)			
Tellurium-123m	6.60E-14	1.50E-11			
Tritium	3.80E-07	3.80E-07			
Zinc-65	1.90E-13	3.80E-11			
Zirconium-95	1.80E-13	4.10E-11			
Gross Alpha	3.60E-15	(1)			
(1) Not required for batch releases.					

Table 4: Unit 1 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
A. Fission & activation gases							
1. Total release	Ci	2.54E+01	5.48E+01	1.65E+02	4.80E+00	2.50E+02	3.54E+01
2. Average release rate for period	µCi/sec	3.18E+00	6.79E+00	2.03E+01	5.89E-01	7.73E+00	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
B. Iodine 131							
1. Total Iodine 131	Ci	7.84E-06	2.25E-03	2.87E-03	1.10E-03	6.22E-03	3.32E+01
2. Average release rate for period	µCi/sec	9.83E-07	2.82E-04	3.51E-04	1.35E-04	1.92E-04	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
C. Particulates							
1. Particulates with half- lives > 8 days	Ci	1.34E-06	4.60E-05	8.57E-05	6.94E-05	2.02E-04	3.43E+01
2. Average release rate for period	µCi/sec	1.68E-07	5.70E-06	1.05E-05	8.52E-06	6.26E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	2.13E+02	2.52E+02	1.67E+02	4.93E+01	6.81E+02	3.85E+01
2. Average release rate for period	µCi/sec	2.67E+01	3.12E+01	2.05E+01	6.05E+00	2.11E+01	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
(1) Estimated total error methodology is presented in Table 36.							
(2) See Table 11 for percent of ODCM Requirement limits.							

Table 5: Unit 1 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	< LLD	< LLD	1.50E+00	< LLD	1.50E+00
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	2.92E-01	< LLD	< LLD	2.92E-01
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	1.67E+01	1.81E+01	8.52E+01	4.16E+00	1.24E+02
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	8.46E+00	6.81E+00	5.32E+00	< LLD	2.06E+01
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	9.41E-02	< LLD	< LLD	< LLD	9.41E-02
total	Ci	2.52E+01	2.52E+01	9.20E+01	4.16E+00	1.47E+02
2. Iodines						
I-131	Ci	6.93E-06	2.15E-03	1.24E-03	1.10E-03	4.50E-03
I-132	Ci	< LLD	2.75E-03	1.16E-03	7.64E-03	1.15E-02
I-133	Ci	< LLD	3.06E-05	4.36E-05	< LLD	7.42E-05
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	6.93E-06	4.93E-03	2.45E-03	8.74E-03	1.61E-02

Table 6: Unit 1 Gaseous Effluents - Ground Level Releases - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3.Particulates						
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	2.67E-05	6.12E-05	4.19E-05	1.30E-04
Co-60	Ci	< LLD	< LLD	5.94E-07	< LLD	5.94E-07
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	2.85E-06	1.17E-06	4.03E-06
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	5.14E-02	< LLD	5.14E-02
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	2.57E-06	2.57E-06
Os-191	Ci	< LLD	< LLD	6.18E-06	4.72E-06	1.09E-05
Rb-88	Ci	< LLD	3.27E-03	1.05E-01	< LLD	1.09E-01
Ru-103	Ci	< LLD	< LLD	5.64E-06	1.55E-05	2.11E-05
Ru-106	Ci	< LLD	1.23E-05	< LLD	< LLD	1.23E-05
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	6.90E-06	8.68E-06	2.43E-06	1.80E-05
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	1.14E-06	1.14E-06
Sr-89	Ci	< LLD	< LLD	4.62E-07	< LLD	4.62E-07
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	1.22E-06	< LLD	< LLD	< LLD	1.22E-06
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	1.22E-06	3.32E-03	1.57E-01	6.94E-05	1.60E-01
4.Tritium						
H-3	Ci	6.75E+00	1.96E+01	8.37E+00	5.34E+00	4.00E+01

Table 7: Unit 1 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	1.33E-01	2.36E-01	1.19E+00	5.13E-02	1.61E+00
Kr-85	Ci	< LLD	1.24E+00	1.74E+00	5.73E-02	3.04E+00
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	2.02E-01	7.32E-01	4.62E-01	1.40E+00
Xe-133	Ci	2.52E-02	2.78E+01	6.90E+01	7.10E-02	9.69E+01
Xe-133m	Ci	< LLD	9.30E-02	3.57E-01	< LLD	4.50E-01
Xe-135	Ci	5.12E-04	2.39E-03	5.00E-02	< LLD	5.29E-02
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	1.59E-01	2.95E+01	7.31E+01	6.42E-01	1.03E+02
2. Iodines						
I-131	Ci	9.07E-07	1.01E-04	1.62E-03	5.56E-07	1.72E-03
I-132	Ci	< LLD	1.53E-07	< LLD	< LLD	1.53E-07
I-133	Ci	1.48E-06	4.15E-05	5.52E-04	6.23E-07	5.95E-04
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	2.38E-06	1.42E-04	2.17E-03	1.18E-06	2.32E-03

Table 8: Unit 1 Gaseous Effluents - Ground Level Releases - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Br-82	Ci	1.01E-05	1.19E-04	6.31E-04	3.62E-06	7.64E-04
Ce-141	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-144	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Co-58	Ci	<LLD	<LLD	1.09E-07	<LLD	1.09E-07
Co-60	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	5.37E-08	<LLD	<LLD	<LLD	5.37E-08
Cs-137	Ci	6.25E-08	8.21E-08	<LLD	<LLD	1.45E-07
Cs-138	Ci	<LLD	1.32E-06	1.26E-06	<LLD	2.58E-06
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Nb-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Os-191	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Rb-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ru-103	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ru-106	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-122	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-124	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-125	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Se-75	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zr-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	1.02E-05	1.21E-04	6.32E-04	3.62E-06	7.67E-04
4. Tritium						
H-3	Ci	2.06E+02	2.32E+02	1.59E+02	4.40E+01	6.41E+02
Note 1 - Not required for batch releases						

Table 9: Unit 1 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	1.33E-01	2.36E-01	2.69E+00	5.13E-02	3.11E+00
Kr-85	Ci	< LLD	1.24E+00	1.74E+00	5.73E-02	3.04E+00
Kr-85m	Ci	< LLD	2.92E-01	< LLD	< LLD	2.92E-01
Xe-131m	Ci	< LLD	2.02E-01	7.32E-01	4.62E-01	1.40E+00
Xe-133	Ci	1.67E+01	4.59E+01	1.54E+02	4.23E+00	2.21E+02
Xe-133m	Ci	< LLD	9.30E-02	3.57E-01	< LLD	4.50E-01
Xe-135	Ci	8.46E+00	6.81E+00	5.37E+00	< LLD	2.06E+01
Xe-138	Ci	9.41E-02	< LLD	< LLD	< LLD	9.41E-02
total	Ci	2.54E+01	5.48E+01	1.65E+02	4.80E+00	2.50E+02
2. Iodines						
I-131	Ci	7.84E-06	2.25E-03	2.87E-03	1.10E-03	6.22E-03
I-132	Ci		2.75E-03	1.16E-03	7.64E-03	1.15E-02
I-133	Ci	1.48E-06	7.21E-05	5.95E-04	6.23E-07	6.70E-04
total	Ci	9.31E-06	5.07E-03	4.62E-03	8.74E-03	1.84E-02

Table 10: Unit 1 Gaseous Effluents - Continuous and Batch - Particulates

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Br-82	Ci	1.01E-05	1.19E-04	6.31E-04	3.62E-06	7.64E-04
Co-58	Ci	< LLD	2.67E-05	6.13E-05	4.19E-05	1.30E-04
Co-60	Ci	< LLD	< LLD	5.94E-07	< LLD	5.94E-07
Cs-134	Ci	5.37E-08	< LLD	2.85E-06	1.17E-06	4.08E-06
Cs-137	Ci	6.25E-08	8.21E-08	< LLD	< LLD	1.45E-07
Cs-138	Ci	< LLD	1.32E-06	5.14E-02	< LLD	5.14E-02
Nb-95	Ci	< LLD	< LLD	< LLD	2.57E-06	2.57E-06
Os-191	Ci	< LLD	< LLD	6.18E-06	4.72E-06	1.09E-05
Rb-88	Ci	< LLD	3.27E-03	1.05E-01	< LLD	1.09E-01
Ru-103	Ci	< LLD	< LLD	5.64E-06	1.55E-05	2.11E-05
Ru-106	Ci	< LLD	1.23E-05	< LLD	< LLD	1.23E-05
Sb-124	Ci	< LLD	6.90E-06	8.68E-06	2.43E-06	1.80E-05
Se-75	Ci	< LLD	< LLD	< LLD	1.14E-06	1.14E-06
Sr-89	cI	< LLD	< LLD	4.62E-07	< LLD	4.62E-07
Te-123m	Ci	1.22E-06	< LLD	< LLD	< LLD	1.22E-06
total	Ci	1.14E-05	3.44E-03	1.58E-01	7.30E-05	1.61E-01
total > 8 days	Ci	1.34E-06	4.60E-05	8.57E-05	6.94E-05	2.02E-04
4. Tritium						
H-3	Ci	2.13E+02	2.52E+02	1.67E+02	4.93E+01	6.81E+02

Table 11: Unit 1 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	6.85E-03	9.01E-03	2.54E-02	1.62E-04	4.15E-02
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	1.37E-01	1.80E-01	5.09E-01	3.25E-03	4.15E-01
Beta Air Dose	mrad	1.11E-02	1.95E-02	5.33E-02	2.45E-04	8.41E-02
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.11E-01	1.95E-01	5.33E-01	2.45E-03	4.21E-01
Maximum Organ Dose (excluding skin)	mrem	5.26E-01	6.67E-01	4.70E-01	1.43E-01	1.81E+00
Age		Child	Child	Child	Child	Child
Organ		Thyroid	Thyroid	Thyroid	Thyroid	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	7.01E+00	8.89E+00	6.27E+00	1.90E+00	1.20E+01

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual at the site boundary for all pathways. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

Table 12: Unit 2 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
A. Fission & activation gases							
1. Total release	Ci	1.18E+01	1.04E-01	1.48E-01	1.85E-01	1.23E+01	3.54E+01
2. Average release rate for period	µCi/sec	1.48E+00	1.29E-02	1.82E-02	2.27E-02	3.79E-01	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
B. Iodine 131							
1. Total Iodine 131	Ci	3.11E-05	4.43E-06	< LLD	1.09E-05	4.64E-05	3.32E+01
2. Average release rate for period	µCi/sec	3.90E-06	5.49E-07	< LLD	1.34E-06	1.44E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
C. Particulates							
1. Particulates with half- lives > 8 days	Ci	2.85E-05	2.53E-05	7.78E-07	< LLD	5.46E-05	3.43E+01
2. Average release rate for period	µCi/sec	3.58E-06	3.14E-06	9.55E-08	< LLD	1.69E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	1.73E+02	1.31E+02	3.51E+01	7.19E+01	4.11E+02	3.85E+01
2. Average release rate for period	µCi/sec	2.17E+01	1.62E+01	4.31E+00	8.82E+00	1.27E+01	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
(1) Estimated total error methodology is presented in Table 36.							
(2) See Table 19 for percent of ODCM Requirement limits.							

Table 13: Unit 2 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Argon-41	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ar-41	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-85	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-85m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-87	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-131m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-133m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-135m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
2. Iodines						
I-131	Ci	3.11E-05	4.43E-06	<LLD	1.09E-05	4.64E-05
I-132	Ci	8.53E-03	2.61E-04	<LLD	<LLD	8.79E-03
I-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
I-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	8.56E-03	2.65E-04	<LLD	1.09E-05	8.84E-03

Table 14: Unit 2 Gaseous Effluents - Ground Level Releases - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3.Particulates						
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	1.57E-05	1.77E-05	< LLD	< LLD	3.34E-05
Co-60	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Os-191	Ci	1.27E-05	6.88E-06	< LLD	< LLD	1.96E-05
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	7.33E-07	< LLD	< LLD	7.33E-07
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.78E-07	< LLD	7.78E-07
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	2.84E-05	2.53E-05	7.78E-07	< LLD	5.45E-05
4. Tritium						
H-3	Ci	5.44E+00	2.06E+01	2.53E+00	1.73E+01	4.59E+01

Table 15: Unit 2 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	5.83E-01	5.61E-02	1.05E-01	1.04E-01	8.48E-01
Kr-85	Ci	8.73E-01	<LLD	<LLD	<LLD	8.73E-01
Kr-85m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-87	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kr-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-131m	Ci	5.20E-02	2.95E-04	<LLD	<LLD	5.23E-02
Xe-133	Ci	1.01E+01	4.78E-02	4.27E-02	7.64E-02	1.03E+01
Xe-133m	Ci	4.47E-02	2.35E-05	<LLD	<LLD	4.47E-02
Xe-135	Ci	1.71E-01	7.30E-05	4.83E-04	4.35E-03	1.76E-01
Xe-135m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xe-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	1.18E+01	1.04E-01	1.48E-01	1.85E-01	1.23E+01
2. Iodines						
I-131	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
I-132	Ci	3.01E-04	1.68E-03	<LLD	<LLD	1.98E-03
I-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
I-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	3.01E-04	1.68E-03	<LLD	<LLD	1.98E-03

Table 16: Unit 2 Gaseous Effluents - Ground Level Releases - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	1.09E-07	< LLD	< LLD	< LLD	1.09E-07
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	5.55E-03	5.13E-06	8.17E-06	1.01E-05	5.57E-03
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	1.73E-09	< LLD	< LLD	< LLD	1.73E-09
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	1.06E-09	< LLD	< LLD	1.06E-09
Cs-137	Ci	< LLD	2.53E-09	< LLD	< LLD	2.53E-09
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	5.55E-03	5.13E-06	8.17E-06	1.01E-05	5.58E-03
4. Tritium						
H-3	Ci	1.67E+02	1.10E+02	3.26E+01	5.46E+01	3.65E+02
Note 1 - Not required for batch releases						

Table 17: Unit 2 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	5.83E-01	5.61E-02	1.05E-01	1.04E-01	8.48E-01
Kr-85	Ci	8.73E-01	< LLD	< LLD	< LLD	8.73E-01
Xe-131m	Ci	5.20E-02	2.95E-04	< LLD	< LLD	5.23E-02
Xe-133	Ci	1.01E+01	4.78E-02	4.27E-02	7.64E-02	1.03E+01
Xe-133m	Ci	4.47E-02	2.35E-05	< LLD	< LLD	4.47E-02
Xe-135	Ci	1.71E-01	7.30E-05	4.83E-04	4.35E-03	1.76E-01
total	Ci	1.18E+01	1.04E-01	1.48E-01	1.85E-01	1.23E+01
2. Iodines						
I-131	Ci	3.11E-05	4.43E-06	< LLD	1.09E-05	4.64E-05
I-132	Ci	8.83E-03	1.94E-03	< LLD	< LLD	1.08E-02
total	Ci	8.86E-03	1.94E-03	< LLD	1.09E-05	1.08E-02

Table 18: Unit 2 Gaseous Effluents - Continuous and Batch - Particulates

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	1.09E-07	< LLD	< LLD	< LLD	1.09E-07
Br-82	Ci	5.55E-03	5.13E-06	8.17E-06	1.01E-05	5.57E-03
Co-58	Ci	1.57E-05	1.77E-05	< LLD	< LLD	3.34E-05
Co-60	Ci	1.73E-09	< LLD	< LLD	< LLD	1.73E-09
Cs-134	Ci	< LLD	1.06E-09	< LLD	< LLD	1.06E-09
Cs-137	Ci	< LLD	2.53E-09	< LLD	< LLD	2.53E-09
Os-191	Ci	1.27E-05	6.88E-06	< LLD	< LLD	1.96E-05
Sb-124	Ci	< LLD	7.33E-07	< LLD	< LLD	7.33E-07
Sr-89		< LLD	< LLD	7.78E-07	< LLD	7.78E-07
total	Ci	5.58E-03	3.04E-05	8.95E-06	1.01E-05	5.63E-03
total >8 days	Ci	2.85E-05	2.53E-05	7.78E-07	< LLD	5.46E-05
4. Tritium						
H-3	Ci	1.73E+02	1.31E+02	3.51E+01	7.19E+01	4.11E+02

Table 19: Unit 2 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	2.64E-03	1.52E-04	2.80E-04	2.83E-04	3.36E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	5.28E-02	3.04E-03	5.60E-03	5.67E-03	3.36E-02
Beta Air Dose	mrad	4.17E-03	6.63E-05	1.10E-04	1.22E-04	4.47E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	4.17E-02	6.63E-04	1.10E-03	1.22E-03	2.23E-02
Maximum Organ Dose (excluding skin)	mrem	4.28E-01	3.24E-01	8.68E-02	1.78E-01	1.02E+00
Age		Child	Child	Child	Child	Child
Organ		Thyroid	Thyroid	Lung	Thyroid	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	5.71E+00	4.32E+00	1.16E+00	2.37E+00	6.78E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual at the site boundary for all pathways. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

Table 20: Unit 3 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
A. Fission & activation gases							
1. Total release	Ci	1.34E+00	1.04E-01	1.23E+00	1.17E-01	2.79E+00	3.54E+01
2. Average release rate for period	µCi/sec	1.68E-01	1.29E-02	1.51E-01	1.44E-02	8.64E-02	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
B. Iodine 131							
1. Total Iodine 131	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	3.32E+01
2. Average release rate for period	µCi/sec	< LLD	< LLD	< LLD	< LLD	< LLD	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
C. Particulates							
1. Particulates with half- lives > 8 days	Ci	< LLD	7.07E-08	< LLD	< LLD	7.07E-08	3.43E+01
2. Average release rate for period	µCi/sec	< LLD	8.77E-09	< LLD	< LLD	2.19E-09	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	3.37E+01	1.16E+02	3.72E+02	2.78E+02	8.00E+02	3.85E+01
2. Average release rate for period	µCi/sec	4.23E+00	1.44E+01	4.56E+01	3.41E+01	2.47E+01	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
(1) Estimated total error methodology is presented in Table 36.							
(2) See Table 27 for percent of ODCM Requirement limits.							

