PALO VERDE NUCLEAR GENERATING STATION
UNITS 1, 2 AND 3

2006

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

USNRC Docket No. STN 50-528/529/530
RCTSAI 1566

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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 2006. 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.

BIBLIOGRAPHY

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, 1974.

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.23 (Safety Guide 23), "Onsite Meteorological Programs," 1972.

U.S. Nuclear Regulatory Commission, NUREG/CR-2919, "XOQDOQ: Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations," 1982.

U.S. Nuclear Regulatory Commission, NUREG-0579, "Users Guide to GASPAR Code," June 1980.

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.109, "Calculations of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR 50, Appendix I," Revision 1, 1977.

U.S. Nuclear Regulatory Commission, NUREG-0172, "Age-specific Radiation Dose Commitment Factors for a One-Year Chronic Intake," 1977.

U.S. Nuclear Regulatory Commission, NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," 1978.

"Technical Specifications, Palo Verde Nuclear Generating Station, Unit No. 1, Docket No. 50-528, Appendix "A" to License No. NPF-41".

"Technical Specifications, Palo Verde Nuclear Generating Station, Unit No. 2, Docket No. 50-529, Appendix "A" to License No. NPF-51".

"Technical Specifications, Palo Verde Nuclear Generating Station, Unit No. 3, Docket No. 50-530, Appendix "A" to License No. NPF-74".

Bechtel Power Corp., "Cooling Tower Blowdown System Solar Evaporation Pond," Sept. 1980.

Generation Engineering, "Geotechnical Exploration for Evaporation Pond #2," Oct. 1986

Letter No. 212-00789-WFQ/RHM, "1989 PVNGS Evaporation Pan Data," Jan. 1989.

Offsite Dose Calculation Manual Palo Verde Nuclear Generating Station Units 1, 2 and 3, Rev. 20.

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

3.0E-06 µCi/ml for Ce-144

1.0E-06 µCi/ml for I-131.

1.0E-03 µCi/ml for H-3

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

2.0E-06 µCi/ml for Cs-134

2.0E-06 µCi/ml for Cs-137

The concentrations specified in 10 CFR Part 20.1001-20.2402, 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 mrems to the total body and to less than or equal to 5 mrems to any organ, and

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

1.2 Gaseous Releases

1.2.1 PVNGS ODCM Requirement 3.1

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

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

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

1.2.2 PVNGS ODCM Requirement 4.1

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

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

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

1.2.3 PVNGS ODCM Requirement 4.2

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

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

1.2.4 PVNGS ODCM Requirement 4.3

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

1.3 Total Dose

1.3.1 PVNGS ODCM Requirement 5.1

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

2.0 MAXIMUM PERMISSIBLE CONCENTRATIONS

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

3.0 AVERAGE ENERGY

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

4.0 MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY IN GASEOUS EFFLUENTS

For continuous releases, sampling is in accordance with PVNGS ODCM Table 3-1. Particulate and iodine radionuclides are sampled continuously at the Plant Vent and Fuel Building exhaust points. The particulate filters and charcoal cartridges are exchanged for analysis 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 21, effective September 15, 2006, contains changes associated with the implementation of the Radioactive Environmental Monitoring Program (REMP). The ODCM revision is included as Appendix D.

7.2 Revision to the Process Control Program (PCP) is included as Appendix E.

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

9.2 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 SIGNIFICANT INVESTIGATION REGARDING GROUNDWATER PROTECTION (CRDR 2869959)

This information is being provided due to the identification of measurable licensed radioactive material in the onsite environs (within the Radiological Controlled Area) and heightened sensitivity to communicate the potential to affect groundwater.

On February 15, 2006 Palo Verde personnel observed water leakage into the Unit 2, Essential Pipe Density Tunnel through the 'B' Spray Pond (SP) supply line penetration seal (documented on Significant CRDR 2869959). The seal and wall below the seal were observed to be wet, with a water puddle on the pipe chase floor. Unit 2 placed the 'B' Spray Pond pump into service for a scheduled pump run on February 16, 2006. Personnel observed that water accumulation at the penetration increased while the pump was operating. In response to the observed in-leakage, station management decided to excavate the Unit 2 SP 'B' supply and return lines immediately west of the Essential Pipe Density Tunnel to inspect for leakage. Maintenance excavated lines 2PSPBL030 and 2PSPBL025 to look for leaks, but none were found. Additionally, the penetration seal around SPBL030 was removed to look for leaks, none were found, and the area was restored.

A subsequent inspection in the Unit 3 Essential Pipe Density Tunnel identified similar leakage at the penetration for the SP 'A' return line (3PSPAL079) and SP 'B' return line (3PSPBL025) penetration seals. The seals for the return line penetrations were observed to be dripping while the SPA/B pumps were in operation. The wall below the SP 'A' supply line (3PSPAL068) and SP 'B' supply line (3PSPBL030) penetration seals showed dampness, but no visible water drops. Maintenance excavated the return line and the supply line to the 4'-4" top of pipe level. The excavation revealed no visible leaks and Maintenance restored the area.

Process piping in Unit 3 associated with the Charging system (CH), Liquid Radwaste system (LR) and Fire Protection system (FP) were partially excavated in the area of the pipe chase penetrations. The elimination of SP system piping leaks left these pipes suspect. No leaks were identified by excavation.

In addition to the major excavation detailed above, a test hole, approximately 13 feet deep, was dug in the radiological controlled area yard to determine the extent of condition. Water was subsequently discovered in the test hole and a sample was obtained in order to characterize the water and identify its source. Initial results from the unit laboratory (March 1, 2006 sample) indicated the presence of tritium. A confirmatory sample was collected and analyzed by the State certified laboratory at Palo Verde that confirmed the presence of tritium at a concentration of approximately 7.14E-05 uCi/ml. The Aquifer Protection Permit, Aquifer Quality Limit for tritium is 2.00E-05 uCi/ml. The Palo Verde Environmental Control department notified the Arizona Department of Environmental Quality (ADEQ) of the possibility of a discharge of non-hazardous material that has the potential to cause groundwater limits to be exceeded. The station also notified the Nuclear Regulatory Commission pursuant to 10CFR50.72 (b) (2) (xi);

specifically of a situation related to the protection of the environment, for which a notification to another government agency has been or will be made. Public meetings with local residents were held to inform the public and answer concerns.

The direct root cause of the elevated levels of tritium in subsurface water samples from Unit 3 cannot be identified. The sources of the tritium come from washout and localized small volume spills. There is no evidence at this time that supports the presence of a system leak.

The washout described in the preceding paragraph is historical. It is due to past operations of the Boric Acid Concentrator (BAC) during rain and wash down of roofs or washout from rain during times when tritium condensation from the ventilation system was present.

Atmospheric modeling, conducted as part of the investigation, does not support that rain washout of tritium is the source of the subsurface tritiated water accumulation at identified concentrations, with current operating conditions (not allowing BAC operations during periods of rain).

Contributing causes of the condition in Unit 3 are the composition of the backfill and above ground grading and paving of the Unit 3 RCA yard.

There is no indication that tritiated water has reached any aquifer. No Technical Specification effluent limits have been exceeded nor have any Offsite Dose Calculation Manual (ODCM) effluent limits been exceeded. Federal effluent limits have not been exceeded. Palo Verde has not identified any increased health or safety risk to the public or onsite personnel due to this condition. The condition report is classified as significant by management direction due to recent industry events and public trust issues.

Corrective actions are ongoing and include the installation of several monitoring wells in the RCA at all three Units. These monitoring wells will be routinely sampled for radiological analyses and results will be reported in the PVNGS Annual Radioactive Effluent Release Report (ARERR). This reporting protocol was agreed upon by industry leaders via the NEI Industry Ground Water Protection Voluntary Communication Protocol Interim Guidance Document (June 2006) for non-REMP well samples (with additional direction via a position paper developed during the industry RETS-REMP workshop).

9.7 SAMPLES RESULTS FROM GROUNDWATER WELLS THAT ARE NOT DESCRIBED IN THE ODCM AS PART OF THE REMP (NEI Tritium Groundwater Initiative):

During 2006, sixteen on-site monitoring wells associated with the Site Aquifer Protection Permit (APP), as part of the groundwater monitoring program, were sampled. A summary of the wells associated with the APP groundwater monitoring program are as follows:

Wells in the vicinity of the evaporation ponds include 13 shallow aquifer and two intermediate aquifer monitoring wells. Of the 13 shallow aquifer wells, nine were monitored during 2006 as part of the APP monitoring program. Those included wells PV-14H, PV-14HB, PV-193A, PV-195A, PV-198AR, PV-33H, PV-33HB, PV-34H, and PV-Q8. Because wells PV-193A, PV-195A, PV-198AR, and PV-34H were still in IAL sampling, in accordance with the APP, the four wells PV-193B, PV-195B, PV-198B, and PV-34HB were not sampled during 2006. The two intermediate aquifer monitoring wells (APP-4 and APP-5) located south of the evaporation ponds were also monitored during 2006.

Two shallow aquifer monitoring wells (PV-206A and PV-206B) in the vicinity of the retention basins were sampled during 2006 as part of the APP monitoring program. One intermediate aquifer monitoring well APP-8, which also is located near the retention basins, was under ambient monitoring during 2006, but was not yet part of the APP monitoring program.

In the vicinity of the 80-acre water storage reservoir, there are the following wells: One shallow aquifer monitoring well, one intermediate aquifer monitoring well, and eighteen shallow or perched aquifer piezometers. The shallow aquifer monitor well (PV-R2AR) was monitored during 2006 as part of the APP monitoring program. One intermediate aquifer monitoring well, APP-7, was under ambient monitoring during 2006, but was not yet part of the APP monitoring program. The eighteen piezometers located around the reservoir were monitored during 2006 but were not part of the APP monitoring program.

Two deep or regional monitoring wells (APP-3 and APP-6) located down-gradient from the evaporation ponds were monitored in 2006 as part of the APP monitoring program.

Three shallow aquifer monitoring wells (APP-9, APP-10, and APP-11) were installed during 2006 as part of the tritium investigation in the Units. Those wells are currently under ambient sampling and are not yet part of the APP monitoring program.

The 16 monitoring wells associated with the APP were sampled once per quarter during 2006. Those samples were submitted to an ADHS-approved off-site laboratory for the analysis of organic and inorganic compounds. In addition, those samples were submitted to Palo Verde's Central Laboratory for analysis of tritium and gamma isotopes. The specific gamma isotope

analyses requested varied according to the level of monitoring in accordance with the APP. Generally, tritium, cobalt, and cesium-137 were requested. Other gamma isotopes that were requested for selected wells included iodine-131 and cesium-134. During 2006, additional rounds of samples (typically, 4 rounds) were collected from the 16 APP wells for tritium analysis to evaluate the possible impact to groundwater from the tritium detected in the RCA yards of the Units.

A total of 118 samples were analyzed for tritium during 2006. Of those samples, 55 samples were collected specifically for the evaluation associated with the tritium investigation. Sixty-three (63) samples were analyzed for cesium-137 and cobalt-60. Eighteen (18) samples were analyzed for cesium-134. Twenty-four (24) samples were analyzed for iodine-131.

None of the samples collected from the APP wells during 2006 contained detectable levels of tritium or gamma isotopes.

9.8 REPORT ADDENDUM

None.

10.0 DISCUSSION

10.1 Unit One

Unit One operated without a refueling outage.

Maintenance outages:
U1M13A, 1-17-06 to 1-21-06
U1M13B, 3-18-06 to 7-7-06
U1M13C, 9-19-06 to 10-16-06
U1M13D, 10-21-06 to 10-23-06

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 with a refueling outage (U2R13) from September 30, 2006 to November 14, 2006.

Maintenance outages:
U2M13C, 4-10-06 to 4-14-06
U2M13D, 7-26-06 to 7-28-06

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

10.3 Unit Three

Unit Three operated with a refueling outage (U3R12) from April 1, 2006 to May 12, 2006.

Maintenance outages:
U3M12E, 3-5-06 to 3-7-06
U3M13A, 7-1-06 to 7-3-06
U3M13B, 10-19-06 to 10-21-06

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

10.4 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 2006 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 2006, PVNGS released a total of 1750 curies of tritium (see Table 39).

Total dose from releases from all three Units for the year 2006 were less than year 2005 mainly due to 300 less curies of tritium being released.

Table 1: Evaporation Pond Data					
Evaporation Pond 1	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Historical volume of water evaporated (ml)	3.09E+11	8.50E+11	8.50E+11	3.09E+11	
Tritium Concentration (uCi/cc)	1.91E-06	1.79E-06	2.14E-06	1.17E-06	
Tritium Curies	5.90E-01	1.52E+00	1.82E+00	3.62E-01	4.29E+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)	1.90E-06	2.14E-06	2.04E-06	8.83E-07	
Tritium curies	5.49E-01	1.70E+00	1.62E+00	2.55E-01	4.13E+00
Dose (mRem)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Pond 1	8.19E-03	2.11E-02	2.52E-02	5.01E-03	5.95E-02
Pond 2	7.62E-03	2.36E-02	2.25E-02	3.54E-03	5.73E-02
Total	**1.58E-02**	**4.47E-02**	**4.77E-02**	**8.55E-03**	**1.17E-01**

Table 2: Batch Release Data			
All times are in hours	Unit 1	Unit 2	Unit 3
January - June			
Number of batch releases	34	24	41
Total time period for batch releases	2439.10	314.46	1679.76
Maximum time period for a batch release	177.92	147.02	168.00
Average time period for a batch release	71.74	13.10	40.97
Minimum time period for a batch release	0.80	1.30	0.01
July - December			
Number of batch releases	33	43	30
Total time period for batch releases	1064.98	1801.02	522.38
Maximum time period for a batch release	165.90	168.00	162.10
Average time period for a batch release	32.27	41.88	17.41
Minimum time period for a batch release	0.34	0.04	0.07
January - December			
Number of batch releases	67	67	71
Total time period for batch releases	3504.08	2115.48	2202.14
Maximum time period for a batch release	177.92	168.00	168.00
Average time period for a batch release	52.30	31.57	31.02
Minimum time period for a batch release	0.34	0.04	0.01

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

Table 4: Unit 1 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
A. Fission & activation gases							
1. Total release	Ci	2.28E-02	1.08E-01	7.55E-02	1.26E-01	3.32E-01	3.54E+01
2. Average release rate for period	µCi/sec	2.93E-03	1.37E-02	9.50E-03	1.59E-02	1.05E-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	6.90E-05	< LLD	1.18E-06	7.01E-05	3.43E+01
2. Average release rate for period	µCi/sec	< LLD	8.77E-06	< LLD	1.49E-07	2.22E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	3.39E+01	8.68E+01	4.81E+01	1.78E+02	3.47E+02	3.85E+01
2. Average release rate for period	µCi/sec	4.36E+00	1.10E+01	6.05E+00	2.24E+01	1.10E+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	< 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 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	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	< LLD	< LLD	< LLD	4.85E-07	4.85E-07
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	6.99E-07	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	< LLD	1.18E-06	1.18E-06
4.Tritium						
H-3	Ci	1.59E+01	1.31E+01	9.37E+00	1.31E+01	5.15E+01

