

ENCLOSURE

**2007 ANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT**

PALO VERDE NUCLEAR GENERATING STATION
UNITS 1, 2 AND 3

2007

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

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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 2007. 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

Supplemental Information

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 $\mu\text{Ci/ml}$ for the principal gamma emitters (except Ce-144)

3.0E-06 $\mu\text{Ci/ml}$ for Ce-144

1.0E-06 $\mu\text{Ci/ml}$ for I-131.

1.0E-03 $\mu\text{Ci/ml}$ 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 $\mu\text{Ci/ml}$ for Cs-134

2.0E-06 $\mu\text{Ci/ml}$ for Cs-137

The concentrations specified in 10 CFR Part 20.1001-20.2402, 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 mrem to the total body and to less than or equal to 5 mrem to any organ, and
- b. During any calendar year to less than or equal to 3 mrem to the total body and to less than or equal to 10 mrem 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 mrem/yr to the total body and less than or equal to 3000 mrem/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 mrem/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 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,
- b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad 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 mrem to any organ and,
- b. During any calendar year: Less than or equal to 15 mrem 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 at least 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 may be 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.

Effective January 1, 2004, Containment Purge release permits are updated by removing the permit pre-release particulate and iodine activity. This eliminates double accounting for the Containment Purge particulate and iodine activity at the Plant Vent but allows the particulate and iodine activity to be included in the Containment Purge pre-release dose projection.

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 ODCM, Revision 22, effective July 5, 2007, contains changes associated with the implementation of the Radioactive Environmental Monitoring Program (REMP). The ODCM revision is included as Appendix D.

7.2 There were no revisions to the Process Control Program (PCP).

8.0 EFFLUENTS AND SOLID WASTES

8.1 Gaseous Effluents

Gaseous effluent information is presented in Table 1 through Table 41. 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 42.

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 $3.09\text{E}+11$ cc evaporated from Pond One for each of the first and fourth quarters and $8.50\text{E}+11$ cc evaporated from Pond One for each of the second and third quarters. The amount evaporated from Pond Two is $2.89\text{E}+11$ cc for each of the first and fourth quarters and $7.96\text{E}+11$ cc for each of the second and third quarters. Using a site boundary X/Q of $5.0\text{E}-05$ sec/m³ 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 RADIATION MONITORING SYSTEM SETPOINT VERIFICATION

Current effluent monitor noble gas channel alert alarm setpoints are based on an assumed one per cent failed fuel source term. The current setpoints are more conservative than setpoints calculated using the actual noble gas source term presented in Table 38.

9.3 RCS RADIOIODINE (TRM T5.0.600)

There were no cases where primary coolant specific activity exceeded the Technical Specification 3.4.17 limits during the reporting period.

9.4 INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

There are no radioactive effluents from the NAC-UMS System. Direct dose at the Site Boundary is reported in the Annual Radiological Environmental Operating Report.

9.5 MAJOR CHANGES TO THE RADIOACTIVE WASTE SYSTEMS (liquid, gaseous, and solid).

Licensee-initiated major changes to the radioactive waste systems (liquid, gaseous, and solid) are submitted as part of the FSAR update (TRM T5.0.500.4.a).

9.6 SAMPLES RESULTS FROM GROUNDWATER WELLS THAT ARE NOT DESCRIBED IN THE ODCM AS PART OF THE REMP (NEI 07-07, Industry Groundwater Protection Initiative, August 2007), are included in APPENDIX E NEI 07-07 Groundwater Protection Initiative Sampling.

9.7 REPORT ADDENDUM

None.

10.0 DISCUSSION

10.1 Unit One

Unit One operated with a refueling outage (U1R13) from May 19, 2007 to July 19, 2007.

Maintenance outages:

U1M14A, 10-22-07 to 11-03-07

U1M14B, 11-24-07 to 11-30-07

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	0	0	0	0	0	0	0

10.2 Unit Two

Unit Two operated without a refueling outage.

Maintenance outages:

U2M14A, 02-07-07 to 02-09-07

U2M14B, 02-19-07 to 02-26-07

U2M14C, 10-06-07 to 10-13-07

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	1	1	2	2	2	2	2

10.3 Unit Three

Unit Three operated with a refueling outage (U3R13) from September 29, 2007 to January 19, 2008.

Maintenance outages:

U3M13C, 01-22-07 to 01-31-07

U3M13D, 04-12-07 to 05-02-07

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	0	0	0	0	N/A	N/A	N/A

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.

10.5 Summary

Dose for 2007 was primarily due to the release of tritium. Tritium production is approximately 1000 curies per Reactor Unit per year. In order to control plant tritium concentrations, tritium releases should match tritium production. For 2007, PVNGS released a total of 1940 curies of tritium (see Table 39).

Total dose due to releases from all three Units for the year 2007 were slightly less than year 2006 mainly due to meteorological conditions.

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)	1.50E-06	9.45E-07	1.00E-06	7.49E-07	
Tritium Curies	4.62E-01	8.03E-01	8.51E-01	2.31E-01	2.35E+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)	2.32E-06	1.10E-06	1.13E-06	1.05E-06	
Tritium curies	6.71E-01	8.72E-01	8.96E-01	3.03E-01	2.74E+00
Dose (mRem)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Pond 1	6.41E-03	1.11E-02	1.18E-02	3.21E-03	3.26E-02
Pond 2	9.31E-03	1.21E-02	1.24E-02	4.20E-03	3.80E-02
Total	1.57E-02	2.32E-02	2.42E-02	7.41E-03	7.06E-02

Table 2: Batch Release Data			
All times are in hours	Unit 1	Unit 2	Unit 3
January - June			
Number of batch releases	35	23	37
Total time period for batch releases	1870.44	188.31	782.02
Maximum time period for a batch release	170.95	159.20	168.00
Average time period for a batch release	53.44	8.19	21.14
Minimum time period for a batch release	1.07	0.02	0.17
July - December			
Number of batch releases	39	34	37
Total time period for batch releases	883.02	767.18	2975.28
Maximum time period for a batch release	166.80	165.00	216.00
Average time period for a batch release	22.64	22.56	80.41
Minimum time period for a batch release	0.13	0.39	0.26
January - December			
Number of batch releases	74	57	74
Total time period for batch releases	2753.46	955.49	3757.30
Maximum time period for a batch release	170.95	165.00	216.00
Average time period for a batch release	37.21	16.76	50.77
Minimum time period for a batch release	0.13	0.02	0.17

**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	1.13E-01	3.02E-01	1.15E-01	7.41E-02	6.04E-01	3.54E+01
2. Average release rate for period	μCi/sec	1.45E-02	3.84E-02	1.45E-02	9.32E-03	1.92E-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	2.30E-04	< LLD	7.78E-07	2.31E-04	3.32E+01
2. Average release rate for period	μCi/sec	< LLD	2.93E-05	< LLD	9.79E-08	7.32E-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	9.93E-09	8.05E-04	9.49E-07	< LLD	8.06E-04	3.43E+01
2. Average release rate for period	μCi/sec	1.28E-09	1.02E-04	1.19E-07	< LLD	2.55E-05	
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	1.71E+01	3.89E+02	1.75E+02	1.50E+01	5.96E+02	3.85E+01
2. Average release rate for period	μCi/sec	2.20E+00	4.95E+01	2.20E+01	1.89E+00	1.89E+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 40.							
(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	< LLD	< LLD	< LLD
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	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-137	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	< LLD	2.74E-05	< LLD	7.78E-07	2.81E-05
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	2.74E-05	< LLD	7.78E-07	2.81E-05

**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-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	1.88E-05	< LLD	< LLD	1.88E-05
Co-60	Ci	< LLD	< LLD	9.49E-07	< LLD	9.49E-07
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	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
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	1.88E-05	9.49E-07	< LLD	1.98E-05
4.Tritium						
H-3	Ci	1.67E+01	4.29E+01	2.65E+01	1.50E+01	1.01E+02

**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	1.09E-01	6.37E-02	1.15E-01	7.41E-02	3.61E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.10E-03	2.38E-01	< LLD	< LLD	2.40E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	< LLD	< LLD	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.13E-01	3.02E-01	1.15E-01	7.41E-02	6.04E-01
2. Iodines						
I-131	Ci	< LLD	2.03E-04	< LLD	< LLD	2.03E-04
I-132	Ci	< LLD	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	5.66E-04	< LLD	< LLD	5.66E-04

**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	< LLD	2.19E-06	< LLD	< LLD	2.19E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.93E-09	5.13E-04	< LLD	< LLD	5.13E-04
Co-60	Ci	< LLD	9.21E-05	< LLD	< LLD	9.21E-05
Cr-51	Ci	< LLD	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.30E-05	< LLD	< LLD	2.30E-05
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	9.33E-06	< LLD	< LLD	9.33E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	5.41E-05	< LLD	< LLD	5.41E-05
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
Sn-113m	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
Tc-99m	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	1.79E-05	< LLD	< LLD	1.79E-05
Total	Ci	9.93E-09	7.88E-04	< LLD	< LLD	7.88E-04
4. Tritium						
H-3	Ci	4.43E-01	3.46E+02	1.49E+02	1.77E-02	4.95E+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	1.09E-01	6.37E-02	1.15E-01	7.41E-02	3.61E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.10E-03	2.38E-01	< LLD	< LLD	2.40E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	< LLD	< LLD	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.13E-01	3.02E-01	1.15E-01	7.41E-02	6.04E-01
2. Iodines						
I-131	Ci	< LLD	2.30E-04	< LLD	7.78E-07	2.31E-04
I-132	Ci	< LLD	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	5.94E-04	< LLD	7.78E-07	5.95E-04

**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						
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	< LLD	2.19E-06	< LLD	< LLD	2.19E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.93E-09	5.31E-04	< LLD	< LLD	5.31E-04
Co-60	Ci	< LLD	9.21E-05	9.49E-07	< LLD	9.31E-05
Cr-51	Ci	< LLD	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.30E-05	< LLD	< LLD	2.30E-05
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	9.33E-06	< LLD	< LLD	9.33E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	5.41E-05	< LLD	< LLD	5.41E-05
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
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	1.79E-05	< LLD	< LLD	1.79E-05
Total	Ci	9.93E-09	8.07E-04	9.49E-07	< LLD	8.08E-04
Total > 8.days	Ci	9.93E-09	8.05E-04	9.49E-07	< LLD	8.06E-04
4. Tritium						
H-3	Ci	1.71E+01	3.89E+02	1.75E+02	1.50E+01	5.96E+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	2.87E-04	1.91E-04	3.01E-04	1.95E-04	9.74E-04
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	5.74E-03	3.82E-03	6.02E-03	3.90E-03	9.74E-03
Beta Air Dose	mrad	1.03E-04	1.30E-04	1.06E-04	6.87E-05	4.08E-04
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.03E-03	1.30E-03	1.06E-03	6.87E-04	2.04E-03
Maximum Organ Dose(excluding skin)	mrem	6.14E-03	1.43E-01	6.28E-02	5.40E-03	2.17E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		Lung	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	%	8.19E-02	1.91E+00	8.37E-01	7.20E-02	1.45E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual. 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	1.11E-01	1.12E-01	3.98E+00	4.88E+00	9.08E+00	3.54E+01
2. Average release rate for period	μCi/sec	1.43E-02	1.42E-02	5.01E-01	6.14E-01	2.88E-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	3.30E-06	< LLD	7.09E-07	3.90E-05	4.30E-05	3.32E+01
2. Average release rate for period	μCi/sec	4.24E-07	< LLD	8.92E-08	4.91E-06	1.36E-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	< LLD	6.60E-08	< LLD	< LLD	6.60E-08	3.43E+01
2. Average release rate for period	μCi/sec	< LLD	8.39E-09	< LLD	< LLD	2.09E-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	1.13E+02	2.32E+01	1.85E+02	2.57E+02	5.79E+02	3.85E+01
2. Average release rate for period	μCi/sec	1.45E+01	2.95E+00	2.33E+01	3.23E+01	1.84E+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 40.							
(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						
Ar-41	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	< LLD	3.84E+00	4.66E+00	8.50E+00
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-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	3.84E+00	4.66E+00	8.50E+00
2. Iodines						
I-131	Ci	3.30E-06	< LLD	7.09E-07	3.90E-05	4.30E-05
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.30E-06	< LLD	7.09E-07	3.90E-05	4.30E-05

**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-57	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-136	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
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	6.60E-08	< LLD	< LLD	6.60E-08
4. Tritium						
H-3	Ci	1.22E+01	2.31E+01	2.12E+01	1.60E+01	7.26E+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	1.11E-01	1.12E-01	1.11E-01	1.43E-01	4.77E-01
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	4.68E-04	2.23E-02	7.93E-02	1.02E-01
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-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.11E-01	1.12E-01	1.33E-01	2.22E-01	5.79E-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-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

**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	< 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-57	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-136	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
Sn-113m	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
Tc-99m	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	1.01E+02	2.85E-02	1.64E+02	2.41E+02	5.06E+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	1.11E-01	1.12E-01	1.11E-01	1.43E-01	4.77E-01
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	4.68E-04	3.87E+00	4.74E+00	8.60E+00
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-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.11E-01	1.12E-01	3.98E+00	4.88E+00	9.08E+00
2. Iodines						
I-131	Ci	3.30E-06	< LLD	7.09E-07	3.90E-05	4.30E-05
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.30E-06	< LLD	7.09E-07	3.90E-05	4.30E-05

**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	< 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-57	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-136	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
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	6.60E-08	< LLD	< LLD	6.60E-08
Total > 8days	Ci	< LLD	6.60E-08	< LLD	< LLD	6.60E-08
4. Tritium						
H-3	Ci	1.13E+02	2.32E+01	1.85E+02	2.57E+02	5.79E+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	2.93E-04	2.93E-04	6.77E-04	8.48E-04	2.11E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	5.86E-03	5.86E-03	1.35E-02	1.70E-02	2.11E-02
Beta Air Dose	mrad	1.03E-04	1.04E-04	1.25E-03	1.54E-03	2.99E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.03E-03	1.04E-03	1.25E-02	1.54E-02	1.50E-02
Maximum Organ Dose (excluding skin)	mrem	4.06E-02	8.31E-03	6.65E-02	9.22E-02	2.08E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		Lung	Thyroid	W Body	W Body	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	5.41E-01	1.11E-01	8.87E-01	1.23E+00	1.39E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual. 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	1.13E+00	5.79E-01	4.56E-01	2.44E-05	2.16E+00	3.54E+01
2. Average release rate for period	μCi/sec	1.45E-01	7.36E-02	5.74E-02	3.07E-06	6.85E-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	< LLD	1.27E-06	2.76E-03	2.76E-03	3.43E+01
2. Average release rate for period	μCi/sec	< LLD	< LLD	1.60E-07	3.47E-04	8.76E-05	
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	1.24E+01	3.45E+02	2.41E+02	1.62E+02	7.61E+02	3.85E+01
2. Average release rate for period	μCi/sec	1.59E+00	4.39E+01	3.03E+01	2.04E+01	2.41E+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 40.							
(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	< LLD	< LLD	< LLD
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	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-137	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	< LLD	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	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-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	7.35E-05	7.35E-05
Co-60	Ci	< LLD	< LLD	< LLD	3.36E-05	3.36E-05
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	1.82E-06	1.82E-06
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	1.48E-06	1.48E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	4.35E-06	4.35E-06
Os-191	Ci	< LLD	< LLD	< LLD	3.62E-06	3.62E-06
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	1.27E-06	< LLD	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	3.31E-06	3.31E-06
Total	Ci	< LLD	< LLD	1.27E-06	1.22E-04	1.23E-04
4. Tritium						
H-3	Ci	1.21E+01	1.95E+01	2.38E+01	7.06E+01	1.26E+02

