

PALO VERDE NUCLEAR GENERATING STATION

Unit 1

SEMIANNUAL OPERATING REPORT  
RADIOACTIVE EFFLUENTS  
JANUARY 1, 1985 through JUNE 30, 1985

USNRC Docket STN-50-528

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## INTRODUCTION

This report summarizes meteorological data and doses from radioactive effluents for the Palo Verde Nuclear Generation Station (PVNGS) for the period January through June 1985. The data presented meet the reporting requirements of Regulatory Guide 1.21 of the U.S. Nuclear Regulatory Commission (Revision 1, June 1974). Palo Verde Nuclear Generating Station achieved initial criticality on May 25, 1985. As a result there were no radioactive effluents from the station in the first quarter of 1985. Therefore, the semiannual radiological doses are based on the second quarter releases and the second quarter concurrent meteorology. There were no liquid or solid waste shipments from the site during this reporting report.

The report is organized into three parts. Appendix A presents the effluent and waste disposal source term data. Appendix B presents a summary of onsite meteorological data for the report period. Appendix C presents the radiological doses from gaseous radioactive effluents.

## 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 Plant," Revision 1, 1974.

U.S. Nuclear Regulatory Commission, Regulatory Guide 1.23 (Safety Guide 23), "Onsite Meteorological Programs," Revision 0, 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, "User's Guide to GASPAR Code," June 1980.

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

APPENDIX A  
SOURCE TERMS AND  
EFFLUENT AND WASTE DISPOSAL REPORTS

## Supplemental Information

### 1.0 Regulatory Limits

#### 1.1 Liquid Releases

##### a. PVNGS Technical Specification 3.11.1.1

The concentration of radioactive material discharged from secondary system liquid waste to the onsite evaporation ponds shall be limited to the Lower Limit of Detectability (LLD) defined as  $5 \times 10^{-7}$   $\mu\text{Ci/ml}$  for the principal gamma emitters or  $1 \times 10^{-6}$   $\mu\text{Ci/ml}$  for I-131.

##### b. PVNGS Technical Specification 3.11.1.2

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:

- o 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
- o 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

##### a. PVNGS Technical Specification 3.11.2.1

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

- o 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
- o 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.

##### b. PVNGS Technical Specification 3.11.2.2

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:

- o During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,
- o During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.
- c. PVNGS Technical Specification 3.11.2.3

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:

- o During any calendar quarter: Less than or equal to 7.5 mrem to any organ and,
- o During any calendar year: Less than or equal to 15 mrem to any organ.
- d. PVNGS Technical Specification 3.11.2.4

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

- a. PVNGS Technical Specification 3.11.4

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

## 2.0 Maximum Permissible Concentrations

Air: Release Concentrations are limited to dose rate limits described in 1.2.a. of this report.

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

#### 4.0 Measurement and Approximations of Total Radioactivity in Gaseous Effluents

For continuous releases, sampling is in accordance with PVNGS Technical Specification Table 4.11-2. Particulate and iodine radionuclides are sampled continuously at the three exhaust points. The particulate filters and charcoal cartridges are exchanged for analysis four times per month. Noble gas and tritium are sampled at least once per 31 days. The hourly average Radiation Monitoring System (RMS) effluent monitor readings are used, when available, to account for increases and decreases in noble gas concentrations between noble gas grab samples. The tritium concentration is assumed constant between sampling periods.

For batch releases, sampling is also in accordance with PVNGS Technical Specification Table 4.11-2. For containment purges, the noble gas concentration is adjusted to account for decreases or increases in concentration during the purge using RMS readings. The volume of air released during the purge is determined using the exhaust fan rated flow rate. For Waste Gas Decay Tank releases, the volume released is corrected to standard temperature and pressure.

The Minimum Detectable Activity (MDA) is the minimum activity detectable by a measurement system for each particular sample. The MDA will include any interferences from other nuclides and is calculated using the actual sample volume and instrument efficiency. The Lower Limit of Detection (LLD) is not provided in this report because it is defined by PVNGS Technical Specifications as an "a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement." The PVNGS Technical Specifications also state that typical values of efficiency, yield, volume and elapsed time should be used in the calculation. Therefore the MDA is provided because it is information that is more useful and pertinent to the assessment of effluent releases. An average MDA for each nuclide, calculated using several randomly selected results, is provided in Table A1.

#### 5.0 Batch Releases

##### 5.1 Gaseous

- o Number of batch releases: 3
- o Total time period for batch releases: 7456 minutes
- o Maximum time period for a batch release: 6750 minutes
- o Average time period for a batch release: 2485 minutes
- o Minimum time period for a batch release: 337 minutes

## 5.2 Liquid

None

## 6.0 Abnormal Releases

None

## 7.0 Offsite Dose Calculation Manual (ODCM) Process Control Program (PCP) and Preplanned Alternate Sampling Program (PASP) Revisions

There have been no revisions to the ODCM or PCP. The PASP was submitted to the Office of Inspection and Enforcement Region V, on May 22, 1985 in accordance with Section 6.0 of PVNGS Technical Specification. As of this report period the PASP had not been approved by Regional Administrator as required by PVNGS Technical Specification 6.16.1.

## 8.0 Effluents and Solid Wastes

### 8.1 Gaseous Effluents

There were no gaseous effluents for the first quarter. The gaseous effluents for the second quarter are included in Tables A2 and A3. Included in Tables A2 and A3 are summaries of the effluents, estimated total error, and MDAs.

### 8.2 Liquid Effluents

There were no liquid effluents from the PVNGS site.

### 8.3 Solid Waste

There were no solid waste shipments from the PVNGS site.

## 9.0 Miscellaneous Information

The land use census was conducted from June through August 1984. As a result of this census no changes have occurred to the radiological environmental monitoring program.

Table A-6 presents the effluent monitoring instrumentation out of service for more than 30 days as required by PVNGS Technical Specification 3.3.3.9.

Table A1

## Gaseous Effluents - Minimum Detectable Activity

Nuclide	MDA ( $\mu\text{Ci/cc}$ )
Krypton 85	1.0E-05
Krypton 85m	3.8E-08
Krypton 87	1.6E-07
Krypton 88	1.4E-07
Xenon 133	*
Xenon 135	2.9E-08
Xenon 135m	5.6E-06
Xenon 138	2.2E-05
Xenon 133m	2.5E-07
Iodine 131	1.2E-13
Iodine 133	3.0E-13
Iodine 135	1.9E-11
Strontium 89	**
Strontium 90	**
Cesium 134	9.9E-14
Cesium 137	1.2E-13
Barium 140	3.8E-13
Lanthanum 140	2.9E-13
Manganese 54	1.1E-13
Iron 59	2.3E-13
Cobalt 58	1.1E-13
Cobalt 60	1.4E-13
Zinc 65	2.5E-13
Bromine 82	**
Molybdenum 99	1.2E-12
Cerium 141	9.5E-14
Cerium 144	4.2E-13
Hydrogen 3	2.6E-08

\* Activity identified

\*\* Analyses not yet completed



Table A2

## Gaseous Effluents-Summation of All Releases

	Unit	Quarter #1	Quarter #2	Est. Total Error % ***
--	------	---------------	---------------	------------------------------

## A. Fission &amp; activation gases

1. Total Release	Ci	NA	1.01E+00	4.6E+01
2. Average Release Rate for Period	$\mu$ Ci/sec	NA	3.16E-01	
3. Percent of Technical Specification Limit	%	NA	**	

## B. Iodines

1. Total Iodine-131	Ci	NA	0	5.2E+01
2. Average Release Rate for Period	$\mu$ Ci/sec	NA	0	
3. Percent of Technical Specification Limit	%	NA	**	

## C. Particulates

1. Particulates with Half-Lives greater than 8 Days	Ci	NA	2.29E-06	2.4E+01
2. Average Release Rate for Period	$\mu$ Ci/sec	NA	7.16E-07	
3. Percent of Technical Specification Limit	%	NA	**	
4. Gross Alpha Radioactivity	Ci	NA	6.23E-03	

## D. Tritium

1. Total Release	Ci	NA	2.02E+00*	4.0E+01
2. Average Release Rate for Period	$\mu$ Ci/sec	NA	6.32E-01	
3. Percent of Technical Specification Limit	%	NA	**	

\* All analyses are not yet complete. Additional information will be included in the next Semiannual Report covering July - December 1985.

\*\* See Table A4 for percent of PVNGS Technical Specification Limits.

\*\*\* Estimated total error methodology is presented in Table A5.