Table 21: Unit 3 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	< LLD	< LLD	1.05E+00	< LLD	1.05E+00
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-125	Ci	9.65E-01	< LLD	< LLD	< LLD	9.65E-01
Xe-127	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.29E-01	< LLD	< LLD	< LLD	2.29E-01
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	1.19E+00	< LLD	1.05E+00	< LLD	2.25E+00
2. Iodines						
I-131	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

Table 22: Unit 3 Gaseous Effluents - Ground Level Releases - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3.Particulates						
Ag-110m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Br-82	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-141	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ce-144	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Co-58	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cs-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Nb-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Os-191	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Rb-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ru-103	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Ru-106	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-122	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-124	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sb-125	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Se-75	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sr-89	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Te-123m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zr-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
total	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
4. Tritium						
H-3	Ci	9.05E+00	8.85E+00	1.61E+01	3.84E+01	7.23E+01

Table 23: Unit 3 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	9.01E-02	1.03E-01	1.81E-01	1.15E-01	4.89E-01
Kr-85	Ci	5.26E-02	< LLD	< LLD	< LLD	5.26E-02
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-125	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-127	Ci	< LLD	1.11E-03	8.24E-04	1.68E-04	2.10E-03
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	4.22E-04	5.03E-04	4.46E-04	1.75E-03	3.12E-03
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	1.43E-01	1.04E-01	1.82E-01	1.17E-01	5.47E-01
2. Iodines						
I-131	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

Table 24: Unit 3 Gaseous Effluents - Ground Level Releases - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	2.10E-04	1.21E-05	1.75E-05	1.18E-05	2.51E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	2.40E-08	< LLD	< LLD	2.40E-08
Co-60	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	4.67E-08	< LLD	< LLD	4.67E-08
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
total	Ci	2.10E-04	1.21E-05	1.75E-05	1.18E-05	2.51E-04
4. Tritium						
H-3	Ci	2.47E+01	1.07E+02	3.56E+02	2.40E+02	7.28E+02
Note 1 - Not required for batch releases						

Table 25: Unit 3 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	9.01E-02	1.03E-01	1.23E+00	1.15E-01	1.54E+00
Kr-85	Ci	5.26E-02	< LLD	< LLD	< LLD	5.26E-02
Xe-125	Ci	9.65E-01	< LLD	< LLD	< LLD	9.65E-01
Xe-127	Ci	< LLD	1.11E-03	8.24E-04	1.68E-04	2.10E-03
Xe-133	Ci	4.22E-04	5.03E-04	4.46E-04	1.75E-03	3.12E-03
Xe-135	Ci	2.29E-01	< LLD	< LLD	< LLD	2.29E-01
total	Ci	1.34E+00	1.04E-01	1.23E+00	1.17E-01	2.79E+00
2. Iodines						
< LLD	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

Table 26: Unit 3 Gaseous Effluents - Continuous and Batch - Particulates

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Br-82	Ci	2.10E-04	1.21E-05	1.75E-05	1.18E-05	2.51E-04
Co-58	Ci	< LLD	2.40E-08	< LLD	< LLD	2.40E-08
Cs-134	Ci	< LLD	4.67E-08	< LLD	< LLD	4.67E-08
total	Ci	2.10E-04	1.21E-05	1.75E-05	1.18E-05	2.51E-04
total >8days	Ci	< LLD	7.07E-08	< LLD	< LLD	7.07E-08
4. Tritium						
H-3	Ci	3.37E+01	1.16E+02	3.72E+02	2.78E+02	8.00E+02

Table 27: Unit 3 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	3.61E-04	2.70E-04	3.24E-03	3.03E-04	4.17E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	7.23E-03	5.40E-03	6.48E-02	6.06E-03	4.17E-02
Beta Air Dose	mrad	2.72E-04	9.53E-05	1.14E-03	1.07E-04	1.62E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	2.72E-03	9.53E-04	1.14E-02	1.07E-03	8.09E-03
Maximum Organ Dose (excluding skin)	mrem	8.34E-02	2.88E-01	9.19E-01	6.88E-01	1.98E+00
Age		Child	Child	Child	Child	Child
Organ		Thyroid	Liver	Thyroid	Thyroid	Liver
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	1.11E+00	3.83E+00	1.22E+01	9.17E+00	1.32E+01

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual at the site boundary for all pathways. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

Table 28: Units 1, 2, and 3 Gaseous Effluents - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	< LLD	< LLD	2.55E+00	< LLD	2.55E+00
Kr-85m	Ci	< LLD	2.92E-01	< LLD	< LLD	2.92E-01
Xe-125	Ci	9.65E-01	< LLD	< LLD	< LLD	9.65E-01
Xe-133	Ci	1.67E+01	1.81E+01	8.52E+01	4.16E+00	1.24E+02
Xe-135	Ci	8.69E+00	6.81E+00	5.32E+00	< LLD	2.08E+01
Xe-138	Ci	9.41E-02	< LLD	< LLD	< LLD	9.41E-02
total	Ci	2.64E+01	2.52E+01	9.31E+01	4.16E+00	1.49E+02
2. Iodines						
I-131	Ci	3.80E-05	2.15E-03	1.24E-03	1.11E-03	4.55E-03
I-132	Ci	8.53E-03	3.01E-03	1.16E-03	7.64E-03	2.03E-02
I-133	Ci	< LLD	3.06E-05	4.36E-05	< LLD	7.42E-05
total	Ci	8.57E-03	5.20E-03	2.45E-03	8.75E-03	2.50E-02

Table 29: Units 1, 2, and 3 Gaseous Effluents - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Co-58	Ci	1.57E-05	4.44E-05	6.12E-05	4.19E-05	1.63E-04
Co-60	Ci	< LLD	< LLD	5.94E-07	< LLD	5.94E-07
Cs-134	Ci	< LLD	< LLD	2.85E-06	1.17E-06	4.03E-06
Cs-138	Ci	< LLD	< LLD	5.14E-02	< LLD	5.14E-02
Nb-95	Ci	< LLD	< LLD	< LLD	2.57E-06	2.57E-06
Os-191	Ci	1.27E-05	6.88E-06	6.18E-06	4.72E-06	3.05E-05
Rb-88	Ci	< LLD	3.27E-03	1.05E-01	< LLD	1.09E-01
Ru-103	Ci	< LLD	< LLD	5.64E-06	1.55E-05	2.11E-05
Ru-106	Ci	< LLD	1.23E-05	< LLD	< LLD	1.23E-05
Sb-124	Ci	< LLD	7.63E-06	8.68E-06	2.43E-06	1.87E-05
Se-75	Ci	< LLD	< LLD	< LLD	1.14E-06	1.14E-06
Sr-89	Ci	< LLD	< LLD	1.24E-06	< LLD	1.24E-06
Te-123m	Ci	1.22E-06	< LLD	< LLD	< LLD	1.22E-06
total	Ci	2.96E-05	3.34E-03	1.57E-01	6.94E-05	1.60E-01
4. Tritium						
H-3	Ci	2.12E+01	4.91E+01	2.70E+01	6.10E+01	1.58E+02

Table 30: Units 1, 2, and 3 Gaseous Effluents - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	8.06E-01	3.95E-01	1.48E+00	2.71E-01	2.95E+00
Kr-85	Ci	9.26E-01	1.24E+00	1.74E+00	5.73E-02	3.96E+00
Xe-127	Ci	< LLD	1.11E-03	8.24E-04	1.68E-04	2.10E-03
Xe-131m	Ci	5.20E-02	2.02E-01	7.32E-01	4.62E-01	1.45E+00
Xe-133	Ci	1.01E+01	2.78E+01	6.90E+01	1.49E-01	1.07E+02
Xe-133m	Ci	4.47E-02	9.31E-02	3.57E-01	< LLD	4.94E-01
Xe-135	Ci	1.72E-01	2.46E-03	5.04E-02	4.35E-03	2.29E-01
total	Ci	1.21E+01	2.97E+01	7.34E+01	9.44E-01	1.16E+02
2. Iodines						
I-131	Ci	9.07E-07	1.01E-04	1.62E-03	5.56E-07	1.72E-03
I-132	Ci	3.01E-04	1.68E-03	< LLD	< LLD	1.98E-03
I-133	Ci	1.48E-06	4.15E-05	5.52E-04	6.23E-07	5.95E-04
total	Ci	3.04E-04	1.82E-03	2.17E-03	1.18E-06	4.30E-03

Table 31: Units 1, 2, and 3 Gaseous Effluents - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	1.09E-07	< LLD	< LLD	< LLD	1.09E-07
Br-82	Ci	5.77E-03	1.37E-04	6.57E-04	2.55E-05	6.59E-03
Co-58	Ci	< LLD	2.40E-08	1.09E-07	< LLD	1.33E-07
Co-60	Ci	1.73E-09	< LLD	< LLD	< LLD	1.73E-09
Cs-134	Ci	5.37E-08	4.78E-08	< LLD	< LLD	1.02E-07
Cs-137	Ci	6.25E-08	8.46E-08	< LLD	< LLD	1.47E-07
Cs-138	Ci	< LLD	1.32E-06	1.26E-06	< LLD	2.58E-06
total	Ci	5.77E-03	1.38E-04	6.58E-04	2.55E-05	6.59E-03
4. Tritium						
H-3	Ci	3.98E+02	4.50E+02	5.47E+02	3.39E+02	1.73E+03

Table 32: Units 1, 2, and 3 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	8.06E-01	3.95E-01	4.03E+00	2.71E-01	5.50E+00
Kr-85	Ci	9.26E-01	1.24E+00	1.74E+00	5.73E-02	3.96E+00
Kr-85m	Ci	< LLD	2.92E-01	< LLD	< LLD	2.92E-01
Xe-125	Ci	9.65E-01	< LLD	< LLD	< LLD	9.65E-01
Xe-127	Ci	< LLD	1.11E-03	8.24E-04	1.68E-04	2.10E-03
Xe-131m	Ci	5.20E-02	2.02E-01	7.32E-01	4.62E-01	1.45E+00
Xe-133	Ci	2.68E+01	4.59E+01	1.54E+02	4.31E+00	2.31E+02
Xe-133m	Ci	4.47E-02	9.31E-02	3.57E-01	< LLD	4.94E-01
Xe-135	Ci	8.86E+00	6.81E+00	5.38E+00	4.35E-03	2.10E+01
Xe-138	Ci	9.41E-02	< LLD	< LLD	< LLD	9.41E-02
total	Ci	3.85E+01	5.50E+01	1.66E+02	5.11E+00	2.65E+02
2. Iodines						
I-131	Ci	3.89E-05	2.25E-03	2.87E-03	1.11E-03	6.27E-03
I-132	Ci	8.83E-03	4.69E-03	1.16E-03	7.64E-03	2.23E-02
I-133	Ci	1.48E-06	7.21E-05	5.95E-04	6.23E-07	6.70E-04
total	Ci	8.87E-03	7.02E-03	4.62E-03	8.75E-03	2.93E-02

Table 33: Units 1, 2, and 3 Gaseous Effluents - Continuous and Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
3. Particulates						
Ag-110m	Ci	1.09E-07	< LLD	< LLD	< LLD	1.09E-07
Br-82	Ci	5.77E-03	1.37E-04	6.57E-04	2.55E-05	6.59E-03
Co-58	Ci	1.57E-05	4.44E-05	6.13E-05	4.19E-05	1.63E-04
Co-60	Ci	1.73E-09	< LLD	5.94E-07	< LLD	5.96E-07
Cs-134	Ci	5.37E-08	4.78E-08	2.85E-06	1.17E-06	4.13E-06
Cs-137	Ci	6.25E-08	8.46E-08	< LLD	< LLD	1.47E-07
Cs-138	Ci	< LLD	1.32E-06	5.14E-02	< LLD	5.14E-02
Nb-95	Ci	< LLD	< LLD	< LLD	2.57E-06	2.57E-06
Os-191	Ci	1.27E-05	6.88E-06	6.18E-06	4.72E-06	3.05E-05
Rb-88	Ci	< LLD	3.27E-03	1.05E-01	< LLD	1.09E-01
Ru-103	Ci	< LLD	< LLD	5.64E-06	1.55E-05	2.11E-05
Ru-106	Ci	< LLD	1.23E-05	< LLD	< LLD	1.23E-05
Sb-124	Ci	< LLD	7.63E-06	8.68E-06	2.43E-06	1.87E-05
Se-75	Ci	< LLD	< LLD	< LLD	1.14E-06	1.14E-06
Sr-89	Ci	< LLD	< LLD	1.24E-06	< LLD	1.24E-06
Te-123m	Ci	1.22E-06	< LLD	< LLD	< LLD	1.22E-06
total	Ci	5.80E-03	3.48E-03	1.58E-01	9.50E-05	1.67E-01
4. Tritium						
H-3	Ci	4.19E+02	4.99E+02	5.74E+02	4.00E+02	1.89E+03

Table 34: Units 1, 2 and 3 Gaseous Effluents- Fission Gases and Iodine - Total for Year					
Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1,2 and 3
1. Fission gases					
Ar-41	Ci	3.11E+00	8.48E-01	1.54E+00	5.50E+00
Kr-85	Ci	3.04E+00	8.73E-01	5.26E-02	3.96E+00
Kr-85m	Ci	2.92E-01	< LLD	< LLD	2.92E-01
Xe-125	Ci	< LLD	< LLD	9.65E-01	9.65E-01
Xe-127	Ci	< LLD	< LLD	2.10E-03	2.10E-03
Xe-131m	Ci	1.40E+00	5.23E-02	< LLD	1.45E+00
Xe-133	Ci	2.21E+02	1.03E+01	3.12E-03	2.31E+02
Xe-133m	Ci	4.50E-01	4.47E-02	< LLD	4.94E-01
Xe-135	Ci	2.06E+01	1.76E-01	2.29E-01	2.10E+01
Xe-138	Ci	9.41E-02	< LLD	< LLD	9.41E-02
total	Ci	2.50E+02	1.23E+01	2.79E+00	2.65E+02
2. Iodines					
I-131	Ci	6.22E-03	4.64E-05	< LLD	6.27E-03
I-132	Ci	1.15E-02	1.08E-02	< LLD	2.23E-02
I-133	Ci	6.70E-04	< LLD	< LLD	6.70E-04
total	Ci	1.84E-02	1.08E-02	< LLD	2.93E-02

Table 35: Units 1, 2 and 3 Gaseous Effluents - Particulates - Total for Year					
Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1,2 and 3
3. Particulates					
Ag-110m	Ci	< LLD	1.09E-07	< LLD	1.09E-07
Br-82	Ci	7.65E-04	5.57E-03	2.51E-04	6.59E-03
Co-58	Ci	1.30E-04	3.34E-05	2.40E-08	1.63E-04
Co-60	Ci	5.94E-07	1.73E-09	< LLD	5.96E-07
Cs-134	Ci	4.08E-06	1.06E-09	4.67E-08	4.13E-06
Cs-137	Ci	1.45E-07	2.53E-09	< LLD	1.47E-07
Cs-138	Ci	5.14E-02	< LLD	< LLD	5.14E-02
Nb-95	Ci	2.57E-06	< LLD	< LLD	2.57E-06
Os-191	Ci	1.09E-05	1.96E-05	< LLD	3.05E-05
Rb-88	Ci	1.09E-01	< LLD	< LLD	1.09E-01
Ru-103	Ci	2.11E-05	< LLD	< LLD	2.11E-05
Ru-106	Ci	1.23E-05	< LLD	< LLD	1.23E-05
Sb-124	Ci	1.80E-05	7.33E-07	< LLD	1.87E-05
Se-75	Ci	1.14E-06	< LLD	< LLD	1.14E-06
Sr-89	Ci	4.62E-07	7.78E-07	< LLD	1.24E-06
Te-123m	Ci	1.22E-06	< LLD	< LLD	1.22E-06
total	Ci	1.61E-01	5.63E-03	2.51E-04	1.67E-01
4. Tritium					
H-3	Ci	6.81E+02	4.11E+02	8.00E+02	1.89E+03
Grand total	Ci	9.31E+02	4.23E+02	8.03E+02	2.16E+03

Table 36:
Estimation of Total Percent Error

The estimated total error is calculated as follows:

Total Percent Error = $(E_1^2 + E_2^2 + E_3^2 + ... + E_n^2)^{1/2}$

Where E_n = Percent error associated with each contributing parameter.