**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	1.13E+00	5.79E-01	4.56E-01	< LLD	2.16E+00
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	< LLD	2.46E-06	2.44E-05	2.68E-05
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	< LLD	< LLD	4.02E-08	< LLD	4.02E-08
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.13E+00	5.79E-01	4.56E-01	2.44E-05	2.16E+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-134	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	4.27E-05	< LLD	6.39E-04	< LLD	6.81E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	2.09E-03	2.09E-03
Co-60	Ci	< LLD	< LLD	< LLD	3.55E-04	3.55E-04
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	9.32E-06	9.32E-06
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	2.68E-05	2.68E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	9.33E-05	9.33E-05
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
Sn-113m	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
Tc-99m	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	5.89E-05	5.89E-05
Total	Ci	4.27E-05	< LLD	6.39E-04	2.63E-03	3.32E-03
4. Tritium						
H-3	Ci	3.94E-01	3.26E+02	2.17E+02	9.17E+01	6.35E+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	1.13E+00	5.79E-01	4.56E-01	< LLD	2.16E+00
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	< LLD	2.46E-06	2.44E-05	2.68E-05
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	< LLD	< LLD	4.02E-08	< LLD	4.02E-08
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.13E+00	5.79E-01	4.56E-01	2.44E-05	2.16E+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-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	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						
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	4.27E-05	< LLD	6.39E-04	< LLD	6.81E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	2.17E-03	2.17E-03
Co-60	Ci	< LLD	< LLD	< LLD	3.89E-04	3.89E-04
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	1.11E-05	1.11E-05
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	2.83E-05	2.83E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	9.76E-05	9.76E-05
Os-191	Ci	< LLD	< LLD	< LLD	3.62E-06	3.62E-06
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	1.27E-06	< LLD	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	6.22E-05	6.22E-05
Total	Ci	4.27E-05	< LLD	6.40E-04	2.76E-03	3.44E-03
Total > 8 days		< LLD	< LLD	1.27E-06	2.76E-03	2.76E-03
4. Tritium						
H-3	Ci	1.24E+01	3.45E+02	2.41E+02	1.62E+02	7.61E+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	2.97E-03	1.52E-03	1.20E-03	2.43E-09	5.68E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	5.94E-02	3.04E-02	2.40E-02	4.86E-08	5.68E-02
Beta Air Dose	mrad	1.05E-03	5.36E-04	4.22E-04	7.23E-09	2.00E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.05E-02	5.36E-03	4.22E-03	7.23E-08	1.00E-02
Maximum Organ Dose (excluding skin)	mrem	4.46E-03	1.24E-01	8.63E-02	5.92E-02	2.74E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		W Body	Thyroid	(1)	(1)	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	5.95E-02	1.65E+00	1.15E+00	7.89E-01	1.83E+00

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

Note 1 - All organs except Bone

**Table 28:
Units 1, 2, and 3
Gaseous Effluents - Continuous - Fission Gases and Iodines -
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-83m	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
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	< LLD	3.84E+00	4.66E+00	8.50E+00
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-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	3.84E+00	4.66E+00	8.50E+00
2. Iodines						
I-131	Ci	3.30E-06	2.74E-05	7.09E-07	3.98E-05	7.11E-05
I-132	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.30E-06	2.74E-05	7.09E-07	3.98E-05	7.11E-05

**Table 29:
Units 1, 2, and 3
Gaseous Effluents - Continuous - Particulates -
Total By Quarter**

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-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	1.88E-05	< LLD	7.35E-05	9.23E-05
Co-60	Ci	< LLD	< LLD	9.49E-07	3.36E-05	3.45E-05
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	1.82E-06	1.82E-06
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	1.48E-06	1.48E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	4.35E-06	4.35E-06
Os-191	Ci	< LLD	< LLD	< LLD	3.62E-06	3.62E-06
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	1.27E-06	< LLD	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	3.31E-06	3.31E-06
Total	Ci	< LLD	1.89E-05	2.22E-06	1.22E-04	1.43E-04
4. Tritium						
H-3	Ci	4.09E+01	8.55E+01	7.16E+01	1.02E+02	3.00E+02

**Table 30:
Units 1, 2, and 3
Gaseous Effluents - Batch - Fission Gases and Iodines -
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	1.35E+00	7.54E-01	6.82E-01	2.17E-01	3.00E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.10E-03	2.38E-01	2.24E-02	7.93E-02	3.42E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	4.02E-08	< LLD	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.35E+00	9.93E-01	7.04E-01	2.97E-01	3.35E+00
2. Iodines						
I-131	Ci	< LLD	2.03E-04	< LLD	< LLD	2.03E-04
I-132	Ci	< LLD	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	5.66E-04	< LLD	< LLD	5.66E-04

**Table 31:
Units 1, 2, and 3
Gaseous Effluents - Batch - Particulates -
Total By Quarter**

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	4.27E-05	2.19E-06	6.39E-04	< LLD	6.84E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.93E-09	5.13E-04	< LLD	2.09E-03	2.60E-03
Co-60	Ci	< LLD	9.21E-05	< LLD	3.55E-04	4.47E-04
Cr-51	Ci	< LLD	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.30E-05	< LLD	9.32E-06	3.23E-05
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	9.33E-06	< LLD	2.68E-05	3.61E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	5.41E-05	< LLD	9.33E-05	1.47E-04
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
Sn-113m	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
Tc-99m	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	1.79E-05	< LLD	5.89E-05	7.68E-05
Total	Ci	4.27E-05	7.88E-04	6.39E-04	2.63E-03	4.10E-03
4. Tritium						
H-3	Ci	1.02E+02	6.72E+02	5.30E+02	3.33E+02	1.64E+03
Note 1 - Not required for batch releases						

**Table 32:
Units 1, 2, and 3
Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines -
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	1.35E+00	7.54E-01	6.82E-01	2.17E-01	3.00E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.10E-03	2.39E-01	3.87E+00	4.74E+00	8.84E+00
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	4.02E-08	< LLD	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.35E+00	9.93E-01	4.55E+00	4.95E+00	1.19E+01
2. Iodines						
I-131	Ci	3.30E-06	2.30E-04	7.09E-07	3.98E-05	2.74E-04
I-132	Ci	< LLD	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.30E-06	5.94E-04	7.09E-07	3.98E-05	6.38E-04

**Table 33:
Units 1, 2, and 3
Gaseous Effluents - Continuous and Batch - Particulates -
Total By Quarter**

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	4.27E-05	2.19E-06	6.39E-04	< LLD	6.84E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.93E-09	5.31E-04	< LLD	2.17E-03	2.70E-03
Co-60	Ci	< LLD	9.21E-05	9.49E-07	3.89E-04	4.82E-04
Cr-51	Ci	< LLD	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.30E-05	< LLD	1.11E-05	3.41E-05
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	9.33E-06	< LLD	2.83E-05	3.76E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	5.41E-05	< LLD	9.76E-05	1.52E-04
Os-191	Ci	< LLD	< LLD	< LLD	3.62E-06	3.62E-06
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	1.27E-06	< LLD	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Tc-99m	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	1.79E-05	< LLD	6.22E-05	8.01E-05
Total	Ci	4.27E-05	8.07E-04	6.41E-04	2.76E-03	4.25E-03
Total > 8 days	Ci	9.93E-09	8.05E-04	2.22E-06	2.76E-03	3.56E-03
4. Tritium						
H-3	Ci	1.43E+02	7.57E+02	6.01E+02	4.34E+02	1.94E+03

**Table 34:
Units 1, 2 and 3
Gaseous Effluents- Continuous - Fission Gases and Iodine -
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
1. Fission gases					
Ar-41	Ci	< LLD	< LLD	< LLD	< LLD
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	< LLD	8.50E+00	< LLD	8.50E+00
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	< LLD	< LLD	< LLD	< LLD
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	8.50E+00	< LLD	8.50E+00
2. Iodines					
I-131	Ci	2.81E-05	4.30E-05	< LLD	7.11E-05
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	2.81E-05	4.30E-05	< LLD	7.11E-05

**Table 35:
Units 1, 2 and 3
Gaseous Effluents- Continuous - Particulates -
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
3. Particulates					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	1.88E-05	< LLD	7.35E-05	9.23E-05
Co-60	Ci	9.49E-07	< LLD	3.36E-05	3.45E-05
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	1.82E-06	1.82E-06
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	1.48E-06	1.48E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	4.35E-06	4.35E-06
Os-191	Ci	< LLD	< LLD	3.62E-06	3.62E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	1.27E-06	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD
Tc-99m	Ci	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	3.31E-06	3.31E-06
Total	Ci	1.98E-05	6.60E-08	1.23E-04	1.43E-04
4. Tritium					
H-3	Ci	1.01E+02	7.26E+01	1.26E+02	3.00E+02

Table 36:
Units 1, 2 and 3
Gaseous Effluents- Batch - Fission Gases and Iodine -
Total By Unit

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
1. Fission gases					
Ar-41	Ci	3.61E-01	4.77E-01	2.16E+00	3.00E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.40E-01	1.02E-01	2.68E-05	3.42E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	4.02E-08	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	6.04E-01	5.79E-01	2.16E+00	3.35E+00
2. Iodines					
I-131	Ci	2.03E-04	< LLD	< LLD	2.03E-04
I-132	Ci	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	5.66E-04	< LLD	< LLD	5.66E-04

**Table 37:
Units 1, 2 and 3
Gaseous Effluents- Batch - Particulates -
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1,2 and 3
3. Particulates					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	2.19E-06	< LLD	6.81E-04	6.84E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	5.13E-04	< LLD	2.09E-03	2.60E-03
Co-60	Ci	9.21E-05	< LLD	3.55E-04	4.47E-04
Cr-51	Ci	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	2.30E-05	< LLD	9.32E-06	3.23E-05
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	9.33E-06	< LLD	2.68E-05	3.61E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	5.41E-05	< LLD	9.33E-05	1.47E-04
Os-191	Ci	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1
Tc-99m	Ci	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	1.79E-05	< LLD	5.89E-05	7.68E-05
Total	Ci	7.88E-04	< LLD	3.32E-03	4.10E-03
4. Tritium					
H-3	Ci	4.95E+02	5.06E+02	6.35E+02	1.64E+03
Note 1 - Not required for batch releases					

**Table 38:
Units 1, 2 and 3
Gaseous Effluents- Continuous and Batch - Fission Gases and Iodine -
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
1. Fission gases					
Ar-41	Ci	3.61E-01	4.77E-01	2.16E+00	3.00E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	6.39E-04	< LLD	< LLD	6.39E-04
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	7.06E-05	< LLD	< LLD	7.06E-05
Xe-133	Ci	2.40E-01	8.60E+00	2.68E-05	8.84E+00
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	2.02E-03	< LLD	4.02E-08	2.02E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	6.04E-01	9.08E+00	2.16E+00	1.19E+01
2. Iodines					
I-131	Ci	2.31E-04	4.30E-05	< LLD	2.74E-04
I-132	Ci	3.64E-04	< LLD	< LLD	3.64E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	5.95E-04	4.30E-05	< LLD	6.38E-04

**Table 39:
Units 1, 2 and 3
Gaseous Effluents - Continuous and Batch - Particulates -
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
3. Particulates					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	2.19E-06	< LLD	6.81E-04	6.84E-04
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	5.31E-04	< LLD	2.17E-03	2.70E-03
Co-60	Ci	9.31E-05	< LLD	3.89E-04	4.82E-04
Cr-51	Ci	7.71E-05	< LLD	< LLD	7.71E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-136	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	2.30E-05	< LLD	1.11E-05	3.41E-05
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	9.33E-06	< LLD	2.83E-05	3.76E-05
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	5.41E-05	< LLD	9.76E-05	1.52E-04
Os-191	Ci	< LLD	< LLD	3.62E-06	3.62E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD
Ru-106	Ci	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	1.27E-06	1.27E-06
Sn-113m	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	6.60E-08	< LLD	6.60E-08
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD
Tc-99m	Ci	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	1.79E-05	< LLD	6.22E-05	8.01E-05
Total	Ci	8.08E-04	6.60E-08	3.44E-03	4.25E-03
Total > 8 days	Ci	8.06E-04	6.60E-08	2.76E-03	3.56E-03
4. Tritium					
H-3	Ci	5.96E+02	5.79E+02	7.61E+02	1.94E+03

**Table 40:
Estimation of Total Percent Error**

The estimated total error is calculated as follows:

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

Where E_n = Percent error associated with each contributing parameter.

