



SAN ONOFRE NUCLEAR GENERATING STATION

SEMIANNUAL EFFLUENT REPORT

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Southern California Edison Company



SAN ONOFRE NUCLEAR GENERATING STATION

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PREFACE

San Onofre Nuclear Generating Station is located next to San Onofre State Beach, adjoining Camp Pendleton Marine Corps Base, in San Diego County, 64 miles south of Los Angeles, California. There are three pressurized Water Reactors with a total rated capacity of 2664 net megawatts electrical. Unit 1 was supplied by Westinghouse Electric Company and began commercial operation on January 1, 1968. It is currently rated at 410 net megawatts electrical. It is owned by Southern California Edison (80%) and San Diego Gas and Electric (20%).

Unit 2 and Unit 3 were supplied by Combustion Engineering, Inc., with turbine generators supplied by G.E.C. Turbine Generators, Ltd., of England. The Units began commercial operation on August 18, 1983, and April 1, 1984, respectively and are rated at 1127 net megawatts electrical each. The twin Units are owned by Southern California Edison (75.05%), San Diego Gas and Electric (20%), City of Anaheim (3.16%), and the City of Riverside (1.79%).

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SEMIANNUAL EFFLUENT REPORT

July - December (1988)

SECTION A. INTRODUCTION

This Semiannual Report summarizes the gaseous and liquid radioactive effluent releases and radwaste shipments made from the San Onofre Nuclear Generating Station, Unit 1. This report is prepared in the general format of USNRC Regulatory Guide 1.21 and includes:

1. Quarterly Summaries of Gaseous and Liquid Effluents For "Continuous" and "Batch" Modes of Release;
2. Percent of Technical Specification Limits;
3. Percent of Applicable Limits;
4. Estimated Total Percent Error;
5. Lower Limit of Detection Concentrations;
6. Batch Release Summaries;
7. Previous Semiannual Report Addendum;
8. Radwaste Shipments;
9. 10CFR50 Appendix I Requirements;
10. Changes to Offsite Dose Calculation Manual.

SECTION B. GASEOUS EFFLUENTS

Table 1A, "Gaseous Effluents-Summation of All Releases," provides a detailed listing of gaseous effluents released quarterly in four categories: fission and activation gases, iodine-131, particulates with half-lives greater than eight days, and tritium. Listed for each of the four categories are: (1) the total curies released, (2) the average release rate, (3) the percent of Technical Specification Limit (TSL), and (4) the estimated total error. In addition, the particulate category lists the gross alpha radioactivity released for each quarter.

The methodology used in Table 1A to calculate the estimated total error is presented in Section G of this report.

Table 1B, "Gaseous Effluents-Elevated Release," has not been included in this report since San Onofre Nuclear Generating Station Unit 1 does not conduct elevated releases.

Table 1C, "Gaseous Effluents-Ground-Level Releases," provides the systematic listing by radionuclide for the quantity of radioactivity released in three categories: fission gases, iodines, and particulates. The total radioactivity for each radionuclide is listed for each quarterly period by both "continuous" and "batch" modes of release.

Waste gas decay tank and calibration releases are considered to be "batch" releases. Containment purges, and plant stack releases are considered to be "continuous" releases.

Table 1D, "Gaseous Effluents-Lower Limit of Detection," provides a listing of lower limit of detection concentrations for radionuclides not detected in Table 1A and 1C.

Table 1E, "Gaseous Effluents-Radiation Doses at the Site Boundary," provides a quarterly summary of doses at the site boundary for this report period.

Table 1F, "Gaseous Effluents-Batch Release Summary," provides summary information regarding batch releases conducted during this report period from San Onofre Nuclear Generating Station Unit 1.

TABLE 1A

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	Unit	Third Quarter	Fourth Quarter	Estimated Total Error, %
A. Fission and activation gases				
1. Total release	Ci	2.38E+2	1.79E+3	3.00E+1
2. Average release rate for period	uCi/sec	2.99E+1	2.25E+2	
3. Percent of technical specification limit	%	1.54E-1	1.04E+0	
=====				
B. Iodines				
1. Total iodine-131	Ci	7.44E-5	9.27E-3	1.90E+1
2. Average release rate for period	uCi/sec	9.36E-6	1.17E-3	
3. Percent of technical specification limit	%	1.22E-4	1.52E-2	
=====				
C. Particulates				
1. Particulates with half-lives > 8 days	Ci	2.88E-4	2.00E-4	1.60E+1
2. Average release rate for period	uCi/sec	3.62E-5	2.51E-5	
3. Percent of technical specification limit	%	9.87E-5	6.54E-5	
4. Gross alpha radioactivity	Ci	<LLD	*	5.00E+1
=====				
D. Tritium				
1. Total release	Ci	1.53E+0	3.78E+0	2.50E+1
2. Average release rate for period	uCi/sec	1.92E-1	4.76E-1	
3. Percent of technical specification limit	%	1.25E-3	3.09E-3	
=====				

LLD - Lower Limit of Detection; See Table 1D.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 1C

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
1. Fission gases					
argon-41	Ci	<LLD	<LLD	<LLD	5.79E-3
krypton-85	Ci	<LLD	1.60E+0	1.56E+0	2.70E+0
krypton-85m	Ci	9.84E-1	1.06E+0	4.60E-2	8.14E-1
krypton-87	Ci	<LLD	<LLD	<LLD	2.54E-1
krypton-88	Ci	<LLD	<LLD	7.06E-3	1.14E+0
xenon-131m	Ci	<LLD	1.54E+0	1.80E-1	1.09E+0
xenon-133	Ci	1.66E+2	1.18E+3	4.78E+1	5.23E+2
xenon-133m	Ci	1.11E-1	1.64E+1	2.64E-1	7.05E+0
xenon-135	Ci	1.93E+1	4.14E+1	1.82E+0	1.19E+1
xenon-135m	Ci	<LLD	<LLD	<LLD	1.12E-3
xenon-138	Ci	<LLD	<LLD	<LLD	<LLD
Total for period	Ci	1.86E+2	1.24E+3	5.17E+1	5.48E+2
=====					
2. Iodines					
iodine-131	Ci	7.44E-5	9.27E-3	NA	NA
iodine-132	Ci	<LLD	3.75E-3	NA	NA
iodine-133	Ci	1.07E-4	9.66E-4	NA	NA
iodine-135	Ci	5.11E-5	4.83E-4	NA	NA
Total for period	Ci	2.33E-4	1.45E-2	NA	NA
=====					
3. Particulates					
barium-140	Ci	<LLD	<LLD	NA	NA
bromine-82	Ci	1.40E-5	7.44E-5	NA	NA
cesium-134	Ci	1.17E-4	7.43E-5	NA	NA
cesium-137	Ci	1.46E-4	9.44E-5	NA	NA
cesium-138	Ci	1.43E-6	5.44E-3	NA	NA
cobalt-58	Ci	2.11E-5	2.73E-5	NA	NA
cobalt-60	Ci	2.07E-6	3.31E-6	NA	NA
lanthanum-140	Ci	<LLD	<LLD	NA	NA
manganese-54	Ci	1.62E-6	5.87E-7	NA	NA
rubidium-88	Ci	<LLD	2.20E-3	NA	NA
strontium-89	Ci	<LLD	*	NA	NA
strontium-90	Ci	<LLD	*	NA	NA

LLD - Lower Limit of Detection; See Table 1D.

NA - Iodines and particulates are not analyzed prior to release via batch mode.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 1D

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-LOWER LIMIT OF DETECTION

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/cc)	BATCH MODE LLD (uCi/cc)
<u>1. Fission and activation gases</u>		
argon-41	1.20E-7	3.40E-6
krypton-85	1.00E-5	*
krypton-87	1.20E-7	8.20E-6
krypton-88	2.20E-7	*
xenon-131m	2.10E-6	*
xenon-135m	4.60E-7	2.40E-5
xenon-138	1.70E-6	7.30E-5
<u>2. Iodines</u>		
iodine-132	8.00E-12	NA
iodine-135	<LLD	NA
<u>3. Particulates</u>		
barium-140	9.00E-14	NA
gross alpha	1.00E-13	NA
lanthanum-140	1.60E-13	NA
rubidium-88	1.50E-8	NA
strontium-89	1.00E-13	NA
strontium-90	1.00E-14	NA

NA - Iodines and particulates are not analyzed prior to release via batch mode.

* - Nuclide detected in Table 1C.

TABLE 1E
S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-RADIATION DOSES AT THE SITE BOUNDARY

	Unit	Third Quarter	Fourth*
A. Noble Gas			
1. Gamma air dose	μrad	4.51E-2	3.06E-1
2. Percent Technical Specification Limit	%	9.02E-1	6.12E+0
3. Beta air dose	μrad	1.09E-1	8.22E-1
4. Percent Technical Specification Limit	%	1.09E+0	8.22E+0
B. Tritium, Iodine, Particulate (at the nearest receptor)			
1. Organ dose	mrem	5.80E-4	2.59E-2
2. Percent Technical Specification Limit	%	7.73E-3	3.45E-1

NOTE: Calculations performed in accordance with the ODCM utilizing the historical X/Q.

* Fourth quarter dose incomplete due to Sr-89, and Sr-90 analyses not available at report time; values will be reported in the following Semiannual Report.

TABLE 1F
S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-BATCH RELEASE SUMMARY

	6-MONTH PERIOD
1. Number of batch releases:	39 releases
2. Total time period for batch releases:	15019 minutes
3. Maximum time period for a batch release:	753 minutes
4. Average time period for a batch release:	385 minutes
5. Minimum time period for a batch release:	60 minutes

SECTION C. LIQUID EFFLUENTS

Table 2A, "Liquid Effluents-Summation of All Releases," provides a detailed summary of liquid effluents released quarterly in three categories: fission and activation products, tritium, and dissolved and entrained gases. Listed for each of the three categories are: (1) the total curies released, (2) the average diluted concentration, (3) the percent of applicable limit and (4) the estimated total error. In addition, Table 2A lists: (1) the gross alpha radioactivity, (2) the volume of waste released (prior to dilution), and (3) the volume of the dilution water.

The methodology used to calculate the percent of applicable limit is presented in Section F of this report. The methodology used to calculate the estimated total error in Table 2A is presented in Section G of this report.

Table 2B, "Liquid Effluents," provides the systematic listing by radionuclide for the quantity of radioactivity released in each category. The total radioactivity of each radionuclide released is listed for each quarterly period by both "continuous" and "batch" modes of release.

Table 2C, "Liquid Effluents-Lower Limit of Detection," provides a listing of lower limit of detection concentrations for radionuclides not detected in Table 2B.

Table 2D, "Liquid Effluents-Radiation Doses at the Liquid Site Boundary," presents a quarterly summary of doses at the Liquid Site Boundary for this report period.

Table 2E, "Liquid Effluents-Batch Release Summary," provides summary information regarding batch releases conducted during this report period from San Onofre Nuclear Generating Station Unit 1.

TABLE 2A

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

	Unit	Third Quarter	Fourth Quarter	Estimated Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	6.91E-2	1.59E-1	1.90E+1
2. Average diluted concentration during period	uCi/ml	5.66E-10	1.44E-9	
3. Percent of applicable limit	%	4.14E-3	2.41E-1	
=====				
B. Tritium				
1. Total release	Ci	1.61E+2	7.56E+2	1.90E+1
2. Average diluted concentration during period	uCi/ml	1.32E-6	6.87E-6	
3. Percent of applicable limit	%	4.40E-2	2.29E-1	
=====				
C. Dissolved and entrained gases				
1. Total release	Ci	2.40E+0	9.40E+0	1.90E+1
2. Average diluted concentration during period	uCi/ml	1.97E-8	8.54E-8	
3. Percent of applicable limit	%	9.85E-3	4.27E-2	
=====				
D. Gross alpha radioactivity				
1. Total release	Ci	<LLD	*	5.00E+1
=====				
E. Volume of waste released (prior to dilution)				
	liters	1.67E+6	1.90E+5	5.00E+0
=====				
F. Volume of dilution water used during period				
	liters	1.22E+11	1.10E+11	5.00E+0
=====				

LLD - Lower Limit of Detection; see Table 2C.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 2B

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
antimony-124	Ci	<LLD	<LLD	5.23E-4	3.00E-4
antimony-125	Ci	<LLD	<LLD	5.33E-5	<LLD
barium-140	Ci	<LLD	<LLD	4.93E-5	1.65E-4
cerium-141	Ci	<LLD	<LLD	<LLD	7.79E-5
cerium-144	Ci	<LLD	4.74E-4	<LLD	<LLD
cesium-134	Ci	1.93E-2	9.81E-3	7.14E-3	9.02E-3
cesium-136	Ci	<LLD	8.90E-4	<LLD	2.22E-4
cesium-137	Ci	2.71E-2	1.18E-2	6.56E-3	1.30E-2
chromium-51	Ci	<LLD	<LLD	5.59E-5	2.56E-3
cobalt-57	Ci	<LLD	<LLD	<LLD	1.91E-5
cobalt-58	Ci	7.47E-4	1.46E-3	2.33E-3	1.31E-2
cobalt-60	Ci	1.10E-3	5.18E-4	2.57E-3	8.53E-3
iodine-131	Ci	7.42E-5	7.39E-2	<LLD	2.28E-3
iodine-132	Ci	<LLD	<LLD	<LLD	4.43E-5
iodine-133	Ci	<LLD	8.68E-3	<LLD	<LLD
iron-55	Ci	<LLD	*	1.34E-3	*
iron-59	Ci	<LLD	<LLD	7.85E-5	1.00E-4
lanthanum-140	Ci	<LLD	<LLD	1.39E-5	9.89E-5
manganese-54	Ci	<LLD	<LLD	3.42E-5	1.31E-4
molybdenum-99	Ci	<LLD	<LLD	<LLD	1.77E-4
neptunium-239	Ci	<LLD	<LLD	<LLD	6.88E-4
niobium-95	Ci	<LLD	<LLD	<LLD	1.11E-4
ruthenium-103	Ci	<LLD	<LLD	<LLD	3.35E-4
ruthenium-106	Ci	<LLD	<LLD	<LLD	1.91E-4
silver-110m	Ci	<LLD	<LLD	7.84E-6	2.22E-5
strontium-89	Ci	<LLD	*	<LLD	*
strontium-90	Ci	<LLD	*	<LLD	*
technetium-99m	Ci	<LLD	<LLD	<LLD	1.78E-4
tellurium-132	Ci	<LLD	<LLD	<LLD	5.47E-5
tin-113	Ci	<LLD	<LLD	<LLD	1.57E-5
zinc-65	Ci	<LLD	<LLD	<LLD	<LLD
zirconium-95	Ci	<LLD	<LLD	<LLD	1.08E-4
Total for period (above)	Ci	4.83E-2	1.08E-1	2.08E-2	5.15E-2

=====

LLD - Lower Limit of Detection; see Table 2C.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 2B

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
krypton-85	Ci	<LLD	<LLD	5.55E-2	1.07E-1
xenon-131m	Ci	<LLD	2.24E-4	2.18E-3	5.60E-2
xenon-133	Ci	3.48E-3	6.38E-3	2.32E+0	9.18E+0
xenon-133m	Ci	<LLD	<LLD	1.59E-2	4.65E-2
xenon-135	Ci	<LLD	8.84E-4	<LLD	3.42E-4

=====

LLD - Lower Limit of Detection; see Table 2C.

TABLE 2C

S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-LOWER LIMIT OF DETECTION

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/ml)	BATCH MODE LLD (uCi/ml)
(1) Fission and activation products		
antimony-124	1.40E-7	*
antimony-125	1.90E-7	2.40E-7
barium-140	2.10E-7	*
cerium-141	9.70E-8	1.10E-7
cerium-144	4.00E-7	5.00E-7
cesium-136	7.70E-8	9.30E-8
chromium-51	5.50E-7	*
cobalt-57	5.20E-8	6.40E-8
iodine-131	*	8.90E-8
iodine-132	4.90E-8	9.00E-8
iodine-133	2.30E-7	2.00E-7
iron-55	1.00E-6	*
iron-59	8.00E-8	*
lanthanum-140	1.40E-7	*
manganese-54	4.60E-8	*
molybdenum-99	8.00E-8	7.60E-8
neptunium-239	3.40E-8	2.90E-7
niobium-95	3.30E-8	8.60E-8
ruthenium-103	6.70E-8	1.00E-7
ruthenium-106	3.80E-7	9.00E-7
silver-110m	6.90E-8	*
strontium-89	5.00E-8	5.00E-8
strontium-90	1.00E-8	1.00E-8
technetium-99m	8.10E-8	7.70E-8
tellurium-132	7.80E-8	8.40E-8
tin-113	8.10E-8	1.00E-7
zinc-65	1.20E-7	1.50E-7
zirconium-95	6.30E-8	1.40E-7
gross alpha	1.00E-7	1.00E-7
(2) Dissolved and entrained gases		
krypton-85	1.20E-5	*
xenon-131m	2.10E-6	*
xenon-133m	4.30E-7	*
xenon-135	5.40E-8	1.10E-7

* Nuclide detected in Table 2B.

TABLE 2D
S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-RADIATION DOSES AT THE LIQUID SITE BOUNDARY

	Unit	Third Quarter	Fourth* Quarter
A.			
1. Total body dose	mrem	3.20E-2	2.01E-1
2. Percent Technical Specification Limit	%	2.13E+0	1.34E+1
B.			
1. Limiting organ dose	mrem	4.30E-2	2.89E-1
2. Percent Technical Specification Limit	%	8.60E-1	5.78E+0

NOTE: The limiting organ for the third quarter is the Liver and for the fourth quarter the Thyroid.

* Fourth quarter dose incomplete due to Sr-89, Sr-90, and Fe-55 analyses not available at report time; values will be reported in the following Semiannual Report.

TABLE 2E
S.O.N.G.S. 1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-BATCH RELEASE SUMMARY

	6-MONTH PERIOD
1. Number of batch releases:	20 releases
2. Total time period for a batch release:	28753 minutes
3. Maximum time period for a batch release:	2117 minutes
4. Average time period for a batch release:	1065 minutes
5. Minimum time period for a batch release:	2 minutes
6. Average saltwater flow during batch releases:	245331 gpm

SECTION D. PREVIOUS SEMIANNUAL REPORT ADDENDUM

S.O.N.G.S. 1

1. The January - June 1988 Semiannual Report values for composite Gross alpha, Sr-89, Sr-90, and Fe-55 (Tables 1A and 1C, Gaseous Effluents, Tables 2A and 2B, Liquid Effluents) were incomplete due to data not available at report time. The values not reported were for the second quarter of 1988. The values are as follows:

GASEOUS EFFLUENTS (2nd Quarter 1988)

Nuclides Released	Unit	Continuous Mode	Batch Mode
strontium-89	Ci	<LLD	*
strontium-90	Ci	<LLD	*
Gross alpha	Ci	<LLD	*

Sr-89 LLD = $<1.00\text{E-}14$ uCi/cc

Sr-90 LLD = $<1.00\text{E-}15$ uCi/cc

Gross alpha LLD = $<1.00\text{E-}14$ uCi/cc

- * - All gaseous releases made from S.O.N.G.S. 1 are vented through the Plant Stack, therefore, gross alpha Sr-89, and Sr-90 are analyzed by "continuous" mode only.

LIQUID EFFLUENTS (2nd Quarter 1988)

Nuclides Released	Unit	Continuous Mode	Batch Mode
iron-55	Ci	<LLD	2.19E-3
strontium-89	Ci	<LLD	2.85E-5
strontium-90	Ci	<LLD	4.55E-5
Gross alpha	Ci	<LLD	**

Fe-55 LLD = $<1.00\text{E-}6$ uCi/ml

Sr-89 LLD = $<5.00\text{E-}8$ uCi/ml

Sr-90 LLD = $<1.00\text{E-}8$ uCi/ml

Gross alpha LLD = $<1.00\text{E-}7$ uCi/ml

- ** - Gross alpha is reported as total activity released per quarter. See Tables 1A & 2A.

SECTION D. PREVIOUS SEMIANNUAL REPORT ADDENDUM (Continued)

S.O.N.G.S. 1

2. GASEOUS EFFLUENT-RADIATION DOSES AT THE SITE BOUNDARY

For the second quarter of 1988 Semiannual Report, Sr-89 and Sr-90

	Unit	Second Quarter
A. Tritium, Iodine, Particulate (at the nearest receptor)		
1. Organ dose	mrem	0.00E+0
2. Percent Applicable Limit	%	0.00E+0

NOTE: Calculations performed in accordance with the ODCM utilizing the historical X/Q.

3. LIQUID EFFLUENT-RADIATION DOSES AT THE SITE BOUNDARY

For the second quarter of 1988 Semiannual Report, Sr-89, Sr-90, and Fe-55.

	Unit	Second Quarter
A.		
1. Total body dose	mrem	6.96E-4
2. Percent Applicable Limit	%	4.64E-2
B.		
1. Limit organ dose	mrem	2.77E-3
2. Percent Applicable Limit	%	9.23E-2

NOTE: The limiting organ is the Liver.

SECTION E. RADWASTE SHIPMENTS

S.O.N.G.S. 1

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	NA	3.00E+1
b. Dry compressible waste, contaminated equip. etc.	m ³ Ci	1.36E+1** 1.85E+0	3.00E+1
c. Irradiated components, control rods, etc.	m ³ Ci	NA NA	NA
d. Other (absorbed liquids, sand, building rubble, biological waste.)	m ³ Ci	2.12E-1** 1.17E-1	3.00E+1

** Material packaged in 55-gallon DOT 7A Type A drums (7.5 ft³ ea.)
and steel boxes (strong, tight containers 98.0 ft³ ea.).