Table A3

## Effluent and Waste Disposal Semiannual Report (1985)

			Continuous Mode		Batch Mode	
Nuclides Released	Unit	Quarter #1	Quarter #2	Quarter #1	Quarter #2	
<u>Fission Gases</u>						
Krypton-85	Ci	N/A	<MDA*	N/A	<MDA	
Krypton-85m	Ci	N/A	<MDA	N/A	<MDA	
Krypton-87	Ci	N/A	<MDA	N/A	<MDA	
Krypton-88	Ci	N/A	<MDA	N/A	<MDA	
Xenon-133	Ci	N/A	7.82E-01	N/A	3.05E-03	
Xenon-135	Ci	N/A	<MDA	N/A	9.23E-04	
Xenon-135m	Ci	N/A	<MDA	N/A	<MDA	
Xenon-138	Ci	N/A	<MDA	N/A	<MDA	
	Ci	N/A		N/A		
Ar-41	Ci	N/A	<MDA	N/A	2.26E-01	
	Ci	N/A		N/A		
	Ci	N/A		N/A		
	Ci	N/A		N/A		
	Ci	N/A		N/A		
Unidentified	Ci	N/A		N/A		
Total for Period	Ci	N/A	7.82E-01	N/A	2.30E-01	

Iodines

Iodine-131	Ci	N/A	<MDA	N/A	<MDA
Iodine-133	Ci	N/A	<MDA	N/A	<MDA
Iodine-135	Ci	N/A	<MDA	N/A	<MDA
Total for Period	Ci	N/A	<MDA	N/A	<MDA

Particulates

Strontium-89	Ci	N/A	**	N/A	**
Strontium-90	Ci	N/A	**	N/A	**
Cesium-134	Ci	N/A	<MDA	N/A	<MDA
Cesium-137	Ci	N/A	<MDA	N/A	<MDA
Barium-lanthanum-140	Ci	N/A	<MDA	N/A	<MDA
	Ci	N/A		N/A	
Tritium	Ci	N/A	2.02E+00**	N/A	<MDA
Br-82	Ci	N/A	<MDA	N/A	2.29E-06
	Ci	N/A		N/A	
	Ci	N/A		N/A	
Total	Ci	N/A	2.02E+00**	N/A	2.29E-06

\* See Table A1 for the MDA values.

\*\* Not all analyses have been completed. Information will be included in the next Semiannual Report.

Table A4

Radiation Doses at and Beyond the Site Boundary\* (1985)

		UNIT	QUARTER #1	QUARTER #2	QUARTER #3	QUARTER #4	YEAR TO DATE
1.	a.	Gamma Air Dose	mrads	NA	4.9 E-04	--	4.9 E-04
		% of T.S.	%	NA	9.8 E-03	--	4.9 E-03
		3.11.2.2					
	b.	Beta Air Dose	mrads	NA	3.23 E-04	--	3.23 E-04
		% of T.S.	%	NA	3.23 E-03	--	1.62 E-03
		3.11.2.2					
2.	a.	Maximum Organ Dose	mrem	NA	3.18 E-03**	--	3.18 E-03**
		% of T.S.	%	NA	4.24 E-02	--	2.12 E-02
		3.11.2.3					

\* Calculations based on parameters and methodologies of the ODCM using historical meteorology.

\*\* The limiting organ is child whole body using the N sector X/Q and the NE sector D/Q.

Table A5

Estimation Methodology of Total Percent Error

The estimated total error is calculated as follows:

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

Where  $E_n^2$  = Percent error associated with each contributing parameter.

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

Table A6

Effluent Monitoring Instrumentation Out of  
Service Greater Than 30 Days

INSTRUMENT	INOPERABILITY DATE	INOPERABILITY CAUSE	EXPLANATION
H <sub>2</sub> /O <sub>2</sub> Analyzer	5/25 to present	Condensate was introduced into the H <sub>2</sub> /O <sub>2</sub> Analyzer through the Surge Tank header sample line. The proposed Design Change Package (DCP), 10N-GR-040, reroutes the H <sub>2</sub> /O <sub>2</sub> Analyzer tap off.	DCP processing and the associated construction walkdowns for all three Units have delayed implementation.
Radiation Monitor RU-145	3/4 to 4/5	DCP work for installation of isokinetic sampling lines and instrumentation.	DCP completion took longer than expected.
Flow Monitor GR-FIT-33	4/2 to 5/20	Offsite for calibration.	Vendor calibration and shipping delays.
Radiation Monitor RU-12	3/20 to 6/5	Flow indicator GR-FIT-33 offsite for calibration.	Site calibration of monitor after receipt of GR-FIT-33.

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 January - June 1985. 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 and semiannual 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 ( $\Delta T$ ). The listing of hourly meteorological data for the batch releases are also presented.

Table B1  
JFDs of 35-Foot Wind vs. Delta T,  
January - March 1985



PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE FIRST QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 3/31/85

\*\*\* FIRST QUARTER 1985 \*\*\*

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.51- 8.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.51-11.50	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1	5
11.51-14.50	0	0	0	0	0	0	0	0	0	1	6	0	2	1	0	0	10
14.51-20.50	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	1	9
>20.50	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5
TOTAL	1	0	0	0	0	0	0	0	0	1	18	3	3	1	0	2	29

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5.51- 6.50	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3
6.51- 8.50	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	1	5
8.51-11.50	0	0	0	0	4	1	0	0	0	1	3	0	1	0	0	2	12
11.51-14.50	0	0	0	0	0	0	0	0	0	2	2	1	1	1	3	0	10
14.51-20.50	0	0	0	0	0	0	0	0	0	2	2	1	1	1	0	0	7
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	2	1	0	0	5	1	0	0	0	5	9	4	4	2	3	3	39

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE FIRST QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 3/31/85

\*\*\* FIRST QUARTER 1985 \*\*\*

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	1	0	2
3.51- 4.50	0	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	4
4.51- 5.50	0	1	2	1	4	1	3	1	0	1	2	0	0	0	0	0	16
5.51- 6.50	0	1	1	1	3	2	2	1	1	0	0	1	0	0	0	0	13
6.51- 8.50	2	0	0	1	7	3	1	1	0	1	1	0	0	0	1	1	19
8.51-11.50	1	0	0	0	2	2	0	0	0	1	6	2	1	2	1	2	20
11.51-14.50	0	0	0	0	1	0	0	0	1	2	1	0	0	0	1	0	6
14.51-20.50	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	1	5
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	2	4	3	18	9	6	3	3	6	12	4	1	3	4	4	85

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0
0.76- 1.50	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	4
1.51- 2.50	1	4	3	2	2	3	3	2	1	2	4	1	3	1	3	0	35
2.51- 3.50	1	4	4	8	12	6	7	8	16	9	7	9	3	3	2	5	104
3.51- 4.50	5	4	7	5	8	7	12	9	12	10	5	1	1	3	1	5	95
4.51- 5.50	2	3	2	4	12	7	7	4	6	4	4	0	2	0	2	2	61
5.51- 6.50	1	1	1	3	5	5	4	3	0	3	5	0	2	1	1	1	36
6.51- 8.50	0	0	1	5	10	1	4	4	3	1	4	0	0	1	2	1	37
8.51-11.50	0	1	0	2	2	1	1	3	0	4	1	1	3	3	3	1	25
11.51-14.50	1	0	2	0	2	0	0	0	0	0	1	1	4	1	1	2	15
14.51-20.50	0	0	0	0	1	0	0	0	0	0	2	5	7	5	0	0	20
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	4
TOTAL	11	18	20	29	55	30	38	34	39	33	34	18	26	20	15	17	437

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE FIRST QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 3/31/85

\*\*\* FIRST QUARTER 1985 \*\*\*

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
1.51- 2.50	4	2	3	1	3	4	4	0	3	3	1	2	3	3	0	2	38
2.51- 3.50	2	6	2	2	2	0	2	3	5	4	0	1	1	1	2	1	34
3.51- 4.50	2	3	3	2	0	0	2	2	1	5	3	2	1	1	2	0	29
4.51- 5.50	2	1	2	0	1	1	1	0	0	3	6	1	2	0	1	0	21
5.51- 6.50	2	0	2	0	1	2	0	0	0	1	6	4	0	1	1	0	20
6.51- 8.50	2	1	1	0	1	0	5	1	1	3	6	3	2	1	1	0	28
8.51-11.50	0	0	0	1	1	0	1	0	0	0	4	5	5	5	1	3	26
11.51-14.50	0	1	0	1	0	0	0	0	0	1	3	7	2	4	6	1	26
14.51-20.50	0	0	0	1	1	0	0	0	0	0	1	2	1	2	0	0	8
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL	14	14	13	8	10	7	15	6	11	21	31	27	18	18	14	7	234