Parameters contributing to errors in the measurement of gaseous effluents; 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 ⁽¹⁾
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)
Note 1 - % of full scale				

**Table 41:
Effluent Monitoring Instrumentation Out Of Service Greater Than 30 Days**

Unit	Instrument	Date span of inoperability	Cause of inoperability	Explanation
NONE				

**Table 42:
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	3.23E+01	N/A
	Ci	4.41E+02	2.50E+01
1.b. Dry compressible waste, contaminated equipment, etc.	m ³	7.68E+02	N/A
	Ci	1.36E+00	2.50E+01
1.c. Irradiated components, control rods, etc.	m ³	4.13E-01	N/A
	Ci	3.21E+02	2.50E+01
1.d. Other	m ³	0.00E+00	N/A
	Ci	0.00E+00	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.1 Estimate of major nuclide concentrations for spent resins, filters, sludges, evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	2.95E-01	8.49E-01
A	Cs-137	2.50E-01	7.18E-01
A	Ni-63	2.30E-01	6.62E-01
A	Co-60	1.16E-01	3.34E-01
A	C-14	4.31E-02	1.24E-01
A	H-3	2.63E-02	7.55E-02
A	Sb-125	9.25E-03	2.66E-02
A	Cs-134	9.08E-03	2.61E-02
A	Ag-110m	7.41E-03	2.13E-02
A	Mn-54	4.56E-03	1.31E-02
A	Co-58	2.76E-03	7.92E-03
A	Sr-90	2.58E-03	7.43E-03
A	Ni-59	1.48E-03	4.25E-03
A	Pu-241	6.82E-04	1.96E-03
A	Co-57	4.11E-04	1.18E-03
A	Zn-65	2.71E-04	7.79E-04
A	Ce-144	2.01E-04	5.78E-04
A	Cr-51	5.60E-05	1.61E-04
A	Sb-124	4.80E-05	1.38E-04
A	Tc-99	4.70E-05	1.35E-04
A	Zr-95	3.07E-05	8.82E-05
A	Sn-113	2.05E-05	5.88E-05
A	Cm-243	1.82E-05	5.23E-05
A	Am-241	1.75E-05	5.03E-05
A	Pu-239	1.12E-05	3.23E-05
A	Nb-95	3.30E-06	9.48E-06
A	Sr-89	1.69E-06	4.85E-06
A	Am-243	1.27E-06	3.65E-06
A	Cm-242	2.91E-07	8.37E-07
	Total		2.87E+00

2.a.2 Estimate of major nuclide concentrations for spent resins, filters, sludges; evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
B	Ni-63	3.79E-01	5.88E+01
B	Cs-137	2.03E-01	3.16E+01
B	Fe-55	1.94E-01	3.01E+01
B	Co-60	8.11E-02	1.26E+01
B	Cs-134	6.83E-02	1.06E+01
B	Co-58	2.70E-02	4.20E+00
B	Mn-54	1.94E-02	3.01E+00
B	Sb-125	1.23E-02	1.91E+00
B	C-14	5.23E-03	8.12E-01
B	Co-57	4.33E-03	6.73E-01
B	Ni-59	3.98E-03	6.18E-01
B	Sr-90	1.46E-03	2.27E-01
B	Ce-144	3.15E-04	4.89E-02
B	Pu-241	2.83E-04	4.40E-02
B	Ag-110m	1.24E-04	1.93E-02
B	Zn-65	1.18E-04	1.84E-02
B	H-3	2.18E-05	3.39E-03
B	Tc-99	8.11E-06	1.26E-03
B	Sr-89	7.34E-06	1.14E-03
B	Am-241	5.77E-06	8.96E-04
B	Pu-238	5.66E-06	8.79E-04
B	Cm-243	4.69E-06	7.28E-04
B	I-125	4.17E-06	6.48E-04
B	Pu-239	3.44E-06	5.34E-04
B	Am-243	1.43E-07	2.22E-05
B	Cm-242	1.37E-07	2.13E-05
B	Zr-95	7.28E-08	1.13E-05
B	Pu-242	6.32E-08	9.82E-06
B	Sb-124	5.84E-08	9.07E-06
B	Nb-95	2.74E-09	4.26E-07
	Total		1.55E+02

2.a.3 Estimate of major nuclide concentrations for spent resins, filters, sludges, evaporator bottoms, etc.

Waste Class	Nuclide Name	Percent Abundance	Curies
C	Ni-63	4.46E-01	1.26E+02
C	Cs-137	2.59E-01	7.31E+01
C	Cs-134	1.28E-01	3.62E+01
C	Fe-55	8.78E-02	2.48E+01
C	Co-60	6.87E-02	1.94E+01
C	Mn-54	5.10E-03	1.44E+00
C	Ni-59	1.91E-03	5.39E-01
C	Sb-125	1.66E-03	4.69E-01
C	Co-57	1.10E-03	3.10E-01
C	C-14	3.20E-04	9.03E-02
C	Sr-90	1.02E-04	2.89E-02
C	Co-58	6.62E-05	1.87E-02
C	H-3	3.16E-05	8.92E-03
C	Pu-241	1.30E-05	3.66E-03
C	Cm-243	6.30E-06	1.78E-03
C	Ce-144	6.23E-06	1.76E-03
C	Am-241	4.43E-06	1.25E-03
C	Pu-238	4.96E-07	1.40E-04
C	Pu-239	2.94E-07	8.30E-05
C	Ag-110m	1.58E-07	4.46E-05
C	Cm-242	1.37E-07	3.88E-05
C	Sb-124	6.76E-09	1.91E-06
C	Zr-95	1.48E-09	4.18E-07
C	Nb-95	3.43E-12	9.69E-10
	Total		2.82E+02

2.b.1 Estimate of major nuclide concentrations for dry compressible waste, contaminated equipment, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Ni-63	5.09E-01	6.91E-01
A	Fe-55	2.71E-01	3.68E-01
A	Co-58	1.40E-01	1.90E-01
A	Co-60	2.33E-02	3.17E-02
A	Cr-51	1.67E-02	2.27E-02
A	Nb-95	1.03E-02	1.40E-02
A	Zr-95	8.89E-03	1.21E-02
A	Fe-59	8.48E-03	1.15E-02
A	Mn-54	3.32E-03	4.52E-03
A	Sr-90	1.42E-03	1.93E-03
A	Cs-137	1.21E-03	1.64E-03
A	Ni-59	1.00E-03	1.37E-03
A	Sn-113	9.49E-04	1.29E-03
A	Ag-110m	9.38E-04	1.28E-03
A	Sb-125	8.15E-04	1.11E-03
A	H-3	7.30E-04	9.93E-04
A	Sb-124	6.93E-04	9.42E-04
A	Co-57	5.49E-04	7.46E-04
A	C-14	5.31E-04	7.22E-04
A	Ru-103	3.85E-04	5.24E-04
A	Ce-144	3.04E-04	4.13E-04
A	Te-123m	2.12E-04	2.88E-04
A	Pu-241	1.27E-04	1.73E-04
A	Hf-181	9.60E-05	1.31E-04
A	Cs-134	6.70E-05	9.11E-05
A	Zn-65	4.34E-05	5.90E-05
A	Sr-89	2.69E-05	3.66E-05
A	Ce-141	2.63E-05	3.58E-05
A	Am-241	1.84E-05	2.50E-05
A	Tc-99	1.53E-05	2.08E-05
A	Cm-243	1.29E-05	1.76E-05
A	Pu-238	1.07E-05	1.46E-05
A	Cm-242	7.78E-06	1.06E-05
A	Pu-239	2.76E-06	3.75E-06
A	I-125	3.16E-07	4.29E-07
	Total		1.36E+00

2.c.1 Estimate of major nuclide concentrations for irradiated components, control rods, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
B	Fe-55	6.29E-01	2.02E+02
B	Co-60	2.28E-01	7.33E+01
B	Mn-54	5.30E-02	1.70E+01
B	Nb-95	3.06E-02	9.83E+00
B	Zr-95	2.16E-02	6.94E+00
B	Ni-63	1.86E-02	5.98E+00
B	Co-58	1.55E-02	4.96E+00
B	Sn-113	1.71E-03	5.48E-01
B	Cr-51	5.45E-04	1.75E-01
B	Fe-59	4.36E-04	1.40E-01
B	Ni-59	1.54E-04	4.95E-02
B	Sb-125	1.33E-04	4.28E-02
B	Hf-181	3.24E-05	1.04E-02
B	Te-123m	2.51E-05	8.06E-03
B	C-14	2.24E-06	7.20E-04
B	H-3	1.97E-06	6.33E-04
B	Nb-94	3.68E-07	1.18E-04
B	Pu-241	2.23E-07	7.17E-05
B	Ag-110m	5.23E-08	1.68E-05
B	Co-57	4.11E-08	1.32E-05
B	Am-241	1.52E-08	4.88E-06
B	Cm-243	9.19E-09	2.95E-06
B	Sb-124	8.69E-09	2.79E-06
B	Pu-238	8.26E-09	2.65E-06
B	Ce-144	5.20E-09	1.67E-06
B	Pu-239	3.15E-09	1.01E-06
B	Cs-137	2.52E-09	8.08E-07
B	Cm-242	2.07E-09	6.66E-07
B	Sr-90	8.97E-10	2.88E-07
B	Tc-99	4.24E-10	1.36E-07
B	Sn-117m	1.18E-10	3.78E-08
B	Ru-103	6.14E-11	1.97E-08
B	Sr-89	1.72E-11	5.52E-09
B	Ce-141	1.07E-12	3.45E-10
B	Sn-125	2.70E-18	8.68E-16
		Total	3.21E+02

2.d.1 Other - None

3.0 Solid Waste Disposition

3.a

Shipments	Shipper	Mode Of Transportation	Destination
5	APS	TRUCK	EnergySolutions, SC
15	APS	TRUCK	EnergySolutions, UT (Bulk)
1	APS	TRUCK	EnergySolutions, UT (Containerized)
8	APS	Rail	EnergySolutions, UT (Bulk)
6	EnergySolutions, TN	Rail	EnergySolutions, UT (Bulk)

3.b Irradiated Fuel Shipments: None

3.c Supplemental Information:

Number of Containers	Container Volume ft ³	Type of Waste	Container Type	Solidification Agent
4	132.4	Resin	EL-142	None
1	199.4	Resin	ES-210	None
55	7.5	Evaporator Bottoms	Drum	None
1	501	Dry Active Waste	CPC 477 Box	None
1	652.6	Dry Active Waste	CPC 625 Box	None
53	1031.3	Dry Active Waste	20' Intermodal	None
11	1360	Dry Active Waste	20' Sealand	None
1	14.6	Irradiated Hardware	1-13 Liner	None

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 2007. 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 (ΔT).

In accordance with NUREG-0133, the batch releases for the year were considered as "long term," since the batch releases are sufficiently random in both time of day and duration. Consequently, the JFDs for the batch releases for all quarters are the same as for the continuous releases.

Discussion

A summary of 2007 Joint Frequency Distribution (JFD) shows a somewhat typical, but variable year. Of the 8760 hours available, only 3 hours of data were lost for a 99.9% data recovery.

The average 35 foot wind speed was 6.7 mph. Distribution of directions was spread over the compass with a predominant direction (3 sectors of 22.5 degrees each) centered on southwest. (35.6%) A secondary maximum of three sectors centered on the north contained 25.1% of the total. Southwesterly flow winds averaged higher speeds with the most frequent speed at 10.0 mph. With the northerly directions, the highest frequency occurred at 4.0 mph.

Stability class summary:

Overall stable conditions (E,F,G) dominated, with extremely stable (G) conditions occurring during 24.4% of the hours.

Stability class E, F, G, (stable categories) 58.5%.

Stability class G, (extremely stable) 24.4%.

Stability class A, B, C, (unstable categories) 22.7%.

Stability class D, (neutral category) 18.8%.

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.

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 3/31/2007

*** 1ST QRTR ***

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	1	0	0	0	0	0	0	0	0	0	0	1
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
6.51- 8.50	1	1	2	2	1	0	0	0	1	3	1	1	0	1	0	0	13
8.51-11.50	1	0	4	5	0	0	0	0	1	2	3	7	5	1	0	1	30
11.51-14.50	2	1	2	0	0	0	0	0	1	2	3	4	0	1	0	1	16
14.51-20.50	0	0	5	1	0	0	0	0	0	6	1	5	1	1	3	23	23
>20.50	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3	3
TOTAL	4	2	13	8	1	1	0	0	1	4	17	13	15	3	2	4	88

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	0	0	0	0	0	0	0	0	0	0	1	0	1
4.51- 5.50	0	0	0	0	0	0	0	0	1	2	1	2	0	0	1	1	8
5.51- 6.50	1	3	0	1	3	0	1	2	5	1	3	1	1	0	1	2	25
6.51- 8.50	0	0	6	5	0	2	4	2	1	2	5	0	2	1	2	0	32
8.51-11.50	2	1	2	6	3	0	2	0	0	3	8	4	1	1	0	1	34
11.51-14.50	1	1	2	2	1	0	0	0	0	3	0	0	1	1	2	0	13
14.51-20.50	0	0	1	7	0	0	0	0	0	1	0	0	5	4	0	0	18
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	5	11	21	7	2	7	4	7	8	21	7	4	8	11	4	131

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	1	0	0	0	0	0	0	1	0	1	0	0	0	3
3.51- 4.50	0	0	0	0	1	1	0	0	1	0	0	0	1	1	1	1	7
4.51- 5.50	1	1	2	2	3	0	0	2	5	4	3	1	3	0	2	0	29
5.51- 6.50	3	0	2	4	2	3	2	3	11	2	4	2	2	0	1	0	41
6.51- 8.50	1	0	5	3	3	3	2	0	1	1	5	3	1	0	1	2	31
8.51-11.50	0	0	3	1	3	3	0	0	2	1	3	3	2	1	2	2	26
11.51-14.50	0	0	0	2	1	0	0	0	0	1	1	0	1	4	0	0	10
14.51-20.50	0	0	1	0	1	0	0	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	5	1	13	13	14	10	4	5	20	9	17	10	12	7	8	5	153

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 3/31/2007

*** 1ST QRTR ***

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	0	0	0	0	0	2	2	1	2	1	1	2	2	1	0	15
2.51- 3.50	2	2	5	0	1	1	3	4	11	4	7	6	4	1	3	4	58
3.51- 4.50	5	4	5	8	4	1	1	2	9	12	10	5	2	5	5	6	84
4.51- 5.50	4	3	4	10	1	3	2	2	8	4	1	3	3	1	3	0	52
5.51- 6.50	1	0	3	4	2	1	0	4	3	3	1	5	2	1	2	3	35
6.51- 8.50	0	0	2	5	5	1	1	1	1	4	11	3	1	3	2	0	40
8.51-11.50	1	2	3	5	4	4	2	1	0	1	8	6	3	5	1	3	49
11.51-14.50	1	1	0	2	10	3	0	0	2	2	4	3	4	2	2	1	37
14.51-20.50	1	1	2	0	9	0	0	0	0	0	1	0	1	3	4	0	22
>20.50	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	4
TOTAL	16	13	24	35	36	14	11	16	35	32	44	32	24	24	23	17	396

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	0	0	1	0	0	0	0	0	2
1.51- 2.50	2	1	1	2	3	1	1	0	0	0	4	4	5	7	0	2	33
2.51- 3.50	8	4	2	2	1	2	3	1	1	0	4	6	8	5	4	5	56
3.51- 4.50	2	4	1	3	1	2	1	0	2	3	6	5	3	2	2	3	40
4.51- 5.50	3	2	1	1	1	0	0	1	3	4	3	1	3	2	0	3	28
5.51- 6.50	5	0	4	4	1	1	0	1	1	4	3	4	1	0	1	2	32
6.51- 8.50	1	1	0	3	1	0	2	2	4	6	14	4	9	4	5	3	59
8.51-11.50	1	4	3	3	2	2	0	0	2	1	4	13	4	8	9	6	62
11.51-14.50	1	2	0	1	4	0	0	0	1	2	3	2	3	11	1	1	32
14.51-20.50	0	0	1	3	10	0	0	0	1	2	0	1	0	1	2	2	23
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	24	18	13	22	24	8	7	5	15	22	42	40	36	40	24	27	367

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	0	0	0	0
1.51- 2.50	0	2	0	1	0	0	0	0	0	1	0	2	4	6	4	2	22
2.51- 3.50	7	6	1	0	0	0	2	0	0	0	3	8	10	6	2	7	52
3.51- 4.50	9	3	5	1	2	0	0	2	1	2	6	6	5	7	8	11	68
4.51- 5.50	6	1	2	0	0	0	0	0	4	3	10	6	2	2	3	7	46
5.51- 6.50	1	3	1	1	0	0	0	0	2	3	7	4	1	3	1	4	31
6.51- 8.50	1	3	3	3	0	0	0	0	7	11	11	4	2	2	4	5	56
8.51-11.50	7	2	5	2	0	0	0	0	0	11	10	1	2	1	0	8	49
11.51-14.50	1	3	0	0	0	0	0	0	0	1	2	0	0	0	0	0	7
14.51-20.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	32	23	17	9	2	0	2	2	14	32	49	31	26	27	22	44	332