Table 7: Unit 1 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	2.28E-02	< LLD	7.55E-02	7.77E-02	1.76E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	1.33E-03	1.33E-03
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	6.10E-05	< LLD	1.91E-03	1.97E-03
Xe-133	Ci	< LLD	1.08E-01	< LLD	4.31E-02	1.51E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	6.90E-05	6.90E-05
Xe-135	Ci	< LLD	< LLD	< LLD	1.69E-03	1.69E-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	2.28E-02	1.08E-01	7.55E-02	1.26E-01	3.32E-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 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	< 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	9.26E-06	< LLD	< LLD	9.26E-06
Co-60	Ci	< LLD	3.97E-05	< LLD	< LLD	3.97E-05
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	1.66E-06	< LLD	< LLD	1.66E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	1.20E-05	< LLD	< LLD	1.20E-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
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	6.33E-06	< LLD	< LLD	6.33E-06
Total	Ci	< LLD	6.90E-05	< LLD	< LLD	6.90E-05
4.Tritium						
H-3	Ci	1.80E+01	7.37E+01	3.87E+01	1.65E+02	2.95E+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	2.28E-02	< LLD	7.55E-02	7.77E-02	1.76E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	1.33E-03	1.33E-03
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	6.10E-05	< LLD	1.91E-03	1.97E-03
Xe-133	Ci	< LLD	1.08E-01	< LLD	4.31E-02	1.51E-01
Xe-133m	Ci	< LLD	< LLD	< LLD	6.90E-05	6.90E-05
Xe-135	Ci	< LLD	< LLD	< LLD	1.69E-03	1.69E-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	2.28E-02	1.08E-01	7.55E-02	1.26E-01	3.32E-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 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	< 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	9.26E-06	< LLD	< LLD	9.26E-06
Co-60	Ci	< LLD	3.97E-05	< LLD	4.85E-07	4.02E-05
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	1.66E-06	< LLD	< LLD	1.66E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	1.20E-05	< LLD	< LLD	1.20E-05
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	6.99E-07	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	6.33E-06	< LLD	< LLD	6.33E-06
Total	Ci	< LLD	6.90E-05	< LLD	1.18E-06	7.02E-05
Total > 8 days	Ci	< LLD	6.90E-05	< LLD	1.18E-06	7.02E-05
4.Tritium						
H-3	Ci	3.39E+01	8.68E+01	4.81E+01	1.78E+02	3.47E+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	5.98E-05	1.07E-05	1.98E-04	2.09E-04	4.78E-04
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	1.20E-03	2.14E-04	3.96E-03	4.18E-03	4.78E-03
Beta Air Dose	mrad	2.11E-05	3.20E-05	6.99E-05	8.73E-05	2.10E-04
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	2.11E-04	3.20E-04	6.99E-04	8.73E-04	1.05E-03
Maximum Organ Dose (excluding skin)	mrem	1.22E-02	3.12E-02	1.73E-02	6.38E-02	1.25E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		Thyroid	Thyroid	Thyroid	Lung	Lung
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	1.63E-01	4.16E-01	2.31E-01	8.51E-01	8.33E-01

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	1.02E-01	1.52E-01	2.37E-01	2.64E+01	2.69E+01	3.54E+01
2. Average release rate for period	µCi/sec	1.31E-02	1.93E-02	2.98E-02	3.32E+00	8.53E-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	< LLD	< LLD	1.64E-06	1.77E-05	1.93E-05	3.32E+01
2. Average release rate for period	µCi/sec	< LLD	< LLD	2.06E-07	2.23E-06	6.12E-07	
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	1.05E-06	2.04E-04	2.05E-04	3.43E+01
2. Average release rate for period	µCi/sec	< LLD	< LLD	1.32E-07	2.57E-05	6.50E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	1.03E+02	1.98E+02	4.34E+02	1.27E+02	8.61E+02	3.85E+01
2. Average release rate for period	µCi/sec	1.32E+01	2.52E+01	5.46E+01	1.60E+01	2.73E+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	< 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	1.64E-06	1.17E-05	1.33E-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	< LLD	1.64E-06	1.17E-05	1.33E-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	1.05E-06	8.27E-05	8.38E-05
Co-60	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	1.58E-06	1.58E-06
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	1.05E-06	8.43E-05	8.54E-05
4. Tritium						
H-3	Ci	1.25E+01	1.49E+01	1.80E+01	1.81E+01	6.35E+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	1.02E-01	1.52E-01	2.37E-01	2.56E-01	7.47E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	< LLD	< LLD	6.56E-02	6.56E-02
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	3.03E-02	3.03E-02
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	6.32E-05	2.34E+01	2.34E+01
Xe-133m	Ci	< LLD	< LLD	< LLD	1.53E-01	1.53E-01
Xe-135	Ci	< LLD	< LLD	< LLD	2.55E+00	2.55E+00
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	1.02E-01	1.52E-01	2.37E-01	2.64E+01	2.69E+01
2. Iodines						
I-131	Ci	< LLD	< LLD	< LLD	6.05E-06	6.05E-06
I-132	Ci	< LLD	< LLD	< LLD	2.08E-05	2.08E-05
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	2.69E-05	2.69E-05

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	8.48E-05	8.48E-05
Co-60	Ci	< LLD	< LLD	< LLD	6.36E-06	6.36E-06
Cr-51	Ci	< LLD	< LLD	< LLD	1.40E-05	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	3.92E-07	3.92E-07
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	8.38E-06	8.38E-06
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	5.37E-06	5.37E-06
Total	Ci	< LLD	< LLD	< LLD	1.19E-04	1.19E-04
4. Tritium						
H-3	Ci	9.05E+01	1.83E+02	4.16E+02	1.09E+02	7.98E+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	1.02E-01	1.52E-01	2.37E-01	2.56E-01	7.47E-01
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	< LLD	< LLD	6.56E-02	6.56E-02
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	3.03E-02	3.03E-02
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	6.32E-05	2.34E+01	2.34E+01
Xe-133m	Ci	< LLD	< LLD	< LLD	1.53E-01	1.53E-01
Xe-135	Ci	< LLD	< LLD	< LLD	2.55E+00	2.55E+00
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	1.02E-01	1.52E-01	2.37E-01	2.64E+01	2.69E+01
2. Iodines						
I-131	Ci	< LLD	< LLD	1.64E-06	1.77E-05	1.93E-05
I-132	Ci	< LLD	< LLD	< LLD	2.08E-05	2.08E-05
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	1.64E-06	3.85E-05	4.02E-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	1.05E-06	1.68E-04	1.69E-04
Co-60	Ci	< LLD	< LLD	< LLD	6.36E-06	6.36E-06
Cr-51	Ci	< LLD	< LLD	< LLD	1.40E-05	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	3.92E-07	3.92E-07
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	9.96E-06	9.96E-06
Os-191	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	5.37E-06	5.37E-06
Total	Ci	< LLD	< LLD	1.05E-06	2.04E-04	2.05E-04
Total > 8 days	Ci	< LLD	< LLD	1.05E-06	2.04E-04	2.05E-04
4. Tritium						
H-3	Ci	1.03E+02	1.98E+02	4.34E+02	1.27E+02	8.61E+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	2.68E-04	3.99E-04	6.23E-04	4.55E-03	5.84E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	5.36E-03	7.98E-03	1.25E-02	9.10E-02	5.84E-02
Beta Air Dose	mrad	9.44E-05	1.41E-04	2.20E-04	9.07E-03	9.52E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	9.44E-04	1.41E-03	2.20E-03	9.07E-02	4.76E-02
Maximum Organ Dose (excluding skin)	mrem	3.69E-02	7.10E-02	1.56E-01	4.55E-02	3.09E-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	%	4.92E-01	9.47E-01	2.08E+00	6.07E-01	2.06E+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	1.77E-01	4.66E+00	8.35E-01	6.78E-01	6.35E+00	3.54E+01
2. Average release rate for period	µCi/sec	2.28E-02	5.93E-01	1.05E-01	8.53E-02	2.01E-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	1.53E-06	1.86E-05	< LLD	< LLD	2.01E-05	3.32E+01
2. Average release rate for period	µCi/sec	1.97E-07	2.37E-06	< LLD	< LLD	6.37E-07	
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	4.63E-05	1.23E-06	1.57E-06	4.91E-05	3.43E+01
2. Average release rate for period	µCi/sec	< LLD	5.89E-06	1.54E-07	1.98E-07	1.56E-06	
3. Percent of ODCM Requirement limit	%	NA (2)	NA (2)	NA (2)	NA (2)	NA (2)	
4. Gross Alpha radioactivity	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	
D. Tritium							
1. Total release	Ci	1.30E+02	1.90E+02	1.50E+01	2.04E+02	5.39E+02	3.85E+01
2. Average release rate for period	µCi/sec	1.67E+01	2.42E+01	1.89E+00	2.57E+01	1.71E+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	1.53E-06	5.27E-06	< LLD	< LLD	6.81E-06
I-132	Ci	8.05E-05	< LLD	< LLD	< LLD	8.05E-05
I-133	Ci	5.07E-06	< LLD	< LLD	< LLD	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	8.71E-05	5.27E-06	< LLD	< LLD	9.24E-05

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	1.87E-06	< LLD	< LLD	< LLD	1.87E-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	< LLD	1.42E-05	< LLD	1.57E-06	1.58E-05
Co-60	Ci	< LLD	6.03E-06	1.14E-06	< LLD	7.17E-06
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.70E-06	< LLD	< LLD	2.70E-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	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	7.98E-07	< LLD	< LLD	7.98E-07
Os-191	Ci	< LLD	3.64E-06	< LLD	< LLD	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	< LLD	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	< LLD	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.87E-06	2.74E-05	1.23E-06	1.57E-06	3.20E-05
4. Tritium						
H-3	Ci	1.43E+01	2.02E+01	1.48E+01	1.01E+01	5.94E+01

Table 23: Unit 3 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
1. Fission gases						
Ar-41	Ci	1.77E-01	3.72E-01	8.35E-01	6.78E-01	2.06E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	7.07E-02	< LLD	< LLD	7.07E-02
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	9.93E-04	< LLD	< LLD	9.93E-04
Xe-133	Ci	< LLD	2.64E+00	< LLD	< LLD	2.64E+00
Xe-133m	Ci	< LLD	1.16E-03	< LLD	< LLD	1.16E-03
Xe-135	Ci	< LLD	1.57E+00	< LLD	< LLD	1.57E+00
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	1.77E-01	4.66E+00	8.35E-01	6.78E-01	6.35E+00
2. Iodines						
I-131	Ci	< LLD	1.33E-05	< LLD	< LLD	1.33E-05
I-132	Ci	< LLD	4.57E-04	< LLD	< LLD	4.57E-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	4.70E-04	< LLD	< LLD	4.70E-04

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	< LLD	< LLD	< LLD	4.19E-05	4.19E-05
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	1.27E-05	< LLD	< LLD	1.27E-05
Co-60	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	6.24E-06	< LLD	< LLD	6.24E-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	< 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
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	1.90E-05	< LLD	4.19E-05	6.09E-05
4. Tritium						
H-3	Ci	1.15E+02	1.69E+02	2.30E-01	1.94E+02	4.79E+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	1.77E-01	3.72E-01	8.35E-01	6.78E-01	2.06E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	7.07E-02	< LLD	< LLD	7.07E-02
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	9.93E-04	< LLD	< LLD	9.93E-04
Xe-133	Ci	< LLD	2.64E+00	< LLD	< LLD	2.64E+00
Xe-133m	Ci	< LLD	1.16E-03	< LLD	< LLD	1.16E-03
Xe-135	Ci	< LLD	1.57E+00	< LLD	< LLD	1.57E+00
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	1.77E-01	4.66E+00	8.35E-01	6.78E-01	6.35E+00
2. Iodines						
I-131	Ci	1.53E-06	1.86E-05	< LLD	< LLD	2.01E-05
I-132	Ci	8.05E-05	4.57E-04	< LLD	< LLD	5.37E-04
I-133	Ci	5.07E-06	< LLD	< LLD	< LLD	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	8.71E-05	4.75E-04	< LLD	< LLD	5.63E-04

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	1.87E-06	< LLD	< LLD	4.19E-05	4.38E-05
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	2.69E-05	< LLD	1.57E-06	2.85E-05
Co-60	Ci	< LLD	6.03E-06	1.14E-06	< LLD	7.17E-06
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	8.94E-06	< LLD	< LLD	8.94E-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	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	7.98E-07	< LLD	< LLD	7.98E-07
Os-191	Ci	< LLD	3.64E-06	< LLD	< LLD	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	< LLD	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	< LLD	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.87E-06	4.63E-05	1.23E-06	4.35E-05	9.29E-05
Total > 8 days	Ci	< LLD	4.63E-05	1.23E-06	1.57E-06	4.91E-05
4. Tritium						
H-3	Ci	1.30E+02	1.90E+02	1.50E+01	2.04E+02	5.39E+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	4.65E-04	2.12E-03	2.19E-03	1.78E-03	6.56E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	9.30E-03	4.24E-02	4.38E-02	3.56E-02	6.56E-02
Beta Air Dose	mrad	1.64E-04	2.26E-03	7.74E-04	6.28E-04	3.83E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.64E-03	2.26E-02	7.74E-03	6.28E-03	1.92E-02
Maximum Organ Dose (excluding skin)	mrem	4.66E-02	6.82E-02	5.38E-03	7.33E-02	1.93E-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	%	6.21E-01	9.09E-01	7.17E-02	9.77E-01	1.29E+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	< 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	1.53E-06	5.27E-06	1.64E-06	1.17E-05	2.01E-05
I-132	Ci	8.05E-05	< LLD	< LLD	< LLD	8.05E-05
I-133	Ci	5.07E-06	< LLD	< LLD	< LLD	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	8.71E-05	5.27E-06	1.64E-06	1.17E-05	1.06E-04

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	1.87E-06	< LLD	< LLD	< LLD	1.87E-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	< LLD	1.42E-05	1.05E-06	8.43E-05	9.96E-05
Co-60	Ci	< LLD	6.03E-06	1.14E-06	4.85E-07	7.65E-06
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	2.70E-06	< LLD	< LLD	2.70E-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	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	7.98E-07	< LLD	1.58E-06	2.38E-06
Os-191	Ci	< LLD	3.64E-06	< LLD	< LLD	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	6.99E-07	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	< LLD	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	< LLD	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.87E-06	2.74E-05	2.27E-06	8.71E-05	1.19E-04
4. Tritium						
H-3	Ci	4.28E+01	4.82E+01	4.21E+01	4.13E+01	1.74E+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	3.02E-01	5.23E-01	1.15E+00	1.01E+00	2.99E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	1.33E-03	1.33E-03
Kr-85m	Ci	< LLD	7.07E-02	< LLD	6.56E-02	1.36E-01
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	3.03E-02	3.03E-02
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	1.05E-03	< LLD	1.91E-03	2.97E-03
Xe-133	Ci	< LLD	2.75E+00	6.32E-05	2.34E+01	2.62E+01
Xe-133m	Ci	< LLD	1.16E-03	< LLD	1.53E-01	1.54E-01
Xe-135	Ci	< LLD	1.57E+00	< LLD	2.55E+00	4.12E+00
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	3.02E-01	4.92E+00	1.15E+00	2.72E+01	3.36E+01
2. Iodines						
I-131	Ci	< LLD	1.33E-05	< LLD	6.05E-06	1.93E-05
I-132	Ci	< LLD	4.57E-04	< LLD	2.08E-05	4.78E-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	4.70E-04	< LLD	2.69E-05	4.97E-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	< LLD	< LLD	< LLD	4.19E-05	4.19E-05
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	2.20E-05	< LLD	8.48E-05	1.07E-04
Co-60	Ci	< LLD	3.97E-05	< LLD	6.36E-06	4.61E-05
Cr-51	Ci	< LLD	< LLD	< LLD	1.40E-05	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	6.24E-06	< LLD	< LLD	6.24E-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	1.66E-06	< LLD	3.92E-07	2.05E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	1.20E-05	< LLD	8.38E-06	2.04E-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
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	6.33E-06	< LLD	5.37E-06	1.17E-05
Total	Ci	< LLD	8.79E-05	< LLD	1.61E-04	2.49E-04
4. Tritium						
H-3	Ci	2.24E+02	4.26E+02	4.55E+02	4.68E+02	1.57E+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	3.02E-01	5.23E-01	1.15E+00	1.01E+00	2.99E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	1.33E-03	1.33E-03
Kr-85m	Ci	< LLD	7.07E-02	< LLD	6.56E-02	1.36E-01
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	3.03E-02	3.03E-02
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	1.05E-03	< LLD	1.91E-03	2.97E-03
Xe-133	Ci	< LLD	2.75E+00	6.32E-05	2.34E+01	2.62E+01
Xe-133m	Ci	< LLD	1.16E-03	< LLD	1.53E-01	1.54E-01
Xe-135	Ci	< LLD	1.57E+00	< LLD	2.55E+00	4.12E+00
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	3.02E-01	4.92E+00	1.15E+00	2.72E+01	3.36E+01
2. Iodines						
I-131	Ci	1.53E-06	1.86E-05	1.64E-06	1.77E-05	3.94E-05
I-132	Ci	8.05E-05	4.57E-04	< LLD	2.08E-05	5.58E-04
I-133	Ci	5.07E-06	< LLD	< LLD	< LLD	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	8.71E-05	4.75E-04	1.64E-06	3.85E-05	6.03E-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	1.87E-06	< LLD	< LLD	4.19E-05	4.38E-05
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	3.62E-05	1.05E-06	1.69E-04	2.06E-04
Co-60	Ci	< LLD	4.57E-05	1.14E-06	6.85E-06	5.37E-05
Cr-51	Ci	< LLD	< LLD	< LLD	1.40E-05	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	8.94E-06	< LLD	< LLD	8.94E-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	1.66E-06	< LLD	3.92E-07	2.05E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	1.28E-05	< LLD	9.96E-06	2.28E-05
Os-191	Ci	< LLD	3.64E-06	< LLD	< LLD	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	6.99E-07	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	< LLD	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	< LLD	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	6.33E-06	< LLD	5.37E-06	1.17E-05
Total	Ci	1.87E-06	1.15E-04	2.27E-06	2.48E-04	3.68E-04
total > 8 days	Ci	< LLD	1.15E-04	2.27E-06	2.06E-04	3.24E-04
4. Tritium						
H-3	Ci	2.67E+02	4.74E+02	4.97E+02	5.09E+02	1.75E+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	< LLD	< LLD	< LLD
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	< LLD	< LLD	< LLD
2. Iodines					
I-131	Ci	< LLD	1.33E-05	6.81E-06	2.01E-05
I-132	Ci	< LLD	< LLD	8.05E-05	8.05E-05
I-133	Ci	< LLD	< LLD	5.07E-06	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	1.33E-05	9.24E-05	1.06E-04