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	3	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0	7
1.51- 2.50	8	4	3	1	3	3	0	3	3	2	2	1	2	2	0	2	39
2.51- 3.50	12	8	4	3	2	2	3	1	2	1	1	2	4	2	2	8	57
3.51- 4.50	8	6	4	2	1	2	0	2	1	2	0	1	1	2	5	3	40
4.51- 5.50	2	3	3	0	2	1	0	1	0	1	2	2	1	0	0	2	20
5.51- 6.50	1	1	2	2	2	0	0	0	0	0	1	0	0	1	1	2	13
6.51- 8.50	3	3	4	1	1	0	2	0	0	1	3	1	4	2	1	4	30
8.51-11.50	1	1	1	1	0	0	0	0	0	3	5	1	0	0	1	6	20
11.51-14.50	0	1	0	0	0	0	0	0	1	0	1	0	0	0	1	1	5
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	38	28	21	10	11	9	5	7	7	10	16	9	12	9	11	28	231

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE FIRST QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 3/31/85

\*\*\* FIRST QUARTER 1985 \*\*\*

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	1	3	1	0	4	0	1	1	1	0	0	0	1	0	3	2	18
1.51- 2.50	27	17	6	7	1	4	2	3	1	2	2	1	5	4	5	11	98
2.51- 3.50	43	40	14	5	1	1	0	1	6	2	1	2	1	1	4	13	135
3.51- 4.50	32	29	11	3	4	0	0	1	0	0	1	1	0	1	9	16	108
4.51- 5.50	8	18	12	1	0	0	0	0	0	0	0	0	1	0	4	5	49
5.51- 6.50	4	4	6	1	1	0	0	0	0	0	0	0	0	2	2	6	26
6.51- 8.50	7	9	0	1	0	0	0	0	0	0	0	0	0	0	3	7	27
8.51-11.50	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5
11.51-14.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
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	125	120	50	18	11	5	3	6	8	4	7	4	8	8	30	60	467

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	4	5	1	0	5	1	1	2	3	1	2	1	1	0	3	2	32
1.51- 2.50	40	27	15	11	9	14	9	8	8	9	9	5	13	10	8	15	210
2.51- 3.50	58	58	24	18	17	9	12	13	29	16	9	14	9	8	11	27	332
3.51- 4.50	47	42	26	12	13	10	14	14	15	18	9	5	3	7	17	24	276
4.51- 5.50	15	26	21	6	19	10	11	6	6	9	14	3	6	0	7	9	168
5.51- 6.50	8	8	12	7	12	9	6	4	1	4	12	6	3	5	5	9	111
6.51- 8.50	15	13	6	8	20	4	12	6	4	6	15	5	6	4	8	14	146
8.51-11.50	6	2	1	4	9	4	2	3	0	9	21	11	11	10	6	15	114
11.51-14.50	1	2	2	1	3	0	0	0	2	6	15	9	9	7	12	4	73
14.51-20.50	0	0	0	1	3	0	0	0	0	2	14	10	9	8	0	2	49
>20.50	0	0	0	0	0	0	0	0	0	0	7	0	2	2	0	0	11
TOTAL	194	183	108	68	110	61	67	56	68	80	127	69	72	61	77	121	1522

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE FIRST QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 3/31/85

\*\*\* FIRST QUARTER 1985 \*\*\*

WIND THRESHOLD AT: 0.75 MPH

TOTAL NUMBER OF OBSERVATIONS: 2160

TOTAL NUMBER OF VALID OBSERVATIONS: 1522

TOTAL NUMBER OF MISSING OBSERVATIONS: 638

PERCENT DATA RECOVERY FOR THIS PERIOD: 70.5 %

MEAN WIND SPEED FOR THIS PERIOD: 5.7 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
1.91	2.56	5.58	28.71	15.37	15.18	30.68

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	0	0	0	0	0	0	0	0	1	18	3	3	1	0	2	0
B	2	1	0	0	5	1	0	0	0	5	9	4	4	2	3	3	0
C	3	2	4	3	18	9	6	3	3	6	12	4	1	3	4	4	0
D	11	18	20	29	55	30	38	34	39	33	34	18	26	20	15	17	0
E	14	14	13	8	10	7	15	6	11	21	31	27	18	18	14	7	0
F	38	28	21	10	11	9	5	7	7	10	16	9	12	9	11	28	0
G	125	120	50	18	11	5	3	6	8	4	7	4	8	8	30	60	0
TOTAL	194	183	108	68	110	61	67	56	68	80	127	69	72	61	77	121	0

Table B2  
JFDs of 35-Foot Wind vs. Delta T,  
April - June 1985

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE SECOND QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 4/ 1/85 - 6/30/85

\*\*\* SECOND QUARTER 1985 \*\*\*

# STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	1	2	0	1	1	0	1	0	0	0	0	6
6.51- 8.50	0	0	0	0	2	3	1	1	2	6	6	2	1	0	0	0	24
8.51-11.50	0	0	0	0	7	4	2	2	3	8	30	11	5	1	0	0	73
11.51-14.50	0	0	0	0	4	1	0	0	1	3	31	10	3	0	2	2	57
14.51-20.50	0	0	0	0	3	0	0	0	0	4	13	1	1	4	5	0	31
>20.50	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
TOTAL	0	0	0	0	16	9	5	3	7	24	80	25	10	5	7	2	193

# STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	0	0	0	0	0	0	0	0	0	0	1
4.51- 5.50	0	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0	5
5.51- 6.50	0	0	0	0	4	1	1	1	0	2	0	0	0	0	0	0	9
6.51- 8.50	0	0	0	0	1	0	3	4	11	6	11	4	6	0	2	0	48
8.51-11.50	0	0	0	0	2	2	0	1	6	12	20	7	3	0	3	0	56
11.51-14.50	0	0	0	0	5	0	0	0	0	2	11	6	1	0	1	0	26
14.51-20.50	0	0	1	0	0	0	0	0	0	1	3	0	0	0	0	0	5
>20.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL	0	0	1	0	13	6	5	6	18	23	46	17	10	0	6	0	151

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE SECOND QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 4/ 1/85 - 6/30/85

\*\*\* SECOND QUARTER 1985 \*\*\*

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.75- 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	2	0	3	1	0	0	0	0	0	0	7
4.51- 5.50	1	0	1	1	3	5	7	8	7	1	1	1	0	0	0	0	36
5.51- 6.50	0	0	0	1	6	2	12	8	11	8	4	2	2	1	0	0	57
6.51- 8.50	0	0	0	1	3	1	4	4	22	9	13	6	4	0	2	0	69
8.51-11.50	0	1	0	0	1	0	1	0	4	7	15	3	1	1	0	1	35
11.51-14.50	0	0	0	0	3	0	0	0	1	0	4	4	0	0	0	0	12
14.51-20.50	0	1	0	0	2	0	0	0	1	0	1	0	0	1	1	0	7
>20.50	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL	1	2	1	3	19	8	26	20	49	27	38	16	7	3	3	1	224

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.75- 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	1	1	3	0	0	1	1	4	1	0	0	0	0	0	13
2.51- 3.50	4	3	2	6	3	7	6	4	3	1	0	1	0	1	1	1	43
3.51- 4.50	1	0	2	8	13	7	12	9	10	4	4	1	0	1	0	0	72
4.51- 5.50	0	0	2	2	5	6	4	5	7	4	2	1	1	1	0	0	40
5.51- 6.50	0	0	0	1	2	3	5	7	6	6	7	1	0	1	0	0	39
6.51- 8.50	0	1	0	2	8	2	4	3	4	2	10	5	4	0	2	1	48
8.51-11.50	0	2	3	1	1	0	1	0	1	7	9	14	8	1	2	0	50
11.51-14.50	0	0	0	2	5	0	0	1	0	0	10	5	2	0	4	0	29
14.51-20.50	0	0	0	0	1	0	0	0	1	2	9	4	2	0	3	0	22
>20.50	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3
TOTAL	6	6	10	23	41	25	32	30	34	30	54	32	17	5	12	2	359



PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE SECOND QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 4/ 1/85 - 6/30/85

\*\*\* SECOND QUARTER 1985 \*\*\*

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	1	0	0	0	1	1	0	0	2	0	0	0	5
1.51- 2.50	3	2	1	0	1	0	0	1	3	1	0	1	2	1	3	0	19
2.51- 3.50	2	2	3	0	2	2	1	1	0	3	3	1	1	0	0	0	21
3.51- 4.50	0	1	2	1	0	2	0	1	5	2	1	0	3	0	1	0	19
4.51- 5.50	0	3	1	0	1	0	0	0	2	3	3	0	0	1	0	0	14
5.51- 6.50	1	0	1	2	0	3	0	0	1	5	5	5	0	2	1	0	26
6.51- 8.50	0	2	0	4	0	1	0	1	2	11	16	14	7	0	1	1	60
8.51-11.50	0	1	0	3	4	1	0	0	2	8	43	15	5	0	1	1	84
11.51-14.50	0	0	0	1	0	0	0	0	2	4	23	13	0	1	1	0	45
14.51-20.50	0	0	0	0	1	0	0	0	2	0	8	0	0	3	2	0	16
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	6	11	8	11	10	9	1	4	20	38	102	49	20	8	10	2	309