SECTION E. RADWASTE SHIPMENTS (Continued)

S.O.N.G.S. 1

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
SOLID WASTE AND IRRADIATED FUEL SHIPMENT

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel) (Continued)

2. Estimate of major nuclide composition (by type of waste)

a.	Not applicable	%	0.00E+0
b.	carbon-14	%	2.82E-3
	cesium-134	%	6.05E+0
	cesium-137	%	1.31E+1
	chromium-51	%	3.50E-1
	cobalt-58	%	1.81E+0
	cobalt-60	%	6.75E+0
	iodine-129	%	3.21E+0
	iron-55	%	1.66E+1
	iron-59	%	5.67E-3
	manganese-54	%	1.95E+0
	nickel-63	%	2.27E+0
	plutonium-241	%	3.38E-2
	strontium-90	%	6.00E-3
	technetium-99	%	1.95E+0
	tritium	%	4.59E+1

SECTION E. RADWASTE SHIPMENTS (Continued)

S.O.N.G.S. 1

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
SOLID WASTE AND IRRADIATED FUEL SHIPMENT

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel) (Continued)

2. Estimate of major nuclide composition (by type of waste)

c. Not applicable	%	0.00E+0
-------------------	---	---------

d. carbon-14	%	7.69E-3
cesium-134	%	1.57E-1
cesium-136	%	2.78E-1
cesium-137	%	8.97E-1
cobalt-57	%	3.85E-2
cobalt-58	%	5.63E-1
cobalt-60	%	2.98E+1
iodine-129	%	8.55E-4
iron-55	%	9.57E+0
nickel-59	%	1.21E-1
nickel-63	%	4.03E+0
plutonium-241	%	1.05E+0
strontium-90	%	1.27E-1
technetium-99	%	8.55E-4
tritium	%	5.36E+1

3. Solid Waste Disposition

See COMMON section of this report

B. IRRADIATED FUEL SHIPMENTS (Disposition)

See COMMON section of this report

SECTION F. TECHNICAL SPECIFICATION LIMITS AND APPLICABLE LIMITS

Gaseous Effluents - Technical Specification Limits

The percent of Technical Specification Limit, tabulated in Table 1A, was determined by calculation of the following parameter:

$$\% \text{ TSL} = \frac{(\text{Rel Rate}) (X/Q) (100)}{\text{MPC}_{\text{eff}}}$$

Where: Rel Rate = Total curies released in each category and each quarter, divided by the seconds in a quarter; this is the value in Parts A.2, B.2, C.2 and D.2 of Table 1A, converted to microcuries.

X/Q = $1.30\text{E-}5 \text{ sec/m}^3$ and is the annual average atmospheric dispersion defined in the ODCM, Rev. 3.

The MPC_{eff} is defined as:

$$\frac{1}{\sum_{i=1}^n \frac{F_i}{\text{MPC}_i}}$$

Where: F_i = fractional abundance of the i th radionuclide obtained by dividing the activity in curies for each radionuclide, C_i , by the sum of all such activities, C_T .

n = total number of radionuclides identified

MPC_i = MPC of the i th radionuclide

The % TSL is placed in Parts A.3, B.3, C.3 and D.3 of Table 1A.

SECTION F. TECHNICAL SPECIFICATION LIMITS AND APPLICABLE LIMITS

Liquid Effluents - Applicable Limits

The percent of applicable limit, tabulated in Table 2A, was determined by calculation of the following parameter:

$$\% \text{ Applicable Limit} = \frac{(\text{Dil Conc}) (100)}{\text{MPC}_{\text{eff}}}$$

Where: Dil Conc = total curies released in each category and each quarter, converted to microcuries, divided by the total volume released (sum of Parts E and F in Table 2A) converted to milliliters. This number is the value in Part A.2, B.2 and C.2 of Table 2A.

The MPC_{eff} is defined as:

$$\sum_{i=1}^n \frac{F_i}{\text{MPC}_i}$$

Where: F_i = fractional abundance of the i th radionuclide obtained by dividing the activity in curies for each radionuclide, C_i , by the sum of all such activities, C_T .

n = total number of radionuclides identified

MPC_i = MPC of the i th radionuclide

The % Applicable Limit is placed in Parts A.3, B.3 and C.3 of Table 2A.

SECTION G. ESTIMATION OF ERROR

S.O.N.G.S. 1

Estimations of the error in reported values of gaseous and liquid effluents releases have been made. Sources of error considered for gaseous effluents - batch releases are: (1) tank volumes, (2) sampling errors, (3) counting errors, and (4) calibration errors. Sources of error for gaseous effluents - continuous releases are: (1) fan flow rate, (2) sampling, (3) counting, (4) calibration and (5) differential pressure drop.

Sources of error for liquid effluents - batch releases are: (1) tank volumes, (2) sampling, (3) counting and (4) calibration. Sources of error for liquid effluents - continuous releases are: (1) dilution water flow rate, (2) sampling, (3) counting and (4) calibration.

These sources of error are independent, and thus, the total error is calculated according to the following formula:

$$\text{Total Error} = \sqrt{\sigma_1^2 + \sigma_2^2 + \sigma_3^2 + \dots \sigma_j^2}$$

Where: σ_j = Error associated with each component.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS

S.O.N.G.S. 1

Table 1 in Section H presents the quarterly maximum dose to an individual. Six different categories are presented: (1) Liquid Effluents - Whole Body, (2) Liquid Effluents - Organ, (3) Airborne Effluents - Tritium, Iodines and Particulates, (4) Noble Gases - Gamma, (5) Noble Gases - Beta, and (6) Direct Radiation.

The doses for categories 1 and 2 were calculated using the methodology of the ODCM, this data is also presented in Table 2D for the third and fourth quarters. Categories 3, 4, and 5 were calculated utilizing RRRGS (Radioactive Release Report Generating System) software, Regulatory Guide 1.109 methodology, and concurrent meteorology. Table 1E of gaseous effluents previously presented, however, lists data similar to categories 3, 4 and 5 using methods described in the ODCM and the historical meteorology (X/Q). Category 6 presents direct dose data measured by TLD dosimeters. Each portion of each category is footnoted to briefly describe each maximum individual dose presented.

Table 2 in Section H presents the percent of Technical Specification Limits for each dose presented in Table 1.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 1

TABLE 1

SOURCE	Dose* (millirems)				
	1st Q	2nd Q	3rd Q	4th Q	Year
LIQUID EFFLUENTS	1)	2)	3)	4)	5)
Whole body	2.83E-1	3.78E-2	3.20E-2	2.01E-1	5.54E-1
Organ	6)	7)	8)	9)	10)
	4.77E-1	5.10E-2	4.30E-2	2.89E-1	7.69E-1
AIRBORNE EFFLUENTS	11)	12)	13)	14)	15)
Tritium, Iodines, and Particulates	8.27E-3	8.09E-3	1.89E-3	4.78E-2	6.60E-2
NOBLE GASES**	16)	17)	18)	19)	20)
Gamma	8.51E-2	0.00E+0	4.99E-2	2.87E-1	3.89E-1
Beta	21)	22)	23)	24)	25)
	2.48E-1	0.00E+0	1.25E-1	7.78E-1	1.07E+0
DIRECT RADIATION	26)	27)	28)	29)	30)
	1.23E+0	1.05E+0	4.00E+0	5.30E+0	1.16E+1

* - The numbered footnotes below briefly explain how each maximum dose was calculated, including the organ and the predominant pathway(s).

** - Noble gas doses due to airborne effluents are in units of mrad reflecting the air dose.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 1

1. This data was calculated using the methodology of the ODCM.
2. This data was calculated using the methodology of the ODCM.
3. This data was calculated using the methodology of the ODCM.
4. This data was calculated using the methodology of the ODCM.
5. This data was calculated using the methodology os the ODCM.
6. This data was calculated using the methodology of the ODCM; the Thyroid received the maximum dose primarily by the saltwater fish pathway.
7. This data was calculated using the methodology of the ODCM; the Liver received the maximum dose primarily by the saltwater fish pathway.
8. This data was calculated using the methodology of the ODCM; the Liver received the maximum dose primarily by the saltwater fish pathway.
9. This data was calculated using the methodology of the ODCM; the Thyroid received the maximum dose primarily by the saltwater fish pathway.
10. This data was calculated using the methodology of the ODCM; the Thyroid received the maximum dose primarily by the saltwater fish pathway.
11. The maximum organ dose was to a child's thyroid and was located in the NW sector. This was calculated using the activity reported in the January - June 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
12. The maximum organ dose was to a child's thyroid and was located in the NW sector. This was calculated using the activity reported in the January - June 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
13. The maximum organ dose was to a child's thyroid and was located in the NW sector. This was calculated using the activity reported in the July - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
14. The maximum organ dose was to a child's thyroid and was located in the NW sector. This was calculated using the activity reported in the July - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 1

15. The maximum organ dose was to a child's thyroid and was located in the NW sector. This was calculated using the activity reported in the January - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
16. A maximum air dose of $7.09\text{E}-1$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the NW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
17. A gaseous dose of $0.00\text{E}+0$ was calculated since the Unit was shut down during the entire second quarter.
18. A maximum air dose of $7.86\text{E}-2$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the NNW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
19. A maximum air dose of $1.12\text{E}+0$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the WNW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
20. A maximum air dose of $1.91\text{E}+0$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the NW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
21. A maximum air dose of $2.04\text{E}+0$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the NW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
22. A gaseous dose of $0.00\text{E}+0$ was calculated since the Unit was shut down during the entire second quarter.

H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 1

23. A maximum air dose of $1.89\text{E}-1$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the NNW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
24. A maximum air dose of $3.03\text{E}+0$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the WNW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
25. A maximum air dose of $5.26\text{E}+0$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the NW sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of the USNRC Regulatory Guide 1.109.
26. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
27. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
28. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
29. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
30. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 1

TABLE 2

	PERCENT TECHNICAL SPECIFICATION LIMITS				
SOURCE	1st Q	2nd Q	3rd Q	4th Q	Year
LIQUID EFFLUENTS					
Whole body	1.89E+1	2.52E+0	2.13E+0	1.34E+1	1.85E+1
Organ	9.54E+0	9.64E-1	8.59E-1	5.78E+0	7.69E+0
AIRBORNE EFFLUENTS					
Tritium, Iodines, and Particulates	1.10E-1	1.08E-1	2.52E-2	6.37E-1	4.40E-1
NOBLE GASES					
Gamma	1.70E+0	0.00E+0	9.98E-1	5.74E+0	3.89E+0
Beta	2.48E+0	0.00E+0	1.25E+0	7.78E+0	5.35E+0

NOTE: Direct Radiation is not specifically addressed in the Technical Specifications.

SECTION I. CHANGES TO OFFSITE DOSE CALCULATION MANUAL

S.O.N.G.S 1

- o There were no changes to the Unit 1 Offsite Dose Calculation Manual during the reporting period, July 1, 1988 to December 31, 1988.

SECTION J. S.O.N.G.S. 1 MISCELLANEOUS

- o There were no unplanned releases of radioactive gases or liquid from Unit 1 during the reporting period, July 1, 1988 to December 31, 1988.

July 1, 1988 - December 31, 1988

EFFLUENT RADIATION MONITORS OUT OF SERVICE FOR GREATER THAN 30 DAYS

S.O.N.G.S. 1

Monitor	Inoperability Period	Inoperability Cause	Explanation
R-1214 Plant Vent Noble Gas	06/13/86 - Present	Removed from service.	Maintained out of service. Pending evaluation of calibration deficiency.
R-1254 Plant Vent Stack-WRGM	08/27/85 - Present	Process Flow Monitor Out of Service.	Plant vent stack flow data measurements by project to evaluate a proposed design change.
	11/16/88 - 12/16/88	Removal of sample line heat tracing.	Removed heat trace control and alarm boards to trace out circuit.
R-1216 Steam Generator Blowdown	11/28/88 - Present	Reading and background too high.	Monitor inoperable during outage. (No S/G to induce flow.)
	12/14/88 - Present	18 month surveillance. Low sample flow.	Not required and no sample flow. Unit shut down for entire period.
R-1218 Liquid Radwaste	06/08/88 - 07/29/88	Rework ground leads.	Implementation of FCN S-3039E, reviewing of grounding leads to ground bus bar.

SECTION K. S.O.N.G.S. 1 CONCLUSIONS

- o Gaseous effluent releases totaled $2.03\text{E}+3$ curies with Xe-133 94.5% of the total.
- o The radiation doses from gaseous releases are: (a) gamma air dose: $3.51\text{E}-1$ mrad at the site boundary, (b) beta air dose: $9.31\text{E}-1$ mrad at the site boundary, c) organ dose: $2.65\text{E}-2$ mrem at the nearest receptor.
- o Liquid releases totaled $9.29\text{E}+2$ curies of which tritium was $9.17\text{E}+2$ Ci, noble gases were $1.18\text{E}+1$ Ci and particulates and iodines were $2.28\text{E}-1$ Ci.
- o The radiation doses from liquid releases are: (a) total body: $2.33\text{E}-1$ mrem, (b) limiting organ: $4.30\text{E}-2$ mrem (Liver) for the third quarter, and $2.89\text{E}-1$ mrem (Thyroid) for the fourth quarter.
- o The radioactive releases and resulting doses generated from Unit 1 were below the Technical Specification Limits for both gaseous and liquid effluents.

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SEMIANNUAL EFFLUENT REPORT

July - December (1988)

SECTION A. INTRODUCTION

This Semiannual Report summarizes the gaseous and liquid radioactive effluent releases and radwaste shipments made from the San Onofre Nuclear Generating Station, Units 2 and 3. This report is prepared in the general format of USNRC Regulatory Guide 1.21 and includes:

1. Quarterly Summaries of Gaseous and Liquid Effluents For "Continuous" and "Batch" Modes of Release;
2. Percent of Technical Specification Limits;
3. Percent of Applicable Limits;
4. Estimated Total Percent Error;
5. Lower Limit of Detection Concentrations;
6. Batch Release Summaries;
7. Previous Semiannual Report Addendum;
8. Radwaste Shipments;
9. 10CFR50 Appendix I Requirements.

SECTION B. GASEOUS EFFLUENTS

Table 1A, "Gaseous Effluents-Summation of All Releases," provides a detailed listing of gaseous effluents released quarterly in four categories: fission and activation gases, iodine-131, particulates with half-lives greater than eight days, and tritium. Listed for each of the four categories are: (1) the total curies released, (2) the average release rate, (3) the percent of Technical Specification Limit (TSL), and (4) the estimated total error. In addition, the particulate category lists the gross alpha radioactivity released for each quarter.

The methodology used in Table 1A to calculate the estimated total error is presented in Section G of this report.

Table 1B, "Gaseous Effluents-Elevated Release," has not been included in this report since San Onofre Nuclear Generating Station Units 2 and 3 do not conduct elevated releases.

Table 1C, "Gaseous Effluents-Ground-Level Releases," provides the systematic listing by radionuclide for the quantity of radioactivity released in three categories: fission gases, iodines, and particulates. The total radioactivity for each radionuclide is listed for each quarterly period by both "continuous" and "batch" modes of release.

Waste gas decay tank and calibration releases are considered to be "batch" releases. Containment purges, steam jet air ejector and plant stack releases are considered to be "continuous" releases.

Table 1D, "Gaseous Effluents-Lower Limit of Detection," provides a listing of lower limit of detection concentrations for radionuclides not detected in Table 1A and 1C.

Table 1E, "Gaseous Effluents-Radiation Doses at the Site Boundary," provides a quarterly summary of doses at the site boundary for this report period.

Table 1F, "Gaseous Effluents-Batch Release Summary," provides summary information regarding batch releases conducted during this report period from San Onofre Nuclear Generating Station Units 2-3.

TABLE 1A

S.O.N.G.S 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

	Unit	Third Quarter	Fourth Quarter	Estimated Total Error, %
A. Fission and activation gases				
1. Total release	Ci	9.46E+2	5.08E+2	2.50E+1
2. Average release rate for period	uCi/sec	1.19E+2	6.39E+1	
3. Percent of technical specification limit	%	2.42E-1	1.19E-1	
=====				
B. Iodines				
1. Total iodine-131	Ci	8.51E-3	6.14E-3	1.90E+1
2. Average release rate for period	uCi/sec	1.07E-3	7.72E-4	
3. Percent of technical specification limit	%	5.14E-3	3.71E-3	
=====				
C. Particulates				
1. Particulates with half-lives > 8 days	Ci	7.45E-4	7.00E-5	1.60E+1
2. Average release rate for period	uCi/sec	9.37E-5	8.80E-6	
3. Percent of technical specification limit	%	6.65E-5	6.12E-6	
4. Gross alpha radioactivity	Ci	<LLD	*	5.00E+1
=====				
D. Tritium				
1. Total release	Ci	2.86E-1	3.89E+0	2.50E+1
2. Average release rate for period	uCi/sec	3.60E-2	4.89E-1	
3. Percent of technical specification limit	%	8.64E-5	1.17E-3	
=====				

LLD - Lower Limit of Detection; See Table 1D.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 1C
S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
1. Fission gases					
argon-41	Ci	4.32E+0	2.12E+0	<LLD	<LLD
krypton-85	Ci	<LLD	<LLD	1.38E+0	6.00E+0
krypton-85m	Ci	2.48E+1	7.34E-1	<LLD	4.84E-4
krypton-87	Ci	6.79E-2	8.57E-1	<LLD	<LLD
krypton-88	Ci	2.31E-3	1.39E-1	<LLD	<LLD
xenon-131m	Ci	7.20E-1	8.28E+0	<LLD	2.39E-1
xenon-133	Ci	8.25E+2	4.58E+2	6.74E-2	2.31E+0
xenon-133m	Ci	2.02E-1	4.40E-2	2.95E-3	8.23E-3
xenon-135	Ci	8.87E+1	2.85E+1	1.73E-4	7.56E-3
xenon-135m	Ci	8.33E-2	1.23E-1	<LLD	<LLD
xenon-138	Ci	<LLD	1.65E-3	<LLD	<LLD
Total for period	Ci	9.44E+2	4.99E+2	1.45E+0	8.56E+0

2. Iodines

iodine-131	Ci	8.51E-3	6.14E-3	NA	NA
iodine-132	Ci	5.98E-5	1.64E-5	NA	NA
iodine-133	Ci	2.07E-3	2.67E-3	NA	NA
iodine-135	Ci	2.87E-4	2.21E-4	NA	NA
Total for period	Ci	1.09E-2	9.05E-3	NA	NA

LLD - Lower Limit of Detection; See Table 1D.

NA - Iodines and particulates are not analyzed prior to release via batch mode.

TABLE 1C (Continued)

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-GROUND-LEVEL RELEASES

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
3. Particulates					
barium-139	Ci	1.26E-7	2.06E-6	NA	NA
barium-140	Ci	<LLD	<LLD	NA	NA
bromine-82	Ci	7.04E-5	3.32E-5	NA	NA
cesium-134	Ci	1.25E-6	<LLD	NA	NA
cesium-137	Ci	8.11E-5	1.16E-5	NA	NA
cesium-138	Ci	2.10E-4	3.47E-3	NA	NA
chromium-51	Ci	2.04E-5	1.32E-5	NA	NA
cobalt-58	Ci	3.50E-4	2.36E-5	NA	NA
cobalt-60	Ci	2.13E-4	1.91E-5	NA	NA
lanthanum-140	Ci	<LLD	<LLD	NA	NA
manganese-54	Ci	3.61E-5	1.19E-6	NA	NA
molybdenum-99	Ci	8.83E-6	<LLD	NA	NA
niobium-95	Ci	4.31E-5	<LLD	NA	NA
niobium-97	Ci	7.17E-4	<LLD	NA	NA
rubidium-88	Ci	1.78E-3	1.91E-2	NA	NA
sodium-24	Ci	4.55E-6	<LLD	NA	NA
strontium-89	Ci	<LLD	*	NA	NA
strontium-90	Ci	<LLD	*	NA	NA
strontium-92	Ci	6.65E-9	2.29E-7	NA	NA
technetium-99m	Ci	9.01E-6	<LLD	NA	NA
tellurium-132	Ci	4.27E-9	2.19E-8	NA	NA
zirconium-95	Ci	7.80E-8	1.27E-6	NA	NA

LLD - Lower Limit of Detection; See Table 1D.

NA - Iodines and particulates are not analyzed prior to release via batch mode.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 1D

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
 GASEOUS EFFLUENTS-LOWER LIMIT OF DETECTION

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/cc)	BATCH MODE LLD (uCi/cc)
<u>1. Fission and activation gases</u>		
argon-41	*	3.70E-8
krypton-85	4.70E-5	*
krypton-85m	*	5.00E-8
krypton-87	*	1.50E-7
krypton-88	*	1.70E-7
xenon-131m	*	1.80E-6
xenon-135m	*	1.00E-6
xenon-138	2.30E-6	2.00E-6
<u>2. Iodines</u>		
None		
<u>3. Particulates</u>		
barium-140	6.00E-13	NA
cesium-134	1.90E-13	NA
lanthanum-140	1.00E-12	NA
molybdenum-99	2.40E-13	NA
niobium-95	1.60E-13	NA
niobium-97	4.70E-11	NA
sodium-24	2.30E-12	NA
strontium-89	1.00E-13	NA
strontium-90	1.00E-14	NA
technetium-99m	2.40E-13	NA
gross alpha	1.00E-13	NA

NA - Iodines and particulates are not analyzed prior to release via batch mode.

