

DUQUESNE LIGHT COMPANY  
Beaver Valley Power Station  
Unit 1 & Unit 2

Semi-Annual  
Radioactive Effluent Release Report  
For The 6-Month Period:  
January 1, 1993 thru June 30, 1993

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INDEX

Table No.	Title	Page
	Supplemental Information Page	1
Table 1A	Gaseous Effluents - Summation Of All Releases	2
Table 1B	Gaseous Effluents - Elevated Releases	3
Table 1C1	Gaseous Effluents - Ground Level Releases (Unit 1)	4
Table 1C2	Gaseous Effluents - Ground Level Releases (Unit 2)	5
Table 2A	Liquid Effluents - Summation Of All Releases	6
Table 2B	Liquid Effluents	7
Table 3	Solid Waste And Irradiated Fuel Shipments	8
Table 4	Lower Limits Of Detectability	9
Table 5A	Assessment Of Radiation Doses (Unit 1)	10
Table 5B	Assessment Of Radiation Doses (Unit 2)	11
Table 6	Technical Specification Effluent Monitoring Instrumentation Channels Not Returned To Operable Status Within 30 Days	12
Table 7	40 CFR 190 Environmental Doses	13
Table 8	Technical Specification Surveillance Deficiencies	14
Table 9	Unit 1 Offsite Dose Calculation Manual Changes (Description)	15
Table 10	Unit 2 Offsite Dose Calculation Manual Changes (Description)	16
Attachment 1	Joint Frequency Distribution Tables	

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## SUPPLEMENTAL INFORMATION PAGE

FACILITY: B.V.P.S. Units 1 and 2

LICENSEE: Duquesne Light Company

## 1. Regulatory Limits

- a. Fission and activation gases: \*\*\*\*\*  
 b. Iodines: \*  
 c. Particulates, half-lives > 8 days: \*\*\*\* Technical Specifications, Article 3/4.11  
 d. Liquid effluents: \*\*\*\*\*

## 2. Maximum Permissible Concentrations

Provide the MPC's used in determining allowable release rates or concentrations.

- a. Fission and activation gases: \*\*\*\*\*  
 b. Iodines: \*  
 c. Particulates, half-lives > 8 days: \*\*\*\* 10 CFR 20 Appendix B, Table II  
 d. Liquid effluents: \*\*\*\*\*

## 3. Average Energy

Provide the average energy (E) of the radionuclide mixture in release of fission and activation gases, if applicable: ... NOT APPLICABLE

## 4. Measurements and Approximations of Total Radioactivity

Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

- a. Fission and activation gases: Ge Gamma Spectrometry, Liquid Scintillation Counter  
 b. Iodines: Ge Gamma Spectrometry  
 c. Particulates, half-lives > 8 days: Ge Gamma Spectrometry, Low Background Proportional Counter  
 d. Liquid effluents: Ge Gamma Spectrometry, Low Background Proportional Counter,  
 Liquid Scintillation Counter

## 5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

a. Liquid	1st Quarter	2nd Quarter
1. Number of batch releases:	29	34
2. Total time period for batch releases:	8388 minutes	13403 minutes
3. Maximum time period for a batch release:	1100 minutes	1155 minutes
4. Average time period for batch releases:	289 minutes	394 minutes
5. Minimum time period for a batch release:	48 minutes	58 minutes
6. Average river flow during periods of release:	63900 cuft/sec	45700 cuft/sec
b. Gaseous	1st Quarter	2nd Quarter
1. Number of batch releases:	10	13
2. Total time period for batch releases:	7140 minutes	12938 minutes
3. Maximum time period for a batch release:	2042 minutes	5635 minutes
4. Average time period for batch releases:	714 minutes	995 minutes
5. Minimum time period for a batch release:	2 minutes	264 minutes

## 6. Abnormal Releases

a. Liquid	1st Quarter	2nd Quarter
1. Number of releases:	1	NONE
2. Total activity released:	2.03E+00 Curies	0.00E+00 Curies
b. Gaseous	1st Quarter	2nd Quarter
1. Number of releases:	1	NONE
2. Total activity released:	1.08E+01 Curies	0.00E+00 Curies

TABLE 1A

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

```

*****
#
#                               Unit      1st      2nd      Est. total
#                               Quarter    Quarter    Error, %
#
*****