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 3/31/2007

*** 1ST QRTR ***

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	7	4	5	1	1	1	0	0	0	0	0	5	6	7	11	9	57
2.51- 3.50	20	20	2	1	1	0	0	0	2	1	2	5	4	17	22	31	128
3.51- 4.50	57	18	5	2	2	2	0	1	1	0	4	2	5	11	28	61	199
4.51- 5.50	50	22	4	2	0	1	0	0	0	0	1	4	1	3	8	39	135
5.51- 6.50	34	17	3	1	0	0	0	0	0	1	3	1	0	0	3	16	79
6.51- 8.50	26	20	1	1	0	0	0	0	0	0	2	1	2	0	1	2	56
8.51-11.50	13	12	0	1	0	0	0	0	0	1	1	0	0	0	0	8	36
11.51-14.50	0	1	1	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	207	114	22	9	4	4	0	1	3	3	13	18	18	38	73	166	693

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	0	0	0	0	0	0	1	0	0	0	0	0	2
1.51- 2.50	10	7	6	4	4	2	3	2	1	3	5	12	17	22	16	13	127
2.51- 3.50	37	32	10	4	3	3	8	5	14	5	17	25	27	29	31	47	297
3.51- 4.50	73	29	16	14	10	6	2	5	14	17	26	18	16	26	45	82	399
4.51- 5.50	64	29	13	15	5	5	2	5	21	17	19	17	12	8	17	50	299
5.51- 6.50	45	23	13	15	8	5	3	10	22	14	23	17	7	4	9	27	245
6.51- 8.50	30	25	19	22	10	6	9	5	14	25	51	16	17	11	15	12	287
8.51-11.50	25	21	20	23	12	9	4	1	5	20	37	34	17	17	12	29	286
11.51-14.50	6	9	5	7	16	3	0	0	3	7	15	8	12	18	6	2	117
14.51-20.50	1	1	10	12	20	0	0	0	1	2	8	3	7	11	12	5	93
>20.50	0	0	1	1	0	0	0	0	0	0	1	1	3	1	0	0	8
TOTAL	292	176	113	117	88	39	31	33	95	110	203	151	135	147	163	267	2160

TOTAL NUMBER OF OBSERVATIONS: 2160
 TOTAL NUMBER OF VALID OBSERVATIONS: 2160
 TOTAL NUMBER OF MISSING OBSERVATIONS: 0
 PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
 MEAN WIND SPEED FOR THIS PERIOD: 6.5 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
4.07	6.06	7.08	18.33	16.99	15.37	32.08

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	4	2	13	8	1	1	0	0	1	4	17	13	15	3	2	4	0
B	4	5	11	21	7	2	7	4	7	8	21	7	4	8	11	4	0
C	5	1	13	13	14	10	4	5	20	9	17	10	12	7	8	5	0
D	16	13	24	35	36	14	11	16	35	32	44	32	24	24	23	17	0
E	24	18	13	22	24	8	7	5	15	22	42	40	36	40	24	27	0
F	32	23	17	9	2	0	2	2	14	32	49	31	26	27	22	44	0
G	207	114	22	9	4	4	0	1	3	3	13	18	18	38	73	166	0
TOTAL	292	176	113	117	88	39	31	33	95	110	203	151	135	147	163	267	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2007 TO 6/30/2007

*** 2ND QRTR ***

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	2	3	4	1	1	1	0	1	0	0	13
5.51- 6.50	2	0	1	1	0	0	1	6	7	10	9	4	1	1	0	0	43
6.51- 8.50	1	1	2	0	0	6	4	8	14	28	38	9	5	4	0	0	120
8.51-11.50	0	1	0	0	4	5	1	3	13	26	69	25	6	3	1	0	157
11.51-14.50	0	0	0	1	1	0	0	0	2	8	42	12	4	1	0	0	71
14.51-20.50	0	0	0	0	0	0	0	0	0	4	29	4	1	9	0	0	47
>20.50	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	6
TOTAL	3	2	3	2	5	11	8	20	40	77	192	57	17	19	1	0	457

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	0	0	0	0	1	2	1	2	0	0	0	0	6
4.51- 5.50	1	0	1	0	1	0	4	2	6	6	7	0	0	0	0	0	28
5.51- 6.50	1	1	1	0	1	0	8	10	13	6	5	6	0	0	0	0	52
6.51- 8.50	1	0	2	1	1	1	1	6	8	9	11	3	2	0	0	2	48
8.51-11.50	0	0	0	1	2	2	0	0	0	3	9	10	3	1	0	0	31
11.51-14.50	0	0	0	0	1	0	1	0	0	0	8	2	1	0	0	0	13
14.51-20.50	1	0	0	0	0	0	0	0	0	1	5	1	0	0	1	0	9
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
TOTAL	4	1	4	2	6	3	14	18	28	27	47	24	6	1	2	2	189

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	1	0	1	0	0	0	0	2
3.51- 4.50	0	0	0	0	0	0	2	1	2	2	2	0	2	0	0	0	11
4.51- 5.50	0	0	0	1	0	0	1	3	8	13	5	0	2	0	1	0	34
5.51- 6.50	0	0	0	1	1	1	0	5	7	4	5	1	0	0	0	0	25
6.51- 8.50	0	0	0	1	0	0	1	4	1	2	7	2	0	0	1	0	19
8.51-11.50	0	0	0	0	1	1	0	0	0	2	5	6	2	2	0	1	20
11.51-14.50	0	0	0	1	0	3	0	0	0	0	2	0	0	0	0	0	6
14.51-20.50	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	4
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
TOTAL	0	0	0	4	2	5	4	13	18	25	28	11	6	2	3	1	122

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2007 TO 6/30/2007

*** 2ND QRTR ***

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	1	2	1	0	1	1	0	0	0	1	0	0	1	0	2	10
2.51- 3.50	1	8	2	2	1	2	2	4	4	5	5	1	0	1	2	2	42
3.51- 4.50	1	0	2	6	2	3	2	8	9	5	5	4	0	0	0	1	48
4.51- 5.50	0	1	2	0	0	0	1	6	9	3	2	3	2	0	0	0	29
5.51- 6.50	0	1	1	0	0	0	0	2	3	2	3	0	0	0	0	1	13
6.51- 8.50	0	0	1	0	0	0	1	3	2	0	9	8	0	1	1	0	26
8.51-11.50	1	1	0	1	1	1	0	0	0	4	15	13	3	2	0	0	42
11.51-14.50	0	0	0	0	2	0	0	0	1	2	9	4	6	1	0	0	25
14.51-20.50	1	0	0	0	1	1	4	0	0	5	7	3	0	0	1	2	25
>20.50	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	5
TOTAL	4	12	10	10	7	8	11	23	28	26	56	40	12	6	4	8	265

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	1	0	1	0	1	0	1	0	2	0	2	1	2	0	2	15
2.51- 3.50	2	4	1	0	0	2	1	1	0	2	3	5	5	3	1	1	31
3.51- 4.50	5	3	3	0	1	0	1	2	2	1	6	1	1	3	0	2	31
4.51- 5.50	0	3	0	0	0	1	1	1	0	6	8	6	3	3	0	2	34
5.51- 6.50	1	0	0	1	0	1	1	1	0	1	9	12	3	0	0	0	30
6.51- 8.50	0	0	3	0	0	0	1	0	1	4	22	14	5	0	0	0	50
8.51-11.50	1	0	1	0	2	3	1	0	2	10	42	31	8	1	2	1	105
11.51-14.50	0	0	0	1	5	4	0	0	0	6	40	6	2	0	1	0	65
14.51-20.50	0	0	0	1	6	0	0	0	0	3	7	2	2	0	0	0	21
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	11	11	8	4	14	12	6	6	5	35	138	79	30	12	4	8	383

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	0	0	0	0
1.51- 2.50	6	0	0	2	0	1	0	2	0	0	2	1	2	4	3	0	23
2.51- 3.50	5	3	3	1	0	0	0	1	1	2	8	5	8	6	6	10	59
3.51- 4.50	2	4	0	1	0	0	0	1	1	7	6	6	14	3	1	2	48
4.51- 5.50	4	0	0	2	0	0	0	0	0	5	10	12	8	2	2	1	46
5.51- 6.50	0	1	1	0	0	0	1	0	1	7	21	14	7	1	1	1	56
6.51- 8.50	0	0	0	2	0	0	1	0	0	14	44	26	11	1	1	0	100
8.51-11.50	0	0	2	3	0	0	1	1	0	8	27	13	2	1	0	1	59
11.51-14.50	0	0	0	0	0	0	0	0	0	1	1	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	17	8	6	11	0	1	3	5	3	44	119	77	52	18	14	15	393

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2007 TO 6/30/2007

*** 2ND QRTR ***

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	1	0	0	0	1
1.51- 2.50	5	3	0	0	0	1	0	0	1	0	1	1	3	4	2	1	22
2.51- 3.50	11	7	4	0	2	1	1	0	1	0	5	1	6	3	11	11	64
3.51- 4.50	36	13	2	0	1	0	0	3	2	2	3	2	6	6	14	26	116
4.51- 5.50	34	15	5	2	0	0	1	0	4	2	0	4	3	5	13	88	
5.51- 6.50	15	9	3	1	0	0	0	0	0	1	2	1	2	2	1	8	45
6.51- 8.50	5	4	6	0	0	0	0	1	0	0	6	2	0	0	3	5	32
8.51-11.50	1	1	0	0	0	0	0	0	0	2	3	0	0	0	0	0	7
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	107	52	20	3	3	1	3	4	3	10	22	7	22	18	36	64	375

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	1	0	0	0	1
1.51- 2.50	13	5	2	4	0	3	2	3	0	3	4	4	6	11	5	5	70
2.51- 3.50	19	22	10	3	3	5	4	6	6	10	21	13	19	13	20	24	198
3.51- 4.50	44	20	7	7	4	3	5	15	17	19	23	15	23	12	15	31	260
4.51- 5.50	39	19	8	5	1	1	10	15	27	38	35	22	19	9	8	16	272
5.51- 6.50	19	12	7	4	2	2	11	24	31	31	54	38	13	4	2	10	264
6.51- 8.50	7	5	14	4	1	7	9	22	26	57	137	64	23	6	6	7	395
8.51-11.50	3	3	3	5	10	12	3	4	15	55	170	98	24	10	3	3	421
11.51-14.50	0	0	0	3	9	7	1	0	3	17	102	24	13	2	1	0	182
14.51-20.50	2	0	0	1	7	1	4	0	0	14	50	11	3	9	2	2	106
>20.50	0	0	0	0	0	0	0	0	0	0	6	6	1	0	2	0	15
TOTAL	146	86	51	36	37	41	49	89	125	244	602	295	145	76	64	98	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: 7.5 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
20.92	8.65	5.59	12.13	17.54	17.99	17.17

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	2	3	2	5	11	8	20	40	77	192	57	17	19	1	0	0
B	4	1	4	2	6	3	14	18	28	27	47	24	6	1	2	2	0
C	0	0	0	4	2	5	4	13	18	25	28	11	6	2	3	1	0
D	4	12	10	10	7	8	11	23	28	26	56	40	12	6	4	8	0
E	11	11	8	4	14	12	6	6	5	35	138	79	30	12	4	8	0
F	17	8	6	11	0	1	3	5	3	44	119	77	52	18	14	15	0
G	107	52	20	3	3	1	3	4	3	10	22	7	22	18	36	64	0
TOTAL	146	86	51	36	37	41	49	89	125	244	602	295	145	76	64	98	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 6/30/2007

*** 1ST SEMI ***

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	1	2	3	4	1	1	1	0	1	0	0	14
5.51- 6.50	2	0	1	1	0	0	1	6	7	10	11	4	1	1	0	0	45
6.51- 8.50	2	2	4	2	1	6	4	8	14	29	41	10	5	5	0	0	133
8.51-11.50	1	1	4	5	4	5	1	3	14	28	72	32	11	4	1	1	187
11.51-14.50	2	1	2	1	1	0	0	0	2	9	44	15	8	1	1	0	87
14.51-20.50	0	0	5	1	0	0	0	0	0	4	35	5	6	10	1	3	70
>20.50	0	0	0	0	0	0	0	0	0	0	5	3	1	0	0	0	9
TOTAL	7	4	16	10	6	12	8	20	41	81	209	70	32	22	3	4	545

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	0	0	0	0	1	2	1	2	0	0	1	0	7
4.51- 5.50	1	0	1	0	1	0	4	2	7	8	8	2	0	0	1	1	36
5.51- 6.50	2	4	1	1	4	0	9	12	18	7	8	7	1	0	1	2	77
6.51- 8.50	1	0	8	6	1	3	5	8	9	11	16	3	4	1	2	2	80
8.51-11.50	2	1	2	7	5	2	2	0	0	6	17	14	4	2	0	1	65
11.51-14.50	1	1	2	2	2	0	1	0	0	0	11	2	1	1	2	0	26
14.51-20.50	1	0	1	7	0	0	0	0	0	1	6	1	0	5	5	0	27
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
TOTAL	8	6	15	23	13	5	21	22	35	35	68	31	10	9	13	6	320

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	1	0	0	0	0	0	1	1	1	1	0	0	0	5
3.51- 4.50	0	0	0	0	1	1	2	1	3	2	2	0	3	1	1	1	18
4.51- 5.50	1	1	2	3	3	0	1	5	13	17	8	1	5	0	3	0	63
5.51- 6.50	3	0	2	5	3	4	2	8	18	6	9	3	2	0	1	0	66
6.51- 8.50	1	0	5	4	3	3	3	4	2	3	12	5	1	0	2	2	50
8.51-11.50	0	0	3	1	4	4	0	0	2	3	8	9	4	3	2	3	46
11.51-14.50	0	0	0	3	1	3	0	0	0	1	3	0	1	4	0	0	16
14.51-20.50	0	0	1	0	1	0	0	0	0	1	2	2	1	1	1	0	10
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
TOTAL	5	1	13	17	16	15	8	18	38	34	45	21	18	9	11	6	275

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 6/30/2007

*** 1ST SEMI ***

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	2	1	0	1	3	2	1	2	2	1	2	3	1	2	25
2.51- 3.50	3	10	7	2	2	3	5	8	15	9	12	7	4	2	5	6	100
3.51- 4.50	6	4	7	14	6	4	3	10	18	17	15	9	2	5	5	7	132
4.51- 5.50	4	4	6	10	1	3	3	8	17	7	3	6	5	1	3	0	81
5.51- 6.50	1	1	4	4	2	1	0	6	6	5	4	5	2	1	2	4	48
6.51- 8.50	0	0	3	5	5	1	2	4	3	4	20	11	1	4	3	0	66
8.51-11.50	2	3	3	6	5	5	2	1	0	5	23	19	6	7	1	3	91
11.51-14.50	1	1	0	2	12	3	0	0	3	4	13	7	10	3	2	1	62
14.51-20.50	2	1	2	0	10	1	4	0	0	5	8	3	1	3	5	2	47
>20.50	0	0	0	1	0	0	0	0	0	0	0	4	3	1	0	0	9
TOTAL	20	25	34	45	43	22	22	39	63	58	100	72	36	30	27	25	661