* - Nuclides were detected in Table 1C.

TABLE 1E
S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-RADIATION DOSES AT THE SITE BOUNDARY

	Unit	Third Quarter	Fourth Quarter*
A. Noble Gas			
1. Gamma air dose	mrad	8.09E-2	3.81E-2
2. Percent Technical Specification Limit	%	8.09E-1	3.81E-1
3. Beta air dose	mrad	1.74E-1	9.13E-2
4. Percent Technical Specification Limit	%	8.70E-1	4.56E-1
B. Tritium, Iodine, Particulate (at the nearest receptor)			
1. Organ dose	mrem	6.95E-3	5.01E-3
2. Percent Technical Specification Limit	%	4.63E-2	3.34E-2

NOTE: Calculations performed in accordance with the ODCM utilizing the historical X/Q.

* Fourth quarter dose incomplete due to Sr-89, and Sr-90 analyses not available at report time; values will be reported in the following Semiannual Report.

TABLE 1F
S.O.N.G.S 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
GASEOUS EFFLUENTS-BATCH RELEASE SUMMARY

	6-MONTH PERIOD
1. Number of batch releases:	10 releases
2. Total time period for batch releases:	2866 minutes
3. Maximum time period for a batch:	378 minutes
4. Average time period for a batch release:	287 minutes
5. Minimum time period for a batch release:	120 minutes

SECTION C. LIQUID EFFLUENTS

Table 2A, "Liquid Effluents-Summation of All Releases," provides a detailed summary of liquid effluents released quarterly in three categories: fission and activation products, tritium, and dissolved and entrained gases. Listed for each of the three categories are: (1) the total curies released, (2) the average diluted concentration, (3) the percent of applicable limit and (4) the estimated total error. In addition, Table 2A lists: (1) the gross alpha radioactivity, (2) the volume of waste released (prior to dilution), and (3) the volume of the dilution water.

The methodology used to calculate the percent of applicable limit is presented in Section F of this report. The methodology used to calculate the estimated total error in Table 2A is presented in Section G of this report.

Table 2B, "Liquid Effluents," provides the systematic listing by radionuclide for the quantity of radioactivity released in each category. The total radioactivity of each radionuclide released is listed for each quarterly period by both "continuous" and "batch" modes of release.

Table 2C, "Liquid Effluents-Lower Limit of Detection," provides a listing of lower limit of detection concentrations for radionuclides not detected in Tables 2A and Table 2B.

Table 2D, "Liquid Effluents-Radiation Doses at the Liquid Site Boundary," presents a quarterly summary of doses at the Liquid Site Boundary for this report period.

Table 2E, "Liquid Effluents-Batch Release Summary," provides summary information regarding batch releases conducted during this report period from San Onofre Nuclear Generating Station Units 2-3.

TABLE 2A

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

	Unit	Third Quarter	Fourth Quarter	Estimated Total Error, %
A. Fission and activation products				
1. Total release (not including tritium, gases, alpha)	Ci	1.03E-1	3.77E-2	1.90E+1
2. Average diluted concentration during period	uCi/ml	1.46E-10	4.88E-11	
3. Percent of applicable limit	%	2.15E-3	5.74E-4	
=====				
B. Tritium				
1. Total release	Ci	3.18E+0	1.69E+2	1.90E+1
2. Average diluted concentration during period	uCi/ml	4.49E-9	2.19E-7	
3. Percent of applicable limit	%	1.50E-4	7.30E-3	
=====				
C. Dissolved and entrained gases				
1. Total release	Ci	1.37E+0	1.20E-1	1.90E+1
2. Average diluted concentration during period	uCi/ml	1.94E-9	1.55E-10	
3. Percent of applicable limit	%	9.70E-4	7.75E-5	
=====				
D. Gross alpha radioactivity				
1. Total release	Ci	<LLD	*	5.00E+1
=====				
E. Volume of waste released (prior to dilution)				
	liters	1.17E+7	3.79E+6	5.00E+0
=====				
F. Volume of dilution water used during period				
	liters	7.08E+11	7.73E+11	5.00E+0
=====				

LLD - Lower Limit of Detection; see Table 2C.

* - Fourth quarter analyses not available at report time; values will be included in the following Semiannual Report.

TABLE 2B

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
antimony-124	Ci	<LLD	<LLD	6.64E-4	2.80E-5
antimony-125	Ci	<LLD	<LLD	7.94E-3	1.04E-3
barium-139	Ci	<LLD	<LLD	1.84E-5	1.02E-5
barium-140	Ci	<LLD	<LLD	<LLD	<LLD
cerium-141	Ci	<LLD	<LLD	2.46E-5	8.09E-6
cerium-144	Ci	<LLD	<LLD	2.44E-4	6.75E-4
cesium-134	Ci	1.45E-4	3.92E-4	1.95E-3	4.70E-3
cesium-136	Ci	<LLD	<LLD	2.79E-5	<LLD
cesium-137	Ci	1.11E-3	2.46E-3	4.27E-3	1.37E-2
chromium-51	Ci	<LLD	<LLD	2.90E-3	1.77E-4
cobalt-57	Ci	<LLD	<LLD	2.07E-4	2.96E-5
cobalt-58	Ci	<LLD	<LLD	6.52E-2	5.77E-3
cobalt-60	Ci	<LLD	1.84E-4	6.18E-3	2.68E-3
iodine-131	Ci	2.35E-4	<LLD	3.79E-3	8.08E-4
iodine-133	Ci	<LLD	*	6.50E-5	2.22E-5
iron-55	Ci	<LLD	<LLD	<LLD	*
iron-59	Ci	<LLD	<LLD	1.35E-4	8.09E-6
lanthanum-140	Ci	<LLD	<LLD	8.98E-5	5.75E-5
manganese-54	Ci	<LLD	<LLD	1.58E-3	2.14E-3
molybdenum-99	Ci	<LLD	1.34E-4	2.76E-4	6.30E-6
niobium-95	Ci	<LLD	<LLD	2.80E-3	6.84E-4
niobium-95m	Ci	<LLD	<LLD	1.52E-5	<LLD
niobium-97	Ci	<LLD	<LLD	1.46E-5	<LLD
rubidium-88	Ci	<LLD	<LLD	2.73E-4	<LLD
ruthenium-103	Ci	<LLD	<LLD	9.96E-5	3.11E-5
ruthenium-106	Ci	<LLD	<LLD	<LLD	1.02E-4
silver-110m	Ci	<LLD	<LLD	6.08E-4	1.22E-3
strontium-89	Ci	<LLD	*	<LLD	*
strontium-90	Ci	<LLD	*	<LLD	*
technetium-99m	Ci	<LLD	1.37E-4	2.81E-4	6.41E-6
tellurium-132	Ci	<LLD	<LLD	1.06E-5	<LLD
tin-113	Ci	<LLD	<LLD	2.71E-4	1.19E-4
zinc-65	Ci	<LLD	<LLD	<LLD	<LLD
zirconium-95	Ci	<LLD	<LLD	1.50E-3	3.57E-4
Total for period (above)	Ci	1.49E-3	3.31E-3	1.01E-1	3.44E-2

=====

LLD - Lower Limit of Detection; see Table 2C.

* - Fourth quarter analyses not available at report time;
values will be included in the following Semiannual Report.

TABLE 2B (Continued)

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
argon-41	Ci	<LLD	<LLD	7.67E-6	<LLD
krypton-85	Ci	<LLD	<LLD	7.75E-3	<LLD
krypton-85m	Ci	<LLD	<LLD	1.71E-5	3.75E-5
xenon-131m	Ci	4.88E-3	2.53E-3	2.57E-2	1.81E-3
xenon-133	Ci	2.98E-4	<LLD	1.31E+0	9.96E-2
xenon-133m	Ci	<LLD	<LLD	1.21E-2	1.32E-3
xenon-135	Ci	<LLD	8.93E-3	7.69E-3	6.05E-3

LLD - Lower Limit of Detection; see Table 2C.

TABLE 2C

S.O.N.G. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-LOWER LIMIT OF DETECTION

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/ml)	BATCH MODE LLD (uCi/ml)
(1) Fission and activation products		
antimony-124	3.10E-7	*
antimony-125	1.80E-7	*
barium-139	**	*
barium-140	3.00E-7	2.00E-7
cerium-141	8.90E-8	*
cerium-144	3.90E-7	*
cesium-136	1.40E-7	3.80E-8
chromium-51	6.60E-7	*
cobalt-57	5.30E-8	*
cobalt-58	1.10E-7	*
cobalt-60	1.10E-8	*
iodine-131	8.00E-8	*
iodine-133	5.80E-7	*
iron-55	1.00E-6	1.00E-6
iron-59	1.80E-7	*
lanthanum-140	4.90E-7	*
manganese-54	7.20E-8	*
molybdenum-99	1.10E-7	*
niobium-95	7.10E-8	*
niobium-95m	3.00E-7	1.40E-7
niobium-97	8.50E-7	6.10E-8
rubidium-88	**	1.70E-6
ruthenium-103	5.60E-8	*
ruthenium-106	7.10E-7	5.10E-7
silver-110m	1.10E-7	*
strontium-89	5.00E-8	5.00E-8
strontium-90	1.00E-8	1.00E-8
technetium-99m	1.10E-7	*
tellurium-132	1.10E-7	3.80E-8
tin-113	6.40E-8	*
zinc-65	1.90E-7	6.90E-8

* - Nuclide detected in Table 2B.

** - Weekly composite analysis will not detect this isotope.

TABLE 2C (Continued)

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
 LIQUID EFFLUENTS-LOWER LIMIT OF DETECTION

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/ml)	BATCH MODE LLD (uCi/ml)
zirconium-95	1.40E-7	*
gross alpha	1.00E-7	1.00E-7

* - Nuclide detected in Table 2B.

RADIONUCLIDES	CONTINUOUS MODE LLD (uCi/ml)	BATCH MODE LLD (uCi/ml)
(2) Dissolved and entrained gases		
argon-41	1.20E-7	3.70E-8
krypton-85	4.70E-5	2.00E-5
krypton-85m	1.30E-7	*
xenon-133	3.80E-7	*
xenon-133m	9.30E-7	*
xenon-135	2.30E-8	*

* - Nuclide detected in Table 2B.

TABLE 2D

S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-RADIATION DOSES AT THE LIQUID SITE BOUNDARY

	Unit	Third Quarter	Fourth* Quarter
A.			
1. Total body dose	mrem	1.85E-3	1.58E-3
2. Percent Technical Specification Limit	%	6.16E-2	5.27E-2
B.			
1. Limiting organ dose	mrem	1.06E-2	6.30E-3
2. Percent Technical Specification Limit	%	1.06E-1	6.30E-2

NOTE: The limiting organ for the reporting period is the GI-LLI.

* Fourth quarter dose incomplete due to Sr-89, Sr-90, and Fe-55 analyses not available at report time; values will be reported in the following Semiannual Report.

TABLE 2E
S.O.N.G.S. 2 - 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
LIQUID EFFLUENTS-BATCH RELEASE SUMMARY

	6-MONTH PERIOD
1. Number of batch releases:	130 releases
2. Total time period for batch releases:	21824 minutes
3. Maximum time period for a batch release:	988 minutes
4. Average time period for a batch release:	168 minutes
5. Minimum time period for a batch release:	20 minutes
6. Average saltwater flow during batch releases:	740000 gpm

SECTION D. PREVIOUS SEMIANNUAL REPORT ADDENDUM

S.O.N.G.S. 2 - 3

1. The January - June 1988 Semiannual Report values for composite Gross alpha, Sr-89, Sr-90, and Fe-55 (Tables 1A and 1C, Gaseous Effluents, Tables 2A and 2B, Liquid Effluents) were incomplete due to data not available at report time. The values not reported were for the second quarter of 1988. The values are as follows:

GASEOUS EFFLUENTS (2nd Quarter 1988)

Nuclides Released	Unit	Continuous Mode	Batch Mode
strontium-89	Ci	5.19E-8	*
strontium-90	Ci	<LLD	*
Gross alpha	Ci	<LLD	*

Sr-90 LLD = $<1.00\text{E-}14$ uCi/cc

Gross alpha LLD = $<1.00\text{E-}13$ uCi/cc

- * - All gaseous releases made from S.O.N.G.S 2-3 are vented through continuous discharge pathways, therefore, Sr-89 and Sr-90 are analyzed by "continuous" mode only.

LIQUID EFFLUENTS (2nd Quarter 1988)

Nuclides Released	Unit	Continuous Mode	Batch Mode
iron-55	Ci	2.27E-4	2.20E-3
strontium-89	Ci	1.43E-3	7.21E-3
strontium-90	Ci	1.59E-5	2.80E-5
Gross alpha	Ci	<LLD	**

Gross alpha LLD = $<1.00\text{E-}7$ uCi/ml

- ** - Gross alpha is reported as total activity released per quarter. See Table 1A.

SECTION D. PREVIOUS SEMIANNUAL REPORT ADDENDUM (Continued)

S.O.N.G.S. 2 - 3

2. GASEOUS EFFLUENT-RADIATION DOSES AT THE SITE BOUNDARY

For the second quarter of 1988 Semiannual Report, Sr-89, Sr-90, and Fe-55.

	Unit	Second Quarter
A. Tritium, Iodine, Particulate (at the nearest receptor)		
1. Limit organ dose	mrem	8.85E-8
2. Percent Applicable Limit	%	5.90E-7

NOTE: Calculations performed in accordance with the ODCM utilizing the historical X/Q.

3. LIQUID EFFLUENT-RADIATION DOSES AT THE SITE BOUNDARY

For the second quarter of 1988 Semiannual Report, Sr-89, Sr-90, and Fe-55.

	Unit	Fourth Quarter
A.		
1. Total body dose	mrem	8.86E-5
2. Percent Applicable Limit	%	2.95E-3
B.		
1. Limit organ dose	mrem	5.75E-4
2. Percent Applicable Limit	%	5.75E-3

NOTE: The limiting organ is the bone.

SECTION E. RADWASTE SHIPMENTS

S.O.N.G.S. 2 - 3

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	4.58E+1* 1.00E+3	3.00E+1
b. Dry compressible waste, contaminated equip. etc.	m ³ Ci	1.06E+2** 7.85E+0	3.00E+1
c. Irradiated components, control rods, etc.	m ³ Ci	NA NA	NA
d. Other (filters, sludge sand/rubble, wet trash)	m ³ Ci	0.00E+0 0.00E+0	3.00E+1

* Shipped in Type A Cask (C of C 9176), 1 - 142 cu.ft. High Integrity Container and 3 - 210 cu.ft. High Integrity Containers. Shipped in Type B Cask (C of C 9208), 2 - 142 cu.ft. High Integrity Containers. Shipped in closed van, 2 - 210 cu.ft. strong, tight containers and 1 - 142 cu.ft. strong, tight container.

** Material packaged in 55-gallon DOT 7A Type A (7.5 cu.ft. each) or strong, tight containers (steel boxes, 98 cu.ft. each).

SECTION E. RADWASTE SHIPMENTS (Continued)

S.O.N.G.S. 2 - 3

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

2. Estimate of major nuclide composition (by type of waste).

a.	antimony-125	%	2.79E-2
	carbon-14	%	2.34E-4
	cerium-141	%	1.22E-2
	cerium-144	%	1.02E-2
	cesium-134	%	3.38E+1
	cesium-137	%	5.08E+1
	cobalt-57	%	2.86E-2
	cobalt-58	%	3.10E+0
	cobalt-60	%	2.15E+0
	curium-242	%	6.41E-4
	iodine-129	%	8.24E-4
	iodine-131	%	7.46E-4
	iron-55	%	5.70E+0
	manganese-54	%	2.30E+0
	nickel-63	%	1.86E+0
	niobium-95	%	8.93E-3
	plutonium-241	%	1.41E-2
	strontium-89	%	1.12E-1
	strontium-90	%	7.53E-2
	technetium-99	%	1.40E-3
	tritium	%	1.21E-2
b.	antimony-125	%	2.84E-2
	carbon-14	%	4.62E-1
	cesium-134	%	2.13E+1
	cesium-136	%	1.13E+0
	cesium-137	%	2.99E+1
	cobalt-58	%	6.55E-1
	cobalt-60	%	1.92E+0
	curium-242	%	6.84E-1
	iodine-129	%	1.05E-1
	iodine-131	%	1.31E+0
	iron-55	%	1.92E+1
	manganese-54	%	3.18E-1
	nickel-63	%	3.69E+0
	niobium-95	%	1.17E-1
	plutonium-241	%	1.53E+0
	strontium-90	%	1.41E-2
	technetium-99	%	1.34E-2
	tritium	%	1.74E+1
	zirconium-95	%	2.75E-2

SECTION E. RADWASTE SHIPMENTS (Continued)

S.O.N.G.S. 2 - 3

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

c.	<u>Not applicable</u>	<u>%</u>	<u>0.00E+0</u>
d.	<u>Not applicable</u>	<u>%</u>	<u>0.00E+0</u>

3. Solid Waste Disposition

See COMMON section of this report

B. IRRADIATED FUEL SHIPMENTS (Disposition)

See COMMON section of this report

SECTION F. TECHNICAL SPECIFICATION LIMITS AND APPLICABLE LIMITS

Gaseous Effluents - Technical Specification Limits

The percent of Technical Specification Limit, tabulated in Table 1A, was determined by calculation of the following parameter:

$$\% \text{ TSL} = \frac{(\text{Rel Rate}) (X/Q) (100)}{\text{MPC}_{\text{eff}}}$$

Where: Rel Rate = total curies released in each category and each quarter, divided by the seconds in a quarter; this is the value in Parts A.2, B.2, C.2 and D.2 of converted to microcuries.

X/Q = $4.80\text{E-}6 \text{ sec/m}^3$ and is the annual average atmospheric dispersion defined in the ODCM, Rev. 17.

The MPC_{eff} is defined as:

$$\sum_{i=1}^n \frac{F_i}{\text{MPC}_i}$$

Where: F_i = fractional abundance of the i th radionuclide obtained by dividing the activity in curies for each radionuclide, C_i , by the sum of all such activities, C_T .

n = total number of radionuclides identified

MPC_i = MPC of the i th radionuclide

The % TSL is placed in Parts A.3, B.3, C.3 and D.3 of Table 1A.

SECTION F. TECHNICAL SPECIFICATION LIMITS AND APPLICABLE LIMITS

Liquid Effluents - Applicable Limits

The percent of applicable limit, tabulated in Table 2A, was determined by calculation of the following parameter:

$$\% \text{ Applicable Limit} = \frac{(\text{Dil Conc}) (100)}{\text{MPC}_{\text{eff}}}$$

Where: Dil Conc = total curies released in each category and each quarter, converted to microcuries, divided by the total volume released (sum of Parts E and F in Table 2A) converted to milliliters. This number is the value in Part A.2, B.2 and C.2 of Table 2A.

The MPC_{eff} is defined as:

$$\frac{1}{\sum_{i=1}^n \frac{F_i}{\text{MPC}_i}}$$

Where: F_i = fractional abundance of the i th radionuclide obtained by dividing the activity in curies for each radionuclide, C_i , by the sum of all such activities, C_T .

n = total number of radionuclides identified

MPC_i = MPC of the i th radionuclide

The % Applicable Limit is placed in Parts A.3, B.3 and C.3 of Table 2A.

SECTION G. ESTIMATION OF ERROR

S.O.N.G.S. 2 - 3

Estimations of the error in reported values of gaseous and liquid effluents releases have been made. Sources of error considered for gaseous effluents - batch releases are: (1) tank volumes, (2) sampling errors, (3) counting errors, and (4) calibration errors. Sources of error for gaseous effluents - continuous releases are: (1) fan flow rate, (2) sampling, (3) counting, (4) calibration and (5) differential pressure drop.

Sources of error for liquid effluents - batch releases are: (1) tank volumes, (2) sampling, (3) counting and (4) calibration. Sources of error for liquid effluents - continuous releases are: (1) dilution water flow rate, (2) sampling, (3) counting and (4) calibration.

These sources of error are independent, and thus, the total error is calculated according to the following formula:

$$\text{Total Error} = \sqrt{\sigma_1^2 + \sigma_2^2 + \sigma_3^2 + \dots \sigma_j^2}$$

Where: σ_j = Error associated with each component.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS

S.O.N.G.S. 2 - 3

Table 1 in Section H presents the quarterly maximum dose to an individual. Six different categories are presented: (1) Liquid Effluents - Whole Body, (2) Liquid Effluents - Organ, (3) Airborne Effluents - Tritium, Iodines and Particulates, (4) Noble Gases - Gamma, (5) Noble Gases - Beta, and (6) Direct Radiation.

The doses for categories 1 and 2 were calculated using the methodology of the ODCM, this data is also presented in Table 2D for the third and fourth quarters. Categories 3, 4, and 5 were calculated utilizing RRRGS (Radioactive Release Report Generating System) software, Regulatory Guide 1.109 methodology, and concurrent meteorology. Table 1E of gaseous effluents previously presented, however, lists data similar to categories 3, 4 and 5 using methods described in the ODCM and the historical meteorology (X/Q). Category 6 presents direct dose data measured by TLD dosimeters. Each portion of each category is footnoted to briefly describe each maximum individual dose presented.