```

## A. Fission &amp; Activation Gases

```

*****
#
#                               Unit      1st      2nd      Est. total
#                               Quarter    Quarter    Error, %
#
# 1. Total release                Ci      4.18E+02  7.46E+01  2.65E+01
#
# 2. Average release rate for period  uCi/sec  5.30E+01  9.46E+00  *****
#
# 3. Percent of technical specification limit  %      N/A      N/A      %
#
*****

```

## B. Iodines

```

*****
#
#                               Unit      1st      2nd      Est. total
#                               Quarter    Quarter    Error, %
#
# 1. Total iodine - 131            Ci      2.35E-04  4.62E-03  2.83E+01
#
# 2. Average release rate for period  uCi/sec  2.99E-05  5.86E-04  *****
#
# 3. Percent of technical specification limit  %      N/A      N/A      %
#
*****

```

## C. Particulates

```

*****
#
#                               Unit      1st      2nd      Est. total
#                               Quarter    Quarter    Error, %
#
# 1. Particulates with half-lives > 8 days  Ci      4.48E-04  1.38E-02  3.00E+01
#
# 2. Average release rate for period  uCi/sec  5.69E-05  1.76E-03  *****
#
# 3. Percent of technical specification limit  %      N/A      N/A      %
#
# 4. Gross alpha radioactivity        Ci      8.18E-07  7.45E-07  %
#
*****

```

## D. Tritium

```

*****
#
#                               Unit      1st      2nd      Est. total
#                               Quarter    Quarter    Error, %
#
# 1. Total release                Ci      3.69E+01  1.11E+02  3.29E+01
#
# 2. Average release rate for period  uCi/sec  4.68E+00  1.41E+01  *****
#
# 3. Percent of technical specification limit  %      N/A      N/A      %
#
*****

```

N/A = NOT APPLICABLE

The amount of time (in seconds) used to calculate the release rates specified in A.2, B.2, C.2 and D.2 is the average amount of seconds per calendar quarter (7.88E+6 seconds).



TABLE 1B

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## GASEOUS EFFLUENTS - ELEVATED RELEASES

		CONTINUOUS MODE		BATCH MODE	
		1st	2nd	1st	2nd
Nuclides released		Quarter	Quarter	Quarter	Quarter
1. Fission gases					
argon-41	Ci	LLD	LLD	4.21E-05	LLD
krypton-85	Ci	LLD	LLD	8.25E-01	3.05E+00
xenon-131m	Ci	LLD	LLD	2.04E-01	6.30E-01
xenon-133	Ci	1.20E+00	1.13E+00	1.59E+01	4.05E+01
xenon-133m	Ci	LLD	LLD	1.52E-01	2.03E-01
xenon-135	Ci	7.46E-02	LLD	8.97E-03	1.03E-03
unidentified	Ci	NONE	NONE	NONE	NONE
Total for period	Ci	1.27E+00	1.13E+00	1.71E+01	4.44E+01
2. Iodines					
iodine-131	Ci	1.89E-05	1.38E-04	LLD	5.36E-05
iodine-133	Ci	1.74E-06	LLD	LLD	LLD
Total for period	Ci	1.86E-05	1.38E-04	0.00E+00	5.36E-05
3. Particulates					
cobalt-56	Ci	LLD	LLD	4.41E-04	3.99E-04
unidentified	Ci	NONE	NONE	NONE	NONE
Total for period	Ci	0.00E+00	0.00E+00	4.41E-04	3.99E-04

LLD = Below the lower limit of detectability, in uCi/cc (Table 4).

TABLE 1C-1

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
		1st	2nd	1st	2nd
Nuclides released		Quarter	Quarter	Quarter	Quarter
		Unit			
1. Fission gases					
argon-41	Ci	2.18E+00	LLD	LLD	LLD
krypton-85	Ci	1.07E+00	1.51E+00	3.34E+00	1.19E-02
krypton-85m	Ci	LLD	1.49E-01	LLD	LLD
xenon-131m	Ci	9.33E+00	LLD	3.44E-01	5.59E-03
xenon-133	Ci	3.36E+02	8.47E+00	2.36E+01	2.11E+00
xenon-133m	Ci	6.15E+00	LLD	2.00E-01	3.90E-04
xenon-135	Ci	5.15E+00	LLD	1.22E-01	LLD
unidentified	Ci	NONE	NONE	NONE	NONE
Total for period	Ci	3.60E+02	1.01E+01	2.76E+01	2.13E+00
2. Iodines					
iodine-131	Ci	1.52E-04	1.37E-03	6.42E-05	3.06E-03
iodine-133	Ci	2.81E-05	LLD	LLD	LLD
Total for period	Ci	1.80E-04	1.37E-03	6.42E-05	3.06E-03
3. Particulates					
chromium-51	Ci	LLD	LLD	LLD	5.45E-04
manganese-54	Ci	LLD	LLD	LLD	5.09E-05
cobalt-57	Ci	LLD	LLD	LLD	1.6E-05
cobalt-58	Ci	7.08E-06	1.05E-04	LLD	1.23E-02
cobalt-60	Ci	LLD	LLD	LLD	2.77E-04
zirconium/niobium-95	Ci	LLD	LLD	LLD	1.40E-04
unidentified	Ci	NONE	NONE	NONE	NONE
Total for period	Ci	7.08E-06	1.05E-04	0.00E+00	1.33E-02