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	0	0	1	0	0	0	0	0	2
1.51- 2.50	4	2	1	3	3	2	1	1	0	2	4	6	6	9	0	4	48
2.51- 3.50	10	8	3	2	1	4	4	2	1	2	7	11	13	8	5	6	87
3.51- 4.50	7	7	4	3	2	2	2	4	4	12	6	4	5	2	5	7	71
4.51- 5.50	3	5	1	1	1	1	1	2	3	10	11	7	6	5	0	5	62
5.51- 6.50	6	0	4	5	1	2	1	2	1	5	12	16	4	0	1	2	62
6.51- 8.50	1	1	3	3	1	0	3	2	5	10	36	18	14	4	5	3	109
8.51-11.50	2	4	4	3	4	5	1	0	4	11	46	44	12	9	11	7	167
11.51-14.50	1	2	0	2	9	4	0	0	1	8	43	8	5	11	2	1	97
14.51-20.50	0	0	1	4	16	0	0	0	1	5	7	3	2	1	2	2	44
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	35	29	21	26	38	20	13	11	20	57	180	119	66	52	28	35	750

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	0	0	0	0
1.51- 2.50	6	2	0	3	0	1	0	2	0	1	2	3	6	10	7	2	45
2.51- 3.50	12	9	4	1	0	0	2	1	1	2	11	13	18	12	8	17	111
3.51- 4.50	11	7	5	2	2	0	0	3	2	9	12	12	19	10	9	13	116
4.51- 5.50	10	1	2	2	0	0	0	0	4	8	20	18	10	4	5	8	92
5.51- 6.50	1	4	2	1	0	0	1	0	3	10	28	18	8	4	2	5	87
6.51- 8.50	1	3	3	5	0	0	1	0	7	25	55	30	13	3	5	5	156
8.51-11.50	7	2	7	5	0	0	1	1	0	19	37	14	4	2	0	9	108
11.51-14.50	1	3	0	0	0	0	0	0	0	2	3	0	0	0	0	0	9
14.51-20.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	49	31	23	20	2	1	5	7	17	76	168	108	78	45	36	59	725

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 6/30/2007

*** 1ST SEMI ***

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	1	0	0	0	1
1.51- 2.50	12	7	5	1	1	1	1	0	0	1	1	6	9	11	13	10	79
2.51- 3.50	31	27	6	1	3	1	1	0	3	1	7	6	10	20	33	42	192
3.51- 4.50	93	31	7	2	3	2	4	3	2	7	4	11	17	42	87	315	
4.51- 5.50	84	37	9	4	0	1	1	0	0	4	3	4	5	6	13	52	223
5.51- 6.50	49	26	6	2	0	0	0	0	0	2	5	2	2	2	4	24	124
6.51- 8.50	31	24	7	1	0	0	0	1	0	0	8	3	2	0	4	7	88
8.51-11.50	14	13	0	1	0	0	0	0	0	3	4	0	0	0	0	8	43
11.51-14.50	0	1	1	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	314	166	42	12	7	5	3	5	6	13	35	25	40	56	109	230	1068

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	0	0	0	0	0	0	1	0	1	0	0	0	3
1.51- 2.50	23	12	8	8	4	5	5	5	1	6	9	16	23	33	21	18	197
2.51- 3.50	56	54	20	7	6	8	12	11	20	15	38	38	46	42	51	71	495
3.51- 4.50	117	49	23	21	14	9	7	20	31	36	49	33	39	38	60	113	659
4.51- 5.50	103	48	21	20	6	6	12	20	48	55	54	39	31	17	25	66	571
5.51- 6.50	64	35	20	19	10	7	14	34	53	45	77	55	20	8	11	37	509
6.51- 8.50	37	30	33	26	11	13	18	27	40	82	188	80	40	17	21	19	682
8.51-11.50	28	24	23	28	22	21	7	5	20	75	207	132	41	27	15	32	707
11.51-14.50	6	9	5	10	25	10	1	0	6	24	117	32	25	20	7	2	299
14.51-20.50	3	1	10	13	27	1	4	0	1	16	58	14	10	20	14	7	199
>20.50	0	0	1	1	0	0	0	0	0	0	7	7	4	1	2	0	23
TOTAL	438	262	164	153	125	80	80	122	220	354	805	446	280	223	227	365	4344

TOTAL NUMBER OF OBSERVATIONS: 4344
 TOTAL NUMBER OF VALID OBSERVATIONS: 4344
 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
12.55	7.37	6.33	15.22	17.27	16.69	24.59

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	7	4	16	10	6	12	8	20	41	81	209	70	32	22	3	4	0
B	8	6	15	23	13	5	21	22	35	35	68	31	10	9	13	6	0
C	5	1	13	17	16	15	8	18	38	34	45	21	18	9	11	6	0
D	20	25	34	45	43	22	22	39	63	58	100	72	36	30	27	25	0
E	35	29	21	26	38	20	13	11	20	57	180	119	66	52	28	35	0
F	49	31	23	20	2	1	5	7	17	76	168	108	78	45	36	59	0
G	314	166	42	12	7	5	3	5	6	13	35	25	40	56	109	230	0
TOTAL	438	262	164	153	125	80	80	122	220	354	805	446	280	223	227	365	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 9/30/2007

*** 3RD QTR ***

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	1	1	0	0	0	0	2
5.51- 6.50	0	0	0	0	0	0	0	1	0	2	0	1	0	1	0	0	5
6.51- 8.50	0	0	0	0	2	1	0	1	3	20	38	20	3	0	0	0	88
8.51-11.50	0	0	0	0	1	0	0	1	2	14	41	45	5	2	0	0	111
11.51-14.50	0	0	0	0	3	0	1	1	6	4	19	11	3	0	0	0	48
14.51-20.50	0	0	0	0	1	0	0	3	1	5	2	0	0	0	0	1	13
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	7	1	1	4	14	41	104	80	11	3	0	1	267

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	0	0	0	1	0	0	0	1	0	0	0	0	2
4.51- 5.50	1	0	0	0	2	0	1	2	0	3	3	2	2	0	0	1	17
5.51- 6.50	0	0	0	1	0	1	1	5	4	6	8	5	1	1	0	0	33
6.51- 8.50	0	0	2	3	4	3	0	3	9	21	24	5	2	1	0	0	77
8.51-11.50	0	0	0	0	3	3	0	1	3	4	14	6	4	0	0	0	38
11.51-14.50	0	0	0	1	3	1	1	1	1	3	4	1	1	0	0	1	18
14.51-20.50	0	0	0	0	2	0	0	0	1	2	3	0	0	0	0	0	8
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	2	5	14	8	3	13	18	39	56	20	10	2	0	2	193

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	0	2	0	0	0	2
3.51- 4.50	1	0	0	1	0	0	0	1	0	2	2	0	0	2	0	0	9
4.51- 5.50	0	1	0	2	1	0	0	3	8	6	17	7	2	3	0	0	50
5.51- 6.50	0	1	2	3	1	1	2	5	15	8	10	5	5	2	0	1	61
6.51- 8.50	1	0	2	2	1	1	1	4	13	5	5	8	6	1	0	0	50
8.51-11.50	0	0	0	2	4	1	0	1	2	2	6	5	0	0	0	0	23
11.51-14.50	0	0	0	0	0	1	1	2	0	0	2	0	0	0	0	0	6
14.51-20.50	0	0	0	0	0	0	0	1	0	1	1	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	2	2	4	10	7	4	4	17	38	24	43	25	15	8	0	1	204

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 9/30/2007

*** 3RD QTR ***

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	1	2	0	1	0	0	0	3	2	3	3	0	2	4	1	22
2.51- 3.50	0	6	2	4	2	2	2	1	3	2	6	7	3	2	3	4	49
3.51- 4.50	0	4	3	3	1	2	1	3	5	5	13	7	5	2	2	0	56
4.51- 5.50	2	1	6	2	3	1	3	3	9	15	9	5	6	1	1	3	70
5.51- 6.50	0	0	2	3	1	1	2	1	7	4	14	5	4	1	1	1	47
6.51- 8.50	2	3	2	4	2	0	4	4	4	10	23	13	2	2	0	1	76
8.51-11.50	0	0	0	3	1	4	2	2	1	5	17	13	5	1	0	1	55
11.51-14.50	0	0	0	2	2	2	1	1	4	3	15	8	0	1	1	1	41
14.51-20.50	2	0	0	1	5	2	0	3	3	9	27	5	0	0	0	0	57
>20.50	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
TOTAL	6	15	17	22	19	14	15	18	40	55	127	66	25	12	12	12	475

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	0	0	0	3	2	0	2	9
2.51- 3.50	1	2	3	0	2	0	0	0	2	4	9	7	5	6	6	6	53
3.51- 4.50	9	9	1	2	0	0	2	4	3	26	8	4	3	4	7	7	82
4.51- 5.50	5	1	3	2	1	1	1	2	4	12	20	17	9	2	1	1	82
5.51- 6.50	1	0	6	3	2	1	0	2	1	8	11	13	2	2	2	1	55
6.51- 8.50	4	1	2	3	3	2	3	1	2	10	33	17	3	1	0	1	86
8.51-11.50	1	2	4	4	5	3	1	2	1	10	39	26	3	0	0	0	101
11.51-14.50	1	0	0	3	3	0	1	0	2	6	30	14	0	0	0	0	60
14.51-20.50	2	2	0	1	2	0	1	0	0	4	2	0	0	1	0	0	15
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	25	18	19	18	18	7	7	9	16	57	170	102	29	17	13	18	543

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	0	0	1	1
1.51- 2.50	0	2	1	0	0	0	0	1	0	3	2	1	6	0	4	1	21
2.51- 3.50	8	3	2	1	0	0	2	0	0	1	6	4	6	7	9	6	55
3.51- 4.50	8	4	0	0	1	1	1	1	1	2	7	10	6	5	6	15	68
4.51- 5.50	4	6	3	1	1	0	0	0	2	3	12	9	2	2	4	4	53
5.51- 6.50	7	3	0	3	1	0	0	0	4	2	10	9	8	2	1	3	53
6.51- 8.50	2	2	4	5	0	0	0	1	1	1	15	11	3	1	1	2	49
8.51-11.50	2	0	2	1	0	1	0	0	1	1	4	1	5	0	1	0	19
11.51-14.50	0	0	0	0	0	0	0	0	0	0	2	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	31	20	12	11	3	2	3	3	9	13	58	45	36	17	26	32	321

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 9/30/2007

*** 3RD QTR ***

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	5	2	1	0	0	0	0	0	0	0	0	0	1	1	7	1	18
2.51- 3.50	6	1	5	1	0	0	0	0	0	0	0	2	0	3	8	14	40
3.51- 4.50	25	3	2	0	1	0	0	0	0	0	1	3	0	0	8	10	53
4.51- 5.50	21	12	4	1	0	0	0	1	0	0	0	0	0	2	6	8	55
5.51- 6.50	9	2	1	0	0	0	0	0	0	0	1	0	0	0	2	4	19
6.51- 8.50	4	6	1	1	0	0	0	0	0	1	0	1	0	0	0	3	17
8.51-11.50	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
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	70	27	14	3	1	0	0	1	0	1	3	6	1	6	31	41	205

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	0	0	2	2
1.51- 2.50	6	6	4	0	1	0	0	1	3	5	5	4	10	5	15	5	70
2.51- 3.50	15	12	12	6	4	2	4	1	5	7	21	20	16	18	26	30	199
3.51- 4.50	43	20	6	6	3	3	2	8	10	12	49	29	15	12	20	32	270
4.51- 5.50	33	21	16	8	8	2	5	11	23	39	62	41	21	10	12	17	329
5.51- 6.50	17	6	11	13	5	4	5	14	31	30	54	38	20	9	6	10	273
6.51- 8.50	13	12	13	18	12	7	8	14	32	68	138	75	19	6	1	7	443
8.51-11.50	3	3	6	10	14	12	3	7	10	36	122	96	22	3	1	1	349
11.51-14.50	1	0	0	6	11	4	5	5	13	16	72	34	4	1	1	2	175
14.51-20.50	4	2	0	2	10	2	1	4	7	17	38	7	0	1	0	1	96
>20.50	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
TOTAL	135	82	68	69	69	36	33	65	135	230	561	344	127	65	82	107	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: 7.2 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
12.09	8.74	9.24	21.51	24.59	14.54	9.28

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	7	1	1	4	14	41	104	80	11	3	0	1	0
B	1	0	2	5	14	8	3	13	18	39	56	20	10	2	0	2	0
C	2	2	4	10	7	4	4	17	38	24	43	25	15	8	0	1	0
D	6	15	17	22	19	14	15	18	40	55	127	66	25	12	12	12	0
E	25	18	19	18	18	7	7	9	16	57	170	102	29	17	13	18	0
F	31	20	12	11	3	2	3	3	9	13	58	45	36	17	26	32	0
G	70	27	14	3	1	0	0	1	0	1	3	6	1	6	31	41	0
TOTAL	135	82	68	69	69	36	33	65	135	230	561	344	127	65	82	107	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2007 TO 12/31/2007

*** 4TH QRTR ***

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	0	0	0	0	0	0	0
6.51- 8.50	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
8.51-11.50	0	0	0	0	0	0	0	0	0	0	3	2	0	0	3	0	8
11.51-14.50	2	0	0	0	0	0	0	0	1	3	6	0	0	0	0	0	12
14.51-20.50	0	0	5	0	0	0	0	0	0	4	6	0	0	0	0	0	15
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	0	5	0	1	0	0	0	1	8	15	2	0	0	3	0	37

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	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	4
5.51- 6.50	0	0	0	2	2	0	0	0	0	1	1	1	1	0	0	0	7
6.51- 8.50	2	0	0	0	0	2	1	2	0	0	3	0	0	1	0	0	11
8.51-11.50	2	2	0	0	1	0	1	0	0	1	1	2	0	0	1	1	12
11.51-14.50	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	1	5
14.51-20.50	0	0	1	0	0	0	0	0	0	0	2	0	0	2	2	0	7
>20.50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
TOTAL	5	3	2	3	3	2	2	2	1	1	8	3	1	4	5	5	50

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	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
3.51- 4.50	0	0	0	2	1	0	1	1	0	1	1	0	0	0	0	0	7
4.51- 5.50	0	2	3	1	1	0	0	1	2	2	2	0	2	1	0	0	17
5.51- 6.50	1	1	3	1	1	0	0	1	1	2	2	2	2	1	0	2	18
6.51- 8.50	1	2	3	3	6	1	1	1	0	1	2	2	1	0	1	0	25
8.51-11.50	0	1	2	0	4	0	1	0	0	0	1	0	0	0	1	0	10
11.51-14.50	1	0	0	1	0	0	0	0	1	1	4	0	0	1	2	0	11
14.51-20.50	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
TOTAL	4	6	11	8	13	1	3	4	4	7	12	7	3	3	6	3	95