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	1	0	2	1	0	1	0	0	0	1	0	1	0	0	0	0	7
1.51- 2.50	4	1	1	1	0	0	2	1	2	1	1	2	4	3	2	0	25
2.51- 3.50	3	3	2	1	0	0	1	2	3	3	9	6	0	4	5	3	45
3.51- 4.50	1	5	3	4	1	2	1	0	4	1	6	4	3	0	1	0	36
4.51- 5.50	1	1	1	2	0	0	0	2	3	6	8	3	1	1	0	0	29
5.51- 6.50	2	0	0	1	0	2	0	2	2	6	10	5	4	0	0	2	36
6.51- 8.50	0	0	0	0	1	0	0	0	0	6	28	9	6	1	1	0	52
8.51-11.50	0	0	0	1	0	0	0	0	1	7	27	6	7	1	0	0	50
11.51-14.50	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	4
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	10	9	11	2	5	4	7	15	32	92	36	25	10	9	5	264

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE SECOND QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 4/ 1/85 - 6/30/85

\*\*\* SECOND QUARTER 1985 \*\*\*

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	1	1	2	0	0	0	2	2	0	0	1	0	0	1	1	0	11
1.51- 2.50	16	11	3	3	4	1	1	1	2	1	0	2	5	2	2	7	61
2.51- 3.50	41	22	10	3	2	1	1	2	1	1	2	0	4	11	8	8	117
3.51- 4.50	28	31	12	1	9	2	2	0	0	1	2	0	1	5	5	7	106
4.51- 5.50	9	18	10	2	2	1	1	0	0	3	0	2	3	3	0	8	62
5.51- 6.50	4	8	10	4	0	0	0	0	0	0	4	1	2	1	0	2	36
6.51- 8.50	2	5	3	2	0	0	0	0	0	5	1	3	0	0	0	1	22
8.51-11.50	0	1	0	1	0	0	0	0	0	0	5	0	0	0	0	0	7
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	101	97	50	16	17	5	7	5	3	11	15	8	15	23	16	33	422

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	2	1	4	1	1	1	2	2	1	2	1	1	2	1	1	0	23
1.51- 2.50	24	14	6	5	8	1	3	4	8	7	2	5	11	6	7	7	118
2.51- 3.50	50	30	17	10	7	10	9	9	7	8	14	8	5	16	14	12	226
3.51- 4.50	30	37	19	14	24	14	17	10	22	9	13	5	7	6	7	7	241
4.51- 5.50	11	22	15	7	12	14	13	15	20	17	14	7	5	6	0	8	186
5.51- 6.50	7	8	11	9	12	12	20	18	21	28	30	15	8	5	1	4	209
6.51- 8.50	2	8	3	9	15	7	12	13	41	45	85	43	28	1	8	3	323
8.51-11.50	0	5	3	6	15	7	4	3	17	49	149	56	29	4	6	2	355
11.51-14.50	0	0	0	3	17	1	0	1	4	10	82	38	6	1	8	2	173
14.51-20.50	0	1	1	0	7	0	0	0	4	7	34	5	3	8	11	0	81
>20.50	0	0	0	0	0	0	0	0	1	3	3	0	0	0	0	0	7
TOTAL	126	126	79	64	118	67	80	75	146	185	427	183	104	54	63	45	1942

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR THE SECOND QUARTER 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 4/ 1/85 - 6/30/85

\*\*\* SECOND QUARTER 1985 \*\*\*

WIND THRESHOLD AT: 0.75 MPH

TOTAL NUMBER OF OBSERVATIONS: 2184

TOTAL NUMBER OF VALID OBSERVATIONS: 1942

TOTAL NUMBER OF MISSING OBSERVATIONS: 242

PERCENT DATA RECOVERY FOR THIS PERIOD: 88.9 %

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
9.94	7.78	11.53	18.49	15.91	14.62	21.73

# DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	16	9	5	3	7	24	80	25	10	5	7	2	0
B	0	0	1	0	13	6	5	6	18	23	46	17	10	0	6	0	0
C	1	2	1	3	19	8	26	20	49	27	38	16	7	3	3	1	0
D	6	6	10	23	41	25	32	30	34	30	54	32	17	5	12	2	0
E	6	11	8	11	10	9	1	4	20	38	102	49	20	8	10	2	0
F	12	10	9	11	2	5	4	7	15	32	92	36	25	10	9	5	0
G	101	97	50	16	17	5	7	5	3	11	15	8	15	23	16	33	0
TOTAL	126	126	79	64	118	67	80	75	146	185	427	183	104	54	63	45	0

Table B3  
JFDs of 35-Foot Wind vs. Delta T,  
January - June 1985

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* JAN-JUN 1985 \*\*\*

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	1	2	0	1	1	0	1	0	0	0	0	6
6.51- 8.50	0	0	0	0	2	3	1	1	2	6	6	2	1	0	0	0	24
8.51-11.50	1	0	0	0	7	4	2	2	3	8	30	13	6	1	0	1	78
11.51-14.50	0	0	0	0	4	1	0	0	1	4	37	10	5	1	2	2	67
14.51-20.50	0	0	0	0	3	0	0	0	0	4	20	2	1	4	5	1	40
>20.50	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	7
TOTAL	1	0	0	0	16	9	5	3	7	25	98	28	13	6	7	4	222

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
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	1	0	0	0	0	0	0	0	0	0	0	1
4.51- 5.50	1	0	0	0	1	2	1	0	1	0	0	0	0	0	0	0	6
5.51- 6.50	0	1	0	0	4	1	1	1	0	2	0	1	1	0	0	0	12
6.51- 8.50	1	0	0	0	2	0	3	4	11	6	12	5	6	0	2	1	53
8.51-11.50	0	0	0	0	5	3	0	1	6	13	23	7	4	0	3	2	68
11.51-14.50	0	0	0	0	5	0	0	0	0	4	13	7	2	1	4	0	36
14.51-20.50	0	0	1	0	0	0	0	0	0	3	5	1	1	1	0	0	12
>20.50	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
TOTAL	2	1	1	0	18	7	5	6	18	28	55	21	14	2	9	3	190

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985  
 SITE IDENTIFIER: PVNGS  
 DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* JAN-JUN 1985 \*\*\*

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
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	1	1	0	2
3.51- 4.50	0	0	1	0	1	1	2	0	4	2	0	0	0	0	0	0	11
4.51- 5.50	1	1	3	2	7	6	10	9	7	2	3	1	0	0	0	0	52
5.51- 6.50	0	1	1	2	9	4	14	9	12	8	4	3	2	1	0	0	70
6.51- 8.50	2	0	0	2	10	4	5	5	22	10	14	6	4	0	3	1	88
8.51-11.50	1	1	0	0	3	2	1	0	4	8	21	5	2	3	1	3	55
11.51-14.50	0	0	0	0	4	0	0	0	2	2	5	4	0	0	1	0	18
14.51-20.50	0	1	0	0	3	0	0	0	1	0	3	1	0	1	1	1	12
>20.50	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL	4	4	5	6	37	17	32	23	52	33	50	20	8	6	7	5	309

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	4
1.51- 2.50	2	4	4	3	5	3	3	3	2	6	5	1	3	1	3	0	48
2.51- 3.50	5	7	6	14	15	13	13	12	19	10	7	10	3	4	3	6	147
3.51- 4.50	6	4	9	13	21	14	24	18	22	14	9	2	1	4	1	5	167
4.51- 5.50	2	3	4	6	17	13	11	9	13	8	6	1	3	1	2	2	101
5.51- 6.50	1	1	1	4	7	8	9	10	6	9	12	1	2	2	1	1	75
6.51- 8.50	0	1	1	7	18	3	8	7	7	3	14	5	4	1	4	2	85
8.51-11.50	0	3	3	3	3	1	2	3	1	11	10	15	11	4	5	1	76
11.51-14.50	1	0	2	2	7	0	0	1	0	0	11	6	6	1	5	2	44
14.51-20.50	0	0	0	0	2	0	0	0	1	2	11	9	9	5	3	0	42
>20.50	0	0	0	0	0	0	0	0	1	0	3	0	1	2	0	0	7
TOTAL	17	24	30	52	96	55	70	64	73	63	88	50	43	25	27	19	796