Table 2 in Section H presents the percent of Technical Specification Limits for each dose presented in Table 1.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 2 - 3

TABLE 1

SOURCE	Dose* (millirems)				
	1st Q	2nd Q	3rd Q	4th Q	Year
LIQUID EFFLUENTS	1)	2)	3)	4)	5)
Whole Body	3.68E-3	1.10E-2	1.76E-3	1.58E-3	1.80E-2
Organ	6)	7)	8)	9)	10)
	2.51E-1	5.87E-2	1.04E-2	6.30E-3	3.26E-1
AIRBORNE EFFLUENTS	11)	12)	13)	14)	15)
Tritium Iodines and Particulates	4.44E-2	3.91E-2	1.21E-2	9.96E-3	1.04E-1
NOBLE GASES**	16)	17)	18)	19)	20)
Gamma	1.05E-1	3.20E-2	4.66E-2	1.95E-2	2.28E-1
Beta	21)	22)	23)	24)	25)
	3.55E-1	7.93E-2	9.61E-2	4.75E-2	5.36E-1
DIRECT RADIATION	26)	27)	28)	29)	30)
	1.23E+0	1.05E+0	4.00E+0	5.30E+0	1.16E+1

* - The numbered footnotes below briefly explain how each maximum dose was calculated, including the organ and the predominant pathway(s).

** - Noble gas doses due to airborne effluents are in units of mrad reflecting the air dose.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 2 - 3

1. This data was calculated using the methodology of the ODCM.
2. This data was calculated using the methodology of the ODCM.
3. This data was calculated using the methodology of the ODCM.
4. This data was calculated using the methodology of the ODCM.
5. This data was calculated using the methodology of the ODCM.
6. This data was calculated using the methodology of the ODCM; the GI-LLI received the maximum dose primarily by the saltwater fish pathway.
7. This data was calculated using the methodology of the ODCM; the GI-LLI received the maximum dose primarily by the saltwater fish pathway.
8. This data was calculated using the methodology of the ODCM; the GI-LLI received the maximum dose primarily by the saltwater fish pathway.
9. This data was calculated using the methodology of the ODCM; the GI-LLI received the maximum dose primarily by the saltwater fish pathway.
10. This data was calculated using the methodology of the ODCM; the Liver received the maximum dose primarily by the saltwater fish pathway.
11. The maximum organ dose was to a child's thyroid and was located in the NNW sector. This was calculated using the activity reported in the January - June 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
12. The maximum organ dose was to a child's thyroid and was located in the NNW sector. This was calculated using the activity reported in the January - June 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
13. The maximum organ dose was to a child's thyroid and was located in the ESE sector. This was calculated using the activity reported in the July - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 2 - 3

14. The maximum organ dose was to a child's thyroid and was located in the NNW sector. This was calculated using the activity reported in the July - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
15. The maximum organ dose was to a child's thyroid and was located in the NNW sector. This was calculated using the activity reported in the January - December 1988 Semiannual Report with the assumptions of USNRC Regulatory Guide 1.109.
16. A maximum air dose of $5.54\text{E-}1$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
17. A maximum air dose of $7.20\text{E-}2$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the E sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
18. A maximum air dose for gamma radiation was located in the E sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
19. A maximum air dose of $3.74\text{E-}2$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
20. A maximum air dose of $6.82\text{E-}1$ mrad for gamma radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for gamma radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
21. A maximum air dose of $8.63\text{E-}1$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 2 - 3

22. A maximum air dose of $1.78\text{E}-1$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the E sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
23. A maximum air dose for beta radiation was located in the E sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
24. A maximum air dose of $8.54\text{E}-2$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
25. A maximum air dose of $1.17\text{E}+0$ mrad for beta radiation was located in the SSW sector, a seaward direction. The reported maximum air dose for beta radiation was located in the ENE sector, a landward sector, at the exclusion area boundary and calculated with the assumptions of USNRC Regulatory Guide 1.109.
26. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
27. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
28. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
29. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.
30. Measurements were made using TLD dosimeters; values are presented as site wide dose and are prorated to 300 hours per year; highest dose was measured at the Site Boundary in the SE sector.

SECTION H. 10 CFR 50 APPENDIX I REQUIREMENTS (Continued)

S.O.N.G.S. 2 - 3

TABLE 2

SOURCE	PERCENT TECHNICAL SPECIFICATION LIMITS				
	1st Q	2nd Q	3rd Q	4th Q	Year
LIQUID EFFLUENTS					
Whole Body	1.23E-1	3.67E-1	5.87E-2	5.27E-2	3.63E-1
Organ	2.51E+0	5.87E-1	1.04E-1	6.30E-2	1.63E+0
AIRBORNE EFFLUENTS					
Tritium, Iodines and Particulates	2.96E-1	2.61E-1	8.07E-2	6.64E-2	3.47E-1
NOBLE GASES					
Gamma	1.50E+0	3.20E-1	4.66E-1	1.95E-1	1.14E+0
Beta	1.78E+0	3.97E-1	4.80E-1	2.38E-1	1.34E+0

Note: Direct Radiation is not specifically addressed in the Technical Specifications.

SECTION I. CHANGES TO OFFSITE DOSE CALCULATION MANUAL

S.O.N.G.S. 2 - 3

- o There were no changes to Units 2/3 Offsite Dose Calculation Manual during the reporting period, July 1, 1988 to December 31, 1988.

SECTION J. S.O.N.G.S. 2-3 MISCELLANEOUS

- o There were no unplanned releases of radioactive gases or liquids from Units 2/3 during the reporting period, July 1, 1988 to December 31, 1988.

July 1, 1988 - December 31, 1988

EFFLUENT RADIATION MONITORS OUT OF SERVICE FOR GREATER THAN 30 DAYS

S.O.N.G.S. 2 - 3

Monitor	Inoperability Period	Inoperability Cause	Explanation
2/3RI7808 Plant Vent Stack	7/05/88 - 08/05/88	Failed low.	18 Month complete channel calibration DCP 2-6460. Corrective maintenance on 7808B/7808C and sample flow system.
2-7865 Plant Vent Stack-WRGM	01/28/88 - Present	Process Flow Monitor Out of Service	Process flow measurement under investigation.
	11/05/88 - Present	Process Flow Monitor Out of Service	Process flow measurement under investigation.
2RI7818 Condenser Air Ejector	01/25/88 - Present	Detector design problem.	EDMR C-88-029 Design flaw in 2RI7818 channel B causes entire monitor to be inoperable.
3-7865 Plant Vent Stack-WRGM	05/03/88 - 08/25/88	Low process flow reading on containment purge.	Containment purge inst. inoperable due refueling outage.
	07/20/88 - Present	Process Flow Monitor Out of Service.	Process flow measurement under investigation.
	05/26/88 - 07/05/88	18 month calibration.	Unit 3 outage.

July 1, 1988 - December 31, 1988

EFFLUENT RADIATION MONITORS OUT OF SERVICE FOR GREATER THAN 30 DAYS

S.O.N.G.S. 2 - 3

Monitor	Inoperability Period	Inoperability Cause	Explanation
3-7870 Condenser Air Ejector WRGM	05/01/88 - 07/13/88	Process Flow Monitor Out of Service.	Process flow measurement under investigation.
	05/17/88 - 07/12/88	18 month calibration.	Unit 3 outage.
	08/24/88 - 10/22/88	Failed flow check.	Awaiting availability of special calibration test equipment.
3RI7818 Condenser Air Ejector	01/25/88 - Present	Detector design problem.	Design flaw in 3RI07818 channel B causes entire monitor to be inoperable.
3-7828 Containment Purge-WRGM	02/18/88 - 11/19/88	Main purge flow monitor inoperable.	Process flow measurement under investigation.
	06/16/88 - 08/04/88	Relocate hand switch.	Relocate control room control switches. DCP 3-6605.0-0
	11/25/88 - Present	Substitute process flow installed.	Process flow under investigation.
3-6753 SGBD Bypass (E-089)	05/18/88 - 08/08/88	18 month CCB.	Monitor inoperable during refueling outage. (No S/G Press. to induce flow)
3RI6759 SGBD Bypass (E-088)	06/26/88 - 08/08/88	18 month CCB.	Monitor inoperable during refueling outage. (No S/G Press. to induce flow)

SECTION K. S.O.N.G.S. 2 - 3 CONCLUSIONS

- o Gaseous effluent releases totaled $1.46\text{E}+3$ curies with Xe-133 88.2% of the total.
- o The radiation doses from gaseous releases are: (a) gamma air dose: $1.19\text{E}-1$ mrad at the site boundary, (b) beta air dose: $2.65\text{E}-1$ mrad at the site boundary, (c) organ dose: $1.20\text{E}-2$ mrem at the nearest receptor.
- o Liquid releases totaled $1.74\text{E}+2$ curies of which tritium was $1.72\text{E}+2$ Ci, noble gases were $1.49\text{E}+0$ Ci and particulates and iodines were $1.41\text{E}-1$ Ci.
- o The radiation doses from liquid releases are: (a) total body: $3.43\text{E}-3$ mrem, (b) limiting organ: $1.69\text{E}-2$ mrem.
- o The radioactive releases and resulting doses generated from Units 2 and 3 were below the Technical Specification Limits for both gaseous and liquid effluents.



COMMON RADWASTE SHIPMENTS

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988) SOLID WASTE AND IRRADIATED FUEL SHIPMENT

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporate bottoms, etc.	m ³ Ci	NA NA	NA
b. Dry compressible waste, contaminated equip, etc.	m ³ Ci	NA NA	NA
c. Irradiated components, control rods, etc.	m ³ Ci	NA NA	NA
d. Other (filters, sludge, sand/rubble, wet trash)	m ³ Ci	2.12E-1** 1.52E-1	3.00E+1

** - Material packaged in 55-gallon Dot 7A Type A drums (7.5 ft³ ea.) and steel boxes (strong, tight containers 98.0 ft³ ea.).

2. Estimate of major nuclide composition (by type of waste)

a. Not Applicable	%	0.00E+0
b. Not Applicable	%	0.00E+0
c. Not Applicable	%	0.00E+0

COMMON RADWASTE SHIPMENTS (Continued)

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
SOLID WASTE AND IRRADIATED FUEL SHIPMENT

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
(Not Irradiated fuel) (Continued)

2. Estimate of major nuclide composition (by type of waste)
(Continued)

d. antimony-125	%	1.44E-2
carbon-14	%	1.97E-3
cesium-134	%	8.03E-1
cesium-137	%	2.07E+0
cobalt-58	%	2.88E+0
cobalt-60	%	3.78E+0
iodine-129	%	1.97E-3
iron-55	%	1.28E+1
iron-59	%	1.24E-1
manganese-54	%	9.61E-1
nickel-63	%	1.14E+1
niobium-95	%	1.50E+0
plutonium-241	%	1.09E-1
ruthenium-103	%	1.13E-1
technetium-99	%	1.97E-3
tritium	%	6.28E+1
zinc-65	%	9.08E-2
zirconium-95	%	5.29E-1

3. Solid Waste Disposition (S.O.N.G.S. 1, 2, and 3)*

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
5	Tri-State Motor Transit (Truck/Cask)	Richland, WA
1	Tri-State Motor Transit (Truck/Cask)	Barnwell, SC
7	Tri-State Motor Transit (Truck/Trailer)	Beatty, NV

* - All waste packages at SONGS is staged at one location. There are no independent shipments of dry active waste made for Unit 1 or Units 2/3, and are not reported separately.

COMMON RADWASTE SHIPMENTS (Continued)

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1988)
SOLID WASTE AND IRRADIATED FUEL SHIPMENT

B. IRRADIATED FUEL SHIPMENTS (Disposition)

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None	N/A	N/A

C. DEWATERING

<u>Number of Containers</u>	<u>Solidification Agent</u>
9	N/A

D. CHANGES TO THE PROCESS CONTROL PROGRAM AT SAN ONOFRE UNITS 1, 2 & 3

SUMMARY

During this reporting period, two changes were made to procedure S0123-VII-8.5.1, "Process Control Program for San Onofre Units 1, 2 and 3." The changes corrected Technical Specification references, and clarified the process by which Site Management is notified when the procedure is changed. The changes did not alter the intent of the procedure.

REFERENCES

See following pages.

MEMORANDUM FOR FILE

December 21, 1988

SUBJECT: Notification of Change to the Process Control
Program for San Onofre Units 1, 2 and 3

Health Physics has initiated changes to the Process Control Program (PCP) via procedure S0123-VII-8.5.1. The following provides an explanation of the revision and justification for the changes(s).

Description of Change:

Procedure S0123-VII-8.5.1 was revised to clarify notification requirements for changes to the PCP.

Rationale for Change:

Technical Specifications 6.5.2.9, 6.5.2.10 and 6.13.2 require that:

- 1) The Station Manager shall assure the performance of a review by a qualified individual/organization of changes to the PCP. The procedure now states this review will be performed by the Health Physics Manager.
- 2) Reports documenting the review performed above shall be maintained, and copies provided to the Manager of Nuclear Operations and the Nuclear Safety Group.

The procedure now specifies the format for the documentation of this review and the required notifications.

- 3) Changes to the PCP shall be submitted to the Commission in the semi-annual Effluent report for the period in which the change(s) were made.

The procedure now specifies the type of information which must be supplied for the semi-annual effluent report.

December 21, 1988

Justification:

This revision to the PCP affects administration aspects of the program only and does not reduce conformance of the stabilized wet waste to existing criteria.



LINDA BRAY
Health Physics Engineer

APPROVED BY: 

Health Physics Manager



12/22/88
Date

LGB:mjk
wp/0988-49

COMMON 40 CFR 190 REQUIREMENTS

Table 1 presents the yearly site-wide doses and percent of Technical Specification limits to members of the public. These values are calculated utilizing doses resulting from all effluent pathways and direct radiation. The different categories presented are: (1) Total Body, (2) Limiting Organ, and (3) Thyroid.

Table 1

	Units	Year
1. Total Body		
a. Total Body dose	mrem	1.30E+1
b. Percent of Technical Specification Limits	%	5.18E+1
2. Limiting Organ		
a. Organ dose (GI-LLI)	mrem	7.78E-1
b. Percent of Technical Specification Limits	%	3.11E+0
3. Thyroid		
a. Thyroid dose	mrem	1.22E+0
b. Percent of Technical Specification Limits	%	1.63E+0

In addition to the dose calculated in the table above, one additional pathway exists for radiation exposure to a member of the public. Southern California Edison collects marine benthic material from the screens of its circulating water intake structure. Because of the potential for this benthic material to contain radioactive substances previously discharged to the environment as liquid waste, Southern California Edison performs a survey to confirm that no plant-related radioactive materials are detectable. The lower limit of detection (LLD) of the survey is established so that, with due consideration of the potential future use of the land disposal site, the maximum annual dose to an individual after 40 years of continued disposal is within the limits specified by 40CFR190. In that LLD determination, the disposal site, 20 miles distant from San Onofre, is considered to be outside the sphere of influence of gaseous and liquid pathways.

COMMON CONCLUSIONS

- o Radioactive releases from S.O.N.G.S. 1, 2 and 3 totaled $3.49\text{E}+3$ curies for gaseous effluents, 91.7% of which was Xe-133. Curies discharged for liquid effluents were: tritium, $1.09\text{E}+3$ curies; noble gases, $1.33\text{E}+1$ curies; particulates and iodines, $3.69\text{E}-1$ curies.
- o Radioactive releases and resulting doses generated from S.O.N.G.S. 1, 2 and 3 were below the Technical Specification Limits for both gaseous and liquid effluents.
- o S.O.N.G.S. 1, 2 and 3 made 13 radwaste shipments; 5 to Richland, Washington, and 7 to Beatty, Nevada, and 1 to Barnwell, South Carolina. Total volume was $1.66\text{E}+2$ cubic meters containing $1.01\text{E}+3$ curies of radioactivity.
- o Meteorological conditions during the year were typical of the meteorology at S.O.N.G.S. Meteorological dispersion was good 36% of the time, fair 40% of the time and poor 24% of the time.
- o The net result from the analysis of these effluent releases indicates that the operation of S.O.N.G.S. 1, 2 and 3 has met all the requirements of the Technical Specifications and other applicable regulatory requirements and therefore has not produced any detrimental effect on the environment.

APPENDIX

GASEOUS EFFLUENTS - TECHNICAL SPECIFICATION LIMITS

- A. The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to the following values:
1. The dose rate limit for noble gases shall be ≤ 500 mrem/year to the total body and ≤ 3000 mrem/year to the skin.
 2. The dose rate limit for iodines, tritium, and all radionuclides in particulate form with half lives greater than eight days shall be ≤ 7.5 mrem/year to any organ.
- B. The air dose due to noble gases released in gaseous effluents from S.O.N.G.S. (per reactor) to areas at and beyond the site boundary shall be limited to the following values:
1. During any calendar quarter: ≤ 5 mrad for gamma radiation and ≤ 10 mrad for beta radiation.
 2. During any calendar year: ≤ 10 mrad for gamma radiation and ≤ 20 mrad for beta radiation.
- C. The dose to a Member of the Public from iodines, tritium, and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released from S.O.N.G.S. (per reactor) to areas at and beyond the site boundary shall be limited to the following values:
1. During any calendar quarter: ≤ 7.5 mrem to any organ.
 2. During any calendar year: ≤ 15 mrem to any organ.

APPENDIX (Continued)

LIQUID EFFLUENTS - TECHNICAL SPECIFICATION LIMITS

- A. The concentration of radioactive material released in liquid effluents to Unrestricted Areas shall be limited to the concentrations specified in 10CFR20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to $2.00\text{E-}4$ uCi/ml.
- B. The dose commitment to a Member of the Public from radioactive materials in liquid effluents released from S.O.N.G.S. (per reactor) to Unrestricted Areas shall be limited to the following values:
 - 1. During any calendar quarter: ≤ 1.5 mrem to the total body and ≤ 5 mrem to any organ.
 - 2. During any calendar year: ≤ 3 mrem to the total body and ≤ 10 mrem to any organ.

METEOROLOGY

The meteorology of the San Onofre Nuclear Generating Station for each of the four quarters of 1988 is described in this section. Meteorological measurements have been made according to the guidance set forth in USNRC Regulatory Guide 1.23, "Onsite Meteorological Programs." A summary report of the meteorological measurements taken during each calendar quarter are presented in Table 4A as joint frequency distribution (JFD) of wind direction and wind speed by atmospheric stability class.

Hourly meteorological data for batch releases have been recorded for the periods of actual release. This data is available, as well as the hourly data for the Semiannual Report, but has not been included in this report because of the bulk of data records.

Table 4A lists the joint frequency distribution for each quarter, 1988. Each page of Table 4A represents the data for the stability Classes: A, B, C, D, E, F, and G; the last page of each table is the JFD with the combined stability classes. Each page is also divided into two parts; the upper part lists the number of hourly periods when each meteorology condition occurred, and the lower part lists the frequency of each classification by percent. The wind speeds have been measured at the 10-meter level, and the stability classes are defined by the temperature differential between the 10- and 40-meter levels.