Parameters contributing to errors in the measurement of gaseous effluents are; process flow rates, sample collection, analytical counting and tank volumes.

The following values (%) were used for error calculations.

Fission & Act gases	I-131	Particulates	Tritium	
25	25	25	25	Sample counting error
10	10	10	10	Counting system calibration error
5	5	5	5	Counting system source error
20	N/A	N/A	N/A	Temperature/volume correction error
10	10	10	10	Process flow measuring device
N/A	15	15	15	Sample flow measuring device
N/A	5	N/A	N/A	Iodine collection efficiency error
N/A	N/A	10	N/A	Plateout error
N/A	N/A	N/A	20	Bubbler collection efficiency error
N/A	N/A	N/A	2	Sample volume transfer error (pipette)
N/A	N/A	N/A	2	Sample volume error (graduate)

Table 37:
Effluent Monitoring Instrumentation Out Of Service Greater Than 30 Days

Unit	Instrument	Date span of inoperability	Cause of inoperability	Explanation
NONE				

Table 38:
Solid Waste Summary

A. Solid Waste Shipped Offsite For Burial Or Disposal (not irradiated fuel)

1.0 Type of Waste	Unit	Jan-Dec	estimated total error %
1.a. Spent resin, filters, sludges, evaporator bottoms, etc.	m^3	2.71E+02	N/A
	Ci	1.48E+01	2.50E+01
1.b. Dry compressible waste, contaminated equipment, etc.	m^3	1.27E+02	N/A
	Ci	1.40E+00	2.50E+01
1.c. Irradiated components, fuel rods, etc.	m^3	0.00E+00	N/A
	Ci	0.00E+00	N/A
1.d. Other (Absorbed chemical cleaning waste)	m^3	2.08E+02	N/A
	Ci	3.83E-01	2.50E+01
Volume and activity for dry compressible waste, contaminated equipment, etc., includes PVNGS waste disposed of after being processed by a volume reduction facility.			

2.0 Principal Radionuclides

2.a Estimate of major nuclide concentration for spent resins, filter sludges, evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	3.24E+01	4.79E+00
A	Cs-137	1.15E+01	1.70E+00
A	Ni-63	1.43E+01	2.12E+00
A	Co-60	2.00E+01	2.95E+00
A	Cs-134	5.58E+00	8.24E-01
A	C-14	4.93E+00	7.28E-01
A	Ru-106	1.24E+00	1.83E-01
A	Sb-125	1.87E+00	2.77E-01
A	Pu-241	8.18E-01	1.21E-01
A	Ag-110m	1.02E+00	1.50E-01
A	H-3	2.05E+00	3.03E-01
A	Co-58	2.33E+00	3.44E-01
A	Ce-144	3.19E-01	4.70E-02
A	Mn-54	8.69E-01	1.28E-01
A	Sb-124	3.37E-01	4.98E-02
A	Ni-59	7.11E-02	1.05E-02
A	Nb-94	4.89E-02	7.22E-03

2.a	Estimate of major nuclide concentration for spent resins, filter sludges, evaporator bottoms, etc.		
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Zr-95	6.10E-02	9.00E-03
A	Co-57	7.84E-02	1.16E-02
A	Sr-90	3.09E-02	4.56E-03
A	Sn-113	2.43E-02	3.59E-03
A	Cm243/44	1.48E-02	2.19E-03
A	Pu-238	1.40E-02	2.07E-03
A	Nb-95	3.93E-02	5.81E-03
A	Ru-103	5.43E-03	8.02E-04
A	Pu239/40	6.05E-03	8.94E-04
A	Am-241	5.79E-03	8.55E-04
A	Te-123m	1.16E-02	1.71E-03
A	Cm-242	4.02E-03	5.94E-04
A	Sr-89	6.52E-03	9.63E-04
A	Ce-141	1.09E-03	1.62E-04
A	Cr-51	4.41E-03	6.51E-04
A	Zn-65	1.71E-02	2.53E-03
A	Fe-59	6.46E-04	9.54E-05
A	Cd-109	3.23E-04	4.77E-05
		Total	1.48E+01

2.b	Estimate of major nuclide concentration for dry compressible waste, contaminated equipment, etc.		
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	4.10E+01	5.74E-01
A	Cs-137	1.61E+01	2.26E-01
A	Ni-63	8.39E+00	1.18E-01
A	Co-60	1.81E+01	2.54E-01
A	Cs-134	6.24E+00	8.74E-02
A	C-14	1.01E+00	1.41E-02
A	Ru-106	2.75E-01	3.85E-03
A	Sb-125	1.36E+00	1.90E-02
A	Pu-241	6.19E-01	8.67E-03
A	Ag-110m	7.87E-01	1.10E-02
A	H-3	2.37E+00	3.31E-02
A	Co-58	1.30E+00	1.82E-02
A	Ce-144	3.63E-01	5.09E-03

2.b	Estimate of major nuclide concentration for dry compressible waste, contaminated equipment, etc.		
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Mn-54	9.39E-01	1.31E-02
A	Sb-124	3.25E-01	4.55E-03
A	Ni-59	3.50E-02	4.90E-04
A	Nb-94	0.00E+00	0.00E+00
A	Zr-95	2.60E-01	3.64E-03
A	Co-57	5.33E-02	7.46E-04
A	Sr-90	6.74E-02	9.43E-04
A	Sn-113	6.73E-02	9.42E-04
A	Cm243/44	8.05E-03	1.13E-04
A	Pu-238	8.05E-03	1.13E-04
A	Nb-95	1.75E-01	2.45E-03
A	Ru-103	2.83E-04	3.96E-06
A	Pu239/40	4.66E-03	6.53E-05
A	Am-241	5.54E-03	7.75E-05
A	Te-123m	1.73E-02	2.42E-04
A	Cm-242	3.20E-03	4.48E-05
A	Sr-89	3.75E-03	5.25E-05
A	Ce-141	0.00E+00	0.00E+00
A	Cr-51	2.81E-02	3.94E-04
A	Zn-65	0.00E+00	0.00E+00
A	Fe-59	2.57E-02	3.59E-04
A	Cd-109	6.69E-03	9.36E-05
A	Ba-133	3.06E-02	4.28E-04
		Total	1.40E+00

2.c Estimate of major nuclide concentration for irradiated components, fuel rods, etc. None shipped.

2.d	Estimate of major nuclide concentration for absorbed chemical cleaning waste.		
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	3.31E+01	1.27E-01
A	Cs-137	3.66E-01	1.40E-03
A	Ni-63	2.63E+01	1.01E-01
A	Co-60	3.36E+01	1.29E-01
A	Cs-134	2.44E-01	9.35E-04
A	C-14	2.63E+00	1.01E-02
A	Ru-106	0.00E+00	0.00E+00

2.d	Estimate of major nuclide concentration for absorbed chemical cleaning waste.		
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Sb-125	4.86E-01	1.86E-03
A	Pu-241	1.17E-01	4.48E-04
A	Ag-110m	0.00E+00	0.00E+00
A	H-3	9.69E-01	3.71E-03
A	Co-58	1.44E-01	5.52E-04
A	Ce-144	1.95E-01	7.47E-04
A	Mn-54	8.55E-01	3.27E-03
A	Sb-124	0.00E+00	0.00E+00
A	Ni-59	7.41E-01	2.84E-03
A	Nb-94	0.00E+00	0.00E+00
A	Zr-95	0.00E+00	0.00E+00
A	Co-57	1.06E-01	4.06E-04
A	Sr-90	4.60E-02	1.76E-04
A	Sn-113	0.00E+00	0.00E+00
A	Cm243/44	0.00E+00	0.00E+00
A	Pu-238	1.00E-03	3.83E-06
A	Nb-95	0.00E+00	0.00E+00
A	Ru-103	0.00E+00	0.00E+00
A	Pu239/40	1.00E-03	3.83E-06
A	Am-241	1.00E-03	3.83E-06
A	Te-123m	0.00E+00	0.00E+00
A	Cm-242	0.00E+00	0.00E+00
A	Sr-89	0.00E+00	0.00E+00
A	Ce-141	0.00E+00	0.00E+00
A	Cr-51	0.00E+00	0.00E+00
A	Zn-65	0.00E+00	0.00E+00
A	Fe-59	0.00E+00	0.00E+00
A	Cd-109	0.00E+00	0.00E+00
A	Ba-133	0.00E+00	0.00E+00
		Total	3.83E-01

3.0 Solid Waste Disposition

3.a.

Shipments	Shipper	Mode Of Transportation	Destination
21	APS	TRUCK	Envirocare of Utah
19	APS	TRUCK	Barnwell, Sc
21	SEG	TRUCK	Barnwell, Sc

3.b. Irradiated Fuel Shipments: None

3.c. Supplemental Information - This section includes PVNGS and vendor provided containers.

Number Of Containers	Container Volume ft^3	Type Of Waste	Container Type	Solidification Agent
2	11.6	DAW	DRUM	NONE
12	12.1	DAW	DRUM	NONE
12	46	DAW	OP-45	NONE
61	49	DAW	OP-45A	NONE
646	7.5	Concentrate	DRUM	NONE
31	46	DAW	OP-45	NONE
40	49.9	DAW	OP-45A	NONE
4	12.1	DAW	DRUM	NONE
120	102.1	Chem Cleaning Waste	B-25	NONE
30	199.4	RESIN	CS-210	NONE

4.0 Changes to Processes and/or Equipment

4.a The Process Control Program has not been revised during this report period.

4.b No major changes were made to installed plant equipment.

4.c No major changes were made to installed plant equipment. Therefore, predicted release or quantity of solid waste generated, remain unchanged as addressed in the UFSAR.

4.d No major changes were made to installed plant equipment. Therefore, predicted exposure to the public and general population, remain unchanged as addressed in the UFSAR.

APPENDIX B

METEOROLOGY

JOINT FREQUENCY DISTRIBUTION TABLES

The tables presented in this section are results obtained from processing the hourly meteorological data collected at the Palo Verde Nuclear Generating Station for the period of January - December 1996. The joint frequency distribution (JFD) tables represent the frequency, in terms of the number of observations, that a particular wind speed, wind direction, and stability category occurred simultaneously. On a quarterly, semiannual and annual basis, the JFDs were produced for 35-foot wind speed and wind direction by atmospheric stability class corresponding to the seven Pasquill stability categories, and for wind speed and wind direction for all stability classes combined. Atmospheric stability was classified per Regulatory Guide 1.23, using the 200-foot to 35-foot temperature difference (delta T).

In accordance with NUREG-0133, the batch releases for 1996 were considered as "long term," since for each quarter, the sum of the batch release periods for each unit exceeded 150 hours. Consequently, the JFDs for the batch releases for all quarters are the same as for the continuous releases.

Discussion

A summary of 1996 Joint Frequency Distribution (JFD) showed a somewhat typical year, but not the variations that result in the multiplicity of conditions that make each year unique. Of the 8784 hours available, only 9 were lost for a 99.9% recovery. The lost hours can be attributed to a lengthy power outage in August; of 26 hours without power, the UPS carried the system for 17.
The average speed was 7.0 mph. Distribution of directions was spread over the compass with a predominant direction (3 sectors of 22.5 degrees each) centered on southwest (35.4%). A secondary maximum of 3 sectors centered on north contained 25.9% of the total. Speeds averaged higher with southwesterly flow; the most frequent speed was 10.0 mph. With northerly directions the highest frequency occurred at 4.0 mph. Stability class G (extremely stable) existed 23.9% of the time and overall stable conditions (E,F,G) dominated with 55.5% of all hours. Unstable categories (A,B,C) accounted for 27.0%; the neutral (D) had the balance. Light northerly flow is most likely for stable conditions, while unstable atmospheres are usually associated with faster southwesterly winds. This distribution is typical of moderate altitude dry climates.