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2007 TO 12/31/2007

*** 4TH QRTR ***

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	1	0	0	0	0	0	0	0	0	1	0	3
1.51- 2.50	1	1	0	2	4	2	3	3	4	0	8	6	8	3	0	3	48
2.51- 3.50	7	3	5	4	5	13	11	11	15	10	17	9	3	1	2	2	118
3.51- 4.50	3	1	11	12	6	6	8	14	15	10	5	3	2	2	2	2	102
4.51- 5.50	3	4	2	5	1	1	2	9	9	7	4	2	3	0	2	2	56
5.51- 6.50	1	3	2	5	3	1	3	9	6	2	8	1	0	0	0	4	48
6.51- 8.50	1	3	3	8	3	2	2	6	1	0	7	3	2	1	2	1	45
8.51-11.50	0	1	2	8	7	5	1	2	0	3	3	1	0	2	1	2	38
11.51-14.50	0	0	2	0	2	0	0	1	0	4	5	1	1	2	1	2	21
14.51-20.50	1	1	0	0	6	0	0	0	0	4	3	4	1	0	2	1	23
>20.50	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	1	5
TOTAL	17	17	27	44	40	31	30	55	50	42	60	30	20	11	13	20	507

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	1	0	0	0	0	0	1	0	0	0	0	1	1	0	4
1.51- 2.50	5	0	3	3	1	4	0	4	3	3	4	1	5	2	5	3	46
2.51- 3.50	7	2	0	2	6	5	5	1	1	4	0	6	4	3	0	6	52
3.51- 4.50	4	1	0	1	3	3	1	2	3	6	3	2	1	1	5	3	39
4.51- 5.50	1	0	2	1	1	0	1	1	2	8	6	1	4	1	3	3	35
5.51- 6.50	0	0	0	4	0	0	1	0	1	7	2	5	3	0	1	2	26
6.51- 8.50	1	1	2	1	2	2	3	1	5	6	11	4	3	3	5	1	51
8.51-11.50	4	0	0	9	1	3	1	0	3	8	6	4	5	3	9	4	60
11.51-14.50	1	1	3	4	7	0	1	0	0	3	3	3	7	0	7	6	42
14.51-20.50	1	2	3	2	1	0	0	0	1	5	0	2	2	1	3	1	24
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
TOTAL	24	7	14	27	22	17	13	9	20	50	35	28	27	22	39	26	380

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	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3
1.51- 2.50	6	2	3	0	4	0	1	0	1	3	6	1	2	9	8	3	49
2.51- 3.50	5	8	4	1	3	2	3	0	2	1	3	3	1	8	13	10	67
3.51- 4.50	7	1	1	3	3	2	0	0	1	1	2	2	3	6	6	3	41
4.51- 5.50	0	1	2	3	0	1	0	1	0	2	3	1	2	1	4	5	26
5.51- 6.50	0	1	0	0	0	1	0	1	1	1	4	1	2	2	4	1	19
6.51- 8.50	2	1	1	4	1	0	1	1	0	2	5	1	2	1	4	4	30
8.51-11.50	3	4	1	3	1	2	1	0	0	0	3	0	0	0	3	6	27
11.51-14.50	0	2	0	2	1	0	0	0	0	0	0	0	0	0	0	2	7
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	23	20	13	16	13	8	6	3	5	10	26	9	12	27	42	36	269

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2007 TO 12/31/2007

*** 4TH QTR ***

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	1	0	0	0	1	0	0	0	0	2	0	3	0	1	8
1.51- 2.50	19	7	9	3	1	3	3	2	2	1	1	6	6	11	22	19	115
2.51- 3.50	47	45	13	8	2	1	1	4	3	4	3	2	4	15	34	54	240
3.51- 4.50	67	56	14	3	2	1	1	1	0	3	0	1	3	2	22	39	215
4.51- 5.50	50	55	8	4	2	0	0	1	0	1	1	0	3	0	9	33	167
5.51- 6.50	25	14	5	1	0	0	0	0	1	0	0	1	0	1	4	12	64
6.51- 8.50	11	20	5	1	0	0	0	0	0	0	1	0	0	0	1	5	44
8.51-11.50	1	5	1	0	0	0	0	0	0	0	0	0	0	0	1	6	14
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	220	202	56	20	7	5	6	8	6	9	6	12	16	32	93	169	867

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	3	0	1	1	1	0	1	0	0	2	0	4	2	3	18
1.51- 2.50	31	10	15	8	10	9	7	9	10	7	19	14	21	25	35	28	258
2.51- 3.50	67	58	22	15	16	21	20	16	21	19	23	21	12	27	49	72	479
3.51- 4.50	81	59	26	21	15	12	11	18	19	21	11	8	9	11	35	47	404
4.51- 5.50	54	63	18	15	5	2	3	13	13	20	16	4	14	4	18	43	305
5.51- 6.50	27	19	10	13	6	2	4	11	10	12	17	11	6	4	9	21	182
6.51- 8.50	18	27	14	17	13	7	8	11	6	10	29	10	8	6	13	11	208
8.51-11.50	10	13	6	20	14	10	5	2	3	12	16	10	5	5	19	19	169
11.51-14.50	4	3	5	7	10	0	1	1	3	11	19	4	1	10	11	8	98
14.51-20.50	2	3	9	2	7	0	0	0	1	13	12	7	3	3	8	2	72
>20.50	1	0	0	0	2	0	0	0	0	2	0	0	0	0	2	5	12
TOTAL	295	255	128	118	99	64	60	81	87	127	162	91	79	99	201	259	2205

TOTAL NUMBER OF OBSERVATIONS: 2208
 TOTAL NUMBER OF VALID OBSERVATIONS: 2205
 TOTAL NUMBER OF MISSING OBSERVATIONS: 3
 PERCENT DATA RECOVERY FOR THIS PERIOD: 99.9 %
 MEAN WIND SPEED FOR THIS PERIOD: 5.6 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES						
A	B	C	D	E	F	G
1.68	2.27	4.31	22.99	17.23	12.20	39.32

	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	0	5	0	1	0	0	0	1	8	15	2	0	0	3	0	0
B	5	3	2	3	3	2	2	2	1	1	8	3	1	4	5	5	0
C	4	6	11	8	13	1	3	4	4	7	12	7	3	3	6	3	0
D	17	17	27	44	40	31	30	55	50	42	60	30	20	11	13	20	0
E	24	7	14	27	22	17	13	9	20	50	35	28	27	22	39	26	0
F	23	20	13	16	13	8	6	3	5	10	26	9	12	27	42	36	0
G	220	202	56	20	7	5	6	8	6	9	6	12	16	32	93	169	0
TOTAL	295	255	128	118	99	64	60	81	87	127	162	91	79	99	201	259	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 12/31/2007

*** 2ND SEMI ***

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	1	1	0	0	0	0	2
5.51- 6.50	0	0	0	0	0	0	0	1	0	2	0	1	0	1	0	0	5
6.51- 8.50	0	0	0	0	3	1	0	1	3	21	38	20	3	0	0	0	90
8.51-11.50	0	0	0	0	1	0	0	1	2	14	44	47	5	2	3	0	119
11.51-14.50	2	0	0	0	3	0	1	1	7	7	25	11	3	0	0	0	60
14.51-20.50	0	0	5	0	1	0	0	0	3	5	11	2	0	0	0	1	28
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	0	5	0	8	1	1	4	15	49	119	82	11	3	3	1	304

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	0	0	0	1	0	0	0	1	0	0	0	0	2
4.51- 5.50	1	1	1	1	2	0	1	2	0	3	3	2	2	1	0	1	21
5.51- 6.50	0	0	0	3	2	1	1	5	4	6	9	6	2	1	0	0	40
6.51- 8.50	2	0	2	3	4	5	1	5	9	21	27	5	2	2	0	0	88
8.51-11.50	2	2	0	0	4	3	1	1	3	5	15	8	4	0	1	1	50
11.51-14.50	0	0	0	1	3	1	1	1	2	3	5	1	1	0	2	2	23
14.51-20.50	0	0	1	0	2	0	0	0	1	2	5	0	0	2	2	0	15
>20.50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
TOTAL	6	3	4	8	17	10	5	15	19	40	64	23	11	6	5	7	243

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	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	4
3.51- 4.50	1	0	0	3	1	0	1	2	0	3	3	0	0	2	0	0	16
4.51- 5.50	0	3	3	3	2	0	0	4	10	8	19	7	4	4	0	0	67
5.51- 6.50	1	2	5	4	2	1	2	6	16	10	12	7	5	3	0	3	79
6.51- 8.50	2	2	5	5	7	2	2	5	13	6	7	10	7	1	1	0	75
8.51-11.50	0	1	2	2	8	1	1	1	2	2	6	6	0	0	1	0	33
11.51-14.50	1	0	0	1	0	1	1	2	1	1	6	0	0	1	2	0	17
14.51-20.50	0	0	0	0	0	0	0	1	0	1	2	1	0	0	1	0	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
TOTAL	6	8	15	18	20	5	7	21	42	31	55	32	18	11	6	4	299

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 12/31/2007

*** 2ND SEMI ***

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	1	0	0	0	0	0	0	0	0	1	0	3
1.51- 2.50	1	2	2	2	5	2	3	3	7	2	11	9	8	5	4	4	70
2.51- 3.50	7	9	7	8	7	15	13	12	18	12	23	16	6	3	5	6	167
3.51- 4.50	3	5	14	15	7	8	9	17	20	15	18	10	7	4	4	2	158
4.51- 5.50	5	5	8	7	4	2	5	12	18	22	13	7	9	1	3	5	126
5.51- 6.50	1	3	4	8	4	2	5	10	13	6	22	6	4	1	1	5	95
6.51- 8.50	3	6	5	12	5	2	6	10	5	10	30	16	4	3	2	2	121
8.51-11.50	0	1	2	11	8	9	3	4	1	8	20	14	5	3	1	3	93
11.51-14.50	0	0	2	2	4	2	1	2	4	7	20	9	1	3	2	3	62
14.51-20.50	3	1	0	1	11	2	0	3	3	13	30	9	1	0	2	1	80
>20.50	0	0	0	0	3	0	0	0	1	2	0	0	0	0	0	1	7
TOTAL	23	32	44	66	59	45	45	73	90	97	187	96	45	23	25	32	982

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	1	0	0	0	0	0	1	0	0	0	0	1	1	0	4
1.51- 2.50	6	1	3	3	1	4	0	4	3	3	4	1	8	4	5	5	55
2.51- 3.50	8	4	3	2	8	5	5	1	3	8	9	13	9	9	6	12	105
3.51- 4.50	13	10	1	3	3	3	1	4	7	9	29	10	5	4	9	10	121
4.51- 5.50	6	1	5	3	2	1	2	3	6	20	26	18	13	3	4	4	117
5.51- 6.50	1	0	6	7	2	1	1	2	2	15	13	18	5	2	3	3	81
6.51- 8.50	5	2	4	4	5	4	6	2	7	16	44	21	6	4	5	2	137
8.51-11.50	5	2	4	13	6	6	2	2	4	18	45	30	8	3	9	4	161
11.51-14.50	2	1	3	7	10	0	2	0	2	9	33	17	0	7	6	3	102
14.51-20.50	3	4	3	3	3	0	1	0	1	9	2	2	2	2	3	1	39
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
TOTAL	49	25	33	45	40	24	20	18	36	107	205	130	56	39	52	44	923

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	1	0	0	0	0	0	0	0	0	0	0	0	0	3	4
1.51- 2.50	6	4	4	0	4	0	1	1	1	6	8	2	8	9	12	4	70
2.51- 3.50	13	11	6	2	3	2	5	0	2	2	9	7	7	15	22	16	122
3.51- 4.50	15	5	1	3	4	3	1	1	2	3	9	12	9	11	12	18	109
4.51- 5.50	4	7	5	4	1	1	0	1	2	5	15	10	4	3	8	9	79
5.51- 6.50	7	4	0	3	1	1	0	1	5	3	14	10	10	4	5	4	72
6.51- 8.50	4	3	5	9	1	0	1	2	1	3	20	12	5	2	5	6	79
8.51-11.50	5	4	3	4	1	3	1	0	1	1	7	1	5	0	4	6	46
11.51-14.50	0	2	0	2	1	0	0	0	0	0	2	0	0	0	0	2	9
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	54	40	25	27	16	10	9	6	14	23	84	54	48	44	68	68	590

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2007 TO 12/31/2007

*** 2ND SEMI ***

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	1	0	0	0	1	0	0	0	0	2	0	3	0	2	9
1.51- 2.50	24	9	10	3	1	3	3	2	2	1	1	6	7	12	29	20	133
2.51- 3.50	53	46	18	9	2	1	1	4	3	4	3	4	4	18	42	68	280
3.51- 4.50	92	59	16	3	3	1	1	1	0	3	1	4	3	2	30	49	268
4.51- 5.50	71	67	12	5	2	0	0	2	0	1	1	0	3	2	15	41	222
5.51- 6.50	34	16	6	1	0	0	0	0	1	0	1	1	0	1	6	16	83
6.51- 8.50	15	26	6	2	0	0	0	0	0	1	1	1	0	0	1	8	61
8.51-11.50	1	6	1	0	0	0	0	0	0	0	1	0	0	0	1	6	16
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	290	229	70	23	8	5	6	9	6	10	9	18	17	38	124	210	1072

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	3	0	1	1	1	0	1	0	0	2	0	4	2	5	20
1.51- 2.50	37	16	19	8	11	9	7	10	13	12	24	18	31	30	50	33	328
2.51- 3.50	82	70	34	21	20	23	24	17	26	26	44	41	28	45	75	102	678
3.51- 4.50	124	79	32	27	18	15	13	26	29	33	60	37	24	23	55	79	674
4.51- 5.50	87	84	34	23	13	4	8	24	36	59	78	45	35	14	30	60	634
5.51- 6.50	44	25	21	26	11	6	9	25	41	42	71	49	26	13	15	31	455
6.51- 8.50	31	39	27	35	25	14	16	25	38	78	167	85	27	12	14	18	651
8.51-11.50	13	16	12	30	28	22	8	9	13	48	138	106	27	8	20	20	518
11.51-14.50	5	3	5	13	21	4	6	6	16	27	91	38	5	11	12	10	273
14.51-20.50	6	5	9	4	17	2	1	4	8	30	50	14	3	4	8	3	168
>20.50	1	0	0	0	3	0	0	0	1	2	0	0	0	0	2	5	14
TOTAL	430	337	196	187	168	100	93	146	222	357	723	435	206	164	283	366	4413

TOTAL NUMBER OF OBSERVATIONS: 4416
 TOTAL NUMBER OF VALID OBSERVATIONS: 4413
 TOTAL NUMBER OF MISSING OBSERVATIONS: 3
 PERCENT DATA RECOVERY FOR THIS PERIOD: 99.9 %
 MEAN WIND SPEED FOR THIS PERIOD: 6.4 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES							
A	B	C	D	E	F	G	
6.89	5.51	6.78	22.25	20.92	13.37	24.29	