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	1.87E-06	1.87E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	8.38E-05	1.58E-05	9.96E-05
Co-60	Ci	4.85E-07	< LLD	7.17E-06	7.65E-06
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	2.70E-06	2.70E-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	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	1.58E-06	7.98E-07	2.38E-06
Os-191	Ci	< LLD	< LLD	3.64E-06	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	6.99E-07	< LLD	< LLD	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	1.18E-06	8.54E-05	3.20E-05	1.19E-04
4. Tritium					
H-3	Ci	5.15E+01	6.35E+01	5.94E+01	1.74E+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	1.76E-01	7.47E-01	2.06E+00	2.99E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	1.33E-03	< LLD	< LLD	1.33E-03
Kr-85m	Ci	< LLD	6.56E-02	7.07E-02	1.36E-01
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	3.03E-02	< LLD	3.03E-02
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	1.97E-03	< LLD	9.93E-04	2.97E-03
Xe-133	Ci	1.51E-01	2.34E+01	2.64E+00	2.62E+01
Xe-133m	Ci	6.90E-05	1.53E-01	1.16E-03	1.54E-01
Xe-135	Ci	1.69E-03	2.55E+00	1.57E+00	4.12E+00
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.32E-01	2.69E+01	6.35E+00	3.36E+01
2. Iodines					
I-131	Ci	< LLD	6.05E-06	1.33E-05	1.93E-05
I-132	Ci	< LLD	2.08E-05	4.57E-04	4.78E-04
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	2.69E-05	4.70E-04	4.97E-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	< LLD	< LLD	4.19E-05	4.19E-05
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.26E-06	8.48E-05	1.27E-05	1.07E-04
Co-60	Ci	3.97E-05	6.36E-06	< LLD	4.61E-05
Cr-51	Ci	< LLD	1.40E-05	< LLD	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	6.24E-06	6.24E-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	1.66E-06	3.92E-07	< LLD	2.05E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	1.20E-05	8.38E-06	< LLD	2.04E-05
Os-191	Ci	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	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
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	6.33E-06	5.37E-06	< LLD	1.17E-05
Total	Ci	6.90E-05	1.19E-04	6.09E-05	2.49E-04
4. Tritium					
H-3	Ci	2.95E+02	7.98E+02	4.79E+02	1.57E+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	1.76E-01	7.47E-01	2.06E+00	2.99E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	1.33E-03	< LLD	< LLD	1.33E-03
Kr-85m	Ci	< LLD	6.56E-02	7.07E-02	1.36E-01
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	3.03E-02	< LLD	3.03E-02
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	1.97E-03	< LLD	9.93E-04	2.97E-03
Xe-133	Ci	1.51E-01	2.34E+01	2.64E+00	2.62E+01
Xe-133m	Ci	6.90E-05	1.53E-01	1.16E-03	1.54E-01
Xe-135	Ci	1.69E-03	2.55E+00	1.57E+00	4.12E+00
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	3.32E-01	2.69E+01	6.35E+00	3.36E+01
2. Iodines					
I-131	Ci	< LLD	1.93E-05	2.01E-05	3.94E-05
I-132	Ci	< LLD	2.08E-05	5.37E-04	5.58E-04
I-133	Ci	< LLD	< LLD	5.07E-06	5.07E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	4.02E-05	5.63E-04	6.03E-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	< LLD	< LLD	4.38E-05	4.38E-05
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	9.26E-06	1.69E-04	2.85E-05	2.06E-04
Co-60	Ci	4.02E-05	6.36E-06	7.17E-06	5.37E-05
Cr-51	Ci	< LLD	1.40E-05	< LLD	1.40E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	8.94E-06	8.94E-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	1.66E-06	3.92E-07	< LLD	2.05E-06
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	1.20E-05	9.96E-06	7.98E-07	2.28E-05
Os-191	Ci	< LLD	< LLD	3.64E-06	3.64E-06
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	6.99E-07	< LLD	< LLD	6.99E-07
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	7.42E-08	7.42E-08
Sr-90	Ci	< LLD	< LLD	1.18E-08	1.18E-08
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	6.33E-06	5.37E-06	< LLD	1.17E-05
Total	Ci	7.02E-05	2.05E-04	9.29E-05	3.68E-04
Total > 8 days	Ci	7.02E-05	2.05E-04	4.91E-05	3.24E-04
4. Tritium					
H-3	Ci	3.47E+02	8.61E+02	5.39E+02	1.75E+03

Table 40:
Estimation of Total Percent Error

The estimated total error is calculated as follows:

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

Where E_n = Percent error associated with each contributing parameter.

Parameters contributing to errors in the measurement of gaseous effluents; 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	1.40E+02	N/A
	Ci	1.75E+02	2.50E+01
1.b. Dry compressible waste, contaminated equipment, etc.	m^3	7.87E+02	N/A
	Ci	8.19E+00	2.50E+01
1.c. Irradiated components, control rods, etc.	m^3	5.25E+00	N/A
	Ci	3.90E+00	2.50E+01
1.d. Other	m^3	0.00E+00	N/A
	Ci	0.00E+00	2.50E+01

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	5.54E-01	5.37E+00
A	Ni-63	1.35E-01	1.31E+00
A	Co-60	1.35E-01	1.31E+00
A	C-14	4.02E-02	3.90E-01
A	Cs-137	3.45E-02	3.35E-01
A	Co-58	2.81E-02	2.73E-01
A	H-3	2.71E-02	2.63E-01
A	Cs-134	1.30E-02	1.26E-01
A	Sb-125	1.01E-02	9.80E-02
A	Ag-110m	9.08E-03	8.81E-02
A	Mn-54	6.26E-03	6.07E-02
A	Ni-59	4.38E-03	4.25E-02
A	Co-57	7.87E-04	7.63E-03
A	Pu-241	6.53E-04	6.34E-03
A	Zr-95	2.97E-04	2.88E-03
A	Sb-124	2.92E-04	2.83E-03
A	Zn-65	2.05E-04	1.99E-03
A	Ce-144	1.72E-04	1.67E-03
A	Nb-95	1.69E-04	1.64E-03
A	Sr-90	1.01E-04	9.76E-04
A	Sn-113	9.34E-05	9.06E-04
A	Cr-51	7.86E-05	7.63E-04
A	Pu-238	2.43E-05	2.36E-04
A	Cm-243/244	2.34E-05	2.27E-04
A	Te-123m	2.22E-05	2.15E-04
A	Am-241	1.55E-05	1.50E-04
A	Pu-239/240	1.03E-05	1.00E-04
A	Fe-59	5.25E-06	5.09E-05
A	Tc-99	4.85E-06	4.70E-05
A	Cm-242	2.84E-06	2.75E-05
A	Sr-89	6.40E-07	6.21E-06
A	Ru-103	1.65E-07	1.60E-06
A	Ag108m	1.38E-07	1.34E-06
A	Hf-181	6.04E-08	5.86E-07
A	Ce-141	5.27E-09	5.11E-08
A	Pu-242	5.91E-10	5.73E-09
		Total	9.70E+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	5.23E-01	8.63E+01
B	Fe-55	1.89E-01	3.12E+01
B	Co-60	1.14E-01	1.89E+01
B	Cs-137	6.30E-02	1.04E+01
B	Cs-134	4.66E-02	7.69E+00
B	Mn-54	3.02E-02	4.99E+00
B	Co-58	1.11E-02	1.84E+00
B	Sb-125	8.48E-03	1.40E+00
B	Co-57	5.20E-03	8.59E-01
B	C-14	4.17E-03	6.88E-01
B	Ni-59	3.79E-03	6.26E-01
B	Ag-110m	6.03E-04	9.96E-02
B	Ce-144	3.68E-04	6.07E-02
B	Sr-90	2.79E-04	4.61E-02
B	Pu-241	1.97E-04	3.25E-02
B	H-3	1.40E-04	2.32E-02
B	Pu-238	7.93E-06	1.31E-03
B	Cm-243/244	5.95E-06	9.83E-04
B	Am-241	5.49E-06	9.06E-04
B	Pu-239/240	2.76E-06	4.56E-04
B	Cm-242	1.21E-06	2.00E-04
		Total	1.65E+02

2.b Estimate of major nuclide concentrations for dry compressible waste, contaminated equipment, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	6.24E-01	5.11E+00
A	Co-58	1.62E-01	1.33E+00
A	Co-60	7.56E-02	6.19E-01
A	Ni-63	4.20E-02	3.44E-01
A	Cr-51	2.12E-02	1.74E-01
A	H-3	1.37E-02	1.12E-01
A	C-14	1.31E-02	1.07E-01
A	Nb-95	1.14E-02	9.37E-02
A	Zr-95	9.74E-03	7.98E-02
A	Mn-54	7.46E-03	6.11E-02
A	Fe-59	7.01E-03	5.74E-02
A	Sb-125	3.52E-03	2.88E-02
A	Sb-124	2.86E-03	2.34E-02
A	Sn-113	1.49E-03	1.22E-02
A	Ag-110m	1.13E-03	9.26E-03
A	Co-57	8.95E-04	7.33E-03
A	Pu-241	8.63E-04	7.07E-03
A	Ni-59	5.09E-04	4.17E-03
A	Ce-144	1.91E-04	1.56E-03
A	Zn-65	1.89E-04	1.55E-03
A	Ru-103	1.67E-04	1.37E-03
A	Te-123m	1.61E-04	1.32E-03
A	Cs-137	9.04E-05	7.40E-04
A	Am-241	5.37E-05	4.40E-04
A	Cs-134	3.88E-05	3.18E-04
A	Cm-243/244	3.43E-05	2.81E-04
A	Cm-242	3.41E-05	2.79E-04
A	Pu-238	2.98E-05	2.44E-04
A	Sr-90	2.44E-05	2.00E-04
A	Pu-239/240	1.19E-05	9.78E-05
A	Sr-89	1.16E-05	9.50E-05
A	Ce-141	1.07E-05	8.74E-05
A	Hf-181	7.09E-06	5.81E-05
A	I-125	5.62E-07	4.60E-06
A	Tc-99	5.98E-10	4.90E-09
		Total	8.19E+00

2.c Estimate of major nuclide concentrations for Irradiated components, control rods, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Co-60	5.13E-01	2.00E+00
A	Fe-55	3.94E-01	1.54E+00
A	Ni-63	7.56E-02	2.95E-01
A	Mn-54	6.32E-03	2.47E-02
A	Co-58	2.97E-03	1.16E-02
A	H-3	2.85E-03	1.11E-02
A	C-14	1.66E-03	6.47E-03
A	Sb-125	1.50E-03	5.84E-03
A	Zr-95	5.74E-04	2.24E-03
A	Ni-59	5.19E-04	2.03E-03
A	Co-57	2.59E-04	1.01E-03
A	Pu-241	2.09E-04	8.15E-04
A	Ce-144	1.62E-04	6.31E-04
A	Sn-113	1.04E-04	4.06E-04
A	Nb-95	8.20E-05	3.20E-04
A	Cr-51	4.97E-05	1.94E-04
A	Te-123m	3.79E-05	1.48E-04
A	Ta-182	2.03E-05	7.91E-05
A	Fe-59	1.34E-05	5.24E-05
A	Cs-134	1.29E-05	5.03E-05
A	Sb-124	1.02E-05	3.97E-05
A	Tc-99	9.28E-06	3.62E-05
A	Zn-65	9.15E-06	3.57E-05
A	Sr-90	7.99E-06	3.12E-05
A	Cs-137	7.94E-06	3.10E-05
A	Cm-242	7.04E-06	2.75E-05
A	Cm-243/244	5.23E-06	2.04E-05
A	Pu-238	5.31E-06	2.07E-05
A	Nb-94	3.18E-06	1.24E-05
A	Am-241	2.27E-06	8.85E-06
A	Pu-239/240	2.01E-06	7.84E-06
A	Ce-141	2.48E-07	9.70E-07
A	Ru-103	6.40E-08	2.50E-07
A	Sr-89	3.23E-08	1.26E-07
A	Sn-117m	5.56E-09	2.17E-08
A	Pu-242	1.69E-10	6.61E-10

2.c Estimate of major nuclide concentrations for Irradiated components, control rods, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	I-131	2.02E-22	7.88E-22
A	Mo-99	1.12E-76	4.37E-76
A	Tc-99m	2.79E-168	1.09E-167
		Total	3.90E+00

2.d Other - None

3.0 Solid Waste Disposition

3.a

Shipments	Shipper	Mode Of Transportation	Destination
3	APS	TRUCK	Barnwell, SC
44	APS	TRUCK	EnergySolutions, UT (Bulk)
6	APS	TRUCK	EnergySolutions, UT (Containerized)

3.b Irradiated Fuel Shipments: None

3.c Supplemental Information:

Number of Containers	Container Volume ft^3	Type of Waste	Container Type	Solidification Agent
3	132.4	Resin	EL-142	None
1	202.1	Resin	EL-210	None
18	199.4	Resin	ES-210	None
4	7.5	Filters	Drum	None
96	7.5	Evaporator Bottoms	Drum	None
37	7.5	Dry Active Waste	Drum	None
1	11.6	Dry Active Waste	Drum	None
1	45.4	Dry Active Waste	CPC 37.5 Box	None
1	98.9	Dry Active Waste	CPC 82.2 Box	None
1	107.5	Dry Active Waste	CPC 88 Box	None
15	1031.3	Dry Active Waste	20' Intermodal	None
20	1360	Dry Active Waste	20' Sealand	None
5	Bulk	Dry Active Waste	45 Mil Wrap	None
1	11.6	Irradiated Hardware	Drum	None
1	173.9	Irradiated Hardware	CEA 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 2006. The joint frequency distribution (JFD) tables represent the frequency, in terms of the number of observations, that a particular wind speed, wind direction, and stability category occurred simultaneously. On a quarterly, semiannual and annual basis, the JFDs were produced for 35-foot wind speed and wind direction by atmospheric stability class corresponding to the seven Pasquill stability categories, and for wind speed and wind direction for all stability classes combined. Atmospheric stability was classified per Regulatory Guide 1.23, using the 200-foot to 35-foot temperature difference (delta T).

In accordance with NUREG-0133, the batch releases for 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 2006 Joint Frequency Distribution (JFD) shows a somewhat typical, but variable year. Of the 8760 hours available, 106 hours of data were lost for a 98.8% data recovery. The majority of the data lost occurred during a calibration in March 2006.