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 3/31/96

1ST QTR 96

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5.51- 6.50	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3
6.51- 8.50	0	0	1	2	1	0	0	2	1	1	2	0	0	0	1	0	11
8.51-11.50	0	1	2	0	2	0	0	0	0	7	2	2	3	1	0	0	20
11.51-14.50	2	1	0	0	0	1	0	0	0	3	8	6	5	6	2	3	37
14.51-20.50	0	0	0	1	1	0	0	0	0	3	7	1	1	8	0	0	22
>20.50	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	4
TOTAL	2	2	6	3	5	1	0	3	1	14	19	9	9	18	3	3	98

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	3
4.51- 5.50	0	0	1	0	1	0	1	0	1	1	0	2	1	1	0	1	10
5.51- 6.50	0	0	2	1	2	3	3	1	2	2	4	2	0	0	0	0	22
6.51- 8.50	0	2	7	2	5	4	0	0	2	4	5	1	0	0	1	0	33
8.51-11.50	1	1	1	5	1	2	0	0	3	5	7	3	3	1	1	0	34
11.51-14.50	1	0	0	0	2	0	0	0	0	0	3	1	1	2	0	0	10
14.51-20.50	0	0	0	0	0	0	0	0	0	0	4	1	3	0	0	0	8
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL	2	3	11	8	12	10	4	1	8	12	23	11	8	5	2	1	121

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
3.51- 4.50	4	4	3	3	1	0	1	0	2	1	5	3	2	0	2	1	32
4.51- 5.50	0	1	3	1	2	5	0	3	5	4	10	2	3	1	1	1	42
5.51- 6.50	3	3	3	2	0	2	0	0	8	5	3	1	0	2	0	0	32
6.51- 8.50	0	1	3	1	1	1	2	3	3	4	6	3	2	0	0	0	30
8.51-11.50	0	0	1	7	0	1	0	0	2	1	4	2	0	1	0	0	19
11.51-14.50	1	0	0	3	2	0	0	0	0	0	2	2	0	0	0	0	10
14.51-20.50	0	0	0	0	1	0	0	1	1	1	3	1	0	1	0	0	9
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL	8	9	14	17	7	9	3	7	21	16	33	15	7	6	3	2	177

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 3/31/96

1ST QTR 96

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	0	2	0	1	1	3	1	1	1	2	1	0	2	3	2	1	21
2.51- 3.50	3	7	2	5	4	2	2	7	7	19	14	10	5	6	3	9	105
3.51- 4.50	5	5	7	4	4	2	5	6	11	12	8	3	8	3	7	2	92
4.51- 5.50	0	3	4	3	0	1	1	3	6	9	3	2	3	1	1	1	41
5.51- 6.50	0	0	2	2	1	2	2	0	7	2	2	2	1	1	2	0	26
6.51- 8.50	1	0	3	1	2	4	2	1	4	4	9	1	0	0	0	3	35
8.51-11.50	2	0	2	3	4	3	1	0	0	4	9	4	2	3	1	2	40
11.51-14.50	0	0	1	3	4	0	0	1	0	0	5	2	0	4	0	1	21
14.51-20.50	0	0	0	2	6	0	0	1	0	0	9	2	1	1	0	0	22
>20.50	0	0	0	0	4	0	0	0	2	1	0	0	1	1	0	0	9
TOTAL	11	17	21	25	30	17	14	20	38	53	60	26	23	23	16	19	413

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	0	3	1	3	0	0	0	0	1	2	1	5	2	4	4	2	28
2.51- 3.50	7	3	1	0	0	2	1	0	1	3	1	6	5	0	5	6	41
3.51- 4.50	3	5	2	1	1	0	1	0	1	5	0	3	3	4	1	1	31
4.51- 5.50	1	4	1	0	0	1	1	2	1	9	7	4	2	2	4	1	40
5.51- 6.50	0	1	2	0	1	0	0	0	2	4	3	2	0	1	0	0	16
6.51- 8.50	1	2	3	1	0	2	0	0	3	9	16	7	5	2	3	0	54
8.51-11.50	1	1	6	0	0	0	0	2	0	9	13	9	7	3	6	2	59
11.51-14.50	2	0	0	9	3	0	0	0	0	7	8	6	2	3	1	1	42
14.51-20.50	1	0	0	6	12	1	0	0	0	2	5	4	1	3	0	1	36
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	16	19	16	21	17	6	3	4	9	50	54	46	27	22	24	14	348

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	4	1	0	0	0	0	0	0	0	0	1	2	2	0	4	5	19
2.51- 3.50	9	2	0	2	0	1	1	0	0	1	3	2	9	8	9	10	57
3.51- 4.50	9	6	1	2	1	0	0	1	2	5	2	4	1	6	6	10	56
4.51- 5.50	7	4	1	0	0	0	1	0	3	5	5	3	5	3	4	5	46
5.51- 6.50	4	3	2	1	1	1	0	0	1	3	0	1	3	3	8	6	37
6.51- 8.50	2	5	2	0	0	0	1	0	0	3	13	5	5	4	2	1	43
8.51-11.50	2	1	3	0	0	0	0	0	0	4	10	2	1	1	0	6	30
11.51-14.50	0	0	0	0	0	0	0	0	0	2	1	1	0	0	0	0	4
14.51-20.50	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	39	24	9	5	2	2	3	1	6	23	35	20	26	25	33	43	296

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 3/31/96

1ST QTR 96

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1.51- 2.50	9	6	2	3	0	0	0	0	0	1	1	7	3	5	17	14	68
2.51- 3.50	52	22	2	1	1	2	1	0	0	2	4	4	11	16	33	40	191
3.51- 4.50	66	22	12	1	1	2	0	0	1	0	3	2	0	5	30	58	203
4.51- 5.50	51	27	2	0	0	0	0	0	0	0	1	2	2	2	9	24	120
5.51- 6.50	37	14	1	2	0	0	0	0	0	2	1	0	0	0	4	14	75
6.51- 8.50	26	14	4	0	0	0	0	0	0	1	0	1	0	0	1	6	53
8.51-11.50	9	4	2	0	0	0	0	0	0	0	1	0	0	0	0	4	20
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	250	109	25	7	2	4	1	0	1	6	11	16	16	28	95	160	731

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	4
1.51- 2.50	13	12	3	7	1	3	1	1	2	5	4	14	9	12	27	22	136
2.51- 3.50	71	34	6	8	5	7	5	7	8	25	22	23	30	30	50	65	396
3.51- 4.50	87	42	25	11	9	5	7	7	17	23	18	16	14	18	46	72	417
4.51- 5.50	59	39	13	4	3	7	4	8	16	28	26	15	16	10	19	33	300
5.51- 6.50	44	21	14	8	6	8	5	1	20	18	13	8	4	7	14	20	211
6.51- 8.50	30	24	23	7	9	11	5	6	13	26	51	18	12	6	8	10	259
8.51-11.50	15	8	17	15	7	6	1	2	5	30	46	22	16	10	8	14	222
11.51-14.50	6	1	1	15	11	1	0	1	0	12	27	18	8	15	3	5	124
14.51-20.50	3	1	0	9	20	1	0	2	1	6	28	9	6	13	0	1	100
>20.50	0	0	0	0	4	0	0	1	2	1	0	0	1	6	0	0	15
TOTAL	328	183	102	86	75	49	28	36	84	174	235	143	116	127	176	242	2184

TOTAL NUMBER OF OBSERVATIONS: 2184
TOTAL NUMBER OF VALID OBSERVATIONS: 2184
TOTAL NUMBER OF MISSING OBSERVATIONS: 0
PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
MEAN WIND SPEED FOR THIS PERIOD: 6.3 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
4.49	5.54	8.10	18.91	15.93	13.55	33.47

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	2	2	6	3	5	1	0	3	1	14	19	9	9	18	3	3	0
B	2	3	11	8	12	10	4	1	8	12	23	11	8	5	2	1	0
C	8	9	14	17	7	9	3	7	21	16	33	15	7	6	3	2	0
D	11	17	21	25	30	17	14	20	38	53	60	26	23	23	16	19	0
E	16	19	16	21	17	6	3	4	9	50	54	46	27	22	24	14	0
F	39	24	9	5	2	2	3	1	6	23	35	20	26	25	33	43	0
G	250	109	25	7	2	4	1	0	1	6	11	16	16	28	95	160	0
TOTAL	328	183	102	86	75	49	28	36	84	174	235	143	116	127	176	242	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 4/ 1/96 - 6/30/96

2ND QTR 96

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	3
4.51- 5.50	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	3
5.51- 6.50	0	0	0	1	2	3	1	2	1	4	3	1	1	1	0	0	20
6.51- 8.50	1	1	1	2	1	4	1	4	12	30	18	13	10	0	1	1	100
8.51-11.50	4	2	0	3	2	1	1	1	7	27	64	21	7	5	1	1	147
11.51-14.50	0	2	0	2	3	0	0	0	3	16	43	11	5	3	1	0	89
14.51-20.50	0	0	1	2	0	0	0	0	3	17	46	9	0	0	3	6	87
>20.50	0	0	0	0	0	0	0	0	0	1	6	0	0	0	1	1	9
TOTAL	6	5	2	11	10	8	4	7	26	96	180	55	23	9	7	9	458

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3.51- 4.50	0	0	1	0	1	1	0	0	0	0	0	2	1	1	0	0	7
4.51- 5.50	1	0	0	3	1	1	1	1	3	4	6	5	1	2	0	0	29
5.51- 6.50	0	1	0	0	3	4	0	6	20	10	3	3	1	1	0	1	53
6.51- 8.50	2	0	0	1	3	0	4	3	14	13	9	4	4	0	0	0	57
8.51-11.50	1	0	0	0	1	3	0	0	0	3	10	5	3	0	1	0	27
11.51-14.50	0	0	2	1	1	0	0	0	0	1	13	4	2	0	1	1	26
14.51-20.50	0	0	0	0	0	0	0	0	0	0	5	0	0	1	0	0	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	1	3	5	10	9	5	11	37	31	46	23	12	5	2	2	206

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2.51- 3.50	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	3
3.51- 4.50	0	2	0	0	4	1	1	1	2	2	1	0	2	1	0	1	18
4.51- 5.50	0	0	1	1	1	1	3	5	16	10	8	4	0	0	1	0	51
5.51- 6.50	0	0	0	0	0	1	0	8	17	3	4	1	0	0	1	0	35
6.51- 8.50	0	0	0	0	0	0	0	5	2	3	4	3	0	0	1	0	18
8.51-11.50	1	0	0	0	2	0	0	0	0	1	5	4	1	1	1	0	16
11.51-14.50	0	1	0	0	0	0	0	0	0	2	3	1	0	2	0	0	9
14.51-20.50	0	0	0	0	0	0	0	0	0	1	2	1	0	1	0	1	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	3	2	2	8	3	4	19	37	22	28	14	3	5	4	2	157

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 4/ 1/96 - 6/30/96

2ND QTR 96

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	1	1	2	1	0	0	1	1	2	0	0	0	0	1	1	0	11
2.51- 3.50	3	2	0	7	4	3	2	6	5	5	1	4	0	1	5	1	49
3.51- 4.50	3	2	1	5	1	2	3	2	5	6	5	2	2	3	0	0	42
4.51- 5.50	2	0	0	0	0	0	2	2	5	4	2	1	1	2	1	0	22
5.51- 6.50	0	1	0	1	1	0	0	1	0	0	5	3	2	0	0	0	14
6.51- 8.50	1	0	0	0	1	1	1	0	0	2	8	1	1	1	1	0	18
8.51-11.50	0	3	0	0	1	1	0	0	0	2	11	6	1	0	0	1	26
11.51-14.50	0	1	2	2	2	2	0	0	0	5	12	7	4	0	2	2	41
14.51-20.50	0	0	0	1	5	2	0	0	0	2	15	7	1	0	1	0	34
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	10	5	17	16	11	9	12	17	26	59	31	12	8	11	4	258

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
1.51- 2.50	3	1	1	0	0	0	0	1	0	1	2	1	0	0	1	0	11
2.51- 3.50	5	2	1	1	1	0	1	0	1	4	6	3	2	4	2	1	34
3.51- 4.50	2	3	0	0	0	0	0	1	2	1	5	8	1	0	1	1	25
4.51- 5.50	2	0	0	0	2	0	1	0	1	7	7	6	1	1	0	1	29
5.51- 6.50	1	2	1	2	0	0	0	0	3	3	8	6	2	2	0	0	30
6.51- 8.50	2	1	0	1	1	0	0	1	1	11	17	12	6	7	2	0	62
8.51-11.50	2	3	1	0	2	1	0	0	3	21	50	31	11	6	4	1	136
11.51-14.50	0	1	0	0	7	0	0	0	0	8	30	9	2	4	1	0	62
14.51-20.50	0	0	0	0	4	0	0	0	0	1	5	1	1	0	1	0	13
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	18	13	4	4	17	1	2	3	12	57	130	77	26	24	12	4	404

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
1.51- 2.50	2	1	0	0	0	1	0	0	2	0	0	6	2	1	3	1	19
2.51- 3.50	3	6	0	1	0	0	0	0	1	2	6	9	11	7	5	3	54
3.51- 4.50	2	1	1	0	1	0	0	0	2	5	7	14	6	6	3	2	50
4.51- 5.50	1	2	1	1	0	0	0	0	0	5	7	12	5	2	1	2	39
5.51- 6.50	0	1	0	0	0	0	0	0	3	2	6	4	4	2	2	0	24
6.51- 8.50	1	0	1	0	1	0	0	1	0	13	20	30	11	2	3	2	85
8.51-11.50	1	3	3	0	0	0	0	0	0	12	29	12	3	1	2	0	66
11.51-14.50	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	10	14	6	2	2	1	0	1	8	39	78	88	42	21	20	10	342

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 4/ 1/96 - 6/30/96

2ND QTR 96

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	4	2	1	1	2	0	0	0	0	0	0	1	2	2	1	3	19
2.51- 3.50	20	16	4	1	0	1	0	0	3	1	3	3	3	5	8	14	82
3.51- 4.50	38	14	4	1	1	1	1	0	0	0	3	2	7	10	4	21	107
4.51- 5.50	31	20	4	1	2	0	0	0	0	2	0	4	3	3	3	9	82
5.51- 6.50	8	10	5	0	0	0	0	0	0	2	3	0	0	2	3	3	36
6.51- 8.50	9	4	1	0	0	0	1	0	0	0	1	2	0	2	1	4	25
8.51-11.50	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	8
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	112	66	19	4	5	2	2	0	3	7	11	12	15	24	20	57	359

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	4
1.51- 2.50	10	5	4	3	2	1	1	2	4	1	2	8	4	4	6	4	61
2.51- 3.50	31	26	6	10	6	4	3	7	10	12	17	19	16	17	20	19	223
3.51- 4.50	45	22	7	6	10	5	6	4	11	14	21	28	19	21	8	25	252
4.51- 5.50	38	22	6	7	6	2	7	8	25	33	30	32	11	10	6	12	255
5.51- 6.50	9	15	6	4	6	8	1	17	44	24	32	18	10	8	6	4	212
6.51- 8.50	16	6	3	4	7	5	7	14	29	72	77	65	32	12	9	7	365
8.51-11.50	11	11	4	3	8	6	1	1	10	68	170	79	26	13	9	6	426
11.51-14.50	0	5	4	5	13	2	0	0	3	32	104	32	13	9	6	3	231
14.51-20.50	0	0	1	3	9	2	0	0	3	21	73	18	2	2	5	7	146
>20.50	0	0	0	0	0	0	0	0	0	1	6	0	0	0	1	1	9
TOTAL	161	112	41	45	68	35	26	53	140	278	532	300	133	96	76	88	2184

TOTAL NUMBER OF OBSERVATIONS: 2184
TOTAL NUMBER OF VALID OBSERVATIONS: 2184
TOTAL NUMBER OF MISSING OBSERVATIONS: 0
PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
MEAN WIND SPEED FOR THIS PERIOD: 7.8 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
20.97	9.43	7.19	11.81	18.50	15.66	16.44

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	6	5	2	11	10	8	4	7	26	96	180	55	23	9	7	9	0
B	4	1	3	5	10	9	5	11	37	31	46	23	12	5	2	2	0
C	1	3	2	2	8	3	4	19	37	22	28	14	3	5	4	2	0
D	10	10	5	17	16	11	9	12	17	26	59	31	12	8	11	4	0
E	18	13	4	4	17	1	2	3	12	57	130	77	26	24	12	4	0
F	10	14	6	2	2	1	0	1	8	39	78	88	42	21	20	10	0
G	112	66	19	4	5	2	2	0	3	7	11	12	15	24	20	57	0
TOTAL	161	112	41	45	68	35	26	53	140	278	532	300	133	96	76	88	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 9/30/96

3RD QTR 96

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	1	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	6
5.51- 6.50	2	0	2	3	0	2	0	1	1	3	8	3	3	0	0	2	30
6.51- 8.50	0	1	3	7	9	3	4	6	2	24	25	19	2	1	1	0	107
8.51-11.50	0	0	1	4	9	4	1	2	9	18	60	29	15	0	0	0	152
11.51-14.50	0	0	0	0	4	1	1	0	1	3	24	10	1	1	1	0	47
14.51-20.50	0	0	0	1	2	0	0	0	1	3	6	3	0	1	1	0	18
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	1	6	15	24	10	6	9	15	52	124	66	21	3	4	2	361

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	1	0	1	0	0	0	0	0	0	4	1	0	1	0	1	9
4.51- 5.50	2	1	2	1	0	0	2	1	5	3	3	5	5	3	2	1	36
5.51- 6.50	2	1	5	2	4	1	1	3	7	7	10	3	1	2	0	0	49
6.51- 8.50	0	1	3	7	3	6	6	3	14	22	17	5	5	1	0	0	93
8.51-11.50	0	1	1	3	6	1	0	0	5	3	13	7	3	1	2	0	46
11.51-14.50	0	0	0	0	5	0	0	0	0	1	4	5	0	0	0	0	15
14.51-20.50	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	5	11	14	19	8	9	7	31	37	51	27	14	8	4	2	251