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	0	5	0	8	1	1	4	15	49	119	82	11	3	3	1	0
B	6	3	4	8	17	10	5	15	19	40	64	23	11	6	5	7	0
C	6	8	15	18	20	5	7	21	42	31	55	32	18	11	6	4	0
D	23	32	44	66	59	45	45	73	90	97	187	96	45	23	25	32	0
E	49	25	33	45	40	24	20	18	36	107	205	130	56	39	52	44	0
F	54	40	25	27	16	10	9	6	14	23	84	54	48	44	68	68	0
G	290	229	70	23	8	5	6	9	6	10	9	18	17	38	124	210	0
TOTAL	430	337	196	187	168	100	93	146	222	357	723	435	206	164	283	366	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 12/31/2007

*** 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	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	1	2	3	4	1	2	2	0	1	0	0	16
5.51- 6.50	2	0	1	1	0	0	1	7	7	12	11	5	1	2	0	0	50
6.51- 8.50	2	2	4	2	4	7	4	9	17	50	79	30	8	5	0	0	223
8.51-11.50	1	1	4	5	5	5	1	4	16	42	116	79	16	6	4	1	306
11.51-14.50	4	1	2	1	4	0	1	1	9	16	69	26	11	1	1	0	147
14.51-20.50	0	0	10	1	1	0	0	0	3	9	46	7	6	10	1	4	98
>20.50	0	0	0	0	0	0	0	0	0	0	5	3	1	0	0	0	9
TOTAL	9	4	21	10	14	13	9	24	56	130	328	152	43	25	6	5	849

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	0	0	1	1	2	1	3	0	0	0	1	0	9
4.51- 5.50	2	1	2	1	3	0	5	4	7	11	11	4	2	1	1	2	57
5.51- 6.50	2	4	1	4	6	1	10	17	22	13	17	13	3	1	1	2	117
6.51- 8.50	3	0	10	9	5	8	6	13	18	32	43	8	6	3	2	2	168
8.51-11.50	4	3	2	7	9	5	3	1	3	11	32	22	8	2	1	2	115
11.51-14.50	1	1	2	3	5	1	2	1	2	3	16	3	2	1	4	2	49
14.51-20.50	1	0	2	7	2	0	0	0	1	3	11	1	0	7	7	0	42
>20.50	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	6
TOTAL	14	9	19	31	30	15	26	37	54	75	132	54	21	15	18	13	563

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	1	0	0	1	0	0	0	0	0	1	1	2	3	0	0	0	9
3.51- 4.50	1	0	0	3	2	1	3	3	3	5	5	0	3	3	1	1	34
4.51- 5.50	1	4	5	6	5	0	1	9	23	25	27	8	9	4	3	0	130
5.51- 6.50	4	2	7	9	5	5	4	14	34	16	21	10	7	3	1	3	145
6.51- 8.50	3	2	10	9	10	5	5	9	15	9	19	15	8	1	3	2	125
8.51-11.50	0	1	5	3	12	5	1	1	4	5	14	15	4	3	3	3	79
11.51-14.50	1	0	0	4	1	4	1	2	1	2	9	0	1	5	2	0	33
14.51-20.50	0	0	1	0	1	0	0	1	0	2	4	3	1	1	2	0	16
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
TOTAL	11	9	28	35	36	20	15	39	80	65	100	53	36	20	17	10	574

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 12/31/2007

*** 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	0	1	1	0	0	0	0	0	0	0	0	1	0	3
1.51- 2.50	2	3	4	3	5	3	6	5	8	4	13	10	10	8	5	6	95
2.51- 3.50	10	19	14	10	9	18	18	20	33	21	35	23	10	5	10	12	267
3.51- 4.50	9	9	21	29	13	12	12	27	38	32	33	19	9	9	9	9	290
4.51- 5.50	9	9	14	17	5	5	8	20	35	29	16	13	14	2	6	5	207
5.51- 6.50	2	4	8	12	6	3	5	16	19	11	26	11	6	2	3	9	143
6.51- 8.50	3	6	8	17	10	3	8	14	8	14	50	27	5	7	5	2	187
8.51-11.50	2	4	5	17	13	14	5	5	1	13	43	33	11	10	2	6	184
11.51-14.50	1	1	2	4	16	5	1	2	7	11	33	16	11	6	4	4	124
14.51-20.50	5	2	2	1	21	3	4	3	3	18	38	12	2	3	7	3	127
>20.50	0	0	0	1	3	0	0	0	1	2	0	4	3	1	0	1	16
TOTAL	43	57	78	111	102	67	67	112	153	155	287	168	81	53	52	57	1643

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	1	0	0	0	0	0	1	0	1	0	0	1	1	0	6
1.51- 2.50	10	3	4	6	4	6	1	5	3	5	8	7	14	13	5	9	103
2.51- 3.50	18	12	6	4	9	9	9	3	4	10	16	24	22	17	11	18	192
3.51- 4.50	20	17	5	6	5	5	6	11	13	41	16	9	9	11	15	15	192
4.51- 5.50	9	6	6	4	3	2	3	5	9	30	37	25	19	8	4	9	179
5.51- 6.50	7	0	10	12	3	3	2	4	3	20	25	34	9	2	4	5	143
6.51- 8.50	6	3	7	7	6	4	9	4	12	26	80	39	20	8	10	5	246
8.51-11.50	7	6	8	16	10	11	3	2	8	29	91	74	20	12	20	11	328
11.51-14.50	3	3	3	9	19	4	2	0	3	17	76	25	5	18	8	4	199
14.51-20.50	3	4	4	7	19	0	1	0	2	14	9	5	4	3	5	3	83
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
TOTAL	84	54	54	71	78	44	33	29	56	164	385	249	122	91	80	79	1673

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	1	0	0	0	0	0	0	0	0	0	0	0	0	3	4
1.51- 2.50	12	6	4	3	4	1	1	3	1	7	10	5	14	19	19	6	115
2.51- 3.50	25	20	10	3	3	2	7	1	3	4	20	20	25	27	30	33	233
3.51- 4.50	26	12	6	5	6	3	1	4	4	12	21	24	28	21	21	31	225
4.51- 5.50	14	8	7	6	1	1	0	1	6	13	35	28	14	7	13	17	171
5.51- 6.50	8	8	2	4	1	1	1	1	8	13	42	28	18	8	7	9	159
6.51- 8.50	5	6	8	14	1	0	2	2	8	28	75	42	18	5	10	11	235
8.51-11.50	12	6	10	9	1	3	2	1	1	20	44	15	9	2	4	15	154
11.51-14.50	1	5	0	2	1	0	0	0	0	2	5	0	0	0	0	2	18
14.51-20.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	103	71	48	47	18	11	14	13	31	99	252	162	126	89	104	127	1315

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2007 TO 12/31/2007

*** 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	1	0	0	0	1	0	0	0	0	2	1	3	0	2	10
1.51- 2.50	36	16	15	4	2	4	4	2	2	2	2	12	16	23	42	30	212
2.51- 3.50	84	73	24	10	5	2	2	4	6	5	10	10	14	38	75	110	472
3.51- 4.50	185	90	23	5	6	3	1	5	3	5	8	8	14	19	72	136	583
4.51- 5.50	155	104	21	9	2	1	2	0	5	4	4	4	8	8	28	93	445
5.51- 6.50	83	42	12	3	0	0	0	0	1	2	6	3	2	3	10	40	207
6.51- 8.50	46	50	13	3	0	0	0	1	0	1	9	4	2	0	5	15	149
8.51-11.50	15	19	1	1	0	0	0	0	0	3	5	0	0	0	1	14	59
11.51-14.50	0	1	1	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	604	395	112	35	15	10	9	14	12	23	44	43	57	94	233	440	2140

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	3	0	1	1	1	0	1	0	1	2	1	4	2	5	23
1.51- 2.50	60	28	27	16	15	14	12	15	14	18	33	34	54	63	71	51	525
2.51- 3.50	138	124	54	28	26	31	36	28	46	41	82	79	74	87	126	173	1173
3.51- 4.50	241	128	55	48	32	24	20	46	60	69	109	70	63	61	115	192	1333
4.51- 5.50	190	132	55	43	19	10	20	44	84	114	132	84	66	31	55	126	1205
5.51- 6.50	108	60	41	45	21	13	23	59	94	87	148	104	46	21	26	68	964
6.51- 8.50	68	69	60	61	36	27	34	52	78	160	355	165	67	29	35	37	1333
8.51-11.50	41	40	35	58	50	43	15	14	33	123	345	238	68	35	35	52	1225
11.51-14.50	11	12	10	23	46	14	7	6	22	51	208	70	30	31	19	12	572
14.51-20.50	9	6	19	17	44	3	5	4	9	46	108	28	13	24	22	10	367
>20.50	1	0	1	1	3	0	0	0	1	2	7	7	4	1	4	5	37
TOTAL	868	599	360	340	293	180	173	268	442	711	1528	881	486	387	510	731	8757

TOTAL NUMBER OF OBSERVATIONS: 8760
 TOTAL NUMBER OF VALID OBSERVATIONS: 8757
 TOTAL NUMBER OF MISSING OBSERVATIONS: 3
 PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
 MEAN WIND SPEED FOR THIS PERIOD: 6.7 MPH
 TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
9.70	6.43	6.55	18.76	19.10	15.02	24.44

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	9	4	21	10	14	13	9	24	56	130	328	152	43	25	6	5	0
B	14	9	19	31	30	15	26	37	54	75	132	54	21	15	18	13	0
C	11	9	28	35	36	20	15	39	80	65	100	53	36	20	17	10	0
D	43	57	78	111	102	67	67	112	153	155	287	168	81	53	52	57	0
E	84	54	54	71	78	44	33	29	56	164	385	249	122	91	80	79	0
F	103	71	48	47	18	11	14	13	31	99	252	162	126	89	104	127	0
G	604	395	112	35	15	10	9	14	12	23	44	43	57	94	233	440	0
TOTAL	868	599	360	340	293	180	173	268	442	711	1528	881	486	387	510	731	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 GASPARG 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. GASPARG 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 43 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 44 presents the population dose.

Table 45 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 $\mu\text{R/hr}$ (17 - 30 mR/Std Qtr).

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

Dose Calculation Models

The GASPARG computer code was used to evaluate the radiological consequences of the routine release of gaseous effluents. GASPARG 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 GASPARG 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 2007 Land Use Census.

0 to 10 mile population distribution based on the State of Arizona - Maricopa County, Offsite Emergency Response Plan for Palo Verde Nuclear Generating Station, December 2007, Survey Information.

The 10 to 50 mile population distribution from the PVNGS UFSAR, Figure 2.1-11.

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 three (3) sectors containing milk animal (goat or cow) locations within five (5) miles. For calculational purposes these milk animals are assumed to be fed 100% on pasture grass during the year.

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

**Table 43:
Doses To Special Locations For 2007**

ENERGY INFORMATION CENTER LOCATED ONSITE 0.45 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	1.51E-01	1.51E-01	4.74E-03	1.51E-01	1.51E-01	1.51E-01	1.51E-01	1.54E-01
TEEN	1.52E-01	1.52E-01	4.74E-03	1.52E-01	1.52E-01	1.52E-01	1.52E-01	1.55E-01
CHILD	1.34E-01	1.34E-01	4.74E-03	1.34E-01	1.34E-01	1.34E-01	1.34E-01	1.37E-01
INFANT	7.93E-02	7.93E-02	4.74E-03	7.93E-02	7.93E-02	7.94E-02	7.93E-02	8.21E-02
2ND QUARTER								
ADULT	3.17E-01	3.17E-01	2.65E-03	3.17E-01	3.17E-01	3.18E-01	3.17E-01	3.18E-01
TEEN	3.19E-01	3.19E-01	2.65E-03	3.19E-01	3.19E-01	3.20E-01	3.20E-01	3.20E-01
CHILD	2.82E-01	2.82E-01	2.66E-03	2.82E-01	2.82E-01	2.83E-01	2.82E-01	2.83E-01
INFANT	1.64E-01	1.64E-01	2.65E-03	1.64E-01	1.64E-01	1.65E-01	1.64E-01	1.65E-01
1ST SEMI-ANNUAL								
ADULT	4.68E-01	4.68E-01	7.39E-03	4.68E-01	4.68E-01	4.69E-01	4.68E-01	4.72E-01
TEEN	4.71E-01	4.71E-01	7.39E-03	4.71E-01	4.71E-01	4.72E-01	4.72E-01	4.75E-01
CHILD	4.16E-01	4.16E-01	7.39E-03	4.16E-01	4.16E-01	4.17E-01	4.16E-01	4.20E-01
INFANT	2.43E-01	2.43E-01	7.39E-03	2.43E-01	2.43E-01	2.44E-01	2.43E-01	2.47E-01
3RD QUARTER								
ADULT	2.15E-01	2.15E-01	1.33E-03	2.15E-01	2.15E-01	2.15E-01	2.15E-01	2.16E-01
TEEN	2.16E-01	2.16E-01	1.33E-03	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.17E-01
CHILD	1.92E-01	1.92E-01	1.33E-03	1.92E-01	1.92E-01	1.92E-01	1.92E-01	1.93E-01
INFANT	1.11E-01	1.11E-01	1.33E-03	1.11E-01	1.11E-01	1.11E-01	1.11E-01	1.12E-01
4TH QUARTER								
ADULT	4.41E-01	4.41E-01	1.40E-02	4.41E-01	4.41E-01	4.41E-01	4.43E-01	4.32E-01
TEEN	4.45E-01	4.45E-01	1.40E-02	4.45E-01	4.45E-01	4.45E-01	4.48E-01	4.35E-01
CHILD	3.94E-01	3.94E-01	1.40E-02	3.94E-01	3.94E-01	3.94E-01	3.97E-01	3.85E-01
INFANT	2.33E-01	2.33E-01	1.40E-02	2.33E-01	2.33E-01	2.33E-01	2.35E-01	1.70E-01
2ND SEMI-ANNUAL								
ADULT	6.57E-01	6.57E-01	1.53E-02	6.57E-01	6.57E-01	6.57E-01	6.59E-01	6.48E-01
TEEN	6.61E-01	6.61E-01	1.53E-02	6.61E-01	6.61E-01	6.61E-01	6.64E-01	6.53E-01
CHILD	5.86E-01	5.86E-01	1.53E-02	5.86E-01	5.86E-01	5.86E-01	5.89E-01	5.78E-01
INFANT	3.44E-01	3.44E-01	1.53E-02	3.44E-01	3.44E-01	3.44E-01	3.46E-01	2.82E-01
ANNUAL								
ADULT	1.12E+00	1.12E+00	2.27E-02	1.12E+00	1.12E+00	1.13E+00	1.13E+00	1.12E+00
TEEN	1.13E+00	1.13E+00	2.27E-02	1.13E+00	1.13E+00	1.13E+00	1.14E+00	1.13E+00
CHILD	1.00E+00	1.00E+00	2.27E-02	1.00E+00	1.00E+00	1.00E+00	1.01E+00	9.98E-01
INFANT	5.87E-01	5.87E-01	2.27E-02	5.87E-01	5.87E-01	5.88E-01	5.89E-01	5.29E-01