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS 6A6 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0	0	0	0	0	0	0	0	0	0	0	2	2
NE	0	0	0	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0	1	1	2
E	0	0	0	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	1	1	2	0	6	10
SSE	0	0	0	1	1	4	5	3	6	5	3	13	41
S	0	0	1	7	5	4	4	8	6	5	3	7	50
SSW	0	0	0	6	6	7	7	4	4	0	1	3	38
SW	0	0	4	4	11	15	9	2	1	1	1	3	51
WSW	0	0	1	6	17	16	6	6	2	1	0	0	55
W	0	0	0	5	18	25	22	21	8	0	0	0	99
WNW	0	0	0	0	3	8	10	14	11	6	5	8	65
NW	0	0	0	0	0	0	0	0	0	2	0	0	2
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0
VARIABLE													0
CALM													0
TOTAL	0	0	6	29	61	79	63	59	39	22	14	43	415

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.07
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.09	0.00	0.28	0.46
SSE	0.00	0.00	0.00	0.03	0.03	0.18	0.23	0.14	0.28	0.23	0.14	0.60	1.87
S	0.00	0.00	0.03	0.32	0.23	0.18	0.18	0.37	0.28	0.23	0.14	0.32	2.30
SSW	0.00	0.00	0.00	0.28	0.28	0.32	0.32	0.18	0.18	0.00	0.03	0.14	1.75
SW	0.00	0.00	0.18	0.18	0.31	0.69	0.41	0.09	0.03	0.03	0.03	0.14	2.34
WSW	0.00	0.00	0.03	0.28	0.78	0.74	0.28	0.28	0.09	0.03	0.00	0.00	2.53
W	0.00	0.00	0.00	0.23	0.83	1.13	1.01	0.97	0.37	0.00	0.00	0.00	4.55
WNW	0.00	0.00	0.00	0.00	0.14	0.37	0.46	0.64	0.31	0.28	0.23	0.37	2.97
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.07
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.00	0.28	1.33	2.80	3.63	2.90	2.71	1.79	1.01	0.64	1.98	17.08

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS 888 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0	0	0	0	0	0	0	0	0	0	0	1	1	12 20
NE	0	0	0	0	0	0	0	0	0	0	0	1	1	14 40
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00
ESE	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00
SE	0	0	0	0	0	1	0	0	0	0	0	1	2	9 95
SSE	0	0	0	1	1	1	2	0	1	1	2	2	11	8 51
S	0	0	0	0	0	2	0	0	1	0	0	0	3	6 50
SSW	0	0	0	2	0	1	0	0	0	0	0	0	3	4 07
SW	0	0	0	0	2	0	0	0	0	0	0	0	2	4 95
WSW	0	0	0	0	1	2	0	0	0	0	0	0	3	5 37
W	0	0	0	2	1	0	0	1	0	0	0	0	4	5 10
WNW	0	0	0	0	1	2	3	1	1	1	0	0	9	6 74
NW	0	0	0	0	0	0	0	1	0	0	0	0	1	7 90
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0 00
VARIABLE													0	0 00
CALM													0	0 00
TOTAL	0	0	0	5	6	9	5	3	3	2	2	5	40	7 20

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 05	0 05	12 20
NE	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 05	0 05	14 40
ENE	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
E	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
ESE	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
SE	0 00	0 00	0 00	0 00	0 00	0 05	0 00	0 00	0 00	0 00	0 00	0 05	0 09	9 95
SSE	0 00	0 00	0 00	0 05	0 05	0 05	0 09	0 00	0 05	0 05	0 09	0 09	0 31	8 51
S	0 00	0 00	0 00	0 00	0 00	0 09	0 00	0 00	0 05	0 00	0 00	0 00	0 14	6 50
SSW	0 00	0 00	0 00	0 09	0 00	0 05	0 00	0 00	0 00	0 00	0 00	0 00	0 14	4 07
SW	0 00	0 00	0 00	0 00	0 09	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 09	4 95
WSW	0 00	0 00	0 00	0 00	0 05	0 09	0 00	0 00	0 00	0 00	0 00	0 00	0 14	5 37
W	0 00	0 00	0 00	0 09	0 05	0 00	0 00	0 05	0 00	0 00	0 00	0 00	0 19	5 10
WNW	0 00	0 00	0 00	0 00	0 05	0 09	0 14	0 05	0 05	0 05	0 00	0 00	0 41	6 74
NW	0 00	0 00	0 00	0 00	0 05	0 00	0 00	0 05	0 00	0 00	0 00	0 00	0 05	7 90
NNW	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
N	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
VARIABLE													0 00	0 00
CALM													0 00	0 00
TOTAL	0 00	0 00	0 00	0 23	0 28	0 41	0 23	0 14	0 14	0 09	0 09	0 23	1 84	7 20

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS #C# (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0	0	0	0	0	0	0	0	0	0	0	0	0 00
NE	0	0	0	0	0	0	1	0	0	0	0	0	7 00
ENE	0	0	0	0	0	0	0	0	0	0	0	1	12 10
E	0	0	0	0	0	0	0	0	0	0	0	0	0 00
ESE	0	0	0	1	0	0	0	0	0	0	0	0	3 90
SE	0	0	0	0	1	0	1	0	0	0	1	6	13 74
SSE	0	0	0	0	1	1	0	0	0	1	1	0	7 63
S	0	0	0	0	1	1	0	0	0	0	0	0	9 10
SSW	0	0	0	1	0	0	0	0	0	0	1	0	6 63
SW	0	0	1	3	0	0	1	0	0	1	0	0	4 78
WSW	0	0	0	0	0	1	0	0	0	1	0	0	7 35
W	0	0	2	2	1	0	1	0	0	0	0	0	3 95
WNW	0	0	0	1	0	0	1	0	0	0	1	0	7 00
NW	0	0	0	0	0	1	2	1	0	1	0	2	9 30
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0 00
N	0	0	0	0	0	0	0	0	0	0	0	0	0 00
VARIABLE													0 00
CALM													0 00
TOTAL	0	0	3	8	4	4	7	1	0	4	4	9	8 04

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	7.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	12.10
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90
SE	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.03	0.28	13.74
SSE	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.03	0.03	0.00	7.63
S	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	9.10
SSW	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	6.63
SW	0.00	0.00	0.03	0.14	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	4.78
WSW	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	7.35
W	0.00	0.00	0.09	0.09	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	3.95
WNW	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	7.00
NW	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.03	0.00	0.03	0.00	0.09	9.30
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.00	0.14	0.37	0.18	0.18	0.32	0.09	0.00	0.18	0.18	0.41	8.04

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2179

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS BAA (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	1	0	1	1	1	2	6	11.80
SSE	0	0	0	0	2	2	1	2	6	6	3	6	28	10.72
S	0	0	0	5	3	10	14	13	9	12	12	18	96	9.52
SSW	0	0	2	8	10	17	15	18	20	12	6	7	115	8.54
SW	0	0	0	13	14	23	34	16	12	7	2	4	125	7.33
WSW	0	0	1	14	19	32	39	31	12	2	0	4	154	6.71
W	0	0	0	6	33	35	36	38	24	10	2	8	192	6.47
WNW	0	0	0	1	6	13	14	16	15	8	4	24	101	6.93
NW	0	0	0	0	0	0	2	0	2	2	0	9	15	9.18
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0	12.35
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	0	3	47	87	132	196	134	101	60	30	83	833	7.54

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	11.80
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05	0.05	0.09	0.27	10.72
SSE	0.00	0.00	0.00	0.00	0.09	0.09	0.05	0.09	0.27	0.27	0.14	0.27	1.28	9.52
S	0.00	0.00	0.00	0.23	0.14	0.46	0.64	0.60	0.41	0.55	0.55	0.82	4.40	8.54
SSW	0.00	0.00	0.09	0.37	0.46	0.78	0.69	0.82	0.92	0.55	0.27	0.32	5.27	7.33
SW	0.00	0.00	0.00	0.60	0.64	1.05	1.56	0.73	0.55	0.32	0.09	0.18	5.72	6.71
WSW	0.00	0.00	0.05	0.64	0.87	1.47	1.79	1.42	0.55	0.09	0.00	0.18	7.05	6.47
W	0.00	0.00	0.00	0.27	1.51	1.60	1.65	1.74	1.10	0.46	0.09	0.37	8.79	6.93
WNW	0.00	0.00	0.00	0.05	0.27	0.60	0.64	0.73	0.69	0.37	0.18	1.10	4.62	9.18
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00	0.41	0.69	12.35
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.00	0.14	2.15	3.98	6.04	7.14	6.14	4.62	2.75	1.37	3.80	38.14	7.54

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS 000 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0	0	0	0	0	0	1	0	0	0	0	0	1	6.30
NE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ERE	0	0	0	0	0	0	0	0	0	1	0	0	1	9.70
SE	0	0	0	0	0	0	0	0	1	1	0	0	2	8.93
SSE	0	0	0	3	2	1	1	1	0	0	2	3	13	7.73
S	0	0	0	1	0	0	2	4	2	0	1	2	12	8.18
SSW	0	0	0	0	2	0	3	2	0	0	0	1	8	7.20
SW	0	0	1	2	1	1	0	0	0	0	0	0	5	4.04
WSW	0	0	0	1	0	2	1	1	0	0	1	0	6	6.68
W	0	0	1	2	0	2	0	0	0	0	0	0	5	4.06
WNW	0	0	0	2	1	1	2	1	0	0	0	0	7	5.41
NW	0	0	0	0	0	1	0	0	0	1	0	2	4	10.20
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
N	0	0	0	0	0	0	0	0	1	0	0	0	1	8.70
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	0	2	11	6	8	10	9	4	3	4	8	63	7.03

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	6.30
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ERE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.03	9.70
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.09	8.93
SSE	0.00	0.00	0.00	0.14	0.09	0.03	0.03	0.03	0.00	0.00	0.09	0.14	0.60	7.73
S	0.00	0.00	0.00	0.03	0.00	0.00	0.09	0.18	0.09	0.00	0.03	0.09	0.53	8.18
SSW	0.00	0.00	0.00	0.00	0.09	0.00	0.14	0.09	0.00	0.00	0.00	0.03	0.37	7.20
SW	0.00	0.00	0.03	0.09	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.23	4.04
WSW	0.00	0.00	0.00	0.03	0.00	0.09	0.03	0.03	0.00	0.00	0.03	0.00	0.27	6.68
W	0.00	0.00	0.03	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.23	4.06
WNW	0.00	0.00	0.00	0.09	0.03	0.03	0.09	0.03	0.00	0.00	0.00	0.00	0.32	5.41
NW	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.05	0.00	0.09	0.18	10.20
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	8.70
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.00	0.09	0.30	0.27	0.37	0.46	0.41	0.18	0.14	0.18	0.37	2.98	7.03

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS 8C# (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	0	0	0	0	2	0	1	0	0	0	0	3	5.90
NE	0	0	2	0	0	0	0	0	0	0	0	0	2	2.40
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	1	2	0	0	0	0	0	0	3	5.17
SE	0	0	0	0	0	1	0	1	1	4	0	1	8	9.01
SSE	0	0	1	0	3	2	3	1	1	3	2	8	24	9.02
S	0	0	1	2	1	5	3	2	2	0	1	6	23	8.06
SSW	0	0	3	1	0	2	2	0	0	1	0	2	11	7.47
SW	0	1	2	4	2	1	1	0	0	0	0	0	11	3.80
WSW	0	0	1	2	2	0	1	0	0	0	1	0	7	5.26
W	0	0	3	5	2	2	1	0	0	0	0	2	15	5.57
WNW	0	0	0	2	0	2	0	3	0	1	0	2	10	8.82
NW	0	0	0	0	1	0	3	2	4	1	0	3	14	9.16
NNW	0	0	0	1	0	2	0	1	0	0	0	0	4	5.40
N	0	0	0	1	0	0	1	0	0	0	0	0	2	5.05
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	1	13	18	12	21	15	11	8	10	4	24	137	7.33

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.14	5.90
NE	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.40
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.14	5.17
SE	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.05	0.18	0.00	0.05	0.37	9.01
SSE	0.00	0.00	0.05	0.00	0.14	0.09	0.14	0.05	0.05	0.14	0.09	0.37	1.10	9.02
S	0.00	0.00	0.05	0.09	0.05	0.23	0.14	0.09	0.09	0.00	0.05	0.27	1.05	8.06
SSW	0.00	0.00	0.14	0.05	0.00	0.09	0.09	0.00	0.00	0.05	0.00	0.09	0.50	7.47
SW	0.00	0.05	0.09	0.18	0.09	0.05	0.05	0.00	0.00	0.05	0.00	0.00	0.50	3.80
WSW	0.00	0.00	0.05	0.09	0.09	0.00	0.05	0.00	0.00	0.00	0.05	0.00	0.32	5.26
W	0.00	0.00	0.14	0.23	0.09	0.09	0.05	0.00	0.00	0.00	0.00	0.09	0.67	5.57
WNW	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.14	0.00	0.05	0.00	0.09	0.46	8.82
NW	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.09	0.18	0.05	0.00	0.14	0.64	9.16
NNW	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.18	5.40
N	0.00	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.07	5.05
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.05	0.60	0.82	0.55	0.96	0.69	0.50	0.37	0.46	0.18	1.10	6.27	7.33

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS 8D0 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	1	4	11	7	10	2	0	4	2	0	0	41	4.98
NE	0	0	6	6	5	2	0	0	0	0	0	1	20	4.15
ENE	0	0	3	1	5	1	0	0	0	0	0	0	10	4.02
E	0	0	1	2	3	1	6	0	1	2	0	0	16	6.04
ESE	0	0	3	3	8	6	7	8	3	2	0	0	40	6.00
SE	0	1	5	11	14	17	29	18	19	10	6	5	135	6.92
SSE	0	1	7	10	17	10	12	6	7	5	6	12	93	6.91
S	0	0	6	15	10	5	5	3	1	2	0	7	54	6.32
SSW	0	3	4	5	7	2	3	2	1	0	0	2	29	5.33
SW	0	1	6	8	5	3	1	1	0	2	0	3	30	5.38
WSW	0	2	8	5	2	1	1	0	1	0	0	3	23	4.96
W	0	3	5	3	6	2	2	0	4	1	2	7	35	6.93
WNW	0	0	4	4	0	4	1	1	4	0	0	6	24	7.97
NW	0	2	2	8	8	4	1	0	0	1	3	4	33	6.05
NNW	0	1	5	2	2	7	4	1	1	4	1	2	30	6.21
N	0	1	5	9	3	5	0	0	1	0	0	0	24	4.06
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	16	74	103	102	80	74	40	47	31	18	52	637	6.14

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.05	0.18	0.30	0.32	0.46	0.09	0.00	0.18	0.09	0.00	0.00	1.88	4.98
NE	0.00	0.00	0.27	0.27	0.23	0.09	0.00	0.00	0.00	0.00	0.00	0.03	0.92	4.15
ENE	0.00	0.00	0.14	0.05	0.23	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.46	4.02
E	0.00	0.00	0.05	0.09	0.14	0.05	0.27	0.00	0.05	0.09	0.00	0.00	0.73	6.04
ESE	0.00	0.00	0.14	0.14	0.37	0.27	0.32	0.37	0.14	0.09	0.00	0.00	1.83	6.00
SE	0.00	0.05	0.23	0.30	0.64	0.78	1.33	0.82	0.87	0.46	0.27	0.23	6.19	6.92
SSE	0.00	0.05	0.32	0.46	0.78	0.46	0.55	0.27	0.32	0.23	0.27	0.55	4.25	6.91
S	0.00	0.00	0.27	0.69	0.46	0.23	0.23	0.14	0.05	0.09	0.00	0.32	2.47	6.32
SSW	0.00	0.14	0.18	0.23	0.32	0.09	0.14	0.09	0.05	0.00	0.00	0.09	1.33	5.33
SW	0.00	0.05	0.27	0.37	0.23	0.14	0.05	0.05	0.00	0.09	0.00	0.14	1.37	5.38
WSW	0.00	0.09	0.37	0.23	0.09	0.05	0.05	0.00	0.05	0.00	0.00	0.14	1.05	4.96
W	0.00	0.14	0.23	0.14	0.27	0.09	0.09	0.00	0.18	0.05	0.09	0.32	1.60	6.93
WNW	0.00	0.00	0.18	0.18	0.00	0.18	0.05	0.05	0.18	0.00	0.00	0.27	1.10	7.97
NW	0.00	0.09	0.09	0.37	0.37	0.18	0.05	0.00	0.00	0.05	0.14	0.18	1.51	6.05
NNW	0.00	0.05	0.23	0.09	0.09	0.32	0.18	0.05	0.05	0.18	0.05	0.09	1.37	6.21
N	0.00	0.05	0.23	0.41	0.14	0.23	0.00	0.00	0.05	0.00	0.00	0.00	1.10	4.06
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.73	3.39	4.72	4.67	3.64	3.39	1.83	2.15	1.42	0.82	2.38	29.17	6.14

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS BE# (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0	2	10	23	14	16	11	1	1	1	0	0	79	4.53
NE	0	2	5	5	2	2	1	0	0	0	0	0	17	3.42
ENE	0	2	3	2	4	0	1	1	0	0	0	0	13	3.97
E	0	2	3	3	2	1	1	2	0	0	0	1	15	4.67
ESE	0	0	5	7	3	0	0	0	0	0	0	0	15	3.45
SE	0	1	4	7	9	4	1	4	1	0	0	0	31	4.78
SSE	0	1	5	4	2	0	0	0	0	1	1	1	15	4.60
S	0	1	4	1	0	0	0	0	0	0	0	0	6	2.63
SSW	1	0	0	2	0	0	0	0	0	0	0	0	3	2.50
SW	0	1	1	0	0	0	0	0	0	0	0	0	2	2.05
WSW	0	1	1	0	0	0	0	0	0	0	0	0	2	2.25
W	0	0	0	1	0	0	0	0	0	0	0	0	1	3.40
WNW	0	1	2	1	1	0	0	3	0	0	0	0	8	4.53
NW	0	0	2	0	0	0	0	1	1	0	0	0	4	4.98
NNW	1	1	3	1	0	1	0	0	0	0	1	0	8	3.00
N	1	1	0	2	3	4	2	2	2	1	1	0	19	5.79
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	3	16	48	59	40	28	17	14	5	3	3	2	238	4.37

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.09	0.46	1.05	0.64	0.73	0.90	0.05	0.05	0.05	0.00	0.00	3.62	4.53
NE	0.00	0.09	0.23	0.23	0.09	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.70	3.42
ENE	0.00	0.09	0.14	0.09	0.18	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.60	3.97
E	0.00	0.09	0.14	0.14	0.09	0.05	0.05	0.09	0.00	0.00	0.00	0.05	0.69	4.67
ESE	0.00	0.00	0.23	0.32	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	3.45
SE	0.00	0.05	0.18	0.32	0.41	0.18	0.05	0.18	0.05	0.00	0.00	0.00	1.42	4.78
SSE	0.00	0.05	0.23	0.18	0.09	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.69	4.60
S	0.00	0.05	0.18	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	2.63
SSW	0.05	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.50
SW	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.05
WSW	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.25
W	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.40
WNW	0.00	0.05	0.09	0.05	0.05	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.37	4.53
NW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.18	4.98
NNW	0.05	0.05	0.14	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.37	3.00
N	0.05	0.05	0.00	0.09	0.14	0.18	0.09	0.09	0.09	0.05	0.05	0.00	0.87	5.79
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.14	0.73	2.20	2.70	1.83	1.28	0.78	0.64	0.23	0.14	0.14	0.09	10.90	4.37

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS 9F0 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11			>11
NNE	0.	0	3.	10.	16.	25.	18.	12.	5.	3.	0.	0	92.	5.80
NE	0.	0	3.	7.	1.	4.	0.	0.	0.	0.	0.	0	15.	3.95
ENE	0.	0	4.	4.	4.	1.	0.	0.	0.	0.	0.	0	13.	3.69
E	0.	0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0	1.	2.90
ESE	0.	0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0	1.	2.70
SE	0.	0	3.	0.	0.	0.	0.	0.	0.	0.	0.	0	3.	2.77
SSE	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0	3.	2.77
S	0.	0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0	1.	2.10
SSW	0.	0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0	0.	0.00
SW	0.	0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0	0.	0.00
WSW	0.	0	1.	0.	0.	0.	0.	0.	0.	0.	0.	0	1.	2.40
W	0.	1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0	1.	1.70
WNW	0.	0	0.	0.	0.	0.	0.	1.	0.	0.	0.	0	1.	7.90
NW	0.	0	0.	0.	1.	0.	0.	1.	0.	1.	0.	0	3.	7.00
NNW	0.	0	0.	0.	0.	0.	1.	1.	0.	0.	0.	0	2.	7.10
N	0.	0	0.	1.	2.	4.	1.	2.	1.	0.	0.	0	11.	5.99
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	0.	2.	18.	23.	24.	34.	20.	17.	6.	4.	0.	0	148.	5.24

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.14	0.46	0.73	1.14	0.82	0.55	0.23	0.14	0.00	0.00	4.21	5.90
NE	0.00	0.00	0.14	0.32	0.05	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.69	3.95
ENE	0.00	0.00	0.18	0.18	0.18	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.60	3.69
E	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.90
ESE	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.70
SE	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.77
SSE	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.77
S	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.10
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.40
W	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.70
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	7.90
NW	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.14	7.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.09	7.10
N	0.00	0.00	0.00	0.05	0.09	0.18	0.05	0.09	0.05	0.00	0.00	0.00	0.50	5.99
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.09	0.82	1.05	1.10	1.36	0.92	0.78	0.27	0.18	0.00	0.00	6.79	5.24

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION
2ND QUARTER 1988
DAMES AND MOORE JOB NO - 00377-120-09
DATA PERIOD- 04/01/88 TO 06/30/88
STABILITY CLASS 000 (10-40 METERS)
WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION (FREQUENCY IN NUMBER OF OCCURRENCES)															MEAN
WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	211	TOTAL	SPEED	
NE	0	0	0	1	4	13	19	18	27	16	7	3	108	7.87	
NE	0	0	0	0	2	0	0	1	0	0	0	0	3	5.60	
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
E	0	0	0	1	0	0	0	0	0	0	0	0	1	3.30	
ESE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
SSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
SSW	0	0	1	0	0	0	0	0	0	0	0	0	1	2.80	
SW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
WSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
W	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
WNW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
NW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
NNW	0	0	0	0	1	0	1	0	1	1	1	0	5	7.84	
N	0	0	0	0	0	0	1	0	0	0	0	0	1	6.30	
VARIABLE	0	0	0	0	0	0	0	3	1	0	1	1	6	8.78	
CALM	0	0	1	2	7	13	21	22	30	17	9	4	0	0.00	
TOTAL	0	0	1	2	7	13	21	22	30	17	9	4	126	7.78	

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 2ND QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 04/01/88 TO 06/30/88
 STABILITY CLASS ALL (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	3	17	49	41	66	51	32	37	22	7	3	324	6.08
NE	0	2	16	18	10	8	1	1	0	0	0	1	57	3.87
ENE	0	2	10	7	13	2	1	1	0	0	0	0	36	3.88
E	0	2	9	6	5	2	7	2	1	2	0	1	33	5.23
ESE	0	0	9	10	12	8	7	8	3	3	0	1	61	5.44
SE	0	2	12	18	23	22	31	23	23	16	7	8	185	6.65
SSE	0	3	14	18	26	15	17	10	14	19	14	30	176	7.41
S	0	1	12	24	14	20	24	22	14	14	14	33	192	7.62
SSW	1	3	10	16	19	21	23	22	21	13	6	12	167	6.87
SW	0	3	10	27	22	28	36	17	12	9	2	7	173	6.16
WSW	0	3	12	22	23	35	42	32	13	2	2	7	193	6.18
W	0	4	9	17	41	41	39	38	28	11	4	17	249	6.75
WNW	0	1	6	10	8	20	17	25	20	9	4	32	152	8.52
NW	0	2	4	8	11	5	7	4	8	7	4	18	78	8.13
NNW	1	2	8	4	2	10	6	3	1	4	2	2	45	5.75
N	1	2	5	13	8	13	4	7	6	1	2	1	63	5.46
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	3	35	159	263	278	316	313	247	201	128	68	173	2184	6.62