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* JAN-JUN 1985 \*\*\*

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	1	0	0	0	2	2	1	0	2	0	0	0	8
1.51- 2.50	7	4	4	1	4	4	4	1	6	4	1	3	5	4	3	2	57
2.51- 3.50	4	8	5	2	4	2	3	4	5	7	3	2	2	1	2	1	55
3.51- 4.50	2	4	5	3	0	2	2	3	6	7	4	2	4	1	3	0	48
4.51- 5.50	2	4	3	0	2	1	1	0	2	6	9	1	2	1	1	0	35
5.51- 6.50	3	0	3	2	1	5	0	0	1	6	11	9	0	3	2	0	46
6.51- 8.50	2	3	1	4	1	1	5	2	3	14	22	17	9	1	2	1	88
8.51-11.50	0	1	0	4	5	1	1	0	2	8	47	20	10	5	2	4	110
11.51-14.50	0	1	0	2	0	0	0	0	2	5	26	20	2	5	7	1	71
14.51-20.50	0	0	0	1	2	0	0	0	2	0	9	2	1	5	2	0	24
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL	20	25	21	19	20	16	16	10	31	59	133	76	38	26	24	9	543

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	4	1	2	1	0	2	0	0	0	1	1	2	0	0	0	0	14
1.51- 2.50	12	5	4	2	3	3	2	4	5	3	3	3	6	5	2	2	64
2.51- 3.50	15	11	6	4	2	2	4	3	5	4	10	8	4	6	7	11	102
3.51- 4.50	9	11	7	6	2	4	1	2	5	3	6	5	4	2	6	3	76
4.51- 5.50	3	4	4	2	2	1	0	3	3	7	10	5	2	1	0	2	49
5.51- 6.50	3	1	2	3	2	2	0	2	2	6	11	5	4	1	1	4	49
6.51- 8.50	3	3	4	1	2	0	2	0	0	7	31	10	10	3	2	4	82
8.51-11.50	1	1	1	2	0	0	0	0	1	10	32	7	7	1	1	6	70
11.51-14.50	0	1	0	0	0	0	0	0	1	1	4	0	0	0	1	1	9
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	50	38	30	21	13	14	9	14	22	42	108	45	37	19	20	33	515

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* JAN-JUN 1985 \*\*\*

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	2	4	3	0	4	0	3	3	1	0	1	0	1	1	4	2	29
1.51- 2.50	43	28	9	10	5	5	3	4	3	3	2	3	10	6	7	18	159
2.51- 3.50	84	62	24	8	3	2	1	3	7	3	3	2	5	12	12	21	252
3.51- 4.50	60	60	23	4	13	2	2	1	0	1	3	1	1	6	14	23	214
4.51- 5.50	17	36	22	3	2	1	1	0	0	3	0	2	4	3	4	13	111
5.51- 6.50	8	12	16	5	1	0	0	0	0	0	4	1	2	3	2	8	62
6.51- 8.50	9	14	3	3	0	0	0	0	0	5	1	3	0	0	3	8	49
8.51-11.50	3	1	0	1	0	0	0	0	0	0	7	0	0	0	0	0	12
11.51-14.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
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	226	217	100	34	28	10	10	11	11	15	22	12	23	31	46	93	889

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET

WIND MEASURED AT: 35.0 FEET

WIND THRESHOLD AT: 0.75 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
0.76- 1.50	6	6	5	1	6	2	3	4	4	3	3	2	3	1	4	2	55
1.51- 2.50	64	41	21	16	17	15	12	12	16	16	11	10	24	16	15	22	328
2.51- 3.50	108	88	41	28	24	19	21	22	36	24	23	22	14	24	25	39	558
3.51- 4.50	77	79	45	26	37	24	31	24	37	27	22	10	10	13	24	31	517
4.51- 5.50	26	48	36	13	31	24	24	21	26	26	28	10	11	6	7	17	354
5.51- 6.50	15	16	23	16	24	21	26	22	22	32	42	21	11	10	6	13	320
6.51- 8.50	17	21	9	17	35	11	24	19	45	51	100	48	34	5	16	17	469
8.51-11.50	6	7	4	10	24	11	6	6	17	58	170	67	40	14	12	17	469
11.51-14.50	1	2	2	4	20	1	0	1	6	16	97	47	15	8	20	6	246
14.51-20.50	0	1	1	1	10	0	0	0	4	9	48	15	12	16	11	2	130
>20.50	0	0	0	0	0	0	0	0	1	3	10	0	2	2	0	0	18
TOTAL	320	309	187	132	228	128	147	131	214	265	554	252	176	115	140	166	3464



PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985  
 SITE IDENTIFIER: PVNGS  
 DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* JAN-JUN 1985 \*\*\*

WIND THRESHOLD AT: 0.75 MPH

TOTAL NUMBER OF OBSERVATIONS: 4344

TOTAL NUMBER OF VALID OBSERVATIONS: 3464

TOTAL NUMBER OF MISSING OBSERVATIONS: 880

PERCENT DATA RECOVERY FOR THIS PERIOD: 79.7 %

MEAN WIND SPEED FOR THIS PERIOD: 6.6 MPH

TOTAL NUMBER OF OBSERVATIONS WITH BACKUP DATA: 0

# PERCENTAGE OCCURRENCE OF STABILITY CLASSES

A	B	C	D	E	F	G
6.41	5.48	8.92	22.98	15.68	14.87	25.66

# 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	0	0	0	16	9	5	3	7	25	98	28	13	6	7	4	0
B	2	1	1	0	18	7	5	6	18	28	55	21	14	2	9	3	0
C	4	4	5	6	37	17	32	23	52	33	50	20	8	6	7	5	0
D	17	24	30	52	96	55	70	64	73	63	88	50	43	25	27	19	0
E	20	25	21	19	20	16	16	10	31	59	133	76	38	26	24	9	0
F	50	38	30	21	13	14	9	14	22	42	108	45	37	19	20	33	0
G	226	217	100	34	28	10	10	11	11	15	22	12	23	31	46	93	0
TOTAL	320	309	187	132	228	128	147	131	214	265	554	252	176	115	140	166	0

Table B4  
JFDs of 35-Foot Wind vs. Delta T,  
January - June 1985 Batch Releases

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985 BATCH RELEASE  
SITE IDENTIFIER: PVNGS  
DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* BATCH \*\*\*

STABILITY CLASS A

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
WIND MEASURED AT: 35.0 FEET  
WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.51- 8.50	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3
8.51-11.50	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	6
11.51-14.50	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
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	0	0	0	0	0	0	0	0	0	5	5	2	0	0	0	0	12

STABILITY CLASS B

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
WIND MEASURED AT: 35.0 FEET  
WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.51- 2.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.51- 3.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.51- 4.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.51- 8.50	0	0	0	0	0	0	0	0	2	1	2	0	1	0	0	0	6
8.51-11.50	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	4
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	0	0	0	0	0	0	0	0	2	2	5	0	1	0	0	0	10

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985 BATCH RELEASE  
 SITE IDENTIFIER: PVNGS  
 DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* BATCH \*\*\*

STABILITY CLASS C

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
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	1	1	0	0	0	0	0	0	0	2
5.51- 6.50	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4
6.51- 8.50	0	0	0	0	0	0	0	1	4	0	2	1	0	0	0	0	8
8.51-11.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
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	0	0	0	0	0	0	0	2	7	2	2	1	0	1	0	0	15

STABILITY CLASS D

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
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	1	1	0	0	0	0	0	2
2.51- 3.50	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
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	0	0	0	2	0	1	0	0	0	0	0	0	3
5.51- 6.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
6.51- 8.50	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
8.51-11.50	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
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	1	0	0	0	0	1	0	2	3	3	2	4	0	0	0	1	17

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985 BATCH RELEASE  
 SITE IDENTIFIER: PVNGS  
 DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* BATCH \*\*\*

STABILITY CLASS E

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2.51- 3.50	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	3
3.51- 4.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4.51- 5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4
6.51- 8.50	0	0	0	0	0	0	0	0	0	1	3	1	0	0	0	0	5
8.51-11.50	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4
11.51-14.50	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	0	0	1	0	1	2	11	5	1	0	0	0	22

STABILITY CLASS F

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	3
2.51- 3.50	0	0	0	0	0	0	0	1	0	1	2	0	0	2	0	0	6
3.51- 4.50	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
4.51- 5.50	0	0	0	0	0	0	0	1	0	1	4	0	0	0	0	0	6
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	0	6
6.51- 8.50	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	4
8.51-11.50	0	0	0	0	0	0	0	0	0	0	5	2	0	0	0	0	7
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	1	1	0	0	0	2	1	4	17	5	1	2	1	0	35