**Table 44:
Integrated Population Dose for 2007**

JAN - MAR								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	4.57E-04 .03%	4.57E-04 .03%	4.57E-04 99.84%	4.57E-04 .03%	4.57E-04 .03%	4.57E-04 .03%	4.57E-04 .03%	8.15E-04 .05%
GROUND	2.90E-07 .00%	2.90E-07 .00%	2.90E-07 .06%	2.90E-07 .00%	2.90E-07 .00%	2.90E-07 .00%	2.90E-07 .00%	3.36E-07 .00%
INHAL	4.22E-01 25.50%	4.22E-01 25.50%	1.70E-07 .04%	4.22E-01 25.50%	4.22E-01 25.50%	4.22E-01 25.50%	4.22E-01 25.50%	4.22E-01 25.50%
VEGET	1.05E+00 63.57%	1.05E+00 63.57%	2.20E-07 .05%	1.05E+00 63.57%	1.05E+00 63.57%	1.05E+00 63.57%	1.05E+00 63.57%	1.05E+00 63.56%
COW MILK	1.30E-01 7.82%	1.30E-01 7.82%	3.26E-08 .01%	1.30E-01 7.82%	1.30E-01 7.82%	1.30E-01 7.82%	1.30E-01 7.82%	1.30E-01 7.82%
MEAT	5.09E-02 3.08%	5.09E-02 3.08%	4.26E-11 .00%	5.09E-02 3.08%	5.09E-02 3.08%	5.09E-02 3.08%	5.09E-02 3.08%	5.09E-02 3.08%
TOTAL	1.66E+00	1.66E+00	4.58E-04	1.66E+00	1.66E+00	1.66E+00	1.66E+00	1.66E+00
(1)								
PER CAPITA DOSE (REM)	8.47E-07	8.47E-07	2.34E-10	8.47E-07	8.47E-07	8.47E-07	8.47E-07	8.47E-07

APR - JUN								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.89E-04 .01%	3.89E-04 .01%	3.89E-04 20.27%	3.89E-04 .01%	3.89E-04 .01%	3.89E-04 .01%	3.89E-04 .01%	8.22E-04 .01%
GROUND	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 70.22%	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 .02%	1.59E-03 .02%
INHAL	2.25E+00 33.28%	2.25E+00 33.28%	3.12E-05 1.62%	2.25E+00 33.28%	2.25E+00 33.28%	2.26E+00 33.30%	2.25E+00 33.29%	2.25E+00 33.27%
VEGET	3.63E+00 53.70%	3.63E+00 53.70%	1.15E-04 5.98%	3.63E+00 53.70%	3.63E+00 53.70%	3.64E+00 53.69%	3.63E+00 53.69%	3.63E+00 53.69%
COW MILK	7.33E-01 10.83%	7.33E-01 10.83%	3.58E-05 1.86%	7.33E-01 10.83%	7.33E-01 10.83%	7.34E-01 10.82%	7.33E-01 10.82%	7.33E-01 10.82%
MEAT	1.47E-01 2.17%	1.47E-01 2.17%	1.09E-06 .06%	1.47E-01 2.17%	1.47E-01 2.17%	1.47E-01 2.17%	1.47E-01 2.17%	1.47E-01 2.17%
TOTAL	6.77E+00	6.77E+00	1.92E-03	6.77E+00	6.77E+00	6.78E+00	6.77E+00	6.77E+00
(1)								
PER CAPITA DOSE (REM)	3.46E-06	3.46E-06	9.80E-10	3.46E-06	3.46E-06	3.46E-06	3.46E-06	3.46E-06

**Table 44: (continued)
Integrated Population Dose for 2007**

JAN - JUN								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.47E-04 .01%	8.47E-04 .01%	8.47E-04 35.58%	8.47E-04 .01%	8.47E-04 .01%	8.47E-04 .01%	8.47E-04 .01%	1.64E-03 .02%
GROUND	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 56.71%	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 .02%	1.35E-03 .02%	1.59E-03 .02%
INHAL	2.67E+00 31.75%	2.67E+00 31.75%	3.13E-05 1.32%	2.67E+00 31.75%	2.67E+00 31.75%	2.68E+00 31.77%	2.68E+00 31.76%	2.67E+00 31.74%
VEGET	4.69E+00 55.64%	4.69E+00 55.64%	1.15E-04 4.84%	4.69E+00 55.64%	4.69E+00 55.64%	4.69E+00 55.63%	4.69E+00 55.63%	4.69E+00 55.63%
COW MILK	8.62E-01 10.24%	8.62E-01 10.23%	3.58E-05 1.50%	8.62E-01 10.24%	8.62E-01 10.24%	8.63E-01 10.23%	8.62E-01 10.23%	8.62E-01 10.23%
MEAT	1.98E-01 2.35%	1.98E-01 2.35%	1.09E-06 .05%	1.98E-01 2.35%	1.98E-01 2.35%	1.98E-01 2.35%	1.98E-01 2.35%	1.98E-01 2.35%
TOTAL	8.42E+00	8.42E+00	2.38E-03	8.42E+00	8.42E+00	8.43E+00	8.42E+00	8.42E+00
(1) PER CAPITA DOSE (REM)	4.30E-06	4.30E-06	1.21E-09	4.30E-06	4.30E-06	4.30E-06	4.30E-06	4.30E-06
JUL - SEP								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.43E-04 .03%	7.43E-04 .03%	7.43E-04 97.68%	7.43E-04 .03%	7.43E-04 .03%	7.43E-04 .03%	7.43E-04 .03%	2.24E-03 .08%
GROUND	1.76E-05 .00%	1.76E-05 .00%	1.76E-05 2.32%	1.76E-05 .00%	1.76E-05 .00%	1.76E-05 .00%	1.76E-05 .00%	2.06E-05 .00%
INHAL	7.88E-01 28.40%	7.88E-01 28.40%	1.64E-08 .00%	7.88E-01 28.40%	7.88E-01 28.40%	7.88E-01 28.40%	7.88E-01 28.40%	7.88E-01 28.38%
VEGET	1.68E+00 60.69%	1.68E+00 60.69%	4.13E-08 .01%	1.68E+00 60.69%	1.68E+00 60.69%	1.68E+00 60.69%	1.68E+00 60.69%	1.68E+00 60.65%
COW MILK	2.30E-01 8.27%	2.30E-01 8.27%	8.27E-09 .00%	2.30E-01 8.27%	2.30E-01 8.27%	2.30E-01 8.27%	2.30E-01 8.27%	2.30E-01 8.27%
MEAT	7.25E-02 2.61%	7.25E-02 2.61%	6.54E-12 .00%	7.25E-02 2.61%	7.25E-02 2.61%	7.25E-02 2.61%	7.25E-02 2.61%	7.25E-02 2.61%
TOTAL	2.78E+00	2.78E+00	7.61E-04	2.78E+00	2.78E+00	2.78E+00	2.78E+00	2.78E+00
(1) PER CAPITA DOSE (REM)	1.42E-06	1.42E-06	3.88E-10	1.42E-06	1.42E-06	1.42E-06	1.42E-06	1.42E-06

**Table 44: (continued)
Integrated Population Dose for 2007**

OCT - DEC								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.34E-03 .03%	1.34E-03 .03%	1.34E-03 35.06%	1.34E-03 .03%	1.34E-03 .03%	1.34E-03 .03%	1.34E-03 .03%	4.47E-03 .08%
GROUND	2.41E-03 .05%	2.41E-03 .05%	2.41E-03 62.94%	2.41E-03 .05%	2.41E-03 .05%	2.41E-03 .05%	2.41E-03 .05%	2.84E-03 .05%
INHAL	1.08E+00 20.40%	1.08E+00 20.40%	1.73E-05 .45%	1.08E+00 20.40%	1.08E+00 20.40%	1.08E+00 20.41%	1.08E+00 20.47%	1.08E+00 20.39%
VEGET	3.72E+00 70.38%	3.72E+00 70.38%	5.11E-05 1.33%	3.72E+00 70.38%	3.72E+00 70.38%	3.72E+00 70.38%	3.72E+00 70.32%	3.72E+00 70.33%
COW MILK	3.18E-01 6.01%	3.18E-01 6.01%	7.76E-06 .20%	3.18E-01 6.01%	3.18E-01 6.01%	3.18E-01 6.01%	3.18E-01 6.01%	3.18E-01 6.01%
MEAT	1.66E-01 3.13%	1.66E-01 3.13%	6.17E-07 .02%	1.66E-01 3.13%	1.66E-01 3.13%	1.66E-01 3.13%	1.66E-01 3.13%	1.66E-01 3.13%
TOTAL	5.28E+00	5.29E+00	3.83E-03	5.28E+00	5.28E+00	5.29E+00	5.29E+00	5.29E+00
(1) PER CAPITA DOSE (REM)	2.70E-06	2.70E-06	1.96E-09	2.70E-06	2.70E-06	2.70E-06	2.70E-06	2.70E-06
JUL - DEC								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.09E-03 .03%	2.09E-03 .03%	2.09E-03 45.43%	2.09E-03 .03%	2.09E-03 .03%	2.09E-03 .03%	2.09E-03 .03%	6.71E-03 .08%
GROUND	2.43E-03 .03%	2.43E-03 .03%	2.43E-03 52.89%	2.43E-03 .03%	2.43E-03 .03%	2.43E-03 .03%	2.43E-03 .03%	2.86E-03 .04%
INHAL	1.87E+00 23.16%	1.87E+00 23.15%	1.74E-05 .38%	1.87E+00 23.16%	1.87E+00 23.16%	1.87E+00 23.16%	1.87E+00 23.20%	1.87E+00 23.14%
VEGET	5.40E+00 67.04%	5.40E+00 67.04%	5.11E-05 1.11%	5.40E+00 67.04%	5.40E+00 67.04%	5.40E+00 67.04%	5.40E+00 67.00%	5.40E+00 67.00%
COW MILK	5.47E-01 6.79%	5.47E-01 6.79%	7.77E-06 .17%	5.47E-01 6.79%	5.47E-01 6.79%	5.47E-01 6.79%	5.47E-01 6.79%	5.47E-01 6.79%
MEAT	2.38E-01 2.95%	2.38E-01 2.95%	6.17E-07 .01%	2.38E-01 2.95%	2.38E-01 2.95%	2.38E-01 2.95%	2.38E-01 2.95%	2.38E-01 2.95%
TOTAL	8.06E+00	8.06E+00	4.59E-03	8.06E+00	8.06E+00	8.06E+00	8.06E+00	8.06E+00
(1) PER CAPITA DOSE (REM)	4.11E-06	4.11E-06	2.34E-09	4.11E-06	4.11E-06	4.11E-06	4.11E-06	4.11E-06

**Table 44: (continued)
Integrated Population Dose for 2007**

JAN - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.93E-03 .02%	2.93E-03 .02%	2.93E-03 42.07%	2.93E-03 .02%	2.93E-03 .02%	2.93E-03 .02%	2.93E-03 .02%	8.35E-03 .05%
GROUND	3.78E-03 .02%	3.78E-03 .02%	3.78E-03 54.20%	3.78E-03 .02%	3.78E-03 .02%	3.78E-03 .02%	3.78E-03 .02%	4.44E-03 .03%
INHAL	4.54E+00 27.55%	4.54E+00 27.55%	4.87E-05 .70%	4.54E+00 27.55%	4.54E+00 27.55%	4.55E+00 27.56%	4.55E+00 27.57%	4.54E+00 27.54%
VEGET	1.01E+01 61.22%	1.01E+01 61.22%	1.66E-04 2.38%	1.01E+01 61.22%	1.01E+01 61.22%	1.01E+01 61.21%	1.01E+01 61.19%	1.01E+01 61.19%
COW MILK	1.41E+00 8.55%	1.41E+00 8.55%	4.36E-05 .62%	1.41E+00 8.55%	1.41E+00 8.55%	1.41E+00 8.55%	1.41E+00 8.55%	1.41E+00 8.55%
MEAT	4.36E-01 2.65%	4.36E-01 2.65%	1.71E-06 .02%	4.36E-01 2.65%	4.36E-01 2.65%	4.36E-01 2.64%	4.36E-01 2.64%	4.36E-01 2.64%
TOTAL	1.65E+01	1.65E+01	6.97E-03	1.65E+01	1.65E+01	1.65E+01	1.65E+01	1.65E+01
(1) PER CAPITA DOSE (REM)	8.42E-06	8.42E-06	3.56E-09	8.42E-06	8.42E-06	8.42E-06	8.42E-06	8.42E-06

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

**Table 45:
Summary of Individual Doses for 2007**

	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	2.45E-03	6.56E-04	6.20E-04	1.16E-03	4.61E-03
ODCM Req. 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	4.90E-02	1.31E-02	1.24E-02	2.32E-02	4.61E-02
Beta Air Dose	mrad	8.66E-04	2.49E-04	5.62E-04	1.92E-03	3.37E-03
ODCM Req. 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	8.66E-03	2.49E-03	5.62E-03	1.92E-02	1.69E-02
Maximum Individual						
Total Body	mrem	1.63E-03	4.35E-04	4.02E-04	7.24E-04	3.01E-03
Skin	mrem	2.62E-03	7.02E-04	7.37E-04	1.57E-03	5.30E-03
Site Boundary Location						
Unit 1	miles	1.70 SSE	1.40 SSW	1.27 SE	1.40 SSW	1.40 SSW
Unit 2	miles	1.88 SSE	1.14 SSW	1.31 SE	1.14 SSW	1.14 SSW
Unit 3	miles	1.73 SSE	1.00 SSW	1.40 SE	1.00 SSW	1.00 SSW
Maximum Organ Dose (excluding skin)	Age	Child	Infant	Child	Teen	Infant
	Organ	Thyroid (3)	Thyroid	Thyroid (3)	Lung	Thyroid
	mrem	3.08E-02	1.92E-01	9.32E-02	1.16E-01	3.37E-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)	%	4.11E-01	2.56E+00	1.24E+00	1.55E+00	2.25E+00
Location						
Unit 1	miles	3.76 ESE	3.68 NE	2.43 ENE	2.84 S	3.68 NE
Unit 2	miles	3.85 ESE	3.91 NE	2.63 ENE	2.68 S	3.91 NE
Unit 3	miles	3.87 ESE	4.12 NE	2.80 ENE	2.48 S	4.12 NE
Organ dose from tritium only for Unit 2 location above	mrem	3.07E-02	1.81E-01	9.31E-02	1.14E-01	3.25E-01
Fraction of organ dose from tritium only for Unit 2 location above (2)	%	99	94	99	98	96
X/Q for Unit 2 location above	sec/m ³	1.06E-06	1.04E-06	7.84E-07	6.33E-06	6.57E-07
D/Q for Unit 2 location above	m ⁻²	4.80E-10	2.36E-09	2.33E-09	1.95E-09	1.49E-09
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.						
Note 2: Fraction of dose from tritium varies mainly due to the ratio of tritium to iodine curies released (see Tables 32 and 33) and changes in X/Q and D/Q for each quarter						
Note 3: All organs except bone						

APPENDIX D
OFFSITE DOSE CALCULATION MANUAL
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