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
3.51- 4.50	2	0	1	1	0	0	0	1	2	3	1	2	2	0	0	0	15
4.51- 5.50	0	2	6	1	1	0	1	1	4	10	5	7	1	0	2	1	42
5.51- 6.50	0	1	4	2	2	0	2	2	3	10	6	2	3	1	0	0	38
6.51- 8.50	2	1	0	3	3	2	4	2	6	7	9	5	1	0	0	0	45
8.51-11.50	0	0	0	1	3	1	0	1	0	3	5	3	3	1	1	0	22
11.51-14.50	0	0	0	2	5	1	0	0	2	1	5	0	0	0	0	0	16
14.51-20.50	0	0	0	0	1	0	0	0	0	3	1	0	0	0	0	0	5
>20.50	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	4	4	12	10	16	4	7	7	17	37	32	20	10	2	3	1	186

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 9/30/96

3RD QTR 96

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	1	0	2	1	0	2	1	0	7
2.51- 3.50	3	1	1	1	0	0	1	0	2	2	2	4	2	2	1	1	23
3.51- 4.50	2	2	4	1	0	1	1	2	4	7	6	3	1	2	0	1	37
4.51- 5.50	0	1	3	2	0	0	3	1	5	4	4	7	0	2	2	0	34
5.51- 6.50	1	1	3	3	1	3	2	1	3	6	5	3	4	1	0	0	37
6.51- 8.50	2	3	3	4	2	0	4	1	3	9	14	8	6	1	0	0	60
8.51-11.50	3	0	1	9	7	6	6	5	3	13	26	27	3	1	0	1	111
11.51-14.50	3	2	1	3	15	4	1	0	3	9	32	7	1	1	2	1	85
14.51-20.50	1	2	4	1	4	2	1	2	3	15	22	3	0	0	0	0	60
>20.50	0	0	0	1	4	1	1	1	0	0	1	0	0	0	0	0	9
TOTAL	15	12	20	25	33	17	20	13	27	65	114	63	17	12	6	4	463

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	1	1	0	0	0	0	0	0	0	1	0	2	2	4	3	1	15
2.51- 3.50	5	3	1	0	2	2	1	1	1	4	1	2	5	2	8	3	41
3.51- 4.50	6	5	3	1	1	0	1	0	2	2	7	3	4	2	1	1	39
4.51- 5.50	4	4	2	0	2	0	1	1	3	2	8	8	4	4	1	1	45
5.51- 6.50	3	5	2	2	1	0	1	0	7	10	17	8	1	3	0	5	65
6.51- 8.50	3	8	9	3	0	2	2	3	4	18	33	12	7	0	1	2	107
8.51-11.50	0	4	6	15	8	5	2	5	1	14	48	17	2	2	1	1	131
11.51-14.50	0	4	1	6	5	3	4	1	1	4	27	4	0	0	0	0	60
14.51-20.50	0	1	1	1	7	0	0	1	0	1	3	1	0	0	0	0	16
>20.50	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	4
TOTAL	22	35	25	28	27	12	13	12	20	57	144	57	25	17	15	14	523

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	3	0	1	0	0	0	0	0	0	0	1	0	1	2	7	2	17
2.51- 3.50	6	0	5	2	1	1	1	2	1	0	2	5	2	10	8	6	52
3.51- 4.50	9	5	3	3	0	0	1	2	2	1	5	8	4	4	6	7	60
4.51- 5.50	5	4	0	2	0	0	1	0	0	0	4	4	5	2	1	7	35
5.51- 6.50	2	1	2	3	0	0	0	1	5	8	9	4	7	1	0	3	46
6.51- 8.50	1	4	2	0	0	0	0	0	3	2	12	6	2	0	0	1	33
8.51-11.50	0	0	2	0	0	0	0	0	1	0	7	1	0	0	1	2	14
11.51-14.50	0	2	2	0	0	0	0	0	0	0	0	0	1	0	0	0	5
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	26	17	17	10	1	1	3	5	12	11	40	28	22	19	23	28	263

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 9/30/96

3RD QTR 96

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	1	1	0	0	0	0	0	0	0	0	1	0	0	4	5	3	15
2.51- 3.50	12	5	0	1	0	0	0	0	0	0	1	2	5	5	5	6	42
3.51- 4.50	17	7	0	0	0	0	0	0	1	0	0	1	1	2	3	6	38
4.51- 5.50	18	7	2	0	0	0	0	0	0	0	0	0	0	0	1	5	33
5.51- 6.50	3	9	1	0	0	0	0	0	0	0	0	0	1	1	1	1	17
6.51- 8.50	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8.51-11.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	51	34	5	1	0	0	0	0	1	0	2	3	7	12	15	21	152

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	5	2	1	0	0	0	0	0	1	1	4	3	3	12	16	6	54
2.51- 3.50	26	9	7	4	3	3	3	3	4	6	6	14	14	19	23	16	160
3.51- 4.50	36	20	11	7	1	1	3	5	11	13	23	18	12	11	10	16	198
4.51- 5.50	30	19	15	6	3	0	8	4	18	20	25	33	15	11	9	15	231
5.51- 6.50	13	18	19	15	8	6	6	8	26	44	55	23	20	9	1	11	282
6.51- 8.50	8	23	22	24	17	13	20	15	32	82	110	55	23	3	2	3	452
8.51-11.50	3	5	11	32	33	17	9	13	19	51	159	84	26	5	5	4	476
11.51-14.50	3	8	4	11	34	9	6	1	7	18	92	26	3	2	3	1	228
14.51-20.50	1	3	5	3	15	2	1	3	4	23	32	8	0	1	1	0	102
>20.50	0	0	1	1	6	1	2	1	1	1	1	0	0	0	0	0	15
TOTAL	125	108	96	103	120	52	58	53	123	259	507	264	116	73	70	72	2199

TOTAL NUMBER OF OBSERVATIONS: 2208
TOTAL NUMBER OF VALID OBSERVATIONS: 2199
TOTAL NUMBER OF MISSING OBSERVATIONS: 9
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.6 %
MEAN WIND SPEED FOR THIS PERIOD: 7.9 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
16.42	11.41	8.46	21.06	23.78	11.96	6.91

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	3	1	6	15	24	10	6	9	15	52	124	66	21	3	4	2	0
B	4	5	11	14	19	8	9	7	31	37	51	27	14	8	4	2	0
C	4	4	12	10	16	4	7	7	17	37	32	20	10	2	3	1	0
D	15	12	20	25	33	17	20	13	27	65	114	63	17	12	6	4	0
E	22	35	25	28	27	12	13	12	20	57	144	57	25	17	15	14	0
F	26	17	17	10	1	1	3	5	12	11	40	28	22	19	23	28	0
G	51	34	5	1	0	0	0	0	1	0	2	3	7	12	15	21	0
TOTAL	125	108	96	103	120	52	58	53	123	259	507	264	116	73	70	72	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 10/ 1/96 - 12/31/96

4TH QTR 96

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
6.51- 8.50	1	1	0	2	4	1	0	1	1	0	0	0	0	0	0	0	11
8.51-11.50	2	2	4	4	6	0	0	0	2	2	5	0	0	1	1	0	29
11.51-14.50	0	1	0	1	3	0	0	0	0	1	5	3	0	0	0	0	14
14.51-20.50	0	0	3	0	0	0	0	0	0	0	7	2	0	6	0	1	19
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	5
TOTAL	3	4	7	7	13	1	0	1	3	3	18	5	4	7	1	2	79

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4.51- 5.50	0	1	2	0	0	0	0	1	0	0	0	1	0	1	0	0	6
5.51- 6.50	1	0	2	5	2	0	0	1	2	0	0	1	0	0	0	0	14
6.51- 8.50	0	3	5	11	4	1	1	4	0	0	5	1	2	0	0	0	37
8.51-11.50	1	2	4	5	1	2	0	0	1	3	2	1	0	0	0	2	24
11.51-14.50	0	1	0	0	4	0	0	0	2	1	2	1	1	0	0	0	12
14.51-20.50	0	0	0	1	2	0	0	0	0	0	1	0	1	2	0	0	7
>20.50	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
TOTAL	3	7	13	22	13	3	1	6	5	4	12	5	4	3	0	2	103

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2
3.51- 4.50	1	3	4	1	1	2	0	1	1	2	1	5	1	1	0	1	25
4.51- 5.50	4	3	4	6	0	0	1	2	10	5	6	1	3	2	1	2	50
5.51- 6.50	1	1	5	5	2	0	0	0	4	5	2	2	0	0	0	0	27
6.51- 8.50	1	3	4	7	3	3	1	1	3	0	4	0	1	2	1	2	36
8.51-11.50	1	0	1	1	6	5	0	0	0	1	0	1	0	0	1	2	19
11.51-14.50	0	0	1	1	2	0	0	0	0	1	1	1	0	0	0	0	7
14.51-20.50	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	0	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	10	19	21	14	10	3	4	18	14	16	11	7	6	4	7	172

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 10/ 1/96 - 12/31/96

4TH QTR 96

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	1	1	1	1	0	0	1	1	1	1	6	2	2	2	5	3	28
2.51- 3.50	4	7	3	2	4	4	4	2	5	11	12	16	8	3	2	3	90
3.51- 4.50	6	4	9	6	1	1	2	2	13	14	14	11	3	2	6	2	96
4.51- 5.50	0	3	8	4	3	0	3	5	3	5	6	1	2	1	2	1	47
5.51- 6.50	2	2	4	4	3	3	2	2	2	5	0	1	1	0	0	0	31
6.51- 8.50	2	4	3	6	3	6	0	2	1	1	3	3	0	1	0	4	39
8.51-11.50	0	0	1	7	5	5	3	1	0	2	4	5	1	1	2	1	38
11.51-14.50	0	0	0	3	2	0	0	0	0	2	0	3	2	1	0	0	13
14.51-20.50	0	0	1	4	4	0	0	0	0	0	0	2	3	5	1	1	21
>20.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	15	21	31	37	25	19	15	15	25	41	45	44	22	16	18	15	404

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	1	1	2	0	1	1	0	0	0	2	2	2	7	4	5	5	33
2.51- 3.50	4	1	2	0	1	1	0	1	1	2	7	5	3	5	5	6	44
3.51- 4.50	2	1	1	0	0	0	0	1	2	2	0	0	2	5	6	2	24
4.51- 5.50	1	6	1	0	2	1	0	0	2	5	2	2	1	2	2	1	28
5.51- 6.50	0	4	4	1	0	0	0	0	4	5	6	4	1	3	0	0	32
6.51- 8.50	2	0	2	3	1	0	0	1	3	7	7	7	4	1	2	3	43
8.51-11.50	1	0	4	3	1	0	0	1	0	6	12	9	2	3	11	2	55
11.51-14.50	2	1	1	3	0	0	0	0	1	0	6	1	1	4	2	3	25
14.51-20.50	0	0	5	0	0	0	0	0	0	0	0	0	1	1	5	1	13
>20.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	13	14	23	10	6	3	0	4	13	29	42	30	22	28	38	23	298

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1.51- 2.50	1	3	3	3	2	0	0	0	1	0	3	1	9	1	1	2	30
2.51- 3.50	7	2	2	1	0	1	0	0	1	1	3	3	8	8	11	11	59
3.51- 4.50	7	5	1	0	0	1	1	1	1	0	5	2	5	7	10	14	60
4.51- 5.50	4	6	0	1	0	0	0	0	0	4	4	2	0	4	6	2	33
5.51- 6.50	1	3	1	0	0	0	0	0	1	3	2	1	0	0	1	5	18
6.51- 8.50	5	4	3	0	1	0	1	0	2	7	10	7	1	5	3	9	58
8.51-11.50	5	1	4	1	0	0	0	0	0	4	4	2	2	2	4	3	32
11.51-14.50	1	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	31	26	14	6	3	2	2	1	6	20	32	18	25	28	36	46	296

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 10/ 1/96 - 12/31/96

4TH QTR 96

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1.51- 2.50	11	14	2	1	0	1	0	1	2	1	2	6	6	14	17	15	93
2.51- 3.50	40	25	4	3	1	0	0	0	1	1	0	6	15	22	38	69	225
3.51- 4.50	69	27	5	2	1	1	1	0	0	0	0	2	3	10	32	54	207
4.51- 5.50	70	35	5	1	2	0	0	0	0	0	0	2	1	3	17	39	175
5.51- 6.50	36	15	6	0	0	0	0	0	0	0	0	1	0	0	1	12	71
6.51- 8.50	35	11	2	0	0	0	0	0	0	0	1	1	0	0	1	13	64
8.51-11.50	4	8	2	0	0	0	0	0	0	0	1	0	0	0	0	3	18
11.51-14.50	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	265	137	26	7	4	2	1	1	3	2	4	18	25	49	106	206	856

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
1.51- 2.50	14	19	8	5	3	2	1	2	4	4	13	11	24	21	28	25	184
2.51- 3.50	55	35	11	6	6	6	4	3	8	15	23	30	35	38	56	89	420
3.51- 4.50	86	40	20	9	3	5	4	5	17	18	20	20	14	25	54	73	413
4.51- 5.50	79	54	20	12	7	1	4	8	15	19	18	9	7	13	28	45	339
5.51- 6.50	41	25	22	15	7	3	2	3	13	18	11	10	2	3	2	17	194
6.51- 8.50	46	26	19	29	16	11	3	9	10	15	30	19	8	9	7	31	288
8.51-11.50	14	13	20	21	19	12	3	2	3	18	28	18	5	7	19	13	215
11.51-14.50	3	7	2	8	11	0	0	0	3	6	15	9	4	5	2	3	78
14.51-20.50	0	0	9	5	6	0	1	0	0	0	9	5	6	15	7	3	66
>20.50	0	0	2	0	0	0	0	0	0	0	2	0	4	0	0	1	9
TOTAL	338	219	133	110	78	40	22	32	73	113	169	131	109	137	203	301	2208

TOTAL NUMBER OF OBSERVATIONS: 2208
TOTAL NUMBER OF VALID OBSERVATIONS: 2208
TOTAL NUMBER OF MISSING OBSERVATIONS: 0
PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
MEAN WIND SPEED FOR THIS PERIOD: 5.8 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
3.58	4.66	7.79	18.30	13.50	13.41	38.77

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	3	4	7	7	13	1	0	1	3	3	18	5	4	7	1	2	0
B	3	7	13	22	13	3	1	6	5	4	12	5	4	3	0	2	0
C	8	10	19	21	14	10	3	4	18	14	16	11	7	6	4	7	0
D	15	21	31	37	25	19	15	15	25	41	45	44	22	16	18	15	0
E	13	14	23	10	6	3	0	4	13	29	42	30	22	28	38	23	0
F	31	26	14	6	3	2	2	1	6	20	32	18	25	28	36	46	0
G	265	137	26	7	4	2	1	1	3	2	4	18	25	49	106	206	0
TOTAL	338	219	133	110	78	40	22	32	73	113	169	131	109	137	203	301	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 6/30/96

1ST SEMIANNUAL

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	3
4.51- 5.50	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	4
5.51- 6.50	0	0	2	1	3	3	1	2	1	4	3	1	1	1	0	0	23
6.51- 8.50	1	1	2	4	2	4	1	6	13	31	20	13	10	0	2	1	111
8.51-11.50	4	3	2	3	4	1	1	1	7	34	66	23	10	6	1	1	167
11.51-14.50	2	3	0	2	3	1	0	0	3	19	51	17	10	9	3	3	126
14.51-20.50	0	0	1	3	1	0	0	0	3	20	53	10	1	8	3	6	109
>20.50	0	0	0	0	0	0	0	1	0	1	6	0	0	3	1	1	13
TOTAL	8	7	8	14	15	9	4	10	27	110	199	64	32	27	10	12	556

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3.51- 4.50	0	0	1	0	2	2	0	0	0	0	0	3	1	1	0	0	10
4.51- 5.50	1	0	1	3	2	1	2	1	4	5	6	7	2	3	0	1	39
5.51- 6.50	0	1	2	1	5	7	3	7	22	12	7	5	1	1	0	1	75
6.51- 8.50	2	2	7	3	8	4	4	3	16	17	14	5	4	0	1	0	90
8.51-11.50	2	1	1	5	2	5	0	0	3	8	17	8	6	1	2	0	61
11.51-14.50	1	0	2	1	3	0	0	0	0	1	16	5	3	2	1	1	36
14.51-20.50	0	0	0	0	0	0	0	0	0	0	9	1	3	1	0	0	14
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL	6	4	14	13	22	19	9	12	45	43	69	34	20	10	4	3	327