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985 BATCH RELEASE  
 SITE IDENTIFIER: PVNGS  
 DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* BATCH \*\*\*

STABILITY CLASS G

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
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	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
2.51- 3.50	2	2	0	0	0	0	0	0	0	1	0	0	1	2	0	0	8
3.51- 4.50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
4.51- 5.50	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5.51- 6.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
6.51- 8.50	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8.51-11.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.51-14.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	5	0	0	0	0	0	0	0	1	1	0	1	2	0	2	16

STABILITY CLASS ALL

STABILITY BASED ON: DELTA T BETWEEN 200.0 AND 35.0 FEET  
 WIND MEASURED AT: 35.0 FEET  
 WIND THRESHOLD AT: 0.75 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
0.76- 1.50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1.51- 2.50	0	2	0	0	0	0	0	0	1	2	1	0	0	0	1	1	8
2.51- 3.50	3	2	0	0	0	1	1	1	0	3	2	0	2	4	0	1	20
3.51- 4.50	1	0	1	0	0	0	0	0	3	1	0	0	0	0	0	1	7
4.51- 5.50	0	1	0	0	0	0	0	4	1	2	4	0	0	0	0	0	12
5.51- 6.50	0	0	0	0	0	0	0	0	3	2	6	4	1	0	0	0	16
6.51- 8.50	1	1	0	0	0	0	0	1	6	5	11	4	1	0	0	0	30
8.51-11.50	0	0	0	0	0	0	0	0	3	13	9	0	1	0	0	0	26
11.51-14.50	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	7
14.51-20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>20.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	6	1	1	0	1	1	6	14	19	43	17	4	5	1	3	127

PROGRAM: JFD VERSION: 5P

PVNGS JFD: 35FT WIND VS DELTA T (200'-35') FOR JAN-JUN 1985 BATCH RELEASE

SITE IDENTIFIER: PVNGS

DATA PERIOD EXAMINED: 1/ 1/85 - 6/30/85

\*\*\* BATCH \*\*\*

WIND THRESHOLD AT: 0.75 MPH

TOTAL NUMBER OF OBSERVATIONS: 127

TOTAL NUMBER OF VALID OBSERVATIONS: 127

TOTAL NUMBER OF MISSING OBSERVATIONS: 0

PERCENT DATA RECOVERY FOR THIS PERIOD: 100.0 %

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
9.45	7.87	11.81	13.39	17.32	27.56	12.60

DISTRIBUTION OF WIND DIRECTION VS STABILITY

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	CALM
A	0	0	0	0	0	0	0	0	0	5	5	2	0	0	0	0	0
B	0	0	0	0	0	0	0	0	2	2	5	0	1	0	0	0	0
C	0	0	0	0	0	0	0	2	7	2	2	1	0	1	0	0	0
D	1	0	0	0	0	1	0	2	3	3	2	4	0	0	0	1	0
E	0	1	0	0	0	0	1	0	1	2	11	5	1	0	0	0	0
F	0	0	1	1	0	0	0	2	1	4	17	5	1	2	1	0	0
G	4	5	0	0	0	0	0	0	0	1	1	0	1	2	0	2	0
TOTAL	5	6	1	1	0	1	1	6	14	19	43	17	4	5	1	3	0

Table B5  
Hourly Listing of Meteorological Data  
for Batch Releases



LISTING FOR PVNGS HOURLY METEOROLOGICAL DATA 35-FT LEVEL  
BATCH RELEASES

YR	MO	DY	HR	WIND SPEED (MPH)	WIND DIR (DEG)	DELTA T 200-35 (F)SC
BATCH 1						
85	5	30	4	7.0	225	1.3 E
85	5	30	5	8.0	215	1.2 E
85	5	30	6	7.0	215	0.7 E
85	5	30	7	3.5	270	0.6 E
85	5	30	8	3.5	200	0.8 E
85	5	30	9	3.0	135	0.1 E
85	5	30	10	2.0	205	-0.7 D

BATCH 2						
85	6	9	22	6.5	225	4.4 G
85	6	9	23	3.5	285	5.9 G
85	6	9	24	8.5	235	3.4 F
85	6	10	1	8.0	215	3.0 F
85	6	10	2	2.5	170	3.0 F
85	6	10	3	3.0	165	2.6 F
85	6	10	4	3.0	205	5.2 G
85	6	10	5	4.0	340	8.8 G
85	6	10	6	3.5	355	9.0 G
85	6	10	7	3.5	300	6.4 G
85	6	10	8	4.0	180	0.0 E
85	6	10	9	10.0	215	-1.6 B
85	6	10	10	10.5	215	-1.9 A
85	6	10	11	10.0	230	-2.2 A
85	6	10	12	10.5	210	-2.0 A
85	6	10	13	10.5	195	-2.1 A
85	6	10	14	12.0	210	-2.3 A
85	6	10	15	10.5	230	-2.2 A
85	6	10	16	13.5	225	-2.1 A
85	6	10	17	12.0	220	-1.8 A
85	6	10	18	11.5	235	-1.6 B
85	6	10	19	10.5	240	-1.3 D
85	6	10	20	9.5	230	-0.1 E
85	6	10	21	12.5	215	0.9 E
85	6	10	22	14.0	215	0.2 E
85	6	10	23	11.0	220	0.2 E
85	6	10	24	8.0	210	0.9 E
85	6	11	1	6.0	220	1.2 E
85	6	11	2	6.0	245	1.0 E
85	6	11	3	6.5	230	2.0 F
85	6	11	4	5.0	225	3.0 F
85	6	11	5	6.5	245	2.2 F
85	6	11	6	3.0	215	2.6 F

LISTING FOR PVNGS HOURLY METEOROLOGICAL DATA 35-FT LEVEL  
BATCH RELEASES

YR	MO	DY	HR	WIND SPEED (MPH)	WIND DIR (DEG)	DELTA T 200-35 (F) SC
85	6	11	7	4.5	35	2.9 F
85	6	11	8	3.5	355	-0.8 D
85	6	11	9	4.0	180	-1.3 D
85	6	11	10	5.5	165	-1.3 D
85	6	11	11	5.5	155	-1.4 C
85	6	11	12	6.5	195	-1.4 C
85	6	11	13	7.5	185	-1.6 B
85	6	11	14	7.5	190	-1.6 B
85	6	11	15	8.5	205	-1.8 A
85	6	11	16	7.5	260	-1.6 B
85	6	11	17	8.0	245	-1.5 C
85	6	11	18	7.5	200	-1.3 D
85	6	11	19	9.0	240	-1.3 D
85	6	11	20	8.0	255	0.1 E
85	6	11	21	7.5	245	1.5 F
85	6	11	22	10.5	235	1.6 F
85	6	11	23	14.5	235	0.2 E
85	6	11	24	9.5	250	0.9 E
85	6	12	1	6.5	255	1.2 E
85	6	12	2	5.5	235	2.0 F
85	6	12	3	4.0	205	3.0 F
85	6	12	4	5.0	210	2.0 F
85	6	12	5	3.5	300	2.2 F
85	6	12	6	3.0	20	5.2 G
85	6	12	7	3.0	30	4.0 G
85	6	12	8	2.5	235	-0.8 D
85	6	12	9	5.5	210	-1.3 D
85	6	12	10	6.5	200	-1.4 C
85	6	12	11	5.5	175	-1.4 C
85	6	12	12	6.0	170	-1.5 C
85	6	12	13	7.0	225	-1.6 B
85	6	12	14	7.0	210	-1.7 B
85	6	12	15	9.0	240	-1.9 A
85	6	12	16	8.5	225	-1.5 C
85	6	12	17	9.0	285	-1.5 C
85	6	12	18	8.0	225	-1.1 D
85	6	12	19	9.5	250	-1.1 D
85	6	12	20	9.0	240	0.2 E
85	6	12	21	9.5	235	1.6 F
85	6	12	22	9.5	225	3.2 F
85	6	12	23	12.0	235	1.2 E
85	6	12	24	9.5	220	2.1 F
85	6	13	1	8.0	220	2.0 F
85	6	13	2	5.5	220	1.7 F
85	6	13	3	5.5	215	2.7 F
85	6	13	4	6.5	215	2.1 F