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.14	0.78	2.06	1.88	3.02	2.34	1.47	1.69	1.01	0.32	0.14	14.84	6.08
NE	0.00	0.09	0.73	0.82	0.46	0.37	0.05	0.05	0.00	0.00	0.00	0.05	2.61	3.87
ENE	0.00	0.09	0.46	0.32	0.60	0.09	0.05	0.05	0.00	0.00	0.00	0.00	1.65	3.88
E	0.00	0.09	0.23	0.27	0.23	0.09	0.32	0.09	0.05	0.09	0.00	0.05	1.51	5.23
ESE	0.00	0.00	0.41	0.46	0.55	0.37	0.32	0.37	0.14	0.14	0.00	0.05	2.79	5.44
SE	0.00	0.09	0.55	0.82	1.05	1.01	1.42	1.05	1.05	0.73	0.32	0.37	8.47	6.65
SSE	0.00	0.14	0.64	0.82	1.19	0.69	0.78	0.46	0.64	0.69	0.64	1.37	8.06	7.41
S	0.00	0.09	0.55	1.10	0.64	0.92	1.10	1.01	0.64	0.64	0.64	1.51	8.79	7.62
SSW	0.05	0.14	0.46	0.73	0.87	0.96	1.05	1.01	0.96	0.60	0.27	0.55	7.65	6.87
SW	0.00	0.14	0.46	1.24	1.01	1.28	1.65	0.78	0.55	0.41	0.09	0.32	7.92	6.16
WSW	0.00	0.14	0.55	1.01	1.05	1.60	1.92	1.47	0.60	0.09	0.09	0.32	8.84	6.18
W	0.00	0.18	0.41	0.78	1.88	1.88	1.79	1.74	1.28	0.50	0.18	0.78	11.40	6.75
WNW	0.00	0.05	0.27	0.46	0.37	0.92	0.78	1.14	0.92	0.41	0.18	1.47	6.96	8.52
NW	0.00	0.09	0.18	0.37	0.50	0.23	0.32	0.18	0.37	0.32	0.18	0.82	3.57	8.13
NNW	0.05	0.09	0.37	0.18	0.09	0.46	0.27	0.14	0.05	0.18	0.09	0.09	2.06	5.75
N	0.05	0.09	0.23	0.60	0.37	0.60	0.18	0.32	0.27	0.05	0.09	0.05	2.88	5.46
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.14	1.60	7.28	12.04	12.73	14.47	14.33	11.31	9.20	9.86	3.11	7.92	100.00	6.62

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2184

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS 000 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	0	2	3	2	3	1	1	1	1	1	2	17	7.39
NE	0	0	0	0	2	1	0	1	1	0	0	3	10	14.23
ENE	0	0	0	0	1	0	0	0	0	1	0	1	3	8.53
E	0	0	0	0	3	4	2	2	0	0	1	0	12	6.14
ESE	0	1	0	0	3	7	3	4	0	0	0	2	20	6.73
SE	0	0	0	1	3	11	11	13	7	10	10	24	90	9.21
SSE	0	2	2	4	2	5	2	3	1	2	4	15	42	10.38
S	0	0	1	7	5	3	0	0	1	0	2	0	19	9.21
SSW	0	1	1	0	0	2	0	2	1	0	0	1	8	8.73
SW	0	1	1	2	0	0	1	1	1	4	0	3	14	8.85
WSW	0	0	7	4	2	0	2	1	4	0	1	4	25	7.96
W	0	0	3	5	8	4	1	1	1	0	2	2	27	9.54
WNW	0	1	2	2	5	6	3	2	3	3	0	3	30	6.74
NW	0	0	2	3	6	6	5	6	3	2	0	3	36	6.71
NNW	0	3	1	2	3	0	2	0	1	2	0	0	14	4.92
N	0	0	5	3	3	2	0	0	0	0	1	2	16	6.96
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	9	27	36	48	54	33	37	25	25	22	67	383	7.92

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.00	0.09	0.14	0.09	0.14	0.03	0.03	0.03	0.03	0.03	0.09	0.79	7.39
NE	0.00	0.00	0.00	0.00	0.09	0.03	0.00	0.03	0.03	0.00	0.00	0.23	0.45	14.23
ENE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.14	8.53
E	0.00	0.00	0.00	0.00	0.14	0.18	0.09	0.09	0.00	0.00	0.03	0.00	0.55	6.14
ESE	0.00	0.03	0.00	0.00	0.14	0.32	0.14	0.18	0.00	0.00	0.00	0.09	0.92	6.73
SE	0.00	0.00	0.00	0.03	0.14	0.31	0.31	0.60	0.32	0.46	0.46	1.10	4.14	9.21
SSE	0.00	0.09	0.09	0.18	0.09	0.23	0.09	0.14	0.03	0.09	0.18	0.69	1.93	10.38
S	0.00	0.00	0.03	0.32	0.23	0.14	0.00	0.00	0.03	0.00	0.09	0.00	0.87	9.21
SSW	0.00	0.03	0.03	0.00	0.00	0.09	0.00	0.09	0.03	0.00	0.00	0.03	0.37	8.73
SW	0.00	0.03	0.03	0.09	0.00	0.00	0.03	0.03	0.03	0.18	0.00	0.14	0.64	8.85
WSW	0.00	0.00	0.32	0.18	0.09	0.00	0.09	0.03	0.18	0.00	0.03	0.18	1.15	7.96
W	0.00	0.00	0.14	0.23	0.37	0.18	0.03	0.03	0.03	0.00	0.09	0.09	1.24	9.54
WNW	0.00	0.03	0.09	0.09	0.23	0.28	0.14	0.09	0.14	0.14	0.00	0.14	1.39	6.74
NW	0.00	0.00	0.09	0.14	0.28	0.28	0.23	0.28	0.14	0.09	0.00	0.14	1.65	6.71
NNW	0.00	0.14	0.03	0.09	0.14	0.00	0.09	0.00	0.03	0.09	0.00	0.00	0.64	4.92
N	0.00	0.00	0.23	0.14	0.14	0.09	0.00	0.00	0.00	0.00	0.03	0.09	0.74	6.96
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.41	1.24	1.46	2.21	2.48	1.52	1.70	1.15	1.15	1.01	3.08	17.61	7.92

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS #E8 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0	1	9	14	11	6	7	4	2	2	2	5	63	6.15
NE	0	2	5	8	2	1	1	2	1	1	1	15	39	9.58
ENE	0	0	2	2	1	0	1	2	0	2	0	0	10	5.72
E	0	0	1	3	3	3	0	1	1	1	0	0	13	5.29
ESE	0	0	1	5	5	4	2	0	0	0	0	0	17	4.59
SE	0	0	2	6	3	5	3	1	1	1	2	2	26	6.47
SSE	0	0	4	0	3	3	0	0	0	0	0	1	11	5.07
S	0	1	2	1	1	0	0	0	0	0	0	1	6	7.80
SSW	0	0	1	0	0	0	0	0	0	0	0	1	2	16.30
SW	0	1	5	0	0	0	0	0	0	0	0	1	7	5.13
WSW	0	0	2	0	0	0	0	0	0	0	0	0	2	2.90
W	0	1	1	8	11	3	1	1	0	0	0	0	26	4.25
WNW	0	0	2	3	6	9	4	2	1	0	0	0	27	5.29
NW	0	0	1	9	7	5	1	1	1	0	0	1	26	5.13
NNW	0	1	2	2	1	3	3	1	0	0	0	1	14	5.32
N	0	1	6	7	3	6	4	7	5	1	6	4	50	6.94
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	8	46	68	57	48	27	22	12	8	11	32	339	6.25

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.05	0.41	0.64	0.51	0.28	0.32	0.18	0.09	0.09	0.09	0.23	2.90	6.15
NE	0.00	0.09	0.23	0.37	0.09	0.05	0.05	0.09	0.05	0.05	0.05	0.69	1.79	9.58
ENE	0.00	0.00	0.09	0.09	0.05	0.00	0.05	0.09	0.00	0.09	0.00	0.00	0.46	5.72
E	0.00	0.00	0.05	0.14	0.14	0.14	0.00	0.05	0.05	0.05	0.00	0.00	0.60	5.29
ESE	0.00	0.00	0.05	0.23	0.23	0.18	0.09	0.00	0.00	0.00	0.00	0.00	0.78	4.59
SE	0.00	0.00	0.09	0.28	0.14	0.23	0.14	0.05	0.05	0.05	0.09	0.09	1.20	6.47
SSE	0.00	0.00	0.18	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.05	0.51	5.07
S	0.00	0.05	0.09	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.28	7.80
SSW	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	16.30
SW	0.00	0.05	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.32	5.13
WSW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.90
W	0.00	0.05	0.05	0.37	0.51	0.14	0.05	0.05	0.00	0.00	0.00	0.00	1.20	4.25
WNW	0.00	0.00	0.09	0.14	0.28	0.41	0.18	0.09	0.05	0.00	0.00	0.00	1.24	5.29
NW	0.00	0.00	0.05	0.41	0.32	0.23	0.05	0.05	0.05	0.00	0.00	0.05	1.20	5.13
NNW	0.00	0.05	0.09	0.09	0.05	0.14	0.14	0.05	0.00	0.00	0.00	0.05	0.64	5.32
N	0.00	0.05	0.28	0.32	0.14	0.28	0.18	0.32	0.23	0.05	0.28	0.18	2.30	6.94
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.37	2.11	3.13	2.62	2.21	1.24	1.01	0.55	0.37	0.51	1.47	15.59	6.25

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS BFB (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	3	12	31	40	38	23	13	9	5	4	5	179	5.48
NE	0	4	20	19	9	8	1	2	1	1	0	1	66	4.08
ENE	0	3	8	3	2	2	0	0	0	0	0	0	18	3.08
E	0	2	7	0	2	1	1	0	1	0	0	0	14	3.61
ESE	0	2	1	6	3	2	3	0	2	0	0	0	19	4.62
SE	0	0	3	2	0	1	0	1	0	0	0	0	7	4.16
SSE	0	1	2	1	0	0	0	2	0	0	0	1	7	5.44
S	0	0	2	2	0	0	0	0	0	0	0	0	4	3.28
SSW	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
SW	0	0	0	1	0	0	0	0	0	0	0	0	1	3.90
WSW	0	2	1	0	0	0	0	0	0	0	0	0	3	1.97
W	1	0	2	2	3	1	1	0	0	0	0	0	10	3.98
WNW	0	1	0	3	5	6	2	4	0	1	0	0	22	5.52
NW	0	1	0	0	2	1	0	0	1	0	0	0	5	4.84
NNW	0	0	1	1	3	2	2	2	0	0	0	0	11	5.16
N	0	0	3	5	4	4	5	5	0	2	1	1	30	5.97
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	1	19	62	76	73	66	38	29	10	9	5	8	396	4.94

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.14	0.55	1.43	1.84	1.75	1.06	0.60	0.23	0.23	0.18	0.23	8.23	5.48
NE	0.00	0.18	0.92	0.87	0.41	0.37	0.05	0.09	0.05	0.05	0.00	0.05	3.03	4.08
ENE	0.00	0.14	0.37	0.14	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.83	3.08
E	0.00	0.09	0.32	0.00	0.09	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.64	3.61
ESE	0.00	0.09	0.05	0.28	0.14	0.09	0.14	0.00	0.09	0.00	0.00	0.00	0.87	4.62
SE	0.00	0.00	0.14	0.09	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.32	4.16
SSE	0.00	0.05	0.09	0.05	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.05	0.32	5.44
S	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	3.28
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.90
WSW	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.97
W	0.05	0.00	0.09	0.09	0.14	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.46	3.98
WNW	0.00	0.05	0.00	0.14	0.23	0.28	0.09	0.18	0.00	0.05	0.00	0.00	1.01	5.52
NW	0.00	0.05	0.00	0.00	0.09	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.23	4.84
NNW	0.00	0.00	0.05	0.05	0.14	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.51	5.16
N	0.00	0.00	0.14	0.23	0.18	0.18	0.23	0.23	0.00	0.09	0.05	0.05	1.38	5.97
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.05	0.87	2.85	3.49	3.36	3.03	1.75	1.33	0.46	0.41	0.23	0.37	18.21	4.94

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1GT QUARTER 1788
 DAMES AND MOORE JOB NO - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS 668 (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0	0	8	8	20	26	53	66	73	58	33	62	407	8.42
NE	0	2	5	18	13	6	1	6	4	3	5	2	65	5.70
ENE	0	0	1	3	1	4	1	1	0	0	0	0	11	5.05
E	0	0	2	2	0	0	0	0	0	1	0	0	5	4.38
ESE	0	0	1	0	1	1	0	0	0	0	0	0	3	4.43
SE	0	1	3	1	0	0	0	0	0	0	0	0	5	2.64
SSE	0	1	1	2	3	0	0	0	0	0	0	0	7	3.53
S	0	0	0	1	0	0	0	0	0	0	0	0	1	3.60
SSW	0	0	3	1	0	0	0	0	0	0	0	0	4	2.85
SW	0	0	1	0	0	0	0	0	0	0	0	0	1	2.40
WSW	0	0	2	1	0	0	0	0	0	0	0	0	3	2.87
W	0	0	1	2	2	2	0	0	0	0	0	0	7	4.36
WNW	0	0	0	0	4	4	0	1	0	0	0	0	9	5.30
NW	0	0	1	0	1	2	1	1	0	0	1	0	7	6.09
NNW	0	0	1	0	0	0	0	1	0	0	0	0	2	5.00
N	0	0	2	0	1	1	2	5	2	2	3	3	21	7.78
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	0	4	32	39	46	46	58	81	79	64	42	67	558	7.62

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.37	0.37	0.92	1.20	2.44	3.03	3.36	2.67	1.52	2.85	10.71	8.42
NE	0.00	0.09	0.23	0.83	0.60	0.28	0.05	0.28	0.18	0.14	0.23	0.09	2.97	5.70
ENE	0.00	0.00	0.05	0.14	0.05	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.51	5.05
E	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.23	4.38
ESE	0.00	0.00	0.05	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.14	4.43
SE	0.00	0.05	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	2.64
SSE	0.00	0.05	0.05	0.09	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	3.53
S	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.60
SSW	0.00	0.00	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	2.85
SW	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.40
WSW	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.87
W	0.00	0.00	0.05	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.32	4.36
WNW	0.00	0.00	0.00	0.00	0.18	0.18	0.00	0.05	0.00	0.00	0.00	0.00	0.41	5.30
NW	0.00	0.00	0.05	0.00	0.05	0.09	0.05	0.05	0.00	0.00	0.05	0.00	0.32	6.09
NNW	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.07	5.00
N	0.00	0.00	0.09	0.00	0.05	0.05	0.09	0.23	0.09	0.09	0.14	0.14	0.97	7.78
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.18	1.47	1.79	2.11	2.11	2.67	3.72	3.63	2.94	1.93	3.08	25.66	7.62

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 1ST QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 01/01/88 TO 03/31/88
 STABILITY CLASS ALL (10-40 METERS)
 WINDS AT 10 METER LEVEL

21-JUL-88

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0	4	31	56	73	73	84	84	81	46	40	77	669	7.42
NE	0	8	30	45	26	16	4	11	7	5	6	24	182	6.47
ENE	0	3	11	8	5	6	2	3	0	3	1	3	45	5.09
E	0	2	10	5	8	8	3	3	2	2	1	0	44	4.89
ESE	0	3	3	12	12	14	8	4	2	0	0	2	60	5.29
SE	0	1	8	10	7	18	15	16	9	13	13	39	149	8.71
SSE	0	4	9	9	11	14	9	8	8	9	10	32	123	8.65
S	0	1	6	18	12	10	4	8	8	6	5	8	86	6.77
SSW	0	1	5	10	6	10	8	6	6	0	2	5	59	6.77
SW	0	2	12	10	14	15	11	3	2	6	1	7	83	6.33
WSW	0	2	13	11	21	19	8	7	6	2	1	4	94	5.89
W	1	1	9	26	44	35	26	24	9	0	2	2	179	5.53
WNW	0	2	4	9	24	35	23	24	16	11	6	11	165	6.95
NW	0	1	4	12	16	15	9	10	5	5	1	6	84	6.36
NNW	0	4	5	5	7	5	7	4	1	2	0	1	41	5.13
N	0	1	16	15	11	13	11	17	7	5	11	10	117	6.86
VARIABLE													0	0.00
CALM													0	0.00
TOTAL	1	60	176	261	297	306	232	232	169	135	100	231	2180	6.89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.18	1.42	2.57	3.35	3.35	3.85	3.85	3.72	3.03	1.83	3.53	30.69	7.42
NE	0.00	0.37	1.38	2.06	1.19	0.73	0.18	0.50	0.32	0.23	0.28	1.10	8.35	6.47
ENE	0.00	0.14	0.50	0.37	0.23	0.28	0.09	0.14	0.00	0.14	0.05	0.14	2.06	5.09
E	0.00	0.09	0.46	0.23	0.37	0.37	0.14	0.14	0.09	0.09	0.05	0.00	2.02	4.89
ESE	0.00	0.14	0.14	0.55	0.55	0.64	0.37	0.18	0.09	0.00	0.00	0.09	2.75	5.29
SE	0.00	0.05	0.37	0.46	0.32	0.83	0.69	0.73	0.41	0.60	0.60	1.79	6.83	8.71
SSE	0.00	0.18	0.41	0.41	0.50	0.64	0.41	0.37	0.37	0.41	0.46	1.47	5.64	8.65
S	0.00	0.05	0.28	0.83	0.55	0.46	0.18	0.37	0.37	0.28	0.23	0.37	3.94	6.77
SSW	0.00	0.05	0.23	0.46	0.28	0.46	0.37	0.28	0.28	0.00	0.09	0.23	2.71	6.77
SW	0.00	0.09	0.55	0.46	0.64	0.69	0.50	0.14	0.09	0.28	0.05	0.32	3.81	6.33
WSW	0.00	0.09	0.60	0.50	0.96	0.87	0.37	0.32	0.28	0.09	0.05	0.18	4.31	5.89
W	0.05	0.05	0.41	1.19	2.02	1.61	1.19	1.10	0.41	0.00	0.09	0.09	8.21	5.53
WNW	0.00	0.09	0.18	0.41	1.10	1.61	1.06	1.10	0.73	0.50	0.28	0.50	7.57	6.95
NW	0.00	0.05	0.18	0.55	0.73	0.69	0.41	0.46	0.23	0.23	0.05	0.28	3.85	6.36
NNW	0.00	0.18	0.23	0.23	0.32	0.23	0.32	0.18	0.05	0.09	0.00	0.05	1.89	5.13
N	0.00	0.05	0.73	0.69	0.50	0.60	0.50	0.78	0.32	0.23	0.50	0.46	5.37	6.86
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.05	1.83	8.07	11.97	13.62	14.04	10.64	10.64	7.75	6.19	4.99	10.60	100.00	6.89

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2184

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS ALL (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	2.	30.	60.	65.	60.	70.	73.	63.	39.	30.	39.	931.	6.96
NE	0.	6.	11.	15.	7.	4.	7.	2.	3.	0.	0.	6.	61.	5.22
ENE	0.	2.	4.	6.	7.	1.	1.	1.	0.	0.	0.	0.	22.	3.91
E	0.	3.	7.	3.	6.	1.	4.	0.	0.	0.	0.	0.	24.	3.90
ESE	0.	2.	12.	11.	5.	9.	1.	3.	1.	1.	0.	2.	47.	4.72
SE	1.	2.	8.	23.	17.	16.	22.	15.	23.	10.	9.	42.	188.	8.36
SSE	0.	3.	16.	22.	19.	15.	11.	9.	14.	5.	3.	17.	134.	6.84
S	0.	4.	6.	29.	17.	11.	14.	15.	13.	5.	0.	5.	119.	6.03
SSW	0.	4.	12.	17.	22.	13.	8.	3.	2.	3.	0.	1.	85.	4.86
SW	0.	0.	21.	24.	12.	15.	12.	1.	3.	0.	0.	0.	88.	4.39
WSW	1.	1.	10.	27.	27.	23.	21.	10.	9.	6.	3.	1.	139.	5.52
W	0.	2.	7.	18.	35.	32.	45.	30.	14.	9.	2.	31.	225.	7.14
WNW	0.	0.	10.	10.	16.	11.	16.	9.	5.	7.	6.	22.	112.	7.73
NW	0.	0.	6.	3.	12.	12.	7.	5.	5.	1.	1.	5.	57.	6.42
NNW	0.	2.	10.	16.	10.	9.	4.	2.	3.	0.	0.	0.	56.	4.43
N	0.	4.	29.	36.	44.	45.	34.	37.	27.	17.	12.	35.	320.	6.78
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	2.	37.	199.	320.	321.	277.	277.	215.	185.	103.	66.	206.	2208.	6.54