LLD = Below the lower limit of detectability, in uCi/cc (Table 4).

TABLE 1C-2

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## GASEOUS EFFLUENTS - GROUND-LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
		1st	2nd	1st	2nd
Nuclides released		Quarter	Quarter	Quarter	Quarter
Unit					
1. Fission gases					
krypton-85	Ci	5.78E-01	8.79E-01	NR	NR
xenon-133	Ci	1.03E+01	1.40E+01	NR	NR
xenon-135	Ci	1.22E+00	1.92E+00	NR	NR
unidentified	Ci	NONE	NONE	NR	NR
Total for period	Ci	1.21E+01	1.68E+01	0.00E+00	0.00E+00
2. Iodines					
iodine-131	Ci	2.37E-06	LLD	NR	NR
Total for period	Ci	2.37E-06	0.00E+00	0.00E+00	0.00E+00
3. Particulates					
unidentified	Ci	NONE	NONE	NR	NR
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00

LLD = Below the lower limit of detectability, in uCi/cc (Table 4).

NR = No Releases this period

TABLE 2A

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	1st Quarter	2nd Quarter	Est. total Error, %
A. Fission & activation products				
1. Total release (excluding H-3, gases & alpha)	Ci	2.10E-02	9.60E-02	2.60E+01
2. Average diluted concentration during period	uCi/ml	3.16E-08	8.25E-08	*****
3. Percent of applicable limit	%	N/A	N/A	*****
B. Tritium				
1. Total release	Ci	1.25E+02	1.90E+02	2.50E+01
2. Average diluted concentration during period	uCi/ml	1.88E-04	1.63E-04	*****
3. Percent of applicable limit	%	6.28E+00	5.44E+00	*****
C. Dissolved and entrained gases				
1. Total release	Ci	4.80E-03	5.10E-03	2.70E+01
2. Average diluted concentration during period	uCi/ml	7.23E-09	4.38E-09	*****
3. Percent of applicable limit	%	3.62E-03	2.19E-03	*****
D. Gross alpha radioactivity				
1. Total release	Ci	LLD	LLD	2.89E+01
E. Volume of waste released (prior to dilution)				
	liters	1.35E+06	1.62E+06	1.12E+01
F. Volume of dilution water used during period				
	liters	6.62E+08	1.16E+09	2.29E+01

N/A = NOT APPLICABLE

LLD = Below the lower limit of detectability, in uCi/ml (Table 4).

B.3 is based on a limit of 3.00E-3 uCi/ml. C.3 is based on a limit of 2.00E-4 uCi/ml.

The values listed at F. are the volumes during the actual liquid waste discharge periods.  
 The total dilution volume for a continuous calendar quarter is approximately 1E+10 liters for BWPS-1 and BWPS-2. (ie; 22,000 GPM is the approximate combined cooling tower blowdown flowrates from the site)