LISTING FOR PVNGS HOURLY METEOROLOGICAL DATA 35-FT LEVEL  
BATCH RELEASES

YR	MO	DY	HR	WIND SPEED (MPH)	WIND DIR (DEG)	DELTA T 200-35 (F) SC
85	6	13	5	6.5	240	2.8 F
85	6	13	6	2.0	205	2.6 F
85	6	13	7	3.0	295	2.6 F
85	6	13	8	3.0	340	-0.5 D
85	6	13	9	4.5	175	-1.1 D
85	6	13	10	6.5	185	-1.3 D
85	6	13	11	7.0	185	-1.5 C
85	6	13	12	7.0	190	-1.5 C
85	6	13	13	7.5	235	-1.7 B
85	6	13	14	8.5	240	-1.9 A
85	6	13	15	9.5	205	-1.6 B
85	6	13	16	8.5	205	-1.9 A
85	6	13	17	10.0	225	-1.6 B
85	6	13	18	8.5	230	-1.5 C
85	6	13	19	10.5	255	-1.0 D
85	6	13	20	6.5	230	0.5 E
85	6	13	21	6.5	225	3.0 F
85	6	13	22	10.0	250	1.8 F
85	6	13	23	10.5	225	2.8 F
85	6	13	24	10.5	240	1.9 F
85	6	14	1	6.5	265	3.0 F
85	6	14	2	5.5	150	3.3 F
85	6	14	3	1.5	75	3.2 F
85	6	14	4	3.0	260	6.2 G
85	6	14	5	3.5	230	3.3 F
85	6	14	6	3.0	205	3.3 F
85	6	14	7	3.0	10	5.2 G
85	6	14	8	2.0	25	-0.1 E
85	6	14	9	3.0	105	-1.0 D
85	6	14	10	5.0	165	-1.2 D
85	6	14	11	7.0	165	-1.5 C
85	6	14	12	6.5	185	-1.4 C
85	6	14	13	7.0	175	-1.5 C
85	6	14	14	7.5	175	-1.4 C

BATCH 3

85	6	26	21	2.5	305	3.6 F
85	6	26	22	2.0	335	5.3 G
85	6	26	23	2.5	25	9.3 G
85	6	26	24	4.5	360	8.2 G
85	6	27	1	7.5	15	6.7 G
85	6	27	2	8.0	5	6.2 G
85	6	27	3	5.5	20	8.2 G

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. Five locations were selected for dose calculations to the individual: the site boundary, the nearest residence, the nearest garden, the nearest milk animal and the PVNGS Visitors Center. Locations were selected on the basis of the highest estimated ground-level air concentrations. GASPAR implements the radiological dose models of Regulatory Guide 1.109 for determining the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground, inhalation, and ingestion. The ingestion pathways considered were cow milk, goat milk, meat, and vegetables. Doses to the maximum individual and the population are calculated as a function of age group and pathway for significant body organs. Assumptions and data sources used for input to the GASPAR code are described in a separate section of this appendix (see page C13).

Tables C1 and C2 present maximum individual doses for the second quarter while Table C3 presents the results for the entire period; population doses for the same periods are given in Tables C4 through C6. Table C7 summarizes the individual doses and compares the result to PVNGS Technical Specification limits.

Direct radiation doses for this semiannual report will be presented in the end of year report as stated in Section 6.9.18 of Section 6.0 of the PVNGS Technical Specification 6.9.1.8.

TABLE C1

DOSES TO SPECIAL LOCATIONS (APRIL-JUNE 1985 CONTINUOUS RELEASE)

## SITE BOUNDARY DOSES

LOCATION : 0.66 MI NNE

	BETA	GAMMA	T. BODY	SKIN
AIR DOSES (MRAD/YR)	9.03E-05	3.04E-05	N/A	N/A
MAXIMUM INDIVIDUAL(MREM/YR)	N/A	N/A	1.77E-05	4.99E-05

## MAXIMUM INDIVIDUAL(MREM/YR)

LOCATION : RESIDENCE 3.25 MI SSW

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	2.69E-04	2.69E-04	1.58E-05	2.69E-04	2.69E-04	2.69E-04	2.70E-04	2.98E-04
TEEN	2.71E-04	2.71E-04	1.58E-05	2.71E-04	2.71E-04	2.71E-04	2.72E-04	3.00E-04
CHILD	2.41E-04	2.41E-04	1.58E-05	2.41E-04	2.41E-04	2.41E-04	2.42E-04	2.70E-04
INFANT	1.45E-04	1.45E-04	1.58E-05	1.45E-04	1.45E-04	1.45E-04	1.46E-04	1.74E-04

LOCATION : RESIDENCE AND GARDEN 1.50 MI NNE

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	4.60E-04	4.60E-04	8.59E-06	4.60E-04	4.60E-04	4.60E-04	4.60E-04	4.75E-04
TEEN	5.12E-04	5.12E-04	8.59E-06	5.12E-04	5.12E-04	5.12E-04	5.12E-04	5.27E-04
CHILD	7.02E-04	7.02E-04	8.59E-06	7.02E-04	7.02E-04	7.02E-04	7.02E-04	7.17E-04
INFANT	7.85E-05	7.85E-05	8.59E-06	7.85E-05	7.85E-05	7.85E-05	7.89E-05	9.41E-05

TABLE C1(CONT'D)

DOSES TO SPECIAL LOCATIONS (APRIL-JUNE 1985 CONTINUOUS RELEASE)

## MAXIMUM INDIVIDUAL(MREM/YR)

LOCATION : RESIDENCE, GARDEN AND MILK 5.00 MI S

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	7.79E-04	7.79E-04	1.16E-05	7.79E-04	7.79E-04	7.79E-04	7.79E-04	8.00E-04
TEEN	8.97E-04	8.97E-04	1.16E-05	8.97E-04	8.97E-04	8.97E-04	8.97E-04	9.18E-04
CHILD	1.27E-03	1.27E-03	1.16E-05	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.29E-03
INFANT	5.80E-04	5.80E-04	1.16E-05	5.80E-04	5.80E-04	5.80E-04	5.80E-04	6.01E-04

LOCATION : VISITOR CENTER

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	1.89E-07	1.89E-07	1.12E-08	1.89E-07	1.89E-07	1.89E-07	1.90E-07	2.10E-07
TEEN	1.90E-07	1.90E-07	1.12E-08	1.90E-07	1.90E-07	1.90E-07	1.91E-07	2.11E-07
CHILD	1.70E-07	1.70E-07	1.12E-08	1.70E-07	1.70E-07	1.70E-07	1.71E-07	1.91E-07
INFANT	1.02E-07	1.02E-07	1.12E-08	1.02E-07	1.02E-07	1.02E-07	1.03E-07	1.22E-07

TABLE C2

## DOSES TO SPECIAL LOCATIONS (APRIL-JUNE 1985 BATCH RELEASE)

## SITE BOUNDARY DOSES

LOCATION : 0.66 MI NNE

	BETA	GAMMA	T. BODY	SKIN
AIR DOSES (MRAD/YR)	1.72E-04	4.83E-04	N/A	N/A
MAXIMUM INDIVIDUAL(MREM/YR)	N/A	N/A	3.22E-04	5.16E-04

## MAXIMUM INDIVIDUAL(MREM/YR)

LOCATION : RESIDENCE 3.25 MI SSW

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.51E-05	1.20E-04
TEEN	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.51E-05	1.20E-04
CHILD	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.51E-05	1.20E-04
INFANT	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.50E-05	7.51E-05	1.20E-04

LOCATION : RESIDENCE AND GARDEN 1.50 MI NNE

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	2.25E-04
TEEN	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	2.25E-04
CHILD	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	2.25E-04
INFANT	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	1.40E-04	2.25E-04



TABLE C2(CONT'D)

DOSES TO SPECIAL LOCATIONS (APRIL-JUNE 1985 BATCH RELEASE)

## MAXIMUM INDIVIDUAL(MREM/YR)

LOCATION : RESIDENCE, GARDEN AND MILK 5.00 MI S

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	4.55E-05
TEEN	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	4.55E-05
CHILD	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	4.55E-05
INFANT	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	2.84E-05	4.55E-05

LOCATION : VISITOR CENTER

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	2.94E-08
TEEN	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	2.94E-08
CHILD	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	2.94E-08
INFANT	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	2.94E-07

TABLE C3

DOSES TO SPECIAL LOCATIONS (JANUARY-JUNE 1985 RELEASE)  
TOTAL FROM CONTINUOUS AND BATCH RELEASES

## SITE BOUNDARY DOSES

LOCATION : 0.66 MI NNE

AIR DOSES (MRAD/YR)	BETA 2.62E-04	GAMMA 5.13E-04	T. BODY N/A	SKIN N/A
MAXIMUM INDIVIDUAL(MREM/YR)	N/A	N/A	3.40E-04	5.66E-04