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.09	1.36	2.72	2.94	2.72	3.17	3.31	2.85	1.77	1.36	1.77	24.05	6.96
NE	0.00	0.27	0.50	0.68	0.32	0.18	0.32	0.09	0.14	0.00	0.00	0.27	2.76	5.22
ENE	0.00	0.09	0.18	0.27	0.32	0.05	0.05	0.05	0.00	0.00	0.00	0.00	1.00	3.91
E	0.00	0.14	0.32	0.14	0.27	0.05	0.18	0.00	0.00	0.00	0.00	0.00	1.09	3.90
ESE	0.00	0.09	0.34	0.30	0.23	0.41	0.05	0.14	0.05	0.05	0.00	0.09	2.13	4.72
SE	0.05	0.09	0.36	1.04	0.77	0.72	1.00	0.68	1.04	0.45	0.41	1.90	8.51	8.36
SSE	0.00	0.14	0.72	1.00	0.86	0.68	0.50	0.41	0.63	0.23	0.14	0.77	6.07	6.84
S	0.00	0.18	0.27	1.31	0.77	0.50	0.63	0.68	0.59	0.23	0.00	0.23	5.39	6.03
SSW	0.00	0.18	0.34	0.77	1.00	0.59	0.36	0.14	0.09	0.14	0.00	0.05	3.85	4.86
SW	0.00	0.00	0.95	1.09	0.54	0.68	0.54	0.05	0.14	0.00	0.00	0.00	3.99	4.39
WSW	0.05	0.05	0.45	1.22	1.22	1.04	0.95	0.45	0.41	0.27	0.14	0.05	6.30	5.52
W	0.00	0.09	0.32	0.82	1.59	1.45	2.04	1.36	0.63	0.41	0.09	1.40	10.19	7.14
WNW	0.00	0.00	0.45	0.45	0.72	0.50	0.72	0.41	0.23	0.32	0.27	1.00	5.07	7.73
NW	0.00	0.00	0.27	0.14	0.54	0.54	0.32	0.23	0.23	0.05	0.05	0.23	2.58	6.42
NNW	0.00	0.09	0.45	0.72	0.45	0.41	0.18	0.09	0.14	0.00	0.00	0.00	2.54	4.43
N	0.00	0.18	1.31	1.63	1.99	2.04	1.54	1.68	1.22	0.77	0.54	1.59	14.49	6.78
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.09	1.68	9.01	14.49	14.54	12.55	12.55	9.74	8.38	4.66	2.99	9.33	100.00	6.54

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS #00 (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.	0.	2.	6.	9.	16.	24.	42.	52.	33.	28.	14.	226.	8.22
NE	0.	1.	1.	2.	0.	2.	9.	0.	1.	0.	0.	0.	12.	5.24
ENE	0.	0.	0.	2.	2.	1.	0.	1.	0.	0.	0.	0.	6.	4.70
E	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.30
ESE	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.	2.	4.35
SE	1.	2.	1.	2.	1.	0.	1.	0.	0.	0.	0.	0.	8.	3.14
SSE	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.07
S	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.90
SSW	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.80
SW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
WSW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
W	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	4.00
WNW	0.	0.	0.	0.	0.	2.	1.	1.	0.	1.	0.	0.	5.	6.82
NW	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	3.	5.80
NNW	0.	0.	0.	2.	0.	3.	0.	1.	1.	0.	0.	0.	7.	5.63
N	0.	0.	0.	5.	7.	5.	8.	19.	17.	13.	9.	15.	98.	8.36
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	1.	3.	11.	21.	20.	31.	40.	64.	71.	47.	37.	29.	375.	7.78

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL	MEAN SPEED
NNE	0.00	0.00	0.09	0.27	0.41	0.72	1.09	1.90	2.36	1.49	1.27	0.63	10.24	8.22
NE	0.00	0.03	0.05	0.09	0.00	0.09	0.23	0.00	0.05	0.00	0.00	0.00	0.94	5.24
ENE	0.00	0.00	0.00	0.09	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.27	4.70
E	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.30
ESE	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.35
SE	0.05	0.09	0.05	0.09	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.36	3.14
SSE	0.00	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.07
S	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.90
SSW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.80
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.00
WNW	0.00	0.00	0.00	0.00	0.00	0.09	0.05	0.05	0.00	0.05	0.00	0.00	0.23	6.82
NW	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.14	5.80
NNW	0.00	0.00	0.00	0.09	0.00	0.14	0.00	0.05	0.05	0.00	0.00	0.00	0.32	5.63
N	0.00	0.00	0.00	0.23	0.32	0.23	0.36	0.86	0.77	0.59	0.41	0.68	4.44	8.36
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.05	0.14	0.50	0.95	0.91	1.40	1.81	2.90	3.22	2.13	1.68	1.31	16.95	7.78

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS #F0 (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	1.	13.	25.	29.	23.	29.	11.	4.	2.	0.	7.	144.	5.59
NE	0.	2.	6.	4.	3.	0.	2.	1.	0.	0.	0.	0.	18.	3.69
ENE	0.	1.	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	5.	3.18
E	0.	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.	3.	3.27
ESE	0.	2.	4.	1.	1.	0.	0.	0.	0.	0.	0.	0.	8.	2.70
SE	0.	0.	0.	2.	1.	1.	1.	0.	0.	0.	0.	1.	6.	6.07
SSE	0.	0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	4.	3.85
S	0.	1.	3.	0.	1.	0.	0.	0.	0.	0.	0.	0.	5.	2.70
SSW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
WSW	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	3.	3.57
W	0.	0.	0.	2.	3.	3.	1.	1.	0.	0.	0.	1.	11.	5.78
WNW	0.	0.	0.	0.	1.	0.	3.	0.	1.	1.	0.	0.	6.	7.03
NW	0.	0.	0.	0.	0.	3.	0.	0.	1.	0.	0.	0.	4.	6.23
NNW	0.	0.	2.	2.	0.	0.	1.	0.	1.	0.	0.	0.	6.	4.58
N	0.	1.	4.	5.	10.	19.	17.	10.	5.	4.	0.	1.	76.	6.04
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	0.	8.	38.	43.	54.	50.	54.	23.	12.	7.	0.	10.	299.	5.39

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.05	0.59	1.13	1.31	1.04	1.31	0.50	0.18	0.09	0.00	0.32	6.52	5.59
NE	0.00	0.09	0.27	0.18	0.14	0.00	0.09	0.05	0.00	0.00	0.00	0.00	0.82	3.69
ENE	0.00	0.05	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	3.18
E	0.00	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.27
ESE	0.00	0.09	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	2.70
SE	0.00	0.00	0.00	0.09	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.27	6.07
SSE	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.18	3.85
S	0.00	0.05	0.14	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	2.70
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.57
W	0.00	0.00	0.00	0.09	0.14	0.14	0.05	0.05	0.00	0.00	0.00	0.05	0.50	5.78
WNW	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.00	0.05	0.05	0.00	0.00	0.27	7.03
NW	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.05	0.00	0.00	0.00	0.18	6.23
NNW	0.00	0.00	0.09	0.09	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.27	4.58
N	0.00	0.05	0.18	0.23	0.45	0.86	0.77	0.45	0.23	0.18	0.00	0.05	3.44	6.04
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.36	1.72	1.95	2.45	2.26	2.45	1.04	0.54	0.32	0.00	0.45	13.54	5.39

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS 9E# (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	1.	10.	18.	10.	11.	7.	9.	2.	1.	1.	9.	79.	6.19
NE	0.	0.	3.	4.	0.	1.	0.	1.	0.	0.	0.	4.	13.	7.44
ENE	0.	0.	1.	2.	1.	0.	1.	0.	0.	0.	0.	0.	5.	4.12
E	0.	2.	2.	0.	1.	1.	2.	0.	0.	0.	0.	0.	8.	4.18
ESE	0.	0.	4.	6.	2.	4.	0.	0.	0.	0.	0.	0.	16.	3.86
SE	0.	0.	2.	4.	2.	2.	0.	1.	1.	1.	0.	0.	13.	4.97
SSE	0.	1.	4.	3.	1.	1.	0.	0.	0.	1.	0.	0.	11.	3.93
S	0.	0.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.10
SSW	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.55
SW	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	2.70
WSW	1.	0.	0.	2.	2.	0.	0.	0.	0.	0.	0.	0.	5.	3.30
W	0.	0.	0.	3.	5.	0.	1.	0.	0.	0.	0.	0.	9.	4.30
WNW	0.	0.	2.	0.	4.	1.	4.	0.	3.	1.	1.	5.	21.	8.33
NW	0.	0.	0.	0.	2.	1.	3.	1.	0.	0.	0.	2.	9.	8.06
NNW	0.	1.	3.	2.	4.	4.	0.	1.	1.	0.	0.	0.	16.	4.58
N	0.	1.	17.	15.	12.	11.	5.	5.	3.	0.	2.	11.	82.	6.03
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	1.	7.	52.	62.	46.	37.	23.	18.	10.	4.	4.	31.	295.	5.77

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.03	0.43	0.82	0.43	0.30	0.32	0.41	0.09	0.03	0.03	0.41	3.58	6.19
NE	0.00	0.00	0.14	0.18	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.18	0.59	7.44
ENE	0.00	0.00	0.03	0.09	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.23	4.12
E	0.00	0.09	0.09	0.00	0.03	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.36	4.18
ESE	0.00	0.00	0.18	0.27	0.09	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.72	3.86
SE	0.00	0.00	0.09	0.18	0.09	0.09	0.00	0.03	0.03	0.03	0.00	0.00	0.59	4.97
SSE	0.00	0.03	0.18	0.14	0.03	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.50	3.93
S	0.00	0.00	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.10
SSW	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.55
SW	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.70
WSW	0.03	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	3.30
W	0.00	0.00	0.00	0.14	0.23	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.41	4.30
WNW	0.00	0.00	0.09	0.00	0.18	0.03	0.18	0.00	0.14	0.03	0.03	0.23	0.93	8.33
NW	0.00	0.00	0.00	0.00	0.09	0.03	0.14	0.03	0.00	0.00	0.00	0.09	0.41	8.06
NNW	0.00	0.03	0.14	0.09	0.18	0.18	0.00	0.03	0.03	0.00	0.00	0.00	0.72	4.58
N	0.00	0.03	0.77	0.68	0.54	0.30	0.23	0.23	0.14	0.00	0.09	0.50	3.71	6.03
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.03	0.32	2.36	2.81	2.08	1.68	1.04	0.82	0.45	0.18	0.18	1.40	13.35	5.77

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS #D# (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	0.	5.	10.	17.	9.	10.	10.	4.	1.	1.	5.	72.	6.09
NE	0.	3.	1.	5.	4.	1.	0.	0.	1.	0.	0.	1.	16.	4.46
ENE	0.	1.	1.	2.	2.	0.	0.	0.	0.	0.	0.	0.	6.	3.55
E	0.	1.	2.	3.	4.	0.	2.	0.	0.	0.	0.	0.	12.	4.01
EE	0.	0.	3.	4.	2.	4.	1.	3.	1.	1.	0.	2.	21.	6.18
SE	0.	0.	5.	15.	12.	13.	17.	13.	19.	9.	5.	37.	145.	8.85
SSE	0.	2.	7.	13.	14.	9.	7.	8.	7.	1.	2.	15.	85.	7.42
S	0.	1.	1.	15.	3.	1.	5.	1.	5.	3.	0.	5.	40.	6.95
SSW	0.	2.	6.	2.	1.	0.	2.	0.	0.	2.	0.	1.	16.	5.13
SW	0.	0.	9.	11.	4.	1.	3.	0.	0.	0.	0.	0.	28.	3.68
WSW	0.	0.	7.	10.	4.	0.	0.	0.	0.	0.	1.	1.	23.	4.40
W	0.	2.	5.	4.	7.	2.	3.	0.	0.	0.	0.	10.	33.	7.02
WNW	0.	0.	8.	9.	7.	4.	5.	3.	1.	0.	1.	8.	46.	6.78
NW	0.	0.	6.	3.	9.	7.	3.	4.	4.	1.	1.	3.	41.	6.12
NNW	0.	1.	5.	10.	6.	2.	3.	0.	0.	0.	0.	0.	27.	4.00
N	0.	2.	8.	10.	14.	8.	4.	3.	2.	0.	1.	3.	55.	5.46
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	0.	15.	79.	126.	110.	61.	65.	45.	44.	18.	12.	71.	666.	6.59

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.23	0.45	0.77	0.41	0.45	0.45	0.18	0.05	0.05	0.23	3.26	6.09
NE	0.00	0.14	0.05	0.23	0.18	0.05	0.00	0.00	0.05	0.00	0.00	0.05	0.72	4.46
ENE	0.00	0.05	0.05	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	3.55
E	0.00	0.05	0.09	0.14	0.18	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.54	4.01
EE	0.00	0.00	0.14	0.18	0.09	0.18	0.05	0.14	0.05	0.05	0.00	0.09	0.95	6.18
SE	0.00	0.00	0.23	0.68	0.54	0.59	0.77	0.59	0.86	0.41	0.23	1.68	6.57	8.85
SSE	0.00	0.09	0.32	0.59	0.63	0.41	0.32	0.36	0.32	0.05	0.09	0.68	3.85	7.42
S	0.00	0.05	0.05	0.68	0.14	0.05	0.23	0.05	0.23	0.14	0.00	0.23	1.81	6.95
SSW	0.00	0.09	0.27	0.09	0.05	0.00	0.09	0.00	0.00	0.09	0.00	0.05	0.72	5.13
SW	0.00	0.00	0.41	0.50	0.18	0.05	0.14	0.00	0.00	0.00	0.00	0.00	1.27	3.68
WSW	0.00	0.00	0.32	0.45	0.18	0.00	0.00	0.00	0.00	0.00	0.05	0.05	1.04	4.40
W	0.00	0.09	0.23	0.18	0.32	0.09	0.14	0.00	0.00	0.00	0.00	0.45	1.47	7.02
WNW	0.00	0.00	0.36	0.41	0.32	0.18	0.23	0.14	0.05	0.00	0.05	0.36	2.00	6.78
NW	0.00	0.00	0.27	0.14	0.41	0.32	0.14	0.18	0.18	0.05	0.05	0.14	1.86	6.12
NNW	0.00	0.05	0.23	0.45	0.27	0.09	0.14	0.00	0.00	0.00	0.00	0.00	1.22	4.00
N	0.00	0.09	0.36	0.45	0.63	0.36	0.18	0.14	0.09	0.00	0.05	0.14	2.47	5.46
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.68	3.58	5.71	4.98	2.76	2.94	2.04	1.99	0.82	0.54	4.12	30.16	6.59

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS #C# (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0	0	0	1	0	1	0	1	1	2	0	0	7.38
NE	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0	0	0	0	0	0.00
ERE	0	0	0	0	0	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	1	2	0	2	3	11.91
SSE	0	0	1	1	2	2	2	0	4	2	0	1	7.16
S	0	0	0	0	2	0	0	3	0	0	0	0	6.44
SSW	0	1	1	4	0	0	0	0	0	0	0	0	3.08
SW	0	0	2	0	0	0	0	0	0	0	0	0	2.30
WSW	0	0	0	3	4	1	1	0	0	0	0	0	4.63
W	0	0	1	4	3	1	0	0	1	0	0	0	4.35
WNW	0	0	0	1	2	1	2	2	0	2	0	0	6.32
NW	0	0	0	0	0	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0	0	0	0	0	0.00
N	0	0	0	1	1	1	0	0	0	0	0	3	10.27
VARIABLE													0.00
CALM													0.00
TOTAL	0	1	5	15	14	7	5	7	8	6	2	7	6.68

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.05	0.05	0.09	0.00	0.00	7.38
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ERE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.09	0.14	11.91
SSE	0.00	0.00	0.05	0.05	0.09	0.09	0.09	0.00	0.18	0.09	0.00	0.05	7.16
S	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.14	0.00	0.00	0.00	0.00	6.44
SSW	0.00	0.05	0.05	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08
SW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30
WSW	0.00	0.00	0.00	0.14	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.00	4.63
W	0.00	0.00	0.05	0.18	0.14	0.05	0.00	0.00	0.05	0.00	0.00	0.00	4.35
WNW	0.00	0.00	0.00	0.05	0.09	0.05	0.09	0.09	0.00	0.09	0.00	0.00	6.32
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.14	10.27
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.05	0.23	0.68	0.63	0.32	0.23	0.32	0.36	0.27	0.09	0.32	6.68

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS 98# (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	14.95
NE	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	8.50
ENE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SE	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.	1.	9.25
SSE	0.	0.	0.	1.	0.	0.	1.	0.	1.	1.	1.	0.	7.86
S	0.	1.	0.	3.	1.	1.	0.	1.	1.	0.	0.	0.	4.88
SSW	0.	0.	0.	4.	1.	1.	0.	0.	0.	0.	0.	0.	4.12
SW	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	4.75
WSW	0.	1.	0.	1.	2.	1.	0.	0.	0.	0.	0.	0.	3.96
W	0.	0.	1.	1.	0.	1.	2.	0.	0.	0.	0.	1.	6.63
WNW	0.	0.	0.	0.	2.	0.	0.	1.	0.	0.	1.	2.	8.83
NW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
NNW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
N	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	9.45
VARIABLE													0.00
CALM													0.00
TOTAL	0.	2.	1.	10.	7.	6.	5.	2.	3.	1.	3.	9.	7.13

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	14.95
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	8.50
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.05	0.05	9.25
SSE	0.00	0.00	0.00	0.05	0.00	0.00	0.05	0.00	0.05	0.05	0.05	0.00	7.86
S	0.00	0.05	0.00	0.14	0.05	0.05	0.00	0.05	0.05	0.00	0.00	0.00	4.88
SSW	0.00	0.00	0.00	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	4.12
SW	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	4.75
WSW	0.00	0.05	0.00	0.05	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	3.96
W	0.00	0.00	0.05	0.05	0.00	0.05	0.09	0.00	0.00	0.00	0.00	0.05	6.63
WNW	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.05	0.00	0.00	0.05	0.09	8.83
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05	9.45
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.09	0.05	0.45	0.32	0.27	0.23	0.09	0.14	0.05	0.14	0.41	7.13

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 4TH QUARTER 1988
 DAMEG AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 10/01/88 TO 12/31/88
 STABILITY CLASS #A# (10-40 METERS)
 WINDS AT 10 METER LEVEL

26-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
NE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	12.60
ENE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SE	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.	1.	0.	7.75
SSE	0.	0.	1.	2.	1.	2.	1.	1.	2.	0.	0.	1.	6.40
S	0.	1.	0.	9.	10.	9.	9.	10.	7.	2.	0.	0.	57.60
SSW	0.	0.	3.	6.	20.	12.	6.	3.	2.	1.	0.	0.	53.92
SW	0.	0.	7.	13.	7.	13.	9.	1.	3.	0.	0.	0.	53.49
WSW	0.	0.	2.	10.	14.	21.	20.	10.	9.	6.	2.	0.	94.64
W	0.	0.	0.	3.	17.	25.	38.	29.	13.	9.	2.	19.	155.76
WNW	0.	0.	0.	0.	0.	3.	1.	2.	0.	2.	3.	7.	10.24
NW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
NNW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
N	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	15.50
VARIABLE													0.00
CALM													0.00
TOTAL	0.	1.	13.	43.	70.	85.	85.	56.	37.	20.	8.	29.	447.61

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	12.60
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.05	0.00	0.05	0.00	7.75
SSE	0.00	0.00	0.05	0.09	0.05	0.09	0.05	0.05	0.09	0.00	0.00	0.05	6.40
S	0.00	0.05	0.00	0.41	0.45	0.41	0.41	0.45	0.32	0.09	0.00	0.00	57.60
SSW	0.00	0.00	0.14	0.27	0.91	0.54	0.27	0.14	0.09	0.05	0.00	0.00	53.92
SW	0.00	0.00	0.32	0.59	0.32	0.59	0.41	0.05	0.14	0.00	0.00	0.00	53.49
WSW	0.00	0.00	0.09	0.45	0.63	0.95	0.91	0.45	0.41	0.27	0.09	0.00	94.64
W	0.00	0.00	0.00	0.14	0.77	1.13	1.72	1.31	0.59	0.41	0.09	0.86	155.76
WNW	0.00	0.00	0.00	0.00	0.00	0.14	0.05	0.09	0.00	0.09	0.14	0.32	10.24
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	15.50
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.05	0.59	1.95	3.17	3.85	3.85	2.54	1.68	0.91	0.36	1.31	447.61

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2208

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS ALL (10-40 METERS)
 WINDS AT 10 METER LEVEL

23-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	1.	15.	36.	30.	44.	22.	29.	13.	9.	3.	0.	204.	3.69
NE	0.	1.	8.	6.	1.	1.	0.	0.	0.	0.	0.	0.	17.	3.22
ENE	0.	1.	7.	5.	1.	1.	0.	0.	0.	0.	0.	0.	15.	3.26
E	0.	3.	1.	3.	0.	2.	0.	0.	0.	0.	0.	0.	9.	3.28
ESE	0.	0.	4.	4.	9.	2.	1.	0.	0.	0.	0.	0.	20.	4.16
SE	0.	1.	18.	19.	26.	25.	13.	4.	6.	7.	1.	9.	129.	3.68
SSE	0.	5.	26.	43.	34.	21.	12.	11.	10.	6.	10.	15.	193.	3.73
S	0.	12.	21.	31.	32.	31.	14.	15.	3.	10.	8.	0.	177.	3.14
SSW	0.	4.	13.	31.	22.	22.	20.	21.	8.	5.	6.	3.	155.	3.58
SW	1.	3.	22.	19.	25.	28.	35.	21.	11.	1.	1.	0.	167.	3.41
WSW	1.	5.	22.	28.	40.	39.	44.	45.	34.	9.	4.	0.	271.	3.93
W	1.	7.	26.	24.	43.	51.	57.	56.	50.	18.	11.	4.	348.	6.36
WNW	2.	2.	23.	31.	28.	27.	23.	17.	18.	6.	5.	10.	192.	3.79
NW	0.	2.	11.	11.	13.	5.	4.	2.	6.	2.	0.	0.	56.	4.81
NNW	0.	8.	15.	16.	6.	3.	1.	2.	0.	0.	0.	0.	51.	3.33
N	1.	12.	31.	34.	22.	32.	14.	10.	10.	7.	1.	1.	175.	4.76
VARIABLE													0.	0.00
CALM													1.	0.00
TOTAL	6.	67.	263.	341.	332.	334.	260.	233.	171.	80.	50.	42.	2180.	3.55