The average 35 foot wind speed was 6.5 mph. Distribution of directions was spread over the compass with a predominant direction (3 sectors of 22.5 degrees each) centered on the southwest. (31.7%) A secondary maximum of three sectors centered on the north contained 28.0% of the total. Southwesterly flow winds averaged higher speeds with the most frequent speeds at 7.0 mph and 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 28.0% of the hours.

Stability class E, F, G, (stable categories) 58.5%.
Stability class G, (extremely stable) 28.0%.
Stability class A, B, C, (unstable categories) 23.9%.
Stability class D, (neutral category) 17.6%.

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 1/01/2006 TO 3/31/2006

*** 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	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6.51- 8.50	0	1	3	2	1	1	0	0	2	4	2	2	0	0	0	0	18
8.51-11.50	0	0	2	1	2	0	0	0	1	4	13	0	1	0	1	0	25
11.51-14.50	1	0	0	2	0	0	0	0	0	1	7	1	1	2	2	0	17
14.51-20.50	0	0	0	0	0	0	0	0	0	0	8	9	2	7	0	1	27
>20.50	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	0	6
TOTAL	1	1	6	5	3	1	0	0	3	9	33	14	5	9	3	1	94

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
4.51- 5.50	0	0	0	0	1	1	0	1	2	1	0	1	2	0	0	0	9
5.51- 6.50	0	1	4	0	0	0	0	1	5	3	2	4	0	0	0	0	20
6.51- 8.50	0	1	1	1	2	2	0	4	4	1	5	7	1	0	1	0	30
8.51-11.50	0	0	1	6	4	0	1	0	1	2	9	2	3	1	2	1	33
11.51-14.50	0	0	0	3	2	0	0	0	0	0	4	1	1	2	2	0	15
14.51-20.50	0	0	0	1	0	0	0	0	0	0	3	1	1	0	0	1	7
>20.50	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL	0	2	6	11	10	3	1	6	12	8	23	17	8	3	5	2	117

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	0	0	0	0	0	1
3.51- 4.50	0	4	2	0	1	0	1	2	0	2	5	4	0	0	1	0	22
4.51- 5.50	0	1	5	2	5	0	0	1	4	3	1	1	7	0	0	0	30
5.51- 6.50	1	1	2	3	0	1	0	0	4	4	8	1	1	0	1	0	27
6.51- 8.50	1	2	6	6	0	1	0	1	4	2	4	4	1	0	0	0	32
8.51-11.50	0	0	3	3	1	2	0	0	1	3	4	4	0	0	0	1	22
11.51-14.50	0	0	0	0	2	0	0	0	0	0	2	0	1	3	0	0	8
14.51-20.50	0	0	0	2	2	0	0	0	0	0	0	3	2	0	0	0	9
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	8	18	16	11	4	1	4	13	15	24	17	12	3	2	1	151

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 3/31/2006

*** 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	2	0	1	0	0	0	1	4	2	1	2	3	1	4	3	3	27
2.51- 3.50	3	2	4	7	1	3	6	9	14	10	7	4	3	6	6	0	85
3.51- 4.50	2	3	5	5	2	1	2	4	15	7	5	5	1	2	1	4	64
4.51- 5.50	2	3	1	3	0	0	2	1	8	6	7	6	2	1	0	1	43
5.51- 6.50	0	4	3	7	1	0	1	0	2	6	6	4	1	0	3	0	38
6.51- 8.50	0	1	4	5	1	0	1	2	1	6	6	7	2	3	2	0	41
8.51-11.50	0	0	2	8	3	2	0	0	2	0	6	5	2	2	1	0	33
11.51-14.50	0	0	0	4	4	0	1	0	0	2	4	2	1	0	0	0	18
14.51-20.50	0	0	0	4	9	0	0	0	0	0	2	2	0	0	0	1	18
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	13	20	43	21	6	14	20	44	38	45	38	13	18	16	9	367

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	0	2	2	1	0	0	0	0	1	2	1	5	2	1	1	19
2.51- 3.50	2	1	0	2	0	0	0	1	0	4	2	0	6	3	5	3	29
3.51- 4.50	4	2	2	0	2	0	0	1	1	2	5	3	2	3	4	2	33
4.51- 5.50	4	4	0	0	0	0	0	0	0	3	2	4	4	0	1	0	22
5.51- 6.50	0	1	2	3	1	0	0	0	2	2	4	1	0	0	2	0	18
6.51- 8.50	0	1	0	1	2	0	1	1	3	9	17	4	7	4	2	0	52
8.51-11.50	0	0	4	4	0	0	1	0	1	9	15	8	5	5	4	0	56
11.51-14.50	0	0	0	1	0	0	0	0	0	1	4	6	1	3	4	1	21
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	11	9	10	13	6	0	2	3	7	31	51	29	32	20	25	7	256

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	1	0	0	0	0	0	0	0	0	0	1	0	0	2
1.51- 2.50	2	0	2	0	0	1	1	0	0	0	1	2	1	5	2	3	20
2.51- 3.50	4	0	2	0	2	0	0	1	1	3	2	2	4	3	7	4	35
3.51- 4.50	5	1	4	1	2	0	0	0	0	3	3	3	2	5	7	7	43
4.51- 5.50	7	4	0	0	0	0	0	0	1	4	5	6	4	6	2	3	42
5.51- 6.50	1	2	1	0	0	0	0	0	2	2	5	1	8	4	6	0	32
6.51- 8.50	0	2	1	0	0	0	0	0	0	5	19	4	6	12	7	0	56
8.51-11.50	0	1	3	0	1	0	0	0	0	1	5	3	3	4	2	0	23
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	19	10	13	2	5	1	1	1	4	18	40	21	28	40	33	17	253

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 3/31/2006

*** 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	1	0	0	0	0	0	0	0	0	1
1.51- 2.50	12	5	2	0	1	0	1	0	0	1	1	1	3	7	5	7	46
2.51- 3.50	32	26	9	2	2	1	0	0	0	2	4	3	7	15	28	43	174
3.51- 4.50	79	32	7	4	0	0	0	0	1	1	3	1	2	10	31	44	215
4.51- 5.50	63	38	1	2	1	2	1	0	0	2	3	1	3	4	10	40	171
5.51- 6.50	35	43	4	1	0	0	0	0	1	0	4	0	0	1	4	11	104
6.51- 8.50	21	38	6	0	0	0	0	0	0	0	2	0	1	0	3	14	85
8.51-11.50	13	16	2	0	0	0	0	0	0	0	0	0	0	0	0	2	33
11.51-14.50	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
14.51-20.50	1	0	0	0	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	256	201	31	9	4	3	2	1	2	6	17	6	16	37	81	161	833

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	1	0	0	0	1	0	0	0	0	0	1	0	0	3
1.51- 2.50	17	5	7	2	2	1	3	4	2	3	6	7	10	18	11	14	112
2.51- 3.50	41	29	15	11	5	4	6	11	15	20	15	9	20	27	46	50	324
3.51- 4.50	90	42	20	10	8	1	3	7	17	16	21	16	7	20	44	57	379
4.51- 5.50	76	50	7	7	7	3	3	3	15	19	18	19	22	11	13	44	317
5.51- 6.50	37	52	17	14	2	1	1	1	16	17	29	11	10	5	16	11	240
6.51- 8.50	22	46	21	15	6	4	2	8	14	27	55	28	18	19	15	14	314
8.51-11.50	13	17	17	22	11	4	2	0	6	19	52	22	14	12	10	4	225
11.51-14.50	1	3	0	10	8	0	1	0	0	4	21	10	5	10	8	1	82
14.51-20.50	1	0	0	7	11	0	0	0	0	0	13	17	7	7	2	3	68
>20.50	0	0	0	0	0	0	0	0	0	0	3	3	1	0	0	0	7
TOTAL	298	244	104	99	60	18	21	35	85	125	233	142	114	130	165	198	2071

TOTAL NUMBER OF OBSERVATIONS: 2160
TOTAL NUMBER OF VALID OBSERVATIONS: 2071
TOTAL NUMBER OF MISSING OBSERVATIONS: 89
PERCENT DATA RECOVERY FOR THIS PERIOD: 95.9 %
MEAN WIND SPEED FOR THIS PERIOD: 6.1 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
4.54	5.65	7.29	17.72	12.36	12.22	40.22

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	1	1	6	5	3	1	0	0	3	9	33	14	5	9	3	1	0
B	0	2	6	11	10	3	1	6	12	8	23	17	8	3	5	2	0
C	2	8	18	16	11	4	1	4	13	15	24	17	12	3	2	1	0
D	9	13	20	43	21	6	14	20	44	38	45	38	13	18	16	9	0
E	11	9	10	13	6	0	2	3	7	31	51	29	32	20	25	7	0
F	19	10	13	2	5	1	1	1	4	18	40	21	28	40	33	17	0
G	256	201	31	9	4	3	2	1	2	6	17	6	16	37	81	161	0
TOTAL	298	244	104	99	60	18	21	35	85	125	233	142	114	130	165	198	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2006 TO 6/30/2006

*** 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	0	0	0	0	1	2	0	1	0	2	6
5.51- 6.50	0	0	0	0	1	2	0	4	7	3	5	1	3	0	0	0	26
6.51- 8.50	0	0	0	3	3	5	6	11	23	20	36	20	10	2	0	0	139
8.51-11.50	0	0	0	1	9	4	2	6	15	33	45	29	10	0	0	0	154
11.51-14.50	0	0	0	0	1	0	0	0	2	13	24	10	0	0	0	0	50
14.51-20.50	0	0	0	0	0	0	0	0	2	7	20	1	0	1	0	0	31
>20.50	0	0	0	0	0	0	0	0	1	3	5	2	0	0	0	0	11
TOTAL	0	0	0	4	14	11	8	21	50	79	136	65	23	4	0	2	417

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	2	0	0	0	0	0	0	0	2
4.51- 5.50	0	0	0	0	1	1	3	8	7	4	4	1	1	1	1	0	32
5.51- 6.50	0	0	0	1	0	7	5	10	15	5	1	5	1	0	1	0	51
6.51- 8.50	0	0	0	1	3	5	3	6	4	7	12	10	4	0	1	1	57
8.51-11.50	0	0	0	1	1	2	1	0	1	2	10	4	3	0	0	0	25
11.51-14.50	0	0	0	0	1	0	0	0	1	2	7	6	1	1	0	0	19
14.51-20.50	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	5
>20.50	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3
TOTAL	0	0	1	3	6	15	12	24	30	23	37	27	10	2	3	1	194

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	1	0	0	0	1
3.51- 4.50	1	0	1	0	0	0	1	5	4	3	1	0	2	0	0	0	18
4.51- 5.50	0	1	3	2	3	4	4	6	7	6	5	1	1	2	0	1	46
5.51- 6.50	0	0	0	3	0	0	4	4	5	3	8	6	5	0	0	0	38
6.51- 8.50	0	1	0	3	1	2	1	0	3	3	8	3	2	1	0	0	28
8.51-11.50	0	0	0	1	1	1	1	1	0	2	4	3	2	0	0	0	16
11.51-14.50	0	0	0	1	0	0	0	0	2	0	4	0	0	0	0	0	7
14.51-20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	3
TOTAL	1	2	4	10	5	7	11	16	21	18	32	13	14	3	0	1	158

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2006 TO 6/30/2006

*** 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	0	0	0	3	1	0	1	0	1	0	0	2	0	0	0	8
2.51- 3.50	1	2	0	2	6	2	1	5	5	3	3	1	2	1	2	0	36
3.51- 4.50	0	3	1	3	8	4	7	5	6	2	3	2	1	2	1	1	49
4.51- 5.50	2	1	1	2	8	1	5	2	3	4	3	4	5	2	0	1	44
5.51- 6.50	2	2	1	4	2	0	4	0	1	5	6	4	1	1	0	1	34
6.51- 8.50	0	0	0	3	1	2	1	0	1	1	9	3	3	1	0	2	27
8.51-11.50	0	0	0	0	0	1	0	0	0	3	10	5	5	1	1	0	26
11.51-14.50	0	0	0	0	0	0	0	0	1	4	10	7	2	1	1	0	26
14.51-20.50	1	0	2	1	0	0	0	0	2	5	9	3	2	0	1	1	27
>20.50	1	0	1	0	0	0	0	0	0	2	3	0	3	0	0	0	10
TOTAL	7	8	6	15	28	11	18	13	19	30	56	29	26	9	6	6	287

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	2	0	1	1	0	0	0	1	0	0	0	0	0	0	2	8
2.51- 3.50	2	3	5	2	1	0	0	2	1	2	1	1	2	1	4	3	30
3.51- 4.50	4	7	1	2	1	0	0	1	3	1	1	2	2	0	0	2	27
4.51- 5.50	4	2	3	3	2	0	0	1	1	6	9	7	3	1	1	0	43
5.51- 6.50	0	0	2	0	1	0	0	1	2	7	2	7	5	0	2	1	30
6.51- 8.50	1	0	2	4	0	1	0	0	2	8	19	9	6	2	3	1	58
8.51-11.50	1	1	0	2	1	0	0	4	3	21	40	23	13	10	6	0	125
11.51-14.50	0	0	0	2	0	0	1	1	2	9	16	12	2	0	2	0	47
14.51-20.50	0	0	0	0	0	0	0	0	3	5	5	1	2	0	1	0	17
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	13	15	13	16	7	1	1	10	18	59	94	62	35	14	19	9	386

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	1	2	3	1	0	0	0	0	1	0	0	1	4	0	3	0	16
2.51- 3.50	3	4	1	4	1	0	2	1	3	1	4	4	4	2	6	7	47
3.51- 4.50	5	5	1	0	0	1	0	0	3	7	7	1	5	6	6	3	50
4.51- 5.50	2	2	4	3	2	1	0	1	2	2	2	7	4	3	6	2	43
5.51- 6.50	2	3	0	0	0	0	1	1	3	3	10	8	4	3	1	2	41
6.51- 8.50	1	0	2	2	1	0	0	0	1	11	48	19	8	5	2	0	100
8.51-11.50	0	1	0	2	1	0	0	1	0	1	35	11	2	0	0	0	54
11.51-14.50	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	3
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	14	17	11	12	5	2	3	4	13	25	107	51	32	21	24	14	355

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 4/01/2006 TO 6/30/2006

*** 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	1	0	0	0	0	0	1
1.51- 2.50	6	1	3	1	1	1	0	0	1	0	0	0	1	3	2	2	22
2.51- 3.50	18	12	6	1	0	0	0	0	1	2	3	0	1	3	10	13	70
3.51- 4.50	27	34	8	5	0	4	1	1	1	3	3	2	6	1	9	15	120
4.51- 5.50	28	37	13	1	0	0	0	1	0	1	3	2	2	1	4	2	95
5.51- 6.50	11	14	4	2	0	0	0	0	0	0	3	1	2	2	2	3	44
6.51- 8.50	2	11	4	0	0	0	0	0	0	2	1	1	2	4	0	0	27
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	92	110	38	10	1	5	1	2	3	8	15	6	14	14	27	35	381

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	1	0	0	0	0	0	1
1.51- 2.50	8	5	6	3	5	2	0	1	3	1	0	1	7	3	5	4	54
2.51- 3.50	24	21	12	9	8	2	3	8	10	8	11	6	10	7	22	23	184
3.51- 4.50	37	49	12	10	9	9	9	12	19	16	15	7	16	9	16	21	266
4.51- 5.50	36	43	24	11	16	7	12	19	20	23	27	24	16	11	12	8	309
5.51- 6.50	15	19	7	10	4	9	14	20	33	26	35	32	21	6	6	7	264
6.51- 8.50	4	12	8	16	9	15	11	17	34	52	133	65	35	15	6	4	436
8.51-11.50	1	3	0	7	13	8	4	12	19	62	145	75	35	11	7	0	402
11.51-14.50	0	0	0	3	2	0	1	1	8	28	62	35	6	3	3	0	152
14.51-20.50	1	0	2	1	0	0	0	0	7	18	38	6	4	2	2	1	82
>20.50	1	0	2	0	0	0	0	0	1	8	10	2	4	0	0	0	28
TOTAL	127	152	73	70	66	52	54	90	154	242	477	253	154	67	79	68	2178