TABLE 2B

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
		1st	2nd	1st	2nd
Nuclides released		Quarter	Quarter	Quarter	Quarter
		Unit			
1. Fission and activation products					
sodium-24	Ci	N/A	N/A	LLD	7.37E-05
chromium-51	Ci	N/A	N/A	LLD	1.43E-03
manganese-54	Ci	N/A	N/A	1.11E-04	1.89E-04
iron-55	Ci	N/A	N/A	1.16E-02	1.46E-02
iron-59	Ci	N/A	N/A	LLD	3.79E-05
cobalt-57	Ci	N/A	N/A	3.15E-06	3.00E-04
cobalt-58	Ci	N/A	N/A	5.39E-04	5.18E-02
cobalt-60	Ci	N/A	N/A	6.13E-03	1.19E-02
strontium-89	Ci	N/A	N/A	8.23E-05	LLD
zirconium/niobium-95	Ci	N/A	N/A	LLD	5.11E-04
niobium-97	Ci	N/A	N/A	1.56E-04	1.18E-03
molybdenum-99	Ci	N/A	N/A	3.29E-05	LLD
technetium-99m	Ci	N/A	N/A	3.62E-05	LLD
ruthenium-103	Ci	N/A	N/A	LLD	1.82E-05
silver-110m	Ci	N/A	N/A	1.65E-05	9.85E-04
antimony-124	Ci	N/A	N/A	LLD	4.95E-03
antimony-125	Ci	N/A	N/A	3.69E-04	5.76E-03
iodine-131	Ci	N/A	N/A	1.12E-03	1.85E-04
iodine-133	Ci	N/A	N/A	7.29E-05	LLD
cesium-134	Ci	N/A	N/A	2.32E-04	7.30E-04
cesium-137	Ci	N/A	N/A	4.51E-04	1.34E-03
unidentified	Ci	N/A	N/A	NONE	NONE
Total for period	Ci	0.00E+00	0.00E+00	2.10E-02	9.60E-02

## 2. Dissolved and entrained gases

krypton-85	Ci	N/A	N/A	1.75E-03	1.33E-05
xenon-133	Ci	N/A	N/A	3.00E-03	5.08E-03
xenon-135	Ci	N/A	N/A	4.60E-05	8.88E-06
unidentified	Ci	N/A	N/A	NONE	NONE
Total for period	Ci	0.00E+00	0.00E+00	4.80E-03	5.10E-03

LLD = Below the lower limit of detectability, in uCi/ml (Table 4).

N/A = NOT APPLICABLE (liquids not discharged in a continuous mode)

TABLE 3  
1st Half - 1993  
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

***** A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel) *****				
1. Type of Waste	Spent resins, Oil Filter sludges Evap. bottoms (3)	Dry comp. waste Contain. equipment etc. (2)	Irrad. components Control rods etc.	Estimated Total Error
Container Volume	1.58E+01 cu. meter	8.25E+02 cu. meter	1.64E+00 cu. meter	0.00E+00 % (1)
Total Activity	2.30E+03 Curies	8.06E+00 Curies	1.72E+02 Curies	3.00E+01 %
***** 2. Estimate of Major Nuclide Composition by Type of Waste (percent) *****				
H-3	3.66E-01 %	2.12E+00 %	0.00E+00 %	
C-14	8.31E-02 %	1.09E-01 %	6.04E-05 %	
Cr-51	0.00E+00 %	0.00E+00 %	1.13E-02 %	
Mn-54	1.67E-02 %	5.54E-01 %	4.10E-03 %	
Fe-55	3.61E-01 %	2.88E+01 %	4.29E+01 %	
Co-57	1.51E-02 %	5.19E-02 %	0.00E+00 %	
Co-58	4.00E+00 %	8.65E-01 %	0.00E+00 %	
Co-60	1.89E+01 %	2.31E+01 %	4.23E+01 %	
Ni-59	2.42E+01 %	3.68E+00 %	1.56E-01 %	
Ni-63	1.13E+01 %	1.50E+01 %	1.44E+01 %	
Sr-90	0.00E+00 %	0.00E+00 %	2.79E-04 %	
Nb-94	0.00E+00 %	1.52E-03 %	1.27E-03 %	
Nb-95	0.00E+00 %	3.22E-02 %	4.08E-04 %	
Zr-95	0.00E+00 %	4.28E-02 %	0.00E+00 %	
Tc-99	0.00E+00 %	7.77E-02 %	1.11E-03 %	
Ag-108m	0.00E+00 %	0.00E+00 %	4.07E-02 %	
Ag-110m	3.77E-03 %	2.31E-01 %	0.00E+00 %	
Sb-124	0.00E+00 %	1.32E+00 %	0.00E+00 %	
Sb-125	8.36E-02 %	5.51E-02 %	2.13E-01 %	
I-129	0.00E+00 %	2.67E-01 %	9.35E-07 %	
I-131	6.76E-02 %	1.41E+00 %	0.00E+00 %	
Cs-134	1.76E+00 %	6.31E+00 %	0.00E+00 %	
Cs-137	2.87E+00 %	1.54E+01 %	1.05E-02 %	
Pu-238	1.59E-03 %	6.99E-03 %	7.03E-08 %	
Pu-239/240	8.09E-04 %	3.60E-03 %	0.00E+00 %	
Pu-241	1.44E-01 %	6.35E-01 %	1.67E-03 %	
Am-241	5.22E-04 %	2.47E-03 %	0.00E+00 %	
Cm-242	3.57E-03 %	1.57E-02 %	9.87E-06 %	
Cm-243/244	9.62E-04 %	4.24E-03 %	0.00E+00 %	
Other Transuranics	0.00E+00 %	0.00E+00 %	8.02E-04 %	
***** 3. Number of Shipments *****				
3. Number of Shipments	1	14	1	
Type of Container Used	LSA Type A Type B Large Quantity	1 0 0 0	14 0 0 0	0 0 1 0
Solidification Agent Used	Cement Urea Formaldehyde None	0 0 1	0 0 14	0 0 1
Mode of Transport	Truck Rail	1 0	14 0	1 0
Final Destination	Barnwell, SC Oak Ridge, TN (2)(3)	0 1	0 14	1 0
Waste Class per 10 CFR 61	Class A Class B Class C > Class C	1 0 0 0	14 0 0 0	0 0 1 0