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2.51- 3.50	0	0	2	0	1	0	0	0	0	0	1	1	0	0	0	0	5
3.51- 4.50	4	6	3	3	5	1	2	1	4	3	6	3	4	1	2	2	50
4.51- 5.50	0	1	4	2	3	6	3	8	21	14	18	6	3	1	2	1	93
5.51- 6.50	3	3	3	2	0	3	0	8	25	8	7	2	0	2	1	0	67
6.51- 8.50	0	1	3	1	1	1	2	8	5	7	10	6	2	0	1	0	48
8.51-11.50	1	0	1	7	2	1	0	0	2	2	9	6	1	2	1	0	35
11.51-14.50	1	1	0	3	2	0	0	0	0	2	5	3	0	2	0	0	19
14.51-20.50	0	0	0	0	1	0	0	1	1	2	5	2	0	2	0	1	15
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL	9	12	16	19	15	12	7	26	58	38	61	29	10	11	7	4	334

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 6/30/96

1ST SEMIANNUAL

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
1.51- 2.50	1	3	2	2	1	3	2	2	3	2	1	0	2	4	3	1	32
2.51- 3.50	6	9	2	12	8	5	4	13	12	24	15	14	5	7	8	10	154
3.51- 4.50	8	7	8	9	5	4	8	8	16	18	13	5	10	6	7	2	134
4.51- 5.50	2	3	4	3	0	1	3	5	11	13	5	3	4	3	2	1	63
5.51- 6.50	0	1	2	3	2	2	2	1	7	2	7	5	3	1	2	0	40
6.51- 8.50	2	0	3	1	3	5	3	1	4	6	17	2	1	1	1	3	53
8.51-11.50	2	3	2	3	5	4	1	0	0	6	20	10	3	3	1	3	66
11.51-14.50	0	1	3	5	6	2	0	1	0	5	17	9	4	4	2	3	62
14.51-20.50	0	0	0	3	11	2	0	1	0	2	24	9	2	1	1	0	56
>20.50	0	0	0	0	4	0	0	0	2	1	0	0	1	1	0	0	9
TOTAL	21	27	26	42	46	28	23	32	55	79	119	57	35	31	27	23	671

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3
1.51- 2.50	3	4	2	3	0	0	0	1	1	3	3	6	2	4	5	2	39
2.51- 3.50	12	5	2	1	1	2	2	0	2	7	7	9	7	4	7	7	75
3.51- 4.50	5	8	2	1	1	0	1	1	3	6	5	11	4	4	2	2	56
4.51- 5.50	3	4	1	0	2	1	2	2	2	16	14	10	3	3	4	2	69
5.51- 6.50	1	3	3	2	1	0	0	0	5	7	11	8	2	3	0	0	46
6.51- 8.50	3	3	3	2	1	2	0	1	4	20	33	19	11	9	5	0	116
8.51-11.50	3	4	7	0	2	1	0	2	3	30	63	40	18	9	10	3	195
11.51-14.50	2	1	0	9	10	0	0	0	0	15	38	15	4	7	2	1	104
14.51-20.50	1	0	0	6	16	1	0	0	0	3	10	5	2	3	1	1	49
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	34	32	20	25	34	7	5	7	21	107	184	123	53	46	36	18	752

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
1.51- 2.50	6	2	0	0	0	1	0	0	2	0	1	8	4	1	7	6	38
2.51- 3.50	12	8	0	3	0	1	1	0	1	3	9	11	20	15	14	13	111
3.51- 4.50	11	7	2	2	2	0	0	1	4	10	9	18	7	12	9	12	106
4.51- 5.50	8	6	2	1	0	0	1	0	3	10	12	15	10	5	5	7	85
5.51- 6.50	4	4	2	1	1	1	0	0	4	5	6	5	7	5	10	6	61
6.51- 8.50	3	5	3	0	1	0	1	1	0	16	33	35	16	6	5	3	128
8.51-11.50	3	4	6	0	0	0	0	0	0	16	39	14	4	2	2	6	96
11.51-14.50	0	0	0	0	0	0	0	0	0	2	4	1	0	0	1	0	8
14.51-20.50	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	49	38	15	7	4	3	3	2	14	62	113	108	68	46	53	53	638

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 6/30/96

1ST SEMIANNUAL

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1.51- 2.50	13	8	3	4	2	0	0	0	0	1	1	8	5	7	18	17	87
2.51- 3.50	72	38	6	2	1	3	1	0	3	3	7	7	14	21	41	54	273
3.51- 4.50	104	36	16	2	2	3	1	0	1	0	6	4	7	15	34	79	310
4.51- 5.50	82	47	6	1	2	0	0	0	0	2	1	6	5	5	12	33	202
5.51- 6.50	45	24	6	2	0	0	0	0	0	4	4	0	0	2	7	17	111
6.51- 8.50	35	18	5	0	0	0	1	0	0	1	1	3	0	2	2	10	78
8.51-11.50	11	4	2	0	0	0	0	0	0	2	2	0	0	0	0	7	28
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	362	175	44	11	7	6	3	0	4	13	22	28	31	52	115	217	1090

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	1	0	2	1	0	0	0	1	0	0	1	0	0	1	0	8
1.51- 2.50	23	17	7	10	3	4	2	3	6	6	6	22	13	16	33	26	197
2.51- 3.50	102	60	12	18	11	11	8	14	18	37	39	42	46	47	70	84	619
3.51- 4.50	132	64	32	17	19	10	13	11	28	37	39	44	33	39	54	97	669
4.51- 5.50	97	61	19	11	9	9	11	16	41	61	56	47	27	20	25	45	555
5.51- 6.50	53	36	20	12	12	16	6	18	64	42	45	26	14	15	20	24	423
6.51- 8.50	46	30	26	11	16	16	12	20	42	98	128	83	44	18	17	17	624
8.51-11.50	26	19	21	18	15	12	2	3	15	98	216	101	42	23	17	20	648
11.51-14.50	6	6	5	20	24	3	0	1	3	44	131	50	21	24	9	8	355
14.51-20.50	3	1	1	12	29	3	0	2	4	27	101	27	8	15	5	8	246
>20.50	0	0	0	0	4	0	0	1	2	2	6	0	1	6	1	1	24
TOTAL	489	295	143	131	143	84	54	89	224	452	767	443	249	223	252	330	4368

TOTAL NUMBER OF OBSERVATIONS: 4368
TOTAL NUMBER OF VALID OBSERVATIONS: 4368
TOTAL NUMBER OF MISSING OBSERVATIONS: 0
PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
MEAN WIND SPEED FOR THIS PERIOD: 7.0 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
12.73	7.49	7.65	15.36	17.22	14.61	24.95

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	8	7	8	14	15	9	4	10	27	110	199	64	32	27	10	12	0
B	6	4	14	13	22	19	9	12	45	43	69	34	20	10	4	3	0
C	9	12	16	19	15	12	7	26	58	38	61	29	10	11	7	4	0
D	21	27	26	42	46	28	23	32	55	79	119	57	35	31	27	23	0
E	34	32	20	25	34	7	5	7	21	107	184	123	53	46	36	18	0
F	49	38	15	7	4	3	3	2	14	62	113	108	68	46	53	53	0
G	362	175	44	11	7	6	3	0	4	13	22	28	31	52	115	217	0
TOTAL	489	295	143	131	143	84	54	89	224	452	767	443	249	223	252	330	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 12/31/96

2ND SEMIANNUAL

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	1	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	6
5.51- 6.50	2	0	2	3	0	2	0	1	1	3	9	3	3	0	0	2	31
6.51- 8.50	1	2	3	9	13	4	4	7	3	24	25	19	2	1	1	0	118
8.51-11.50	2	2	5	8	15	4	1	2	11	20	65	29	15	1	1	0	181
11.51-14.50	0	1	0	1	7	1	1	0	1	4	29	13	1	1	1	0	61
14.51-20.50	0	0	3	1	2	0	0	0	1	3	13	5	0	7	1	1	37
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	5
TOTAL	6	5	13	22	37	11	6	10	18	55	142	71	25	10	5	4	440

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	1	1	0	1	0	0	0	0	0	0	4	1	0	1	0	1	10
4.51- 5.50	2	2	4	1	0	0	2	2	5	3	3	6	5	4	2	1	42
5.51- 6.50	3	1	7	7	6	1	1	4	9	7	10	4	1	2	0	0	63
6.51- 8.50	0	4	8	18	7	7	7	7	14	22	22	6	7	1	0	0	130
8.51-11.50	1	3	5	8	7	3	0	0	6	6	15	8	3	1	2	2	70
11.51-14.50	0	1	0	0	9	0	0	0	2	2	6	6	1	0	0	0	27
14.51-20.50	0	0	0	1	3	0	0	0	0	1	1	1	1	2	0	0	10
>20.50	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
TOTAL	7	12	24	36	32	11	10	13	36	41	63	32	18	11	4	4	354

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
3.51- 4.50	3	3	5	2	1	2	0	2	3	5	2	7	3	1	0	1	40
4.51- 5.50	4	5	10	7	1	0	2	3	14	15	11	8	4	2	3	3	92
5.51- 6.50	1	2	9	7	4	0	2	2	7	15	8	4	3	1	0	0	65
6.51- 8.50	3	4	4	10	6	5	5	3	9	7	13	5	2	2	1	2	81
8.51-11.50	1	0	1	2	9	6	0	1	0	4	5	4	3	1	2	2	41
11.51-14.50	0	0	1	3	7	1	0	0	2	2	6	1	0	0	0	0	23
14.51-20.50	0	0	0	0	1	0	1	0	0	3	2	1	1	1	1	0	11
>20.50	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	12	14	31	31	30	14	10	11	35	51	48	31	17	8	7	8	358

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 12/31/96

2ND SEMIANNUAL

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	1	1	1	1	0	0	1	1	2	1	8	3	2	4	6	3	35
2.51- 3.50	7	8	4	3	4	4	5	2	7	13	14	20	10	5	3	4	113
3.51- 4.50	8	6	13	7	1	2	3	4	17	21	20	14	4	4	6	3	133
4.51- 5.50	0	4	11	6	3	0	6	6	8	9	10	8	2	3	4	1	81
5.51- 6.50	3	3	7	7	4	6	4	3	5	11	5	4	5	1	0	0	68
6.51- 8.50	4	7	6	10	5	6	4	3	4	10	17	11	6	2	0	4	99
8.51-11.50	3	0	2	16	12	11	9	6	3	15	30	32	4	2	2	2	149
11.51-14.50	3	2	1	6	17	4	1	0	3	11	32	10	3	2	2	1	98
14.51-20.50	1	2	5	5	8	2	1	2	3	15	22	5	3	5	1	1	81
>20.50	0	0	1	1	4	1	1	1	0	0	1	0	0	0	0	0	10
TOTAL	30	33	51	62	58	36	35	28	52	106	159	107	39	28	24	19	867

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	2	2	2	0	1	1	0	0	0	3	2	4	9	8	8	6	48
2.51- 3.50	9	4	3	0	3	3	1	2	2	6	8	7	8	7	13	9	85
3.51- 4.50	8	6	4	1	1	0	1	1	4	4	7	3	6	7	7	3	63
4.51- 5.50	5	10	3	0	4	1	1	1	5	7	10	10	5	6	3	2	73
5.51- 6.50	3	9	6	3	1	0	1	0	11	15	23	12	2	6	0	5	97
6.51- 8.50	5	8	11	6	1	2	2	4	7	25	40	19	11	1	3	5	150
8.51-11.50	1	4	10	18	9	5	2	6	1	20	60	26	4	5	12	3	186
11.51-14.50	2	5	2	9	5	3	4	1	2	4	33	5	1	4	2	3	85
14.51-20.50	0	1	6	1	7	0	0	1	0	1	3	1	1	1	5	1	29
>20.50	0	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	5
TOTAL	35	49	48	38	33	15	13	16	33	86	186	87	47	45	53	37	821

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
1.51- 2.50	4	3	4	3	2	0	0	0	1	0	4	1	10	3	8	4	47
2.51- 3.50	13	2	7	3	1	2	1	2	2	1	5	8	10	18	19	17	111
3.51- 4.50	16	10	4	3	0	1	2	3	3	1	10	10	9	11	16	21	120
4.51- 5.50	9	10	0	3	0	0	1	0	0	4	8	6	5	6	7	9	68
5.51- 6.50	3	4	3	3	0	0	0	1	6	11	11	5	7	1	1	8	64
6.51- 8.50	6	8	5	0	1	0	1	0	5	9	22	13	3	5	3	10	91
8.51-11.50	5	1	6	1	0	0	0	0	1	4	11	3	2	2	5	5	46
11.51-14.50	1	4	2	0	0	0	0	0	0	1	1	0	1	0	0	0	10
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	57	43	31	16	4	3	5	6	18	31	72	46	47	47	59	74	559

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 7/ 1/96 - 12/31/96

2ND SEMIANNUAL

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1.51- 2.50	12	15	2	1	0	1	0	1	2	1	3	6	6	18	22	18	108
2.51- 3.50	52	30	4	4	1	0	0	0	1	1	1	8	20	27	43	75	267
3.51- 4.50	86	34	5	2	1	1	1	0	1	0	0	3	4	12	35	60	245
4.51- 5.50	88	42	7	1	2	0	0	0	0	0	0	2	1	3	18	44	208
5.51- 6.50	39	24	7	0	0	0	0	0	0	0	0	1	1	1	2	13	88
6.51- 8.50	35	16	4	0	0	0	0	0	0	0	1	1	0	0	1	13	71
8.51-11.50	4	8	2	0	0	0	0	0	0	0	1	0	0	0	0	3	18
11.51-14.50	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	316	171	31	8	4	2	1	1	4	2	6	21	32	61	121	227	1008

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
1.51- 2.50	19	21	9	5	3	2	1	2	5	5	17	14	27	33	44	31	238
2.51- 3.50	81	44	18	10	9	9	7	6	12	21	29	44	49	57	79	105	580
3.51- 4.50	122	60	31	16	4	6	7	10	28	31	43	38	26	36	64	89	611
4.51- 5.50	109	73	35	18	10	1	12	12	33	39	43	42	22	24	37	60	570
5.51- 6.50	54	43	41	30	15	9	8	11	39	62	66	33	22	12	3	28	476
6.51- 8.50	54	49	41	53	33	24	23	24	42	97	140	74	31	12	9	34	740
8.51-11.50	17	18	31	53	52	29	12	15	22	69	187	102	31	12	24	17	691
11.51-14.50	6	15	6	19	45	9	6	1	10	24	107	35	7	7	5	4	306
14.51-20.50	1	3	14	8	21	2	2	3	4	23	41	13	6	16	8	3	168
>20.50	0	0	3	1	6	1	2	1	1	1	3	0	4	0	0	1	24
TOTAL	463	327	229	213	198	92	80	85	196	372	676	395	225	210	273	373	4407

TOTAL NUMBER OF OBSERVATIONS: 4416
TOTAL NUMBER OF VALID OBSERVATIONS: 4407
TOTAL NUMBER OF MISSING OBSERVATIONS: 9
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.8 %
MEAN WIND SPEED FOR THIS PERIOD: 6.9 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
9.98	8.03	8.12	19.67	18.63	12.68	22.87

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	6	5	13	22	37	11	6	10	18	55	142	71	25	10	5	4	0
B	7	12	24	36	32	11	10	13	36	41	63	32	18	11	4	4	0
C	12	14	31	31	30	14	10	11	35	51	48	31	17	8	7	8	0
D	30	33	51	62	58	36	35	28	52	106	159	107	39	28	24	19	0
E	35	49	48	38	33	15	13	16	33	86	186	87	47	45	53	37	0
F	57	43	31	16	4	3	5	6	18	31	72	46	47	47	59	74	0
G	316	171	31	8	4	2	1	1	4	2	6	21	32	61	121	227	0
TOTAL	463	327	229	213	198	92	80	85	196	372	676	395	225	210	273	373	0