## MAXIMUM INDIVIDUAL(MREM/YR)

LOCATION : RESIDENCE 3.25 MI SSW

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	3.44E-04	3.44E-04	9.08E-05	3.44E-04	3.44E-04	3.44E-04	3.45E-04	4.18E-04
TEEN	3.46E-04	3.46E-04	9.08E-05	3.46E-04	3.46E-04	3.46E-04	3.47E-04	4.20E-04
CHILD	3.16E-04	3.16E-04	9.08E-05	3.16E-04	3.16E-04	3.16E-04	3.17E-04	3.90E-04
INFANT	2.20E-04	2.20E-04	9.08E-05	2.20E-04	2.20E-04	2.20E-04	2.21E-04	2.94E-04

LOCATION : RESIDENCE AND GARDEN 1.50 MI NNE

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	6.00E-04	6.00E-04	1.49E-04	6.00E-04	6.00E-04	6.00E-04	6.00E-04	7.00E-04
TEEN	6.52E-04	6.52E-04	1.49E-04	6.52E-04	6.52E-04	6.52E-04	6.52E-04	7.52E-04
CHILD	8.42E-04	8.42E-04	1.49E-04	8.42E-04	8.42E-04	8.42E-04	8.42E-04	9.42E-04
INFANT	2.19E-04	2.19E-04	1.49E-04	2.19E-04	2.19E-04	2.19E-04	2.19E-04	3.19E-04

TABLE C3(CONT'D)

DOSES TO SPECIAL LOCATIONS (JANUARY-JUNE 1985 RELEASE)  
TOTAL FROM CONTINUOUS AND BATCH RELEASES

## MAXIMUM INDIVIDUAL(MREM/YR)

## LOCATION : RESIDENCE, GARDEN AND MILK 5.00 MI S

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	8.10E-04	8.10E-04	4.00E-05	8.10E-04	8.10E-04	8.10E-04	8.10E-04	8.46E-04
TEEN	9.25E-04	9.25E-04	4.00E-05	9.25E-04	9.25E-04	9.25E-04	9.25E-04	9.64E-04
CHILD	1.30E-03	1.30E-03	4.00E-05	1.30E-03	1.30E-03	1.30E-03	1.30E-03	1.34E-03
INFANT	6.08E-04	6.08E-04	4.00E-05	6.08E-04	6.08E-04	6.08E-04	6.08E-04	6.47E-04

## LOCATION : VISITOR CENTER

(MREM/YR)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
ADULT	2.07E-07	2.07E-07	2.96E-08	2.07E-07	2.07E-07	2.07E-07	2.08E-07	2.39E-07
TEEN	2.08E-07	2.08E-07	2.96E-08	2.08E-07	2.08E-07	2.08E-07	2.09E-07	2.40E-07
CHILD	1.88E-07	1.88E-07	2.96E-08	1.88E-07	1.88E-07	1.88E-07	1.89E-07	2.20E-07
INFANT	1.20E-07	1.20E-07	2.96E-08	1.20E-07	1.20E-07	1.20E-07	1.21E-07	1.51E-07

TABLE C4

INTEGRATED POPULATION DOSES (APRIL-JUNE 1985 CONTINUOUS RELEASES)

MANREM/YR								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.49E-04	1.49E-04	1.49E-04	1.49E-04	1.49E-04	1.49E-04	1.60E-04	5.10E-04
INHAL	3.53E-03	3.53E-03	0.00E-01	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03
VEGET	1.10E-02	1.10E-02	0.00E-01	1.10E-02	1.10E-02	1.10E-02	1.10E-02	1.10E-02
COW MILK	1.47E-03	1.47E-03	0.00E-01	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03
MEAT	3.44E-04	3.44E-04	0.00E-01	3.44E-04	3.44E-04	3.44E-04	3.44E-04	3.44E-04
*TOTAL*	1.65E-02	1.65E-02	1.49E-04	1.65E-02	1.65E-02	1.65E-02	1.65E-02	1.68E-02

TABLE C5  
INTEGRATED POPULATION DOSES (APRIL-JUNE 1985 BATCH RELEASES)

MANREM/YR								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	1.06E-04
GROUND	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.34E-08
INHAL	1.69E-08	8.10E-09	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
VEGET	2.30E-11	1.23E-11	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
COW MILK	1.51E-09	6.42E-10	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MEAT	3.04E-15	2.39E-15	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01	0.00E-01
*TOTAL*	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	5.90E-05	1.06E-04

TABLE C6

INTEGRATED POPULATION DOSES (JANUARY-JUNE 1985 RELEASES)  
TOTAL FROM CONTINUOUS AND BATCH RELEASES

MANREM/YR								
PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.08E-04	2.08E-04	2.08E-04	2.08E-04	2.08E-04	2.08E-04	2.19E-04	6.16E-04
GROUND	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.16E-08	1.34E-08
INHAL	3.53E-03	3.53E-03	0.00E-01	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03
VEGET	1.10E-02	1.10E-02	0.00E-01	1.10E-02	1.10E-02	1.10E-02	1.10E-02	1.10E-02
COW MILK	1.47E-03	1.47E-03	0.00E-01	1.47E-03	1.47E-03	1.47E-03	1.47E-03	1.47E-03
MEAT	3.44E-04	3.44E-04	0.00E-01	3.44E-04	3.44E-04	3.44E-04	3.44E-04	3.44E-04
*TOTAL*	1.65E-02	1.65E-02	2.08E-04	1.65E-02	1.65E-02	1.65E-02	1.65E-02	1.69E-02

Table C7

## Summary of Individual Doses

	Unit	Quarter #1	Quarter #1	Year to Date
Gamma Air Dose	mrads	NA	5.13E-04	5.13E-04
T. S. 3.11.2.2 limit	mrads	NA	5.00E+00	1.00E+01
% T. S. limit	%	NA	1.03E-02	5.13E-03
Beta Air Dose	mrads	NA	2.62E-04	2.62E-04
T. S. 3.11.2.2 limit	mrads	NA	1.00E+01	2.00E+01
% T. S. limit	%	NA	2.62E-03	1.31E-03
Maximum Organ Dose	mrem	NA	1.030E-03*	1.30E-03*
T. S. 3.11.2.2 limit	mrem	NA	7.50E+00	1.50E+01
% T. S. limit	%	NA	1.73E-02	8.67E-03

\*The limiting organ dose is the child's whole body resulting from exposure in the South Sector at 5.0 miles.

## 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 the second quarter are combined with station-specific demographic data and second quarter atmospheric diffusion estimates for gaseous dose calculations.

For gaseous dose calculations, the atmospheric diffusion estimates are obtained from the reduction and processing of onsite meteorological data through the use of the XOQDOQ computer code. Doses for the semiannual period are the doses calculated for the second quarter. Additional input to GASPAR includes the following site specific data:

- o 0- to 5-mile population distribution based on the land use census conducted June - August 1984.
- o 5- to 50-mile population distribution from PVNGS ER-OL Figure 2.1-6.
- o The population distribution of metropolitan Phoenix greater than 50 miles from PVNGS, based on the 1980 census results, were conservative included in the 40-50 mile sectors.
- o Absolute humidity of  $6.0 \text{ g/m}^3$  from PVNGS ER-OL Table 2.3-34.
- o The fraction of the year that vegetables are grown (0.67) from PVNGS ER-OL Section 2.1.3.4.
- o The fraction of daily feed derived from pasture and length of grazing season for milk animals (0.35 and 0.75) from PVNGS ER-OL Section 2.1.3.4.
- o The fraction of daily feed derived from pasture and length of grazing season for meat animals (0.05 and 0.25) from PVNGS ER-OL Section 2.1.3.4.
- o Length of stay at the PVNGS Visitors Center was estimated to be a maximum of 8 hours per year.

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





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## Arizona Nuclear Power Project

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REGION V  
ANPP-33300-EEVB/GEC  
August 29, 1985

Mr. John B. Martin, Director  
Region V  
U.S. Nuclear Regulatory Commission  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596-5368

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Unit No. 1  
Docket No. STN 50-528, License No. NPF-41  
Semiannual Radioactive Effluent Release Report  
File: 85-056-026; G.1.01.10

Dear Mr. Martin:

Pursuant to 10 CFR 50.36a(2) and in accordance with Technical Specification 6.9.1.8, attached please find two copies of the Semiannual Radioactive Effluent Release Report for the Palo Verde Nuclear Generating Station Unit No. 1 for the six month period ending June 30, 1985. By copy of this letter we are also forwarding six copies of this report to the Director of Inspection and Enforcement.

Very truly yours,

E. E. Van Brunt, Jr.  
Executive Vice President  
Project Director

EEVB/JRP/dlm  
Attachment

cc: J. M. Taylor (6 copies)  
E. A. Licitra (1 copy)  
R. P. Zimmerman (1 copy)  
A. C. Gehr (1 copy)

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