TOTAL NUMBER OF OBSERVATIONS: 2184
TOTAL NUMBER OF VALID OBSERVATIONS: 2178
TOTAL NUMBER OF MISSING OBSERVATIONS: 6
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.7 %
MEAN WIND SPEED FOR THIS PERIOD: 7.4 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
19.15	8.91	7.25	13.18	17.72	16.30	17.49

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	4	14	11	8	21	50	79	136	65	23	4	0	2	0
B	0	0	1	3	6	15	12	24	30	23	37	27	10	2	3	1	0
C	1	2	4	10	5	7	11	16	21	18	32	13	14	3	0	1	0
D	7	8	6	15	28	11	18	13	19	30	56	29	26	9	6	6	0
E	13	15	13	16	7	1	1	10	18	59	94	62	35	14	19	9	0
F	14	17	11	12	5	2	3	4	13	25	107	51	32	21	24	14	0
G	92	110	38	10	1	5	1	2	3	8	15	6	14	14	27	35	0
TOTAL	127	152	73	70	66	52	54	90	154	242	477	253	154	67	79	68	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 6/30/2006

*** 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	0	0	0	0	0	1	2	0	1	0	2	6
5.51- 6.50	0	0	1	0	1	2	0	4	7	3	5	1	3	0	0	0	27
6.51- 8.50	0	1	3	5	4	6	6	11	25	24	38	22	10	2	0	0	157
8.51-11.50	0	0	2	2	11	4	2	6	16	37	58	29	11	0	1	0	179
11.51-14.50	1	0	0	2	1	0	0	0	2	14	31	11	1	2	2	0	67
14.51-20.50	0	0	0	0	0	0	0	0	2	7	28	10	2	8	0	1	58
>20.50	0	0	0	0	0	0	0	0	1	3	8	4	1	0	0	0	17
TOTAL	1	1	6	9	17	12	8	21	53	88	169	79	28	13	3	3	511

STABILITY CLASS B

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	1	0	0	0	2	1	0	0	0	0	0	0	4
4.51- 5.50	0	0	0	0	2	2	3	9	9	5	4	2	3	1	1	0	41
5.51- 6.50	0	1	4	1	0	7	5	11	20	8	3	9	1	0	1	0	71
6.51- 8.50	0	1	1	2	5	7	3	10	8	8	17	17	5	0	2	1	87
8.51-11.50	0	0	1	7	5	2	2	0	2	4	19	6	6	1	2	1	58
11.51-14.50	0	0	0	3	3	0	0	0	1	2	11	7	2	3	2	0	34
14.51-20.50	0	0	0	1	0	0	0	0	0	1	6	2	1	0	0	1	12
>20.50	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	4
TOTAL	0	2	7	14	16	18	13	30	42	31	60	44	18	5	8	3	311

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	0	1	0	0	0	2
3.51- 4.50	1	4	3	0	1	0	2	7	4	5	6	4	2	0	1	0	40
4.51- 5.50	0	2	8	4	8	4	4	7	11	9	6	2	8	2	0	1	76
5.51- 6.50	1	1	2	6	0	1	4	4	9	7	16	7	6	0	1	0	65
6.51- 8.50	1	3	6	9	1	3	1	1	7	5	12	7	3	1	0	0	60
8.51-11.50	0	0	3	4	2	3	1	1	1	5	8	7	2	0	0	1	38
11.51-14.50	0	0	0	1	2	0	0	0	2	0	6	0	1	3	0	0	15
14.51-20.50	0	0	0	2	2	0	0	0	0	0	1	3	2	0	0	0	10
>20.50	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	3
TOTAL	3	10	22	26	16	11	12	20	34	33	56	30	26	6	2	2	309

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 6/30/2006

*** 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	2	0	1	0	3	1	1	5	2	2	2	3	3	4	3	3	35
2.51- 3.50	4	4	4	9	7	5	7	14	19	13	10	5	5	7	8	0	121
3.51- 4.50	2	6	6	8	10	5	9	9	21	9	8	7	2	4	2	5	113
4.51- 5.50	4	4	2	5	8	1	7	3	11	10	10	10	7	3	0	2	87
5.51- 6.50	2	6	4	11	3	0	5	0	3	11	12	8	2	1	3	1	72
6.51- 8.50	0	1	4	8	2	2	2	2	2	7	15	10	5	4	2	2	68
8.51-11.50	0	0	2	8	3	3	0	0	2	3	16	10	7	3	2	0	59
11.51-14.50	0	0	0	4	4	0	1	0	1	6	14	9	3	1	1	0	44
14.51-20.50	1	0	2	5	9	0	0	0	2	5	11	5	2	0	1	2	45
>20.50	1	0	1	0	0	0	0	0	0	2	3	0	3	0	0	0	10
TOTAL	16	21	26	58	49	17	32	33	63	68	101	67	39	27	22	15	654

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	2	2	2	3	2	0	0	0	1	1	2	1	5	2	1	3	27
2.51- 3.50	4	4	5	4	1	0	0	3	1	6	3	1	8	4	9	6	59
3.51- 4.50	8	9	3	2	3	0	0	2	4	3	6	5	4	3	4	4	60
4.51- 5.50	8	6	3	3	2	0	0	1	1	9	11	11	7	1	2	0	65
5.51- 6.50	0	1	4	3	2	0	0	1	4	9	6	8	5	0	4	1	48
6.51- 8.50	1	1	2	5	2	1	1	1	5	17	36	13	13	6	5	1	110
8.51-11.50	1	1	4	6	1	0	1	4	4	30	55	31	18	15	10	0	181
11.51-14.50	0	0	0	3	0	0	1	1	2	10	20	18	3	3	6	1	68
14.51-20.50	0	0	0	0	0	0	0	0	3	5	5	3	4	0	3	0	23
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	24	24	23	29	13	1	3	13	25	90	145	91	67	34	44	16	642

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	1	0	0	0	0	0	0	0	0	0	1	0	0	2
1.51- 2.50	3	2	5	1	0	1	1	0	1	0	1	3	5	5	5	3	36
2.51- 3.50	7	4	3	4	3	0	2	2	4	4	6	6	8	5	13	11	82
3.51- 4.50	10	6	5	1	2	1	0	0	3	10	10	4	7	11	13	10	93
4.51- 5.50	9	6	4	3	2	1	0	1	3	6	7	13	8	9	8	5	85
5.51- 6.50	3	5	1	0	0	0	1	1	5	5	15	9	12	7	7	2	73
6.51- 8.50	1	2	3	2	1	0	0	0	1	16	67	23	14	17	9	0	156
8.51-11.50	0	2	3	2	2	0	0	1	0	2	40	14	5	4	2	0	77
11.51-14.50	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	3
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	33	27	24	14	10	3	4	5	17	43	147	72	60	61	57	31	608

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 6/30/2006

*** 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	1	0	0	1	0	0	0	0	0	2
1.51- 2.50	18	6	5	1	2	1	1	0	1	1	1	1	4	10	7	9	68
2.51- 3.50	50	38	15	3	2	1	0	0	1	4	7	3	8	18	38	56	244
3.51- 4.50	106	66	15	9	0	4	1	1	2	4	6	3	8	11	40	59	335
4.51- 5.50	91	75	14	3	1	2	1	1	0	3	6	3	5	5	14	42	266
5.51- 6.50	46	57	8	3	0	0	0	0	1	0	7	1	2	3	6	14	148
6.51- 8.50	23	49	10	0	0	0	0	0	0	2	3	1	3	4	3	14	112
8.51-11.50	13	17	2	0	0	0	0	0	0	0	1	0	0	0	0	2	35
11.51-14.50	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
14.51-20.50	1	0	0	0	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	348	311	69	19	5	8	3	3	5	14	32	12	30	51	108	196	1214

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	1	0	0	0	1	0	0	1	0	0	1	0	0	4
1.51- 2.50	25	10	13	5	7	3	3	5	5	4	6	8	17	21	16	18	166
2.51- 3.50	65	50	27	20	13	6	9	19	25	28	26	15	30	34	68	73	508
3.51- 4.50	127	91	32	20	17	10	12	19	36	32	36	23	23	29	60	78	645
4.51- 5.50	112	93	31	18	23	10	15	22	35	42	45	43	38	22	25	52	626
5.51- 6.50	52	71	24	24	6	10	15	21	49	43	64	43	31	11	22	18	504
6.51- 8.50	26	58	29	31	15	19	13	25	48	79	188	93	53	34	21	18	750
8.51-11.50	14	20	17	29	24	12	6	12	25	81	197	97	49	23	17	4	627
11.51-14.50	1	3	0	13	10	0	2	1	8	32	83	45	11	13	11	1	234
14.51-20.50	2	0	2	8	11	0	0	0	7	18	51	23	11	9	4	4	150
>20.50	1	0	2	0	0	0	0	0	1	8	13	5	5	0	0	0	35
TOTAL	425	396	177	169	126	70	75	125	239	367	710	395	268	197	244	266	4249

TOTAL NUMBER OF OBSERVATIONS: 4344
TOTAL NUMBER OF VALID OBSERVATIONS: 4249
TOTAL NUMBER OF MISSING OBSERVATIONS: 95
PERCENT DATA RECOVERY FOR THIS PERIOD: 97.8 %
MEAN WIND SPEED FOR THIS PERIOD: 6.8 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
12.03	7.32	7.27	15.39	15.11	14.31	28.57

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	1	1	6	9	17	12	8	21	53	88	169	79	28	13	3	3	0
B	0	2	7	14	16	18	13	30	42	31	60	44	18	5	8	3	0
C	3	10	22	26	16	11	12	20	34	33	56	30	26	6	2	2	0
D	16	21	26	58	49	17	32	33	63	68	101	67	39	27	22	15	0
E	24	24	23	29	13	1	3	13	25	90	145	91	67	34	44	16	0
F	33	27	24	14	10	3	4	5	17	43	147	72	60	61	57	31	0
G	348	311	69	19	5	8	3	3	5	14	32	12	30	51	108	196	0
TOTAL	425	396	177	169	126	70	75	125	239	367	710	395	268	197	244	266	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 9/30/2006

*** 3RD 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	0	2	0	0	1	1	0	0	0	6
5.51- 6.50	0	0	0	0	1	0	4	3	5	6	6	5	2	0	0	0	32
6.51- 8.50	0	0	1	0	2	2	1	5	13	23	24	10	3	2	1	0	87
8.51-11.50	1	1	0	8	6	2	1	2	3	21	23	12	5	2	0	0	87
11.51-14.50	0	2	0	1	4	0	1	1	1	3	7	4	1	1	0	0	26
14.51-20.50	0	0	0	0	2	0	0	0	0	1	6	3	0	0	0	0	12
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	3	1	9	15	4	9	11	24	54	66	35	12	5	1	0	250

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	1	0	0	0	0	0	0	0	1	0	1	0	0	0	3
4.51- 5.50	2	0	0	0	0	0	0	1	2	1	2	2	3	2	1	0	16
5.51- 6.50	0	1	1	2	3	3	4	3	7	13	10	11	3	0	1	0	62
6.51- 8.50	0	0	2	7	3	3	8	1	19	15	12	12	2	3	2	0	89
8.51-11.50	0	0	1	6	7	5	0	1	2	6	10	5	5	0	0	0	48
11.51-14.50	0	0	0	1	2	1	1	0	0	1	3	0	1	0	0	0	10
14.51-20.50	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	1	5	16	16	12	13	6	30	36	38	31	15	5	4	0	230

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	1	0	0	0	0	0	0	0	0	0	1
3.51- 4.50	1	2	0	1	0	1	0	0	2	0	0	3	0	1	0	1	12
4.51- 5.50	1	2	5	1	2	0	1	4	3	2	11	8	4	3	0	0	47
5.51- 6.50	1	0	2	1	2	2	1	2	6	4	9	3	2	0	1	1	37
6.51- 8.50	0	0	1	1	4	3	3	0	6	7	9	4	3	1	1	0	43
8.51-11.50	2	0	0	3	5	6	0	0	2	3	5	6	2	0	1	1	36
11.51-14.50	0	0	0	0	4	0	0	0	0	1	2	3	0	0	0	0	10
14.51-20.50	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	0	4
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	4	8	7	18	12	6	7	20	17	37	27	11	5	3	3	190

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 9/30/2006

*** 3RD 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	0	0	0	0	0	0	0	2	1	0	1	2	1	2	1	10
2.51- 3.50	1	3	1	0	0	1	1	2	3	1	2	5	1	4	1	3	29
3.51- 4.50	3	5	1	3	2	1	0	2	4	6	2	7	5	7	6	5	59
4.51- 5.50	1	4	2	3	1	1	1	2	2	8	4	6	4	3	0	0	42
5.51- 6.50	0	0	3	4	2	5	1	5	9	4	5	7	1	2	0	0	48
6.51- 8.50	0	0	3	3	1	10	7	5	4	5	12	5	3	0	0	2	60
8.51-11.50	0	0	4	1	8	6	3	0	2	12	19	15	6	3	0	4	83
11.51-14.50	0	2	2	4	11	3	2	0	0	7	15	3	0	1	0	0	50
14.51-20.50	2	0	1	1	5	1	2	1	0	4	14	0	0	1	0	3	35
>20.50	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
TOTAL	8	15	17	19	30	29	17	17	26	48	74	49	22	22	9	18	420

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	1	1
1.51- 2.50	2	1	1	0	0	0	0	0	0	0	1	1	1	3	1	5	16
2.51- 3.50	2	1	2	0	1	0	1	0	0	0	3	5	4	5	3	3	30
3.51- 4.50	5	3	1	2	1	2	1	1	1	1	9	10	3	4	5	3	52
4.51- 5.50	7	3	3	4	2	2	0	1	3	5	14	4	4	4	1	4	61
5.51- 6.50	4	4	3	2	7	1	1	1	1	8	23	8	3	1	1	2	70
6.51- 8.50	2	2	4	4	4	2	1	4	9	9	29	15	4	0	3	4	96
8.51-11.50	4	5	3	4	4	7	4	2	4	8	24	22	10	2	2	4	109
11.51-14.50	1	0	6	4	8	3	2	1	2	6	14	5	1	1	1	1	56
14.51-20.50	1	0	0	3	3	0	2	0	2	1	3	1	0	1	1	2	20
>20.50	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	28	19	23	24	31	17	12	10	22	38	120	71	30	21	18	29	513

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	1	1	0	0	0	0	0	0	0	0	1	2	3	0	1	0	9
2.51- 3.50	5	4	3	2	0	0	2	0	2	1	5	4	5	8	7	9	57
3.51- 4.50	11	4	1	0	0	0	2	0	1	2	10	7	2	6	6	10	62
4.51- 5.50	6	5	4	1	4	0	0	1	0	3	10	2	8	2	2	10	58
5.51- 6.50	5	3	2	2	0	0	0	1	2	4	9	3	5	1	2	2	41
6.51- 8.50	1	5	4	1	1	0	0	1	3	4	7	7	2	1	1	1	39
8.51-11.50	0	4	1	1	1	0	0	0	1	3	5	1	0	1	1	2	21
11.51-14.50	0	0	0	3	0	1	0	1	2	1	0	0	1	0	2	1	12
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	29	26	15	10	6	1	4	4	11	18	47	26	26	19	22	36	300

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 9/30/2006

*** 3RD 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	4	1	1	0	0	0	0	0	0	0	0	1	1	4	3	2	17
2.51- 3.50	11	7	1	1	0	1	0	0	0	1	2	3	5	4	8	11	55
3.51- 4.50	20	19	3	0	1	0	0	1	1	1	0	0	3	1	8	18	76
4.51- 5.50	27	19	1	1	1	0	0	0	0	0	2	2	5	1	6	14	79
5.51- 6.50	13	7	2	1	0	0	0	0	1	0	0	0	1	1	3	5	34
6.51- 8.50	10	11	3	1	0	0	0	0	0	2	0	0	0	0	1	1	29
8.51-11.50	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11.51-14.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	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	86	64	11	4	2	1	0	1	2	5	5	6	15	11	29	52	294