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 12/31/96

*** ANNUAL ***

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
3.51- 4.50	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	3
4.51- 5.50	2	0	1	1	0	0	0	0	1	2	1	2	0	0	0	0	10
5.51- 6.50	2	0	4	4	3	5	1	3	2	7	12	4	4	1	0	2	54
6.51- 8.50	2	3	5	13	15	8	5	13	16	55	45	32	12	1	3	1	229
8.51-11.50	6	5	7	11	19	5	2	3	18	54	131	52	25	7	2	1	348
11.51-14.50	2	4	0	3	10	2	1	0	4	23	80	30	11	10	4	3	187
14.51-20.50	0	0	4	4	3	0	0	0	4	23	66	15	1	15	4	7	146
>20.50	0	0	0	0	0	0	0	1	0	1	6	0	4	3	1	2	18
TOTAL	14	12	21	36	52	20	10	20	45	165	341	135	57	37	15	16	996

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3.51- 4.50	1	1	1	1	2	2	0	0	0	0	4	4	1	2	0	1	20
4.51- 5.50	3	2	5	4	2	1	4	3	9	8	9	13	7	7	2	2	81
5.51- 6.50	3	2	9	8	11	8	4	11	31	19	17	9	2	3	0	1	138
6.51- 8.50	2	6	15	21	15	11	11	10	30	39	36	11	11	1	1	0	220
8.51-11.50	3	4	6	13	9	8	0	0	9	14	32	16	9	2	4	2	131
11.51-14.50	1	1	2	1	12	0	0	0	2	3	22	11	4	2	1	1	63
14.51-20.50	0	0	0	1	3	0	0	0	0	1	10	2	4	3	0	0	24
>20.50	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3
TOTAL	13	16	38	49	54	30	19	25	81	84	132	66	38	21	8	7	681

STABILITY CLASS C

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2.51- 3.50	0	0	2	0	1	0	0	0	0	0	2	2	1	0	0	0	8
3.51- 4.50	7	9	8	5	6	3	2	3	7	8	8	10	7	2	2	3	90
4.51- 5.50	4	6	14	9	4	6	5	11	35	29	29	14	7	3	5	4	185
5.51- 6.50	4	5	12	9	4	3	2	10	32	23	15	6	3	3	1	0	132
6.51- 8.50	3	5	7	11	7	6	7	11	14	14	23	11	4	2	2	2	129
8.51-11.50	2	0	2	9	11	7	0	1	2	6	14	10	4	3	3	2	76
11.51-14.50	1	1	1	6	9	1	0	0	2	4	11	4	0	2	0	0	42
14.51-20.50	0	0	0	0	2	0	1	1	1	5	7	3	1	3	1	1	26
>20.50	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	3
TOTAL	21	26	47	50	45	26	17	37	93	89	109	60	27	19	14	12	692

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 12/31/96

*** ANNUAL ***

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
1.51- 2.50	2	4	3	3	1	3	3	3	5	3	9	3	4	8	9	4	67
2.51- 3.50	13	17	6	15	12	9	9	15	19	37	29	34	15	12	11	14	267
3.51- 4.50	16	13	21	16	6	6	11	12	33	39	33	19	14	10	13	5	267
4.51- 5.50	2	7	15	9	3	1	9	11	19	22	15	11	6	6	6	2	144
5.51- 6.50	3	4	9	10	6	8	6	4	12	13	12	9	8	2	2	0	108
6.51- 8.50	6	7	9	11	8	11	7	4	8	16	34	13	7	3	1	7	152
8.51-11.50	5	3	4	19	17	15	10	6	3	21	50	42	7	5	3	5	215
11.51-14.50	3	3	4	11	23	6	1	1	3	16	49	19	7	6	4	4	160
14.51-20.50	1	2	5	8	19	4	1	3	3	17	46	14	5	6	2	1	137
>20.50	0	0	1	1	8	1	1	1	2	1	1	0	1	1	0	0	19
TOTAL	51	60	77	104	104	64	58	60	107	185	278	164	74	59	51	42	1538

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	3
1.51- 2.50	5	6	4	3	1	1	0	1	1	6	5	10	11	12	13	8	87
2.51- 3.50	21	9	5	1	4	5	3	2	4	13	15	16	15	11	20	16	160
3.51- 4.50	13	14	6	2	2	0	2	2	7	10	12	14	10	11	9	5	119
4.51- 5.50	8	14	4	0	6	2	3	3	7	23	24	20	8	9	7	4	142
5.51- 6.50	4	12	9	5	2	0	1	0	16	22	34	20	4	9	0	5	143
6.51- 8.50	8	11	14	8	2	4	2	5	11	45	73	38	22	10	8	5	266
8.51-11.50	4	8	17	18	11	6	2	8	4	50	123	66	22	14	22	6	381
11.51-14.50	4	6	2	18	15	3	4	1	2	19	71	20	5	11	4	4	189
14.51-20.50	1	1	6	7	23	1	0	1	0	4	13	6	3	4	6	2	78
>20.50	0	0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	5
TOTAL	69	81	68	63	67	22	18	23	54	193	370	210	100	91	89	55	1573

STABILITY CLASS F

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	4
1.51- 2.50	10	5	4	3	2	1	0	0	3	0	5	9	14	4	15	10	85
2.51- 3.50	25	10	7	6	1	3	2	2	3	4	14	19	30	33	33	30	222
3.51- 4.50	27	17	6	5	2	1	2	4	7	11	19	28	16	23	25	33	226
4.51- 5.50	17	16	2	4	0	0	2	0	3	14	20	21	15	11	12	16	153
5.51- 6.50	7	8	5	4	1	1	0	1	10	16	17	10	14	6	11	14	125
6.51- 8.50	9	13	8	0	2	0	2	1	5	25	55	48	19	11	8	13	219
8.51-11.50	8	5	12	1	0	0	0	0	1	20	50	17	6	4	7	11	142
11.51-14.50	1	4	2	0	0	0	0	0	0	3	5	1	1	0	1	0	18
14.51-20.50	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	106	81	46	23	8	6	8	8	32	93	185	154	115	93	112	127	1197

JOINT FREQUENCY DISTRIBUTION ANALYSIS
SITE IDENTIFIER: PVNGS
DATA PERIOD EXAMINED: 1/ 1/96 - 12/31/96

*** ANNUAL ***

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET
WIND MEASURED AT: 35.0 FEET
WIND THRESHOLD AT: .75 MPH
JOINT FREQUENCY DISTRIBUTION OF WIND SPEED AND DIRECTION IN HOURS AT 35.00 FEET

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
1.51- 2.50	25	23	5	5	2	1	0	1	2	2	4	14	11	25	40	35	195
2.51- 3.50	124	68	10	6	2	3	1	0	4	4	8	15	34	48	84	129	540
3.51- 4.50	190	70	21	4	3	4	2	0	2	0	6	7	11	27	69	139	555
4.51- 5.50	170	89	13	2	4	0	0	0	0	2	1	8	6	8	30	77	410
5.51- 6.50	84	48	13	2	0	0	0	0	0	4	4	1	1	3	9	30	199
6.51- 8.50	70	34	9	0	0	0	1	0	0	1	2	4	0	2	3	23	149
8.51-11.50	15	12	4	0	0	0	0	0	0	2	3	0	0	0	0	10	46
11.51-14.50	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	678	346	75	19	11	8	4	1	8	15	28	49	63	113	236	444	2098

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	2	0	2	1	0	0	0	1	0	0	1	0	1	1	1	11
1.51- 2.50	42	38	16	15	6	6	3	5	11	11	23	36	40	49	77	57	435
2.51- 3.50	183	104	30	28	20	20	15	20	30	58	68	86	95	104	149	189	1199
3.51- 4.50	254	124	63	33	23	16	20	21	56	68	82	82	59	75	118	186	1280
4.51- 5.50	206	134	54	29	19	10	23	28	74	100	99	89	49	44	62	105	1125
5.51- 6.50	107	79	61	42	27	25	14	29	103	104	111	59	36	27	23	52	899
6.51- 8.50	100	79	67	64	49	40	35	44	84	195	268	157	75	30	26	51	1364
8.51-11.50	43	37	52	71	67	41	14	18	37	167	403	203	73	35	41	37	1339
11.51-14.50	12	21	11	39	69	12	6	2	13	68	238	85	28	31	14	12	661
14.51-20.50	4	4	15	20	50	5	2	5	8	50	142	40	14	31	13	11	414
>20.50	0	0	3	1	10	1	2	2	3	3	9	0	5	6	1	2	48
TOTAL	952	622	372	344	341	176	134	174	420	824	1443	838	474	433	525	703	8775

TOTAL NUMBER OF OBSERVATIONS: 8784
TOTAL NUMBER OF VALID OBSERVATIONS: 8775
TOTAL NUMBER OF MISSING OBSERVATIONS: 9
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.9 %
MEAN WIND SPEED FOR THIS PERIOD: 7.0 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
11.35	7.76	7.89	17.53	17.93	13.64	23.91

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	14	12	21	36	52	20	10	20	45	165	341	135	57	37	15	16	0
B	13	16	38	49	54	30	19	25	81	84	132	66	38	21	8	7	0
C	21	26	47	50	45	26	17	37	93	89	109	60	27	19	14	12	0
D	51	60	77	104	104	64	58	60	107	185	278	164	74	59	51	42	0
E	69	81	68	63	67	22	18	23	54	193	370	210	100	91	89	55	0
F	106	81	46	23	8	6	8	8	32	93	185	154	115	93	112	127	0
G	678	346	75	19	11	8	4	1	8	15	28	49	63	113	236	444	0
TOTAL	952	622	372	344	341	176	134	174	420	824	1443	838	474	433	525	703	0

APPENDIX C

DOSE CALCULATIONS

GASEOUS EFFLUENT DOSE CALCULATIONS

Doses to the maximum individual and the surrounding population resulting from the release of radioactive material in gaseous effluents from the Palo Verde Nuclear Generating Station were calculated using the GASPAR computer program. The radionuclides considered in the dose calculations were Tritium, Iodine-131, Iodine-132, Iodine-133, Iodine-135, all noble gases, and particulates having a half-life greater than eight days and for which dose factors are contained in NUREG-0172. Locations selected for individual dose calculations included for each sector, the site boundary, and within five miles, if present, the nearest residence, the nearest garden, and the nearest milk animal. GASPAR implements the radiological dose models of Regulatory Guide 1.109 to determine the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground deposition, inhalation, and ingestion. Doses to the maximum individual and the population were calculated as a function of age group and pathway for significant body organs.

Table 39 presents the doses on a quarterly, semiannual and annual basis for the Energy Information Center. An occupancy factor of 1.0 (implying continuous occupancy over the entire year) was considered for the Energy Information Center and the exposure pathways considered to calculate its doses were plume, ground deposition, and inhalation.

Table 40 presents the population dose.

Table 41 summarizes the individual doses and compares the result to PVNGS ODCM Requirement limits. The site boundary and residence locations for which data are presented represent the highest annual doses.

Based on results obtained by placing TLDs on the site boundary in each sector, the net dose for this reporting period, from direct-radiation, (plume and ground deposition) from all three units was indistinguishable from preoperational values of 8 - 14 μR/hr (17 - 30 mR/Std Qtr).

There were no liquid effluents associated with the operation of this facility.

Dose Calculation Models

The GASPAR computer code was used to evaluate the radiological consequences of the routine release of gaseous effluents. GASPAR implements the dose calculational methodologies of Regulatory Guide 1.109, Revision 1.

Source terms for each quarter are combined with station-specific demographic data and each quarter's atmospheric diffusion estimates for gaseous dose calculations.

Atmospheric diffusion estimates are generated by the XOQDOQ computer code using onsite meteorological data as input. Additional input to GASPAR includes the following site-specific data:

0 to 5 mile nearest residence, milk animal and garden in each of the 16 compass sectors, based on the 1996 Land Use Census.

0 to 10 mile population distribution based on the Maricopa County Department of Emergency Management, Emergency Response Manual, Annex B - PVNGS Emergency Procedures, Appendix 11, page 152, April 1994.

The 10 to 50 mile population distribution from the PVNGS UFSAR, Figure 2.1-10.

The population distribution of metropolitan Phoenix greater than 50 miles from PVNGS, based on the 1980 federal census results, is conservatively included in the 40 to 50 mile sectors (NE=123; ENE=140,097; E=621,130; ESE=8,392).

Absolute humidity of 6.0 g/m^3 from the PVNGS UFSAR, Table 2.3-16.

The fraction of the year that vegetables are grown (0.667) from the PVNGS ER-OL, Section 2.1.3.4, Table 2.1-8.

The fraction of daily feed derived from pasture while on pasture (0.35) and length of grazing season for milk animals beyond 5 miles (0.75) from the PVNGS ER-OL, Section 2.1.3.4.3.

The fraction of daily feed derived from pasture while on pasture (0.05) and length of grazing season for meat animals (0.25) from the PVNGS ER-OL, Section 2.1.3.4.4.

There were no milk animals located within 5 miles.

Other values used for input to GASPAR are default values from Regulatory Guide 1.109, Revision 1.

Table 39:
Doses To Special Locations For 1996

ENERGY INFORMATION CENTER LOCATED ONSITE 0.44 MILE S FROM UNIT 1, 0.29 MILE SSE FROM UNIT 2 AND 0.20 MILE ESE FROM UNIT 3

(MREM)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
1ST QUARTER								
ADULT	4.58E-01	4.58E-01	1.87E-02	4.58E-01	4.58E-01	4.59E-01	4.58E-01	4.85E-01
TEEN	4.61E-01	4.61E-01	1.87E-02	4.61E-01	4.61E-01	4.63E-01	4.61E-01	4.89E-01
CHILD	4.10E-01	4.10E-01	1.87E-02	4.10E-01	4.10E-01	4.12E-01	4.10E-01	4.38E-01
INFANT	2.43E-01	2.43E-01	1.87E-02	2.43E-01	2.43E-01	2.44E-01	2.43E-01	2.71E-01
2ND QUARTER								
ADULT	2.23E-01	2.23E-01	8.14E-03	2.23E-01	2.23E-01	2.34E-01	2.23E-01	2.37E-01
TEEN	2.25E-01	2.25E-01	8.15E-03	2.25E-01	2.25E-01	2.38E-01	2.25E-01	2.38E-01
CHILD	1.99E-01	1.99E-01	8.16E-03	1.99E-01	1.99E-01	2.14E-01	1.99E-01	2.13E-01
INFANT	1.18E-01	1.18E-01	8.15E-03	1.18E-01	1.18E-01	1.31E-01	1.18E-01	1.32E-01
1ST SEMI-ANNUAL								
ADULT	6.81E-01	6.81E-01	2.68E-02	6.81E-01	6.81E-01	6.93E-01	6.81E-01	7.22E-01
TEEN	6.85E-01	6.85E-01	2.68E-02	6.85E-01	6.85E-01	7.01E-01	6.85E-01	7.27E-01
CHILD	6.09E-01	6.09E-01	2.69E-02	6.09E-01	6.09E-01	6.26E-01	6.09E-01	6.51E-01
INFANT	3.61E-01	3.61E-01	2.69E-02	3.61E-01	3.61E-01	3.76E-01	3.61E-01	4.03E-01
3RD QUARTER								
ADULT	2.14E-01	2.14E-01	1.64E-02	2.14E-01	2.14E-01	2.23E-01	2.14E-01	2.36E-01
TEEN	2.15E-01	2.15E-01	1.64E-02	2.15E-01	2.15E-01	2.26E-01	2.15E-01	2.38E-01
CHILD	1.93E-01	1.93E-01	1.64E-02	1.93E-01	1.93E-01	2.05E-01	1.93E-01	2.15E-01
INFANT	1.18E-01	1.18E-01	1.64E-02	1.18E-01	1.18E-01	1.29E-01	1.18E-01	1.40E-01
4TH QUARTER								
ADULT	3.58E-01	3.58E-01	2.20E-03	3.58E-01	3.58E-01	3.69E-01	3.58E-01	3.61E-01
TEEN	3.60E-01	3.60E-01	2.21E-03	3.60E-01	3.60E-01	3.75E-01	3.60E-01	3.62E-01
CHILD	3.18E-01	3.18E-01	2.23E-03	3.19E-01	3.19E-01	3.34E-01	3.18E-01	3.21E-01
INFANT	1.84E-01	1.84E-01	2.21E-03	1.84E-01	1.84E-01	1.98E-01	1.84E-01	8.24E-02
2ND SEMI-ANNUAL								
ADULT	5.72E-01	5.72E-01	1.86E-02	5.72E-01	5.72E-01	5.92E-01	5.72E-01	5.97E-01
TEEN	5.75E-01	5.75E-01	1.86E-02	5.75E-01	5.75E-01	6.01E-01	5.75E-01	6.00E-01
CHILD	5.11E-01	5.11E-01	1.87E-02	5.11E-01	5.11E-01	5.39E-01	5.11E-01	5.36E-01
INFANT	3.02E-01	3.02E-01	1.86E-02	3.02E-01	3.02E-01	3.27E-01	3.02E-01	2.22E-01
ANNUAL								
ADULT	1.25E+00	1.25E+00	4.55E-02	1.25E+00	1.25E+00	1.28E+00	1.25E+00	1.32E+00
TEEN	1.26E+00	1.26E+00	4.55E-02	1.26E+00	1.26E+00	1.30E+00	1.26E+00	1.33E+00
CHILD	1.12E+00	1.12E+00	4.55E-02	1.12E+00	1.12E+00	1.17E+00	1.12E+00	1.19E+00
INFANT	6.63E-01	6.63E-01	4.55E-02	6.63E-01	6.63E-01	7.03E-01	6.63E-01	6.25E-01