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.05	0.69	1.63	1.38	2.02	1.01	1.33	0.69	0.41	0.14	0.00	9.36	3.69
NE	0.00	0.05	0.37	0.28	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.78	3.22
ENE	0.00	0.05	0.32	0.23	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.69	3.26
E	0.00	0.14	0.05	0.14	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.41	3.28
ESE	0.00	0.00	0.18	0.18	0.41	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.92	4.16
SE	0.00	0.05	0.83	0.87	1.19	1.15	0.60	0.18	0.28	0.32	0.05	0.41	5.92	3.68
SSE	0.00	0.23	1.19	1.97	1.56	0.96	0.55	0.50	0.46	0.28	0.46	0.69	8.85	3.73
S	0.00	0.55	0.96	1.42	1.47	1.42	0.64	0.69	0.14	0.46	0.37	0.00	8.12	3.14
SSW	0.00	0.18	0.60	1.42	1.01	1.01	0.92	0.96	0.37	0.23	0.28	0.14	7.11	3.58
SW	0.05	0.14	1.01	0.87	1.15	1.28	1.61	0.96	0.50	0.05	0.05	0.00	7.66	3.41
WSW	0.05	0.23	1.01	1.28	1.83	1.79	2.02	2.06	1.56	0.41	0.18	0.00	12.43	3.93
W	0.05	0.32	1.19	1.10	1.97	2.34	2.61	2.57	2.29	0.83	0.50	0.18	15.96	6.36
WNW	0.09	0.09	1.06	1.42	1.28	1.24	1.06	0.78	0.83	0.28	0.23	0.46	8.81	3.79
NW	0.00	0.09	0.50	0.50	0.60	0.23	0.18	0.09	0.28	0.09	0.00	0.00	2.57	4.81
NNW	0.00	0.37	0.69	0.73	0.28	0.14	0.05	0.09	0.00	0.00	0.00	0.00	2.34	3.33
N	0.05	0.55	1.42	1.56	1.01	1.47	0.64	0.46	0.46	0.32	0.05	0.05	8.03	4.76
VARIABLE													0.00	0.00
CALM													0.05	0.00
TOTAL	0.28	3.07	12.06	15.64	15.23	15.32	11.93	10.69	7.84	3.67	2.29	1.93	100.00	3.55

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS 000 (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	0.	0.	0.	0.	3.	4.	15.	12.	8.	2.	0.	44.	8.11
NE	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.	4.00
ENE	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	4.10
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	2.	4.25
SE	0.	0.	1.	2.	2.	1.	0.	0.	0.	1.	0.	1.	8.	5.79
SSE	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.95
S	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SSW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
WSW	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	4.20
W	0.	0.	0.	0.	1.	3.	3.	0.	1.	1.	0.	0.	9.	6.51
WNW	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.	3.	7.10
NW	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.	0.	3.	8.37
NNW	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.	7.80
N	0.	0.	0.	0.	0.	0.	2.	6.	6.	3.	0.	1.	18.	8.20
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	0.	0.	2.	5.	6.	8.	10.	23.	22.	13.	2.	2.	93.	7.42

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.00	0.00	0.00	0.14	0.18	0.69	0.55	0.37	0.09	0.00	2.02	8.11
NE	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.00
ENE	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.10
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.25
SE	0.00	0.00	0.03	0.09	0.09	0.03	0.00	0.00	0.00	0.03	0.00	0.03	0.37	5.79
SSE	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.95
S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.20
W	0.00	0.00	0.00	0.00	0.03	0.14	0.14	0.00	0.03	0.03	0.00	0.00	0.41	6.51
WNW	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.03	0.00	0.00	0.00	0.14	7.10
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	0.00	0.00	0.00	0.14	8.37
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.05	7.80
N	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.28	0.28	0.14	0.00	0.03	0.83	8.20
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.00	0.09	0.23	0.28	0.37	0.46	1.06	1.01	0.60	0.09	0.09	4.28	7.42

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

23-JAN-89

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD - 07/01/88 TO 09/30/88
 STABILITY CLASS #8 (10-40 METERS)
 WINDS AT 10 METER LEVEL

WIND FREQUENCY DISTRIBUTION (FREQUENCY IN NUMBER OF OCCURRENCES)															MEAN SPEED
WIND DIRECTION	1	2	3	4	5	6	7	8	9	10	11	>11	TOTAL		
NNE	0	0	3	14	8	27	9	9	1	1	1	0	73	5.48	
NE	0	0	0	0	1	0	0	0	0	0	0	0	1	4.80	
ENE	0	0	0	0	0	1	0	0	0	0	0	0	1	5.90	
E	0	0	0	0	0	1	0	0	0	0	0	0	1	5.10	
ESE	0	0	0	1	0	0	0	0	0	0	0	0	1	3.50	
SE	0	0	0	0	0	0	0	0	0	1	0	0	1	9.20	
SSE	0	0	0	0	2	0	0	0	0	0	0	0	2	3.40	
S	0	1	1	1	0	0	0	0	0	0	0	0	2	2.00	
SSW	0	0	1	1	0	0	0	0	0	0	0	0	1	2.30	
SW	0	0	1	1	0	0	0	0	0	0	0	0	1	2.20	
WSW	0	0	0	0	1	0	0	0	0	0	0	0	1	2.60	
W	0	0	0	1	0	0	1	1	0	0	0	0	3	6.40	
WNW	0	0	2	0	0	0	0	3	0	1	0	1	7	6.50	
NNW	0	0	0	0	0	1	0	0	0	0	0	0	1	5.10	
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
VARIABLE	0	0	1	4	7	13	9	4	2	1	1	0	38	5.72	
CALM	0	1	10	21	17	43	18	14	4	3	2	1	0	0.00	
TOTAL	0	1	10	21	17	43	18	14	4	3	2	1	134	5.46	

WIND FREQUENCY DISTRIBUTION
(FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11			>11
NNE	0.00	0.00	0.14	0.64	0.37	1.24	0.41	0.41	0.09	0.05	0.05	0.00	3.36	5.48
NE	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.80
ENE	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.90
E	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	5.10
ESE	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.20
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.05	4.50
SSE	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	3.40
S	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.30
SSW	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.20
SW	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.30
WSW	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.60
W	0.00	0.00	0.00	0.00	0.03	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.14	6.40
WNW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.14	0.00	0.03	0.00	0.05	0.32	6.30
NNW	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.10
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE	0.00	0.00	0.03	0.18	0.32	0.60	0.23	0.18	0.09	0.05	0.05	0.00	1.75	5.72
CALM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.03	0.46	0.97	0.78	1.98	0.83	0.64	0.18	0.14	0.09	0.03	6.15	3.46

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208
 TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS #E# (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	0.	3.	10.	9.	7.	5.	1.	1.	0.	0.	0.	36.	4.87
NE	0.	0.	3.	0.	0.	1.	0.	0.	0.	0.	0.	0.	4.	3.30
ENE	0.	0.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	2.73
E	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	3.	2.43
ESE	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	4.30
SE	0.	0.	3.	5.	3.	6.	7.	2.	2.	0.	0.	2.	30.	5.83
SSE	0.	1.	9.	4.	2.	1.	0.	0.	1.	0.	0.	0.	18.	3.46
S	0.	6.	3.	2.	1.	0.	0.	0.	0.	0.	0.	0.	12.	2.38
SSW	0.	2.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	3.	2.27
SW	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.70
WSW	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.85
W	0.	0.	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.	3.	3.67
WNW	1.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	3.	2.70
NW	0.	0.	1.	1.	0.	0.	0.	1.	0.	2.	0.	0.	5.	6.56
NNW	0.	2.	3.	3.	0.	0.	1.	0.	0.	0.	0.	0.	9.	2.98
N	1.	4.	14.	13.	9.	5.	1.	0.	2.	2.	0.	0.	51.	3.93
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	2.	18.	47.	40.	27.	21.	14.	4.	6.	4.	0.	2.	185.	4.16

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.14	0.46	0.41	0.32	0.23	0.05	0.05	0.00	0.00	0.00	1.66	4.87
NE	0.00	0.00	0.14	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.18	3.30
ENE	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	2.73
E	0.00	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.43
ESE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.30
SE	0.00	0.00	0.14	0.23	0.14	0.28	0.32	0.09	0.09	0.00	0.00	0.09	1.38	5.83
SSE	0.00	0.05	0.41	0.18	0.09	0.05	0.00	0.00	0.05	0.00	0.00	0.00	0.83	3.46
S	0.00	0.28	0.14	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.38
SSW	0.00	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.27
SW	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.70
WSW	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.85
W	0.00	0.00	0.05	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.67
WNW	0.05	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.70
NW	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00	0.23	6.56
NNW	0.00	0.09	0.14	0.14	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.41	2.98
N	0.05	0.18	0.64	0.60	0.41	0.23	0.05	0.00	0.09	0.09	0.00	0.00	2.34	3.93
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.09	0.83	2.16	1.84	1.24	0.97	0.64	0.18	0.28	0.18	0.00	0.09	8.51	4.16

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS #D# (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.	1.	9.	11.	11.	9.	2.	4.	1.	0.	0.	0.	44.	4.35
NE	0.	1.	5.	5.	0.	0.	0.	0.	0.	0.	0.	0.	11.	2.98
ENE	0.	1.	3.	3.	0.	0.	0.	0.	0.	0.	0.	0.	9.	3.11
E	0.	1.	1.	2.	0.	1.	0.	0.	0.	0.	0.	0.	5.	3.42
ESE	0.	0.	4.	2.	5.	2.	1.	0.	0.	0.	0.	0.	14.	4.09
SE	0.	1.	14.	11.	17.	16.	6.	1.	4.	5.	1.	3.	79.	5.30
SSE	0.	4.	14.	32.	25.	14.	8.	9.	7.	4.	8.	9.	134.	5.77
S	0.	5.	15.	23.	17.	15.	7.	5.	3.	2.	1.	0.	93.	4.60
SSW	0.	2.	9.	13.	4.	2.	1.	3.	1.	0.	0.	1.	36.	4.17
SW	1.	1.	13.	4.	0.	0.	0.	2.	1.	0.	1.	0.	23.	3.71
WSW	1.	4.	14.	13.	3.	1.	0.	0.	1.	0.	1.	0.	38.	3.35
W	1.	7.	21.	9.	4.	1.	1.	0.	0.	0.	0.	0.	44.	2.91
WNW	1.	2.	15.	18.	16.	9.	4.	1.	3.	0.	1.	0.	70.	4.23
NW	0.	2.	10.	9.	12.	3.	4.	0.	2.	0.	0.	0.	42.	4.18
NNW	0.	6.	11.	11.	6.	2.	0.	1.	0.	0.	0.	0.	37.	3.23
N	0.	8.	16.	16.	6.	14.	6.	0.	0.	0.	0.	0.	66.	3.86
VARIABLE													0.	0.00
CALM													1.	0.00
TOTAL	4.	46.	174.	184.	126.	85.	40.	26.	23.	11.	13.	13.	746.	4.40

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)												TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.05	0.41	0.31	0.31	0.23	0.09	0.18	0.05	0.00	0.00	0.00	2.02	4.35
NE	0.00	0.05	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	2.98
ENE	0.00	0.05	0.14	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	3.11
E	0.00	0.05	0.05	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.23	3.42
ESE	0.00	0.00	0.18	0.09	0.23	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.64	4.09
SE	0.00	0.05	0.64	0.31	0.78	0.74	0.28	0.05	0.18	0.23	0.05	0.14	3.63	5.30
SSE	0.00	0.18	0.64	1.47	1.15	0.64	0.37	0.41	0.32	0.18	0.37	0.41	6.16	5.77
S	0.00	0.23	0.69	1.06	0.78	0.69	0.32	0.23	0.14	0.09	0.05	0.00	4.28	4.60
SSW	0.00	0.09	0.41	0.60	0.18	0.09	0.05	0.14	0.05	0.00	0.00	0.05	1.66	4.17
SW	0.05	0.05	0.60	0.18	0.00	0.00	0.00	0.09	0.05	0.00	0.05	0.00	1.06	3.71
WSW	0.05	0.18	0.64	0.60	0.14	0.05	0.00	0.00	0.05	0.00	0.05	0.00	1.75	3.35
W	0.05	0.32	0.97	0.41	0.18	0.05	0.05	0.00	0.00	0.00	0.00	0.00	2.02	2.91
WNW	0.05	0.09	0.69	0.83	0.74	0.41	0.18	0.05	0.14	0.00	0.05	0.00	3.22	4.23
NW	0.00	0.09	0.46	0.41	0.35	0.14	0.18	0.00	0.09	0.00	0.00	0.00	1.93	4.18
NNW	0.00	0.28	0.31	0.31	0.28	0.09	0.00	0.05	0.00	0.00	0.00	0.00	1.70	3.23
N	0.00	0.37	0.74	0.74	0.28	0.64	0.28	0.00	0.00	0.00	0.00	0.00	3.03	3.86
VARIABLE													0.00	0.00
CALM													0.05	0.00
TOTAL	0.18	2.11	8.00	8.46	5.79	3.91	1.84	1.20	1.06	0.51	0.60	0.60	34.30	4.40

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS #C# (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.	0.	0.	1.	1.	0.	2.	0.	0.	0.	0.	0.	5.30
NE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ENE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	4.85
SE	0.	0.	0.	1.	4.	1.	0.	1.	0.	0.	0.	1.	5.85
SSE	0.	0.	2.	1.	5.	4.	1.	0.	0.	0.	1.	3.	6.51
S	0.	0.	2.	2.	4.	2.	0.	3.	0.	0.	0.	0.	4.92
SSW	0.	0.	1.	2.	4.	4.	1.	0.	2.	0.	1.	0.	5.53
SW	0.	1.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	2.98
WSW	0.	0.	2.	7.	4.	2.	0.	0.	0.	0.	0.	0.	3.93
W	0.	0.	4.	5.	5.	3.	0.	0.	0.	0.	0.	0.	3.95
WNW	0.	0.	3.	10.	9.	7.	7.	5.	2.	1.	0.	0.	5.35
NW	0.	0.	0.	1.	0.	0.	0.	0.	2.	0.	0.	0.	6.67
NNW	0.	0.	1.	2.	0.	1.	0.	0.	0.	0.	0.	0.	3.90
N	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.	6.50
VARIABLE													0.00
CALM													0.00
TOTAL	0.	1.	17.	35.	38.	24.	11.	9.	6.	2.	2.	4.	5.10

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.05	0.05	0.00	0.09	0.00	0.00	0.00	0.00	0.00	5.30
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.85
SE	0.00	0.00	0.00	0.05	0.18	0.05	0.00	0.05	0.00	0.00	0.00	0.05	5.85
SSE	0.00	0.00	0.09	0.05	0.23	0.18	0.05	0.00	0.00	0.00	0.05	0.14	6.51
S	0.00	0.00	0.09	0.09	0.18	0.09	0.00	0.14	0.00	0.00	0.00	0.00	4.92
SSW	0.00	0.00	0.05	0.09	0.18	0.18	0.05	0.00	0.09	0.00	0.05	0.00	5.53
SW	0.00	0.05	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98
WSW	0.00	0.00	0.09	0.32	0.18	0.09	0.00	0.00	0.00	0.00	0.00	0.00	3.93
W	0.00	0.00	0.18	0.23	0.23	0.14	0.00	0.00	0.00	0.00	0.00	0.00	3.95
WNW	0.00	0.00	0.14	0.46	0.41	0.32	0.32	0.23	0.09	0.05	0.00	0.00	5.35
NW	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	6.67
NNW	0.00	0.00	0.05	0.09	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	3.90
N	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	6.50
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.05	0.78	1.61	1.75	1.10	0.51	0.41	0.28	0.09	0.09	0.18	5.10

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS #8# (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11			>11
NNE	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.	2.	5.80
NE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ENE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	13.40
SSE	0.	0.	0.	1.	0.	1.	1.	1.	1.	1.	1.	0.	7.	7.39
S	0.	0.	0.	1.	1.	2.	0.	0.	0.	1.	0.	0.	5.	5.74
SSW	0.	0.	1.	4.	1.	1.	1.	1.	0.	0.	0.	0.	9.	4.46
SW	0.	0.	1.	1.	3.	1.	0.	0.	0.	0.	0.	0.	6.	4.17
WSW	0.	1.	1.	2.	2.	0.	0.	1.	0.	0.	0.	0.	7.	4.26
W	0.	0.	0.	2.	1.	1.	0.	0.	0.	0.	0.	0.	4.	4.30
WNW	0.	0.	1.	2.	0.	0.	3.	2.	0.	1.	0.	0.	9.	5.90
NW	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	5.00
NNW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
N	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
VARIABLE													0.	0.00
CALM													0.	0.00
TOTAL	0.	1.	4.	13.	9.	8.	5.	5.	1.	3.	1.	1.	51.	5.40

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED	
	1	2	3	4	5	6	7	8	9	10	11	>11		
NNE	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	5.80
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SSE	0.00	0.00	0.00	0.03	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.32	13.40
S	0.00	0.00	0.00	0.03	0.03	0.09	0.00	0.00	0.00	0.03	0.00	0.00	0.23	7.39
SSW	0.00	0.00	0.03	0.18	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.41	5.74
SW	0.00	0.00	0.03	0.03	0.14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.28	4.46
WSW	0.00	0.03	0.03	0.09	0.09	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.32	4.17
W	0.00	0.00	0.00	0.09	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.18	4.26
WNW	0.00	0.00	0.03	0.09	0.00	0.00	0.14	0.09	0.00	0.03	0.00	0.00	0.41	4.30
NW	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	5.90
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE													0.00	0.00
CALM													0.00	0.00
TOTAL	0.00	0.03	0.18	0.60	0.41	0.37	0.23	0.23	0.03	0.14	0.03	0.03	2.34	5.40

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175

Table 4A

SOUTHERN CALIFORNIA EDISON COMPANY
 SAN ONOFRE NUCLEAR GENERATING STATION
 3RD QUARTER 1988
 DAMES AND MOORE JOB NO. - 00377-120-09
 DATA PERIOD- 07/01/88 TO 09/30/88
 STABILITY CLASS 8A# (10-40 METERS)
 WINDS AT 10 METER LEVEL

25-JAN-89

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN NUMBER OF OCCURRENCES)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
NE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ENE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
E	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
ESE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
SE	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.	2.
SSE	0.	0.	0.	2.	2.	1.	2.	1.	1.	1.	0.	3.	13.
S	0.	0.	0.	3.	9.	12.	7.	7.	0.	7.	7.	0.	52.
SSW	0.	0.	1.	12.	12.	15.	17.	17.	5.	5.	5.	2.	91.
SW	0.	0.	5.	12.	20.	27.	35.	19.	10.	1.	0.	0.	129.
WSW	0.	0.	2.	6.	29.	34.	44.	44.	33.	9.	3.	0.	204.
W	0.	0.	0.	7.	31.	42.	52.	55.	49.	17.	11.	4.	268.
WNW	0.	0.	1.	1.	2.	10.	9.	9.	11.	4.	4.	9.	56.
NW	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
NNW	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
N	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.00
VARIABLE													0.00
CALM													0.00
TOTAL	0.	0.	9.	43.	106.	143.	162.	192.	109.	44.	30.	19.	817.

WIND FREQUENCY DISTRIBUTION
 (FREQUENCY IN PERCENT OF TOTAL)

WIND DIRECTION	UPPER CLASS INTERVALS OF WIND SPEED (MPH)											TOTAL	MEAN SPEED
	1	2	3	4	5	6	7	8	9	10	11	>11	
NNE	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SE	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.09
SSE	0.00	0.00	0.00	0.09	0.09	0.05	0.09	0.05	0.05	0.05	0.00	0.14	0.60
S	0.00	0.00	0.00	0.14	0.41	0.55	0.32	0.32	0.00	0.32	0.32	0.00	2.39
SSW	0.00	0.00	0.05	0.55	0.55	0.69	0.78	0.78	0.23	0.23	0.23	0.09	4.18
SW	0.00	0.00	0.23	0.55	0.92	1.24	1.61	0.87	0.46	0.05	0.00	0.00	5.93
WSW	0.00	0.00	0.09	0.28	1.33	1.56	2.02	2.02	1.52	0.41	0.14	0.00	9.38
W	0.00	0.00	0.00	0.32	1.43	1.93	2.39	2.53	2.25	0.78	0.51	0.18	12.32
WNW	0.00	0.00	0.05	0.05	0.09	0.46	0.23	0.41	0.51	0.18	0.18	0.41	2.57
NW	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VARIABLE													0.00
CALM													0.00
TOTAL	0.00	0.00	0.41	1.98	4.87	6.57	7.45	6.99	5.01	2.02	1.38	0.87	37.56

TOTAL NUMBER OF POSSIBLE OBSERVATIONS - 2208

TOTAL NUMBER OF OBSERVATIONS WITH VALID SPEED, DIRECTION AND STABILITY - 2175