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	1	1
1.51- 2.50	7	3	2	0	0	0	0	0	2	1	2	5	7	8	7	8	52
2.51- 3.50	19	15	7	3	1	2	5	2	5	3	12	17	15	21	19	26	172
3.51- 4.50	40	33	7	6	4	4	3	4	9	10	22	27	14	19	25	37	264
4.51- 5.50	44	33	15	10	10	3	4	9	12	19	43	25	29	15	10	28	309
5.51- 6.50	23	15	13	12	15	11	11	15	31	39	62	37	17	5	8	10	324
6.51- 8.50	13	18	18	17	15	20	20	16	54	65	93	53	17	7	9	8	443
8.51-11.50	8	10	9	23	31	26	8	5	14	54	86	61	28	8	4	11	386
11.51-14.50	1	4	8	13	29	8	6	3	5	19	42	15	4	3	3	3	166
14.51-20.50	3	0	1	4	12	1	4	2	3	6	24	5	0	2	1	6	74
>20.50	1	1	0	1	1	1	0	0	0	0	1	0	0	0	0	0	6
TOTAL	159	132	80	89	118	76	61	56	135	216	387	245	131	88	86	138	2197

TOTAL NUMBER OF OBSERVATIONS: 2208
TOTAL NUMBER OF VALID OBSERVATIONS: 2197
TOTAL NUMBER OF MISSING OBSERVATIONS: 11
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.5 %
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
11.38	10.47	8.65	19.12	23.35	13.65	13.38

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	1	3	1	9	15	4	9	11	24	54	66	35	12	5	1	0	0
B	2	1	5	16	16	12	13	6	30	36	38	31	15	5	4	0	0
C	5	4	8	7	18	12	6	7	20	17	37	27	11	5	3	3	0
D	8	15	17	19	30	29	17	17	26	48	74	49	22	22	9	18	0
E	28	19	23	24	31	17	12	10	22	38	120	71	30	21	18	29	0
F	29	26	15	10	6	1	4	4	11	18	47	26	26	19	22	36	0
G	86	64	11	4	2	1	0	1	2	5	5	6	15	11	29	52	0
TOTAL	159	132	80	89	118	76	61	56	135	216	387	245	131	88	86	138	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2006 TO 12/31/2006

*** 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	1	0	0	0	1	0	0	0	0	0	2
5.51- 6.50	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
6.51- 8.50	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
8.51-11.50	1	1	0	0	0	0	0	0	1	4	5	1	3	0	0	1	17
11.51-14.50	0	0	0	1	1	0	0	0	0	2	6	0	0	0	0	0	10
14.51-20.50	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	1	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL	1	1	0	1	1	0	1	2	1	7	14	2	3	0	3	3	40

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	2	0	0	0	0	0	0	0	0	2
4.51- 5.50	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	3
5.51- 6.50	0	0	0	0	1	1	2	2	1	2	3	2	0	0	0	0	14
6.51- 8.50	0	4	5	3	4	2	2	2	0	0	4	1	2	0	1	3	33
8.51-11.50	0	1	3	1	0	0	0	0	1	4	7	1	0	1	0	3	22
11.51-14.50	0	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	4
14.51-20.50	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	1	6
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	5	10	4	7	4	4	6	2	6	17	7	3	1	1	7	84

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	2	0	2	0	0	0	0	0	4
3.51- 4.50	0	0	0	2	0	0	3	0	2	1	3	2	2	0	0	0	15
4.51- 5.50	0	1	1	3	3	3	1	5	4	4	4	0	1	3	0	0	33
5.51- 6.50	2	1	4	1	5	1	0	1	5	1	1	2	1	0	0	1	26
6.51- 8.50	0	3	9	2	5	1	2	0	2	2	2	5	1	0	1	0	35
8.51-11.50	1	1	2	3	1	3	0	0	1	3	3	1	0	0	0	1	20
11.51-14.50	0	0	0	2	1	0	0	0	0	1	0	1	0	0	0	0	5
14.51-20.50	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	6	16	15	15	8	6	6	16	12	15	12	5	3	1	2	141

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2006 TO 12/31/2006

*** 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	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	1	2	1	2	3	1	0	6	2	2	4	4	4	0	3	35
2.51- 3.50	5	6	6	7	3	5	5	5	11	13	10	2	6	2	4	3	93
3.51- 4.50	3	7	6	13	9	6	4	4	16	15	14	2	2	3	4	1	109
4.51- 5.50	0	2	4	9	2	3	6	7	10	8	9	5	3	1	1	2	72
5.51- 6.50	2	2	5	5	7	1	0	2	0	2	3	2	1	1	1	0	34
6.51- 8.50	1	2	2	4	5	2	1	1	1	4	7	5	2	2	0	3	42
8.51-11.50	1	0	2	5	5	1	0	0	2	4	7	6	0	0	0	1	34
11.51-14.50	0	0	0	4	5	0	0	0	0	1	3	3	0	2	0	1	19
14.51-20.50	0	0	0	1	6	0	0	0	0	0	0	1	0	0	0	1	9
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	20	27	49	44	21	17	19	46	49	55	30	18	15	10	15	447

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	0	0	0	0	0	0	1
1.51- 2.50	4	0	1	0	0	2	0	2	0	3	6	1	3	3	2	2	29
2.51- 3.50	3	5	1	2	3	2	1	3	1	3	7	4	2	3	6	3	49
3.51- 4.50	6	2	2	1	1	0	1	2	2	2	4	4	7	5	3	2	44
4.51- 5.50	2	1	0	1	2	1	0	2	1	3	5	5	1	0	1	4	29
5.51- 6.50	0	0	2	2	3	0	1	1	0	2	2	3	2	1	2	0	21
6.51- 8.50	0	1	0	4	1	4	2	1	2	4	7	4	5	5	3	1	44
8.51-11.50	0	1	1	2	1	0	0	2	1	9	4	0	3	7	2	0	33
11.51-14.50	3	0	0	4	3	0	0	0	0	1	3	1	1	1	1	1	19
14.51-20.50	1	0	0	2	1	0	0	0	0	2	0	1	0	1	0	0	8
>20.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL	20	10	7	18	16	9	5	13	7	29	38	23	24	26	20	13	278

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	2	0	0	0	1	0	0	0	0	0	3
1.51- 2.50	3	4	1	2	1	0	0	1	0	3	2	2	2	5	5	4	35
2.51- 3.50	4	5	2	3	0	0	2	2	1	3	3	4	3	6	9	9	56
3.51- 4.50	6	3	3	2	3	2	1	1	2	1	2	4	5	8	10	9	62
4.51- 5.50	5	4	4	1	0	0	0	1	0	1	6	5	4	3	5	6	45
5.51- 6.50	2	1	1	1	0	0	0	0	0	2	9	4	0	3	1	3	27
6.51- 8.50	1	3	0	1	1	0	0	0	0	9	10	3	2	2	5	5	42
8.51-11.50	0	3	0	1	0	0	0	0	0	1	2	1	1	2	0	6	17
11.51-14.50	0	2	2	5	0	0	0	0	0	0	1	0	0	0	0	4	14
14.51-20.50	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	21	25	13	19	5	2	5	5	3	20	36	23	17	29	35	46	304

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 10/01/2006 TO 12/31/2006

*** 4TH 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1.51- 2.50	18	13	6	3	0	0	1	1	2	2	2	3	5	7	12	15	90
2.51- 3.50	52	36	14	1	3	1	2	0	0	3	4	1	7	10	28	47	209
3.51- 4.50	100	60	13	0	0	0	0	1	2	1	2	3	5	8	19	64	278
4.51- 5.50	77	37	6	1	0	0	0	0	0	0	0	3	0	2	9	34	169
5.51- 6.50	38	18	4	0	0	0	0	0	0	0	0	1	0	1	1	16	79
6.51- 8.50	18	15	6	2	0	0	0	0	0	0	1	0	0	0	2	13	57
8.51-11.50	6	14	4	2	0	0	0	0	0	0	0	0	0	0	0	2	28
11.51-14.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	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	309	194	54	10	3	1	3	2	4	6	9	11	17	28	71	192	914

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	1	1	0	0	0	2	0	0	0	1	0	0	0	0	0	6
1.51- 2.50	25	18	10	6	3	5	2	4	8	10	12	10	14	19	19	24	189
2.51- 3.50	64	52	23	13	9	8	10	10	15	22	26	11	18	21	47	62	411
3.51- 4.50	115	72	24	18	13	8	9	10	24	20	25	15	21	24	36	76	510
4.51- 5.50	84	45	16	15	8	8	8	15	15	16	25	18	9	9	16	46	353
5.51- 6.50	44	22	16	9	16	3	3	7	6	9	19	14	4	6	5	20	203
6.51- 8.50	20	28	22	16	16	9	7	5	5	20	31	18	12	9	12	25	255
8.51-11.50	9	21	12	14	7	4	0	2	6	25	28	10	7	10	2	14	171
11.51-14.50	3	2	3	17	11	0	0	0	0	5	13	6	2	3	1	7	73
14.51-20.50	1	0	0	8	7	0	0	0	0	2	4	6	0	1	3	3	35
>20.50	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
TOTAL	366	261	127	116	91	45	41	53	79	129	184	108	87	102	141	278	2208

TOTAL NUMBER OF OBSERVATIONS: 2208
TOTAL NUMBER OF VALID OBSERVATIONS: 2208
TOTAL NUMBER OF MISSING OBSERVATIONS: 0
PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %
MEAN WIND SPEED FOR THIS PERIOD: 5.4 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
1.81	3.80	6.39	20.24	12.59	13.77	41.39

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	1	1	0	1	1	0	1	2	1	7	14	2	3	0	3	3	0
B	0	5	10	4	7	4	4	6	2	6	17	7	3	1	1	7	0
C	3	6	16	15	15	8	6	6	16	12	15	12	5	3	1	2	0
D	12	20	27	49	44	21	17	19	46	49	55	30	18	15	10	15	0
E	20	10	7	18	16	9	5	13	7	29	38	23	24	26	20	13	0
F	21	25	13	19	5	2	5	5	3	20	36	23	17	29	35	46	0
G	309	194	54	10	3	1	3	2	4	6	9	11	17	28	71	192	0
TOTAL	366	261	127	116	91	45	41	53	79	129	184	108	87	102	141	278	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 12/31/2006

*** 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	3	0	2	0	1	1	1	0	0	0	8
5.51- 6.50	0	0	0	0	1	0	4	4	5	6	7	5	2	0	0	0	34
6.51- 8.50	0	0	1	0	2	2	1	6	13	24	24	10	3	2	1	0	89
8.51-11.50	2	2	0	8	6	2	1	2	4	25	28	13	8	2	0	1	104
11.51-14.50	0	2	0	2	5	0	1	1	1	5	13	4	1	1	0	0	36
14.51-20.50	0	0	0	0	2	0	0	0	0	1	7	4	0	0	3	1	18
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL	2	4	1	10	16	4	10	13	25	61	80	37	15	5	4	3	290

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	1	0	0	0	0	2	0	0	1	0	1	0	0	0	5
4.51- 5.50	2	0	1	0	1	1	0	1	2	1	2	2	3	2	1	0	19
5.51- 6.50	0	1	1	2	4	4	6	5	8	15	13	13	3	0	1	0	76
6.51- 8.50	0	4	7	10	7	5	10	3	19	15	16	13	4	3	3	3	122
8.51-11.50	0	1	4	7	7	5	0	1	3	10	17	6	5	1	0	3	70
11.51-14.50	0	0	1	1	3	1	1	0	0	1	3	1	2	0	0	0	14
14.51-20.50	0	0	0	0	1	0	0	0	0	0	3	3	0	0	0	1	8
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	6	15	20	23	16	17	12	32	42	55	38	18	6	5	7	314

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	1	0	2	0	2	0	0	0	0	0	5
3.51- 4.50	1	2	0	3	0	1	3	0	4	1	3	5	2	1	0	1	27
4.51- 5.50	1	3	6	4	5	3	2	9	7	6	15	8	5	6	0	0	80
5.51- 6.50	3	1	6	2	7	3	1	3	11	5	10	5	3	0	1	2	63
6.51- 8.50	0	3	10	3	9	4	5	0	8	9	11	9	4	1	2	0	78
8.51-11.50	3	1	2	6	6	9	0	0	3	6	8	7	2	0	1	2	56
11.51-14.50	0	0	0	2	5	0	0	0	0	2	2	4	0	0	0	0	15
14.51-20.50	0	0	0	2	1	0	0	1	1	0	1	1	0	0	0	0	7
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	8	10	24	22	33	20	12	13	36	29	52	39	16	8	4	5	331

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 12/31/2006

*** 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	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	1	2	1	2	3	1	0	8	3	2	5	6	5	2	4	45
2.51- 3.50	6	9	7	7	3	6	6	7	14	14	12	7	7	6	5	6	122
3.51- 4.50	6	12	7	16	11	7	4	6	20	21	16	9	7	10	10	6	168
4.51- 5.50	1	6	6	12	3	4	7	9	12	16	13	11	7	4	1	2	114
5.51- 6.50	2	2	8	9	9	6	1	7	9	6	8	9	2	3	1	0	82
6.51- 8.50	1	2	5	7	6	12	8	6	5	9	19	10	5	2	0	5	102
8.51-11.50	1	0	6	6	13	7	3	0	4	16	26	21	6	3	0	5	117
11.51-14.50	0	2	2	8	16	3	2	0	0	8	18	6	0	3	0	1	69
14.51-20.50	2	0	1	2	11	1	2	1	0	4	14	1	0	1	0	4	44
>20.50	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	4
TOTAL	20	35	44	68	74	50	34	36	72	97	129	79	40	37	19	33	867

STABILITY CLASS E

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
1.51- 2.50	6	1	2	0	0	2	0	2	0	3	7	2	4	6	3	7	45
2.51- 3.50	5	6	3	2	4	2	2	3	1	3	10	9	6	8	9	6	79
3.51- 4.50	11	5	3	3	2	2	2	3	3	3	13	14	10	9	8	5	96
4.51- 5.50	9	4	3	5	4	3	0	3	4	8	19	9	5	4	2	8	90
5.51- 6.50	4	4	5	4	10	1	2	2	1	10	25	11	5	2	3	2	91
6.51- 8.50	2	3	4	8	5	6	3	5	11	13	36	19	9	5	6	5	140
8.51-11.50	4	6	4	6	5	7	4	4	5	17	28	22	13	9	4	4	142
11.51-14.50	4	0	6	8	11	3	2	1	2	7	17	6	2	2	2	2	75
14.51-20.50	2	0	0	5	4	0	2	0	2	3	3	2	0	2	1	2	28
>20.50	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL	48	29	30	42	47	26	17	23	29	67	158	94	54	47	38	42	791

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	2	0	0	0	1	0	0	0	0	0	3
1.51- 2.50	4	5	1	2	1	0	0	1	0	3	3	4	5	5	6	4	44
2.51- 3.50	9	9	5	5	0	0	4	2	3	4	8	8	8	14	16	18	113
3.51- 4.50	17	7	4	2	3	2	3	1	3	3	12	11	7	14	16	19	124
4.51- 5.50	11	9	8	2	4	0	0	2	0	4	16	7	12	5	7	16	103
5.51- 6.50	7	4	3	3	0	0	0	1	2	6	18	7	5	4	3	5	68
6.51- 8.50	2	8	4	2	2	0	0	1	3	13	17	10	4	3	6	6	81
8.51-11.50	0	7	1	2	1	0	0	0	1	4	7	2	1	3	1	8	38
11.51-14.50	0	2	2	8	0	1	0	1	2	1	1	0	1	0	2	5	26
14.51-20.50	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	50	51	28	29	11	3	9	9	14	38	83	49	43	48	57	82	604