Table 40:
Integrated Population Dose for 1996

JAN - MAR

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.11E-02 .24%	1.11E-02 .24%	1.11E-02 99.73%	1.11E-02 .24%	1.11E-02 .24%	1.11E-02 .24%	1.11E-02 .24%	3.90E-02 .85%
GROUND	2.46E-05 .00%	2.46E-05 .00%	2.46E-05 .22%	2.46E-05 .00%	2.46E-05 .00%	2.46E-05 .00%	2.46E-05 .00%	2.86E-05 .00%
INHAL	9.15E-01 19.94%	9.15E-01 19.94%	1.91E-06 .02%	9.15E-01 19.94%	9.15E-01 19.94%	9.16E-01 19.95%	9.15E-01 19.94%	9.15E-01 19.82%
VEGET	3.18E+00 69.23%	3.18E+00 69.23%	2.87E-06 .03%	3.18E+00 69.23%	3.18E+00 69.23%	3.18E+00 69.23%	3.18E+00 69.23%	3.18E+00 68.81%
COW MILK	3.37E-01 7.34%	3.37E-01 7.34%	4.34E-07 .00%	3.37E-01 7.34%	3.37E-01 7.34%	3.37E-01 7.34%	3.37E-01 7.34%	3.37E-01 7.30%
MEAT	1.49E-01 3.25%	1.49E-01 3.25%	6.32E-09 .00%	1.49E-01 3.25%	1.49E-01 3.25%	1.49E-01 3.25%	1.49E-01 3.25%	1.49E-01 3.23%
TOTAL	4.59E+00	4.59E+00	1.11E-02	4.59E+00	4.59E+00	4.59E+00	4.59E+00	4.62E+00
(1) PER CAPITA DOSE (REM)	2.34E-06	2.34E-06	5.67E-09	2.34E-06	2.34E-06	2.34E-06	2.34E-06	2.36E-06

APR - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.49E-02 .40%	1.49E-02 .40%	1.49E-02 98.27%	1.49E-02 .40%	1.49E-02 .40%	1.49E-02 .39%	1.49E-02 .40%	5.30E-02 1.40%
GROUND	1.77E-05 .00%	1.77E-05 .00%	1.77E-05 .12%	1.77E-05 .00%	1.77E-05 .00%	1.77E-05 .00%	1.77E-05 .00%	2.10E-05 .00%
INHAL	1.04E+00 27.72%	1.04E+00 27.72%	8.37E-05 .55%	1.04E+00 27.72%	1.04E+00 27.72%	1.08E+00 27.93%	1.04E+00 27.72%	1.04E+00 27.44%
VEGET	2.23E+00 59.32%	2.23E+00 59.32%	1.33E-04 .88%	2.23E+00 59.32%	2.23E+00 59.32%	2.28E+00 59.17%	2.23E+00 59.32%	2.23E+00 58.73%
COW MILK	3.83E-01 10.20%	3.83E-01 10.20%	2.63E-05 .17%	3.83E-01 10.20%	3.83E-01 10.20%	3.93E-01 10.21%	3.83E-01 10.20%	3.83E-01 10.10%
MEAT	8.85E-02 2.36%	8.85E-02 2.36%	1.56E-06 .01%	8.85E-02 2.36%	8.85E-02 2.36%	8.85E-02 2.30%	8.85E-02 2.36%	8.85E-02 2.33%
TOTAL	3.75E+00	3.75E+00	1.52E-02	3.75E+00	3.75E+00	3.85E+00	3.75E+00	3.79E+00
(1) PER CAPITA DOSE (REM)	1.91E-06	1.91E-06	7.76E-09	1.91E-06	1.91E-06	1.97E-06	1.91E-06	1.93E-06

Table 40: (continued)
Integrated Population Dose for 1996

JAN - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.60E-02	2.60E-02	2.60E-02	2.60E-02	2.60E-02	2.60E-02	2.60E-02	9.20E-02
	.31%	.31%	98.89%	.31%	.31%	.31%	.31%	1.09%
GROUND	4.23E-05	4.23E-05	4.23E-05	4.23E-05	4.23E-05	4.23E-05	4.23E-05	4.96E-05
	.00%	.00%	.16%	.00%	.00%	.00%	.00%	.00%
INHAL	1.96E+00	1.96E+00	8.56E-05	1.96E+00	1.96E+00	1.99E+00	1.96E+00	1.96E+00
	23.44%	23.44%	.33%	23.44%	23.44%	23.59%	23.44%	23.26%
VEGET	5.40E+00	5.40E+00	1.36E-04	5.40E+00	5.40E+00	5.46E+00	5.40E+00	5.40E+00
	64.77%	64.77%	.52%	64.77%	64.77%	64.64%	64.77%	64.26%
COW MILK	7.20E-01	7.20E-01	2.67E-05	7.20E-01	7.20E-01	7.30E-01	7.20E-01	7.20E-01
	8.63%	8.63%	.10%	8.63%	8.63%	8.65%	8.63%	8.56%
MEAT	2.38E-01	2.38E-01	1.56E-06	2.38E-01	2.38E-01	2.38E-01	2.38E-01	2.38E-01
	2.85%	2.85%	.01%	2.85%	2.85%	2.81%	2.85%	2.82%
TOTAL	8.34E+00	8.34E+00	2.62E-02	8.34E+00	8.34E+00	8.44E+00	8.34E+00	8.41E+00
(1) PER CAPITA DOSE (REM)	4.26E-06	4.26E-06	1.34E-08	4.26E-06	4.26E-06	4.31E-06	4.26E-06	4.29E-06

JUL - SEP

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.87E-02	1.87E-02	1.87E-02	1.87E-02	1.87E-02	1.87E-02	1.87E-02	6.52E-02
	.84%	.84%	98.46%	.84%	.84%	.80%	.84%	2.87%
GROUND	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.07E-05	3.62E-05
	.00%	.00%	.16%	.00%	.00%	.00%	.00%	.00%
INHAL	5.60E-01	5.60E-01	5.21E-05	5.60E-01	5.60E-01	5.81E-01	5.60E-01	5.60E-01
	25.10%	25.10%	.27%	25.10%	25.10%	24.99%	25.10%	24.59%
VEGET	1.38E+00	1.38E+00	1.78E-04	1.38E+00	1.38E+00	1.44E+00	1.38E+00	1.38E+00
	61.93%	61.93%	.94%	61.93%	61.93%	62.09%	61.93%	60.67%
COW MILK	2.15E-01	2.15E-01	3.13E-05	2.15E-01	2.15E-01	2.26E-01	2.15E-01	2.15E-01
	9.66%	9.66%	.16%	9.66%	9.66%	9.74%	9.66%	9.46%
MEAT	5.51E-02	5.51E-02	1.08E-07	5.51E-02	5.51E-02	5.51E-02	5.51E-02	5.51E-02
	2.47%	2.47%	.00%	2.47%	2.47%	2.37%	2.47%	2.42%
TOTAL	2.23E+00	2.23E+00	1.90E-02	2.23E+00	2.23E+00	2.32E+00	2.23E+00	2.28E+00
(1) PER CAPITA DOSE (REM)	1.14E-06	1.14E-06	9.70E-09	1.14E-06	1.14E-06	1.18E-06	1.14E-06	1.16E-06

Table 40: (continued)
Integrated Population Dose for 1996

OCT - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.44E-03 .03%	1.44E-03 .03%	1.44E-03 90.70%	1.44E-03 .03%	1.44E-03 .03%	1.44E-03 .03%	1.44E-03 .03%	5.49E-03 .10%
GROUND	8.25E-06 .00%	8.25E-06 .00%	8.25E-06 .52%	8.25E-06 .00%	8.25E-06 .00%	8.25E-06 .00%	8.25E-06 .00%	9.73E-06 .00%
INHAL	1.16E+00 21.10%	1.16E+00 21.10%	5.61E-05 3.52%	1.16E+00 21.10%	1.16E+00 21.10%	1.19E+00 21.32%	1.16E+00 21.10%	1.16E+00 21.09%
VEGET	3.72E+00 67.45%	3.72E+00 67.45%	7.41E-05 4.65%	3.72E+00 67.45%	3.72E+00 67.45%	3.75E+00 67.29%	3.72E+00 67.45%	3.72E+00 67.41%
COW MILK	4.46E-01 8.09%	4.46E-01 8.09%	9.48E-06 .59%	4.46E-01 8.09%	4.46E-01 8.09%	4.49E-01 8.07%	4.46E-01 8.09%	4.46E-01 8.08%
MEAT	1.83E-01 3.33%	1.83E-01 3.33%	9.20E-08 .01%	1.83E-01 3.33%	1.83E-01 3.33%	1.83E-01 3.29%	1.83E-01 3.33%	1.83E-01 3.32%
TOTAL	5.51E+00	5.51E+00	1.59E-03	5.51E+00	5.51E+00	5.57E+00	5.51E+00	5.52E+00
(1) PER CAPITA DOSE (REM)	2.81E-06	2.81E-06	8.12E-10	2.81E-06	2.81E-06	2.84E-06	2.81E-06	2.82E-06

JUL - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.02E-02 .26%	2.02E-02 .26%	2.02E-02 97.86%	2.02E-02 .26%	2.02E-02 .26%	2.02E-02 .26%	2.02E-02 .26%	7.07E-02 .91%
GROUND	3.89E-05 .00%	3.89E-05 .00%	3.89E-05 .19%	3.89E-05 .00%	3.89E-05 .00%	3.89E-05 .00%	3.89E-05 .00%	4.59E-05 .00%
INHAL	1.72E+00 22.25%	1.72E+00 22.25%	1.08E-04 .53%	1.72E+00 22.25%	1.72E+00 22.25%	1.77E+00 22.40%	1.72E+00 22.25%	1.72E+00 22.11%
VEGET	5.10E+00 65.86%	5.10E+00 65.87%	2.52E-04 1.22%	5.10E+00 65.86%	5.10E+00 65.86%	5.19E+00 65.76%	5.10E+00 65.86%	5.10E+00 65.44%
COW MILK	6.61E-01 8.54%	6.61E-01 8.54%	4.08E-05 .20%	6.61E-01 8.54%	6.61E-01 8.54%	6.76E-01 8.56%	6.61E-01 8.54%	6.61E-01 8.49%
MEAT	2.39E-01 3.08%	2.39E-01 3.08%	2.00E-07 .00%	2.39E-01 3.08%	2.39E-01 3.08%	2.39E-01 3.02%	2.39E-01 3.08%	2.39E-01 3.06%
TOTAL	7.74E+00	7.74E+00	2.06E-02	7.74E+00	7.74E+00	7.89E+00	7.74E+00	7.79E+00
(1) PER CAPITA DOSE (REM)	3.95E-06	3.95E-06	1.05E-08	3.95E-06	3.95E-06	4.03E-06	3.95E-06	3.98E-06

Table 40: (continued)
Integrated Population Dose for 1996

JAN - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.61E-02 .29%	4.61E-02 .29%	4.61E-02 98.44%	4.61E-02 .29%	4.61E-02 .29%	4.61E-02 .28%	4.61E-02 .29%	1.63E-01 1.00%
GROUND	8.13E-05 .00%	8.13E-05 .00%	8.13E-05 .17%	8.13E-05 .00%	8.13E-05 .00%	8.13E-05 .00%	8.13E-05 .00%	9.55E-05 .00%
INHAL	3.68E+00 22.87%	3.68E+00 22.87%	1.94E-04 .41%	3.68E+00 22.87%	3.68E+00 22.87%	3.76E+00 23.01%	3.68E+00 22.87%	3.68E+00 22.70%
VEGET	1.05E+01 65.30%	1.05E+01 65.30%	3.88E-04 .83%	1.05E+01 65.30%	1.05E+01 65.30%	1.06E+01 65.18%	1.05E+01 65.30%	1.05E+01 64.83%
COW MILK	1.38E+00 8.59%	1.38E+00 8.59%	6.75E-05 .14%	1.38E+00 8.59%	1.38E+00 8.59%	1.41E+00 8.61%	1.38E+00 8.59%	1.38E+00 8.52%
MEAT	4.76E-01 2.96%	4.76E-01 2.96%	1.76E-06 .00%	4.76E-01 2.96%	4.76E-01 2.96%	4.76E-01 2.91%	4.76E-01 2.96%	4.76E-01 2.94%
TOTAL	1.61E+01	1.61E+01	4.68E-02	1.61E+01	1.61E+01	1.63E+01	1.61E+01	1.62E+01
(1) PER CAPITA DOSE (REM)	8.22E-06	8.22E-06	2.39E-08	8.22E-06	8.22E-06	8.32E-06	8.22E-06	8.27E-06

Note 1: Personrem total divided by 50-mile population of 1,959,000

Table 41: Summary of Individual Doses for 1996						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	8.96E-03	4.09E-03	6.92E-03	1.11E-03	2.10E-02
ODCM Req. 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	1.79E-01	8.18E-02	1.38E-01	2.22E-02	2.10E-01
Beta Air Dose	mrad	1.47E-02	8.67E-03	1.35E-02	1.83E-03	3.85E-02
ODCM Req. 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.47E-01	8.67E-02	1.35E-01	1.83E-02	1.92E-01
Maximum Individual						
Total Body	mrem	5.72E-03	2.54E-03	4.28E-03	6.96E-04	1.32E-02
Skin	mrem	1.45E-02	6.88E-03	1.03E-02	1.55E-03	3.31E-02
Location						
Unit 1	miles	1.87 S	1.87 S	1.87 S	1.70 SSE	1.87 S
Unit 2	miles	1.68 S	1.68 S	1.68 S	1.88 SSE	1.68 S
Unit 3	miles	1.46 S	1.46 S	1.46 S	1.73 SSE	1.46 S
Maximum Organ Dose (excluding skin)	Age	Child	Child	Child	Teen	Child
	Organ	Thyroid	Thyroid	Thyroid	Thyroid	Thyroid
	mrem	7.36E-02	1.10E-01	5.24E-02	7.19E-02	2.98E-01
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit (1)	%	9.81E-01	1.47E+00	6.99E-01	9.59E-01	1.99E+00
Location						
Unit 1	miles	2.68 ENE	2.68 ENE	2.68 ENE	4.93 S	2.68 ENE
Unit 2	miles	2.87 ENE	2.87 ENE	2.87 ENE	4.76 S	2.87 ENE
Unit 3	miles	3.02 ENE	3.02 ENE	3.02 ENE	4.54 S	3.02 ENE
Organ dose from tritium only, at controlling location	mrem	7.29E-02	1.06E-01	4.82E-02	6.98E-02	2.88E-01
Fraction of organ dose from tritium only, at controlling location	%	9.90E+01	9.64E+01	9.71E+01	9.71E+01	9.66E+01

Note 1: ODCM Requirement 5.1 has higher limits than ODCM Requirement 4.2, therefore the percent of limits are more conservative based on ODCM Requirement 4.2 than on ODCM Requirement 5.1.