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 7/01/2006 TO 12/31/2006

*** 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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1.51- 2.50	22	14	7	3	0	0	1	1	2	2	2	4	6	11	15	17	107
2.51- 3.50	63	43	15	2	3	2	2	0	0	4	6	4	12	14	36	58	264
3.51- 4.50	120	79	16	0	1	0	0	2	3	2	2	3	8	9	27	82	354
4.51- 5.50	104	56	7	2	1	0	0	0	0	0	2	5	5	3	15	48	248
5.51- 6.50	51	25	6	1	0	0	0	0	1	0	0	1	1	2	4	21	113
6.51- 8.50	28	26	9	3	0	0	0	0	0	2	1	0	0	0	3	14	86
8.51-11.50	7	14	4	2	0	0	0	0	0	1	0	0	0	0	0	2	30
11.51-14.50	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	4
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	395	258	65	14	5	2	3	3	6	11	14	17	32	39	100	244	1208

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	1	1	0	0	0	2	0	0	0	1	0	0	0	0	1	7
1.51- 2.50	32	21	12	6	3	5	2	4	10	11	14	15	21	27	26	32	241
2.51- 3.50	83	67	30	16	10	10	15	12	20	25	38	28	33	42	66	88	583
3.51- 4.50	155	105	31	24	17	12	12	14	33	30	47	42	35	43	61	113	774
4.51- 5.50	128	78	31	25	18	11	12	24	27	35	68	43	38	24	26	74	662
5.51- 6.50	67	37	29	21	31	14	14	22	37	48	81	51	21	11	13	30	527
6.51- 8.50	33	46	40	33	31	29	27	21	59	85	124	71	29	16	21	33	698
8.51-11.50	17	31	21	37	38	30	8	7	20	79	114	71	35	18	6	25	557
11.51-14.50	4	6	11	30	40	8	6	3	5	24	55	21	6	6	4	10	239
14.51-20.50	4	0	1	12	19	1	4	2	3	8	28	11	0	3	4	9	109
>20.50	1	1	0	1	2	1	0	0	0	0	1	0	0	0	0	1	8
TOTAL	525	393	207	205	209	121	102	109	214	345	571	353	218	190	227	416	4405

TOTAL NUMBER OF OBSERVATIONS: 4416
TOTAL NUMBER OF VALID OBSERVATIONS: 4405
TOTAL NUMBER OF MISSING OBSERVATIONS: 11
PERCENT DATA RECOVERY FOR THIS PERIOD: 99.8 %
MEAN WIND SPEED FOR THIS PERIOD: 6.3 MPH
TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
6.58	7.13	7.51	19.68	17.96	13.71	27.42

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	4	1	10	16	4	10	13	25	61	80	37	15	5	4	3	0
B	2	6	15	20	23	16	17	12	32	42	55	38	18	6	5	7	0
C	8	10	24	22	33	20	12	13	36	29	52	39	16	8	4	5	0
D	20	35	44	68	74	50	34	36	72	97	129	79	40	37	19	33	0
E	48	29	30	42	47	26	17	23	29	67	158	94	54	47	38	42	0
F	50	51	28	29	11	3	9	9	14	38	83	49	43	48	57	82	0
G	395	258	65	14	5	2	3	3	6	11	14	17	32	39	100	244	0
TOTAL	525	393	207	205	209	121	102	109	214	345	571	353	218	190	227	416	0

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 12/31/2006

*** 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	0	3	0	2	0	2	3	1	1	0	2	14
5.51- 6.50	0	0	1	0	2	2	4	8	12	9	12	6	5	0	0	0	61
6.51- 8.50	0	1	4	5	6	8	7	17	38	48	62	32	13	4	1	0	246
8.51-11.50	2	2	2	10	17	6	3	8	20	62	86	42	19	2	1	1	283
11.51-14.50	1	2	0	4	6	0	1	1	3	19	44	15	2	3	2	0	103
14.51-20.50	0	0	0	0	2	0	0	0	2	8	35	14	2	8	3	2	76
>20.50	0	0	0	0	0	0	0	0	1	3	8	4	1	0	0	1	18
TOTAL	3	5	7	19	33	16	18	34	78	149	249	116	43	18	7	6	801

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	1	0	1	0	0	2	2	1	1	0	1	0	0	0	9
4.51- 5.50	2	0	1	0	3	3	3	10	11	6	6	4	6	3	2	0	60
5.51- 6.50	0	2	5	3	4	11	11	16	28	23	16	22	4	0	2	0	147
6.51- 8.50	0	5	8	12	12	12	13	13	27	23	33	30	9	3	5	4	209
8.51-11.50	0	1	5	14	12	7	2	1	5	14	36	12	11	2	2	4	128
11.51-14.50	0	0	1	4	6	1	1	0	1	3	14	8	4	3	2	0	48
14.51-20.50	0	0	0	1	1	0	0	0	0	1	9	5	1	0	0	2	20
>20.50	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	4
TOTAL	2	8	22	34	39	34	30	42	74	73	115	82	36	11	13	10	625

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	1	0	2	1	2	0	1	0	0	0	7
3.51- 4.50	2	6	3	3	1	1	5	7	8	6	9	9	4	1	1	1	67
4.51- 5.50	1	5	14	8	13	7	6	16	18	15	21	10	13	8	0	1	156
5.51- 6.50	4	2	8	8	7	4	5	7	20	12	26	12	9	0	2	2	128
6.51- 8.50	1	6	16	12	10	7	6	1	15	14	23	16	7	2	2	0	138
8.51-11.50	3	1	5	10	8	12	1	1	4	11	16	14	4	0	1	3	94
11.51-14.50	0	0	0	3	7	0	0	0	2	2	8	4	1	3	0	0	30
14.51-20.50	0	0	0	4	3	0	0	1	1	0	2	4	2	0	0	0	17
>20.50	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	3
TOTAL	11	20	46	48	49	31	24	33	70	62	108	69	42	14	6	7	640

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 12/31/2006

*** 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	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	2	1	3	1	5	4	2	5	10	5	4	8	9	9	5	7	80
2.51- 3.50	10	13	11	16	10	11	13	21	33	27	22	12	12	13	13	6	243
3.51- 4.50	8	18	13	24	21	12	13	15	41	30	24	16	9	14	12	11	281
4.51- 5.50	5	10	8	17	11	5	14	12	23	26	23	21	14	7	1	4	201
5.51- 6.50	4	8	12	20	12	6	6	7	12	17	20	17	4	4	4	1	154
6.51- 8.50	1	3	9	15	8	14	10	8	7	16	34	20	10	6	2	7	170
8.51-11.50	1	0	8	14	16	10	3	0	6	19	42	31	13	6	2	5	176
11.51-14.50	0	2	2	12	20	3	3	0	1	14	32	15	3	4	1	1	113
14.51-20.50	3	0	3	7	20	1	2	1	2	9	25	6	2	1	1	6	89
>20.50	2	1	1	0	0	1	0	0	0	2	4	0	3	0	0	0	14
TOTAL	36	56	70	126	123	67	66	69	135	165	230	146	79	64	41	48	1521

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	0	0	0	0	0	1	2
1.51- 2.50	8	3	4	3	2	2	0	2	1	4	9	3	9	8	4	10	72
2.51- 3.50	9	10	8	6	5	2	2	6	2	9	13	10	14	12	18	12	138
3.51- 4.50	19	14	6	5	5	2	2	5	7	6	19	19	14	12	12	9	156
4.51- 5.50	17	10	6	8	6	3	0	4	5	17	30	20	12	5	4	8	155
5.51- 6.50	4	5	9	7	12	1	2	3	5	19	31	19	10	2	7	3	139
6.51- 8.50	3	4	6	13	7	7	4	6	16	30	72	32	22	11	11	6	250
8.51-11.50	5	7	8	12	6	7	5	8	9	47	83	53	31	24	14	4	323
11.51-14.50	4	0	6	11	11	3	3	2	4	17	37	24	5	5	8	3	143
14.51-20.50	2	0	0	5	4	0	2	0	5	8	8	5	4	2	4	2	51
>20.50	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	4
TOTAL	72	53	53	71	60	27	20	36	54	157	303	185	121	81	82	58	1433

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	1	0	0	2	0	0	0	1	0	0	1	0	0	5
1.51- 2.50	7	7	6	3	1	1	1	1	1	3	4	7	10	10	11	7	80
2.51- 3.50	16	13	8	9	3	0	6	4	7	8	14	14	16	19	29	29	195
3.51- 4.50	27	13	9	3	5	3	3	1	6	13	22	15	14	25	29	29	217
4.51- 5.50	20	15	12	5	6	1	0	3	3	10	23	20	20	14	15	21	188
5.51- 6.50	10	9	4	3	0	0	1	2	7	11	33	16	17	11	10	7	141
6.51- 8.50	3	10	7	4	3	0	0	1	4	29	84	33	18	20	15	6	237
8.51-11.50	0	9	4	4	3	0	0	1	1	6	47	16	6	7	3	8	115
11.51-14.50	0	2	2	8	0	1	0	1	2	1	2	0	2	1	2	5	29
14.51-20.50	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	1	5
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	83	78	52	43	21	6	13	14	31	81	230	121	103	109	114	113	1212

ARIZONA PUBLIC SERVICE CO. - PALO VERDE NUCLEAR GENERATING STATION

JOINT FREQUENCY DISTRIBUTION FOR THE PERIOD 1/01/2006 TO 12/31/2006

*** 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	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	4
1.51- 2.50	40	20	12	4	2	1	2	1	3	3	3	5	10	21	22	26	175
2.51- 3.50	113	81	30	5	5	3	2	0	1	8	13	7	20	32	74	114	508
3.51- 4.50	226	145	31	9	1	4	1	3	5	6	8	6	16	20	67	141	689
4.51- 5.50	195	131	21	5	2	2	1	1	0	3	8	8	10	8	29	90	514
5.51- 6.50	97	82	14	4	0	0	0	0	2	0	7	2	3	5	10	35	261
6.51- 8.50	51	75	19	3	0	0	0	0	0	4	4	1	3	4	6	28	198
8.51-11.50	20	31	6	2	0	0	0	0	0	1	1	0	0	0	0	4	65
11.51-14.50	0	3	0	1	0	0	0	0	0	0	1	0	0	0	0	2	7
14.51-20.50	1	0	0	0	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	743	569	134	33	10	10	6	6	11	25	46	29	62	90	208	440	2422

STABILITY CLASS ALL

SPEED (MPH)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL
CALM																	0
.76- 1.50	1	1	1	1	0	0	2	1	0	0	2	0	0	1	0	1	11
1.51- 2.50	57	31	25	11	10	8	5	9	15	15	20	23	38	48	42	50	407
2.51- 3.50	148	117	57	36	23	16	24	31	45	53	64	43	63	76	134	161	1091
3.51- 4.50	282	196	63	44	34	22	24	33	69	62	83	65	58	72	121	191	1419
4.51- 5.50	240	171	62	43	41	21	27	46	62	77	113	86	76	46	51	126	1288
5.51- 6.50	119	108	53	45	37	24	29	43	86	91	145	94	52	22	35	48	1031
6.51- 8.50	59	104	69	64	46	48	40	46	107	164	312	164	82	50	42	51	1448
8.51-11.50	31	51	38	66	62	42	14	19	45	160	311	168	84	41	23	29	1184
11.51-14.50	5	9	11	43	50	8	8	4	13	56	138	66	17	19	15	11	473
14.51-20.50	6	0	3	20	30	1	4	2	10	26	79	34	11	12	8	13	259
>20.50	2	1	2	1	2	1	0	0	1	8	14	5	5	0	0	1	43
TOTAL	950	789	384	374	335	191	177	234	453	712	1281	748	486	387	471	682	8654

TOTAL NUMBER OF OBSERVATIONS: 8760
TOTAL NUMBER OF VALID OBSERVATIONS: 8654
TOTAL NUMBER OF MISSING OBSERVATIONS: 106
PERCENT DATA RECOVERY FOR THIS PERIOD: 98.8 %
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
9.26	7.22	7.40	17.58	16.56	14.01	27.99

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	5	7	19	33	16	18	34	78	149	249	116	43	18	7	6	0
B	2	8	22	34	39	34	30	42	74	73	115	82	36	11	13	10	0
C	11	20	46	48	49	31	24	33	70	62	108	69	42	14	6	7	0
D	36	56	70	126	123	67	66	69	135	165	230	146	79	64	41	48	0
E	72	53	53	71	60	27	20	36	54	157	303	185	121	81	82	58	0
F	83	78	52	43	21	6	13	14	31	81	230	121	103	109	114	113	0
G	743	569	134	33	10	10	6	6	11	25	46	29	62	90	208	440	0
TOTAL	950	789	384	374	335	191	177	234	453	712	1281	748	486	387	471	682	0

APPENDIX C

DOSE CALCULATIONS

GASEOUS EFFLUENT DOSE CALCULATIONS

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

Table 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 μR/hr (17 - 30 mR/Std Qtr).

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

Dose Calculation Models

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

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

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

0 to 5 mile nearest residence, milk animal and garden in each of the 16 compass sectors, based on the 2006 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 2006, 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 GASPAR are default values from Regulatory Guide 1.109, Revision 1.

Table 43:
Doses To Special Locations For 2006

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	2.23E-01	2.23E-01	1.15E-03	2.23E-01	2.23E-01	2.23E-01	2.23E-01	2.24E-01
TEEN	2.25E-01	2.25E-01	1.15E-03	2.25E-01	2.25E-01	2.25E-01	2.25E-01	2.26E-01
CHILD	1.99E-01	1.99E-01	1.15E-03	1.99E-01	1.99E-01	1.99E-01	1.99E-01	2.00E-01
INFANT	1.15E-01	1.15E-01	1.15E-03	1.15E-01	1.15E-01	1.15E-01	1.15E-01	1.16E-01
2ND QUARTER								
ADULT	1.44E-01	1.44E-01	1.75E-03	1.44E-01	1.44E-01	1.44E-01	1.44E-01	1.45E-01
TEEN	1.45E-01	1.45E-01	1.75E-03	1.45E-01	1.45E-01	1.45E-01	1.45E-01	1.46E-01
CHILD	1.28E-01	1.28E-01	1.75E-03	1.28E-01	1.28E-01	1.29E-01	1.29E-01	1.30E-01
INFANT	7.46E-02	7.46E-02	1.75E-03	7.46E-02	7.46E-02	7.47E-02	7.46E-02	7.60E-02
1ST SEMI-ANNUAL								
ADULT	3.68E-01	3.68E-01	2.90E-03	3.68E-01	3.68E-01	3.68E-01	3.68E-01	3.70E-01
TEEN	3.70E-01	3.70E-01	2.90E-03	3.70E-01	3.70E-01	3.70E-01	3.70E-01	3.72E-01
CHILD	3.28E-01	3.28E-01	2.90E-03	3.28E-01	3.28E-01	3.28E-01	3.28E-01	3.30E-01
INFANT	1.90E-01	1.90E-01	2.90E-03	1.90E-01	1.90E-01	1.90E-01	1.90E-01	1.92E-01
3RD QUARTER								
ADULT	2.44E-01	2.44E-01	2.20E-03	2.44E-01	2.44E-01	2.44E-01	2.44E-01	2.46E-01
TEEN	2.46E-01	2.46E-01	2.20E-03	2.46E-01	2.46E-01	2.46E-01	2.46E-01	2.47E-01
CHILD	2.18E-01	2.18E-01	2.20E-03	2.18E-01	2.18E-01	2.18E-01	2.18E-01	2.19E-01
INFANT	1.27E-01	1.27E-01	2.20E-03	1.27E-01	1.27E-01	1.27E-01	1.27E-01	1.28E-01
4TH QUARTER								
ADULT	5.08E-01	5.08E-01	1.24E-02	5.08E-01	5.08E-01	5.09E-01	5.09E-01	5.25E-01
TEEN	5.11E-01	5.11E-01	1.24E-02	5.11E-01	5.11E-01	5.12E-01	5.12E-01	5.28E-01
CHILD	4.53E-01	4.53E-01	1.24E-02	4.53E-01	4.53E-01	4.54E-01	4.53E-01	4.70E-01
INFANT	2.67E-01	2.67E-01	1.24E-02	2.67E-01	2.67E-01	2.67E-01	2.67E-01	2.27E-01
2ND SEMI-ANNUAL								
ADULT	7.53E-01	7.53E-01	1.46E-02	7.53E-01	7.53E-01	7.54E-01	7.54E-01	7.71E-01
TEEN	7.57E-01	7.57E-01	1.46E-02	7.57E-01	7.57E-01	7.58E-01	7.58E-01	7.75E-01
CHILD	6.71E-01	6.71E-01	1.46E-02	6.71E-01	6.71E-01	6.72E-01	6.71E-01	6.89E-01
INFANT	3.93E-01	3.93E-01	1.46E-02	3.93E-01	3.93E-01	3.94E-01	3.93E-01	3.55E-01
ANNUAL								
ADULT	1.12E+00	1.12E+00	1.75E-02	1.12E+00	1.12E+00	1.12E+00	1.12E+00	1.14E+00
TEEN	1.13E+00	1.13E+00	1.75E-02	1.13E+00	1.13E+00	1.13E+00	1.13E+00	1.15E+00
CHILD	9.99E-01	9.99E-01	1.75E-02	9.99E-01	9.99E-01	1.00E+00	9.99E-01	1.02E+00
INFANT	5.83E-01	5.83E-01	1.75E-02	5.83E-01	5.83E-01	5.83E-01	5.83E-01	5.47E-01

Table 44:
Integrated Population Dose for 2006

JAN - MAR

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.57E-05 .00%	8.57E-05 .00%	8.57E-05 99.72%	8.57E-05 .00%	8.57E-05 .00%	8.57E-05 .00%	8.57E-05 .00%	1.52E-04 .01%
GROUND	1.96E-08 .00%	1.96E-08 .00%	1.96E-08 .02%	1.96E-08 .00%	1.96E-08 .00%	1.96E-08 .00%	1.96E-08 .00%	2.31E-08 .00%
INHAL	5.73E-01 19.89%	5.73E-01 19.89%	1.10E-07 .13%	5.73E-01 19.89%	5.73E-01 19.89%	5.73E-01 19.89%	5.73E-01 19.89%	5.73E-01 19.89%
VEGET	2.03E+00 70.46%	2.03E+00 70.46%	9.40E-08 .11%	2.03E+00 70.46%	2.03E+00 70.46%	2.03E+00 70.45%	2.03E+00 70.46%	2.03E+00 70.45%
COW MILK	1.85E-01 6.43%	1.85E-01 6.43%	1.38E-08 .02%	1.85E-01 6.43%	1.85E-01 6.43%	1.85E-01 6.43%	1.85E-01 6.43%	1.85E-01 6.43%
MEAT	9.28E-02 3.22%	9.28E-02 3.22%	1.67E-11 .00%	9.28E-02 3.22%	9.28E-02 3.22%	9.28E-02 3.22%	9.28E-02 3.22%	9.28E-02 3.22%
TOTAL	2.88E+00	2.88E+00	8.59E-05	2.88E+00	2.88E+00	2.88E+00	2.88E+00	2.88E+00
(1) PER CAPITA DOSE (REM)	1.47E-06	1.47E-06	4.38E-11	1.47E-06	1.47E-06	1.47E-06	1.47E-06	1.47E-06

APR - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.65E-03 .06%	1.65E-03 .06%	1.65E-03 73.08%	1.65E-03 .06%	1.65E-03 .06%	1.65E-03 .06%	1.65E-03 .06%	5.18E-03 .18%
GROUND	5.50E-04 .02%	5.50E-04 .02%	5.50E-04 24.33%	5.50E-04 .02%	5.50E-04 .02%	5.50E-04 .02%	5.50E-04 .02%	6.47E-04 .02%
INHAL	8.16E-01 28.13%	8.16E-01 28.13%	4.81E-06 .21%	8.16E-01 28.13%	8.16E-01 28.13%	8.16E-01 28.14%	8.16E-01 28.14%	8.16E-01 28.10%
VEGET	1.76E+00 60.76%	1.76E+00 60.76%	4.05E-05 1.79%	1.76E+00 60.76%	1.76E+00 60.76%	1.76E+00 60.76%	1.76E+00 60.75%	1.76E+00 60.68%
COW MILK	2.59E-01 8.93%	2.59E-01 8.93%	1.29E-05 .57%	2.59E-01 8.93%	2.59E-01 8.93%	2.59E-01 8.93%	2.59E-01 8.93%	2.59E-01 8.92%
MEAT	6.09E-02 2.10%	6.09E-02 2.10%	3.72E-07 .02%	6.09E-02 2.10%	6.09E-02 2.10%	6.09E-02 2.10%	6.09E-02 2.10%	6.09E-02 2.10%
TOTAL	2.90E+00	2.90E+00	2.26E-03	2.90E+00	2.90E+00	2.90E+00	2.90E+00	2.90E+00
(1) PER CAPITA DOSE (REM)	1.48E-06	1.48E-06	1.15E-09	1.48E-06	1.48E-06	1.48E-06	1.48E-06	1.48E-06

Table 44: (continued)
Integrated Population Dose for 2006

JAN - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.74E-03 .03%	1.74E-03 .03%	1.74E-03 74.05%	1.74E-03 .03%	1.74E-03 .03%	1.74E-03 .03%	1.74E-03 .03%	5.33E-03 .09%
GROUND	5.50E-04 .01%	5.50E-04 .01%	5.50E-04 23.44%	5.50E-04 .01%	5.50E-04 .01%	5.50E-04 .01%	5.50E-04 .01%	6.47E-04 .01%
INHAL	1.39E+00 24.03%	1.39E+00 24.03%	4.92E-06 .21%	1.39E+00 24.03%	1.39E+00 24.03%	1.39E+00 24.03%	1.39E+00 24.03%	1.39E+00 24.01%
VEGET	3.79E+00 65.59%	3.79E+00 65.59%	4.06E-05 1.73%	3.79E+00 65.59%	3.79E+00 65.59%	3.79E+00 65.59%	3.79E+00 65.59%	3.79E+00 65.55%
COW MILK	4.44E-01 7.68%	4.44E-01 7.68%	1.30E-05 .55%	4.44E-01 7.68%	4.44E-01 7.68%	4.44E-01 7.68%	4.44E-01 7.68%	4.44E-01 7.68%
MEAT	1.54E-01 2.66%	1.54E-01 2.66%	3.72E-07 .02%	1.54E-01 2.66%	1.54E-01 2.66%	1.54E-01 2.66%	1.54E-01 2.66%	1.54E-01 2.66%
TOTAL	5.78E+00	5.78E+00	2.35E-03	5.78E+00	5.78E+00	5.78E+00	5.78E+00	5.78E+00
(1) PER CAPITA DOSE (REM)	2.95E-06	2.95E-06	1.20E-09	2.95E-06	2.95E-06	2.95E-06	2.95E-06	2.95E-06

JUL - SEP

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.76E-04 .01%	2.76E-04 .01%	2.76E-04 94.07%	2.76E-04 .01%	2.76E-04 .01%	2.76E-04 .01%	2.76E-04 .01%	4.90E-04 .02%
GROUND	1.13E-05 .00%	1.13E-05 .00%	1.13E-05 3.85%	1.13E-05 .00%	1.13E-05 .00%	1.13E-05 .00%	1.13E-05 .00%	1.33E-05 .00%
INHAL	9.18E-01 29.86%	9.18E-01 29.86%	9.32E-07 .32%	9.18E-01 29.86%	9.18E-01 29.86%	9.18E-01 29.86%	9.18E-01 29.86%	9.18E-01 29.85%
VEGET	1.79E+00 58.05%	1.79E+00 58.05%	5.04E-06 1.72%	1.79E+00 58.05%	1.79E+00 58.05%	1.79E+00 58.05%	1.79E+00 58.05%	1.79E+00 58.04%
COW MILK	2.96E-01 9.61%	2.96E-01 9.61%	1.00E-07 .03%	2.96E-01 9.61%	2.96E-01 9.61%	2.96E-01 9.61%	2.96E-01 9.61%	2.96E-01 9.61%
MEAT	7.62E-02 2.48%	7.62E-02 2.48%	8.09E-09 .00%	7.62E-02 2.48%	7.62E-02 2.48%	7.62E-02 2.48%	7.62E-02 2.48%	7.62E-02 2.48%
TOTAL	3.08E+00	3.08E+00	2.93E-04	3.08E+00	3.08E+00	3.08E+00	3.08E+00	3.08E+00
(1) PER CAPITA DOSE (REM)	1.57E-06	1.57E-06	1.50E-10	1.57E-06	1.57E-06	1.57E-06	1.57E-06	1.57E-06

Table 44: (continued)
Integrated Population Dose for 2006

OCT - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.93E-03 .13%	7.93E-03 .13%	7.93E-03 99.26%	7.93E-03 .13%	7.93E-03 .13%	7.93E-03 .13%	7.93E-03 .13%	2.65E-02 .43%
GROUND	5.67E-05 .00%	5.67E-05 .00%	5.67E-05 .71%	5.67E-05 .00%	5.67E-05 .00%	5.67E-05 .00%	5.67E-05 .00%	6.66E-05 .00%
INHAL	1.20E+00 19.63%	1.20E+00 19.63%	1.51E-06 .02%	1.20E+00 19.63%	1.20E+00 19.63%	1.20E+00 19.63%	1.20E+00 19.63%	1.20E+00 19.57%
VEGET	4.33E+00 70.85%	4.33E+00 70.85%	1.06E-06 .01%	4.33E+00 70.85%	4.33E+00 70.85%	4.33E+00 70.85%	4.33E+00 70.85%	4.33E+00 70.64%
COW MILK	3.74E-01 6.12%	3.74E-01 6.12%	1.13E-07 .00%	3.74E-01 6.12%	3.74E-01 6.12%	3.74E-01 6.12%	3.74E-01 6.12%	3.74E-01 6.10%
MEAT	2.00E-01 3.27%	2.00E-01 3.27%	1.80E-09 .00%	2.00E-01 3.27%	2.00E-01 3.27%	2.00E-01 3.27%	2.00E-01 3.27%	2.00E-01 3.26%
TOTAL	6.12E+00	6.12E+00	7.99E-03	6.12E+00	6.12E+00	6.12E+00	6.12E+00	6.14E+00
(1) PER CAPITA DOSE (REM)	3.12E-06	3.12E-06	4.08E-09	3.12E-06	3.12E-06	3.12E-06	3.12E-06	3.13E-06

JUL - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	8.21E-03 .09%	8.21E-03 .09%	8.21E-03 99.07%	8.21E-03 .09%	8.21E-03 .09%	8.21E-03 .09%	8.21E-03 .09%	2.70E-02 .29%
GROUND	6.80E-05 .00%	6.80E-05 .00%	6.80E-05 .82%	6.80E-05 .00%	6.80E-05 .00%	6.80E-05 .00%	6.80E-05 .00%	7.99E-05 .00%
INHAL	2.12E+00 23.05%	2.12E+00 23.05%	2.44E-06 .03%	2.12E+00 23.05%	2.12E+00 23.05%	2.12E+00 23.05%	2.12E+00 23.05%	2.12E+00 23.00%
VEGET	6.12E+00 66.57%	6.12E+00 66.57%	6.10E-06 .07%	6.12E+00 66.57%	6.12E+00 66.57%	6.12E+00 66.57%	6.12E+00 66.57%	6.12E+00 66.43%
COW MILK	6.70E-01 7.29%	6.70E-01 7.29%	2.13E-07 .00%	6.70E-01 7.29%	6.70E-01 7.29%	6.70E-01 7.29%	6.70E-01 7.29%	6.70E-01 7.27%
MEAT	2.76E-01 3.00%	2.76E-01 3.00%	9.89E-09 .00%	2.76E-01 3.00%	2.76E-01 3.00%	2.76E-01 3.00%	2.76E-01 3.00%	2.76E-01 3.00%
TOTAL	9.19E+00	9.19E+00	8.28E-03	9.19E+00	9.19E+00	9.19E+00	9.19E+00	9.21E+00
(1) PER CAPITA DOSE (REM)	4.69E-06	4.69E-06	4.23E-09	4.69E-06	4.69E-06	4.69E-06	4.69E-06	4.70E-06

Table 44: (continued)
Integrated Population Dose for 2006

JAN - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	9.95E-03 .07%	9.95E-03 .07%	9.95E-03 93.55%	9.95E-03 .07%	9.95E-03 .07%	9.95E-03 .07%	9.95E-03 .07%	3.23E-02 .22%
GROUND	6.18E-04 .00%	6.18E-04 .00%	6.18E-04 5.81%	6.18E-04 .00%	6.18E-04 .00%	6.18E-04 .00%	6.18E-04 .00%	7.26E-04 .00%
INHAL	3.51E+00 23.43%	3.51E+00 23.43%	7.35E-06 .07%	3.51E+00 23.43%	3.51E+00 23.43%	3.51E+00 23.43%	3.51E+00 23.43%	3.51E+00 23.39%
VEGET	9.91E+00 66.19%	9.91E+00 66.19%	4.67E-05 .44%	9.91E+00 66.19%	9.91E+00 66.19%	9.91E+00 66.19%	9.91E+00 66.19%	9.91E+00 66.09%
COW MILK	1.11E+00 7.44%	1.11E+00 7.44%	1.32E-05 .12%	1.11E+00 7.44%	1.11E+00 7.44%	1.11E+00 7.44%	1.11E+00 7.44%	1.11E+00 7.43%
MEAT	4.30E-01 2.87%	4.30E-01 2.87%	3.82E-07 .00%	4.30E-01 2.87%	4.30E-01 2.87%	4.30E-01 2.87%	4.30E-01 2.87%	4.30E-01 2.87%
TOTAL	1.50E+01	1.50E+01	1.06E-02	1.50E+01	1.50E+01	1.50E+01	1.50E+01	1.50E+01
(1) PER CAPITA DOSE (REM)	7.66E-06	7.66E-06	5.41E-09	7.66E-06	7.66E-06	7.66E-06	7.66E-06	7.66E-06

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

Table 45: Summary of Individual Doses for 2006						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	**mrad**	8.13E-04	1.72E-03	1.23E-03	7.75E-03	1.15E-02
ODCM Req. 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	1.63E-02	3.44E-02	2.46E-02	1.55E-01	1.15E-01
Beta Air Dose	**mrad**	2.87E-04	1.72E-03	4.34E-04	1.18E-02	1.43E-02
ODCM Req. 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	2.87E-03	1.72E-02	4.34E-03	1.18E-01	7.15E-02
Maximum Individual						
Total Body	mrem	5.41E-04	1.13E-03	8.17E-04	4.91E-03	7.39E-03
Skin	mrem	8.67E-04	2.38E-03	1.31E-03	1.11E-02	1.56E-02
Site Boundary Location						
Unit 1	miles	1.40 SSW	1.40 SSW	1.40 SSW	1.40 SSW	1.40 SSW
Unit 2	miles	1.14 SSW	1.14 SSW	1.14 SSW	1.14 SSW	1.14 SSW
Unit 3	miles	1.00 SSW	1.00 SSW	1.00 SSW	1.00 SSW	1.00 SSW
Maximum Organ Dose (excluding skin)	Age	Teen	Infant	Infant	Teen	Teen
	Organ	Thyroid (3)	Thyroid	Thyroid (3)	Thyroid (3)	Thyroid (3)
	mrem	7.59E-02	8.83E-02	6.11E-02	1.77E-01	3.54E-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)	%	1.01E+00	1.18E+00	8.15E-01	2.36E+00	2.36E+00
Location						
Unit 1	miles	2.84 S	3.68 NE	1.85 N	2.84 S	2.84 S
Unit 2	miles	2.68 S	3.91 NE	2.05 NNE	2.68 S	2.68 S
Unit 3	miles	2.48 S	4.12 NE	2.27 NNE	2.48 S	2.48 S
Organ dose from tritium only for Unit 2 location above	**mrem**	7.56E-02	8.75E-02	6.10E-02	1.74E-01	3.49E-01
Fraction of organ dose from tritium only for Unit 2 location above (2)	%	99	99	99	98	98
X/Q for Unit 2 location above	sec/m^3	6.76E-06	8.18E-07	5.55E-07	8.17E-06	4.99E-06
D/Q for Unit 2 location above	m^{-2}	2.09E-09	1.88E-09	2.82E-09	2.41E-09	1.60E-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
Revision 21