\*\*\*\*\* B. No Irradiated Fuel Shipments \*\*\*\*\*

- (1) Since container volumes are provided by the burial site, a calculational error of zero is assumed.
- (2) 14 shipments of DAW went to SEG for volume reduction. Therefore, the volume listed is the volume shipped.  
The total volume of DAW buried this period was 2.33E+1 cu. meters.
- (3) 1 shipment of Spent Resin went to SEG for volume reduction. Therefore, the volume listed is the volume shipped.  
The total volume of this category buried this period was 3.44E+1 cu. meters.

TABLE 4

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## LOWER LIMITS OF DETECTABILITY (LLD)

*****			
	* uCi/cc	uCi/ml	uCi/cc
*****			
	GAS	LIQUID	FILTER PAPER / CHARCOAL
	GRAB SAMPLE	GRAB SAMPLE	CONTINUOUS EFFLUENT SAMPLE
NUCLIDE	(1000 cc)	(1000 ml)	(2.85E+8 cc) **
*****			
H-3	1.00E-06	1.00E-06	-----
Na-24	8.54E-08	1.82E-08	1.60E-13
Ar-41	2.60E-07	5.09E-08	-----
Cr-51	6.89E-07	1.77E-07	1.09E-12
Mn-54	1.14E-07	2.26E-08	1.42E-13
Fe-55	-----	* 1.00E-06	-----
Fe-59	1.78E-07	3.75E-08	2.31E-13
Co-57	6.82E-08	1.56E-08	8.06E-14
Co-58	8.41E-08	1.63E-08	1.55E-13
Co-60	1.61E-07	3.14E-08	2.40E-13
Zn-65	1.90E-07	3.73E-08	4.60E-13
Kr-85	2.73E-5 / *1.00E-10	5.82E-06	-----
Kr-85m	6.38E-08	1.49E-08	-----
Kr-87	2.11E-07	3.61E-08	-----
Kr-88	2.57E-07	5.35E-08	-----
Sr-89	-----	* 5.00E-08	* 1.00E-13
Sr-90	-----	* 5.00E-08	* 1.00E-14
Sr-92	1.46E-07	2.86E-08	2.30E-13
Nb-95	1.15E-07	2.43E-08	1.37E-13
Nb-97	1.17E-07	2.36E-08	1.41E-13
Zr-95	1.56E-07	3.36E-08	2.61E-13
Mo-99	6.34E-08	1.37E-08	6.32E-14
Tc-99m	6.18E-08	1.33E-08	6.16E-14
Ag-110m	1.21E-07	2.46E-08	1.47E-13
Sb-124	9.38E-08	1.79E-08	1.68E-13
Sb-125	3.01E-07	5.90E-08	3.22E-13
I-131	8.49E-08	1.91E-08	1.70E-13
I-133	1.11E-07	2.38E-08	1.61E-13
I-135	3.22E-07	6.52E-08	9.81E-13
Xe-131m	2.83E-06	5.99E-07	-----
Xe-133	1.56E-07	3.47E-08	-----
Xe-133m	5.51E-07	1.24E-07	-----
Xe-135	9.06E-08	1.82E-08	-----
Xe-135m	1.04E-07	2.13E-08	-----
Xe-138	2.15E-07	4.94E-08	-----
Cs-134	1.02E-07	1.94E-08	1.69E-13
Cs-137	1.43E-07	2.81E-08	1.64E-13
Ba-139	3.38E-07	6.99E-08	4.75E-13
Ba-140	4.07E-07	8.89E-08	4.63E-13
La-140	1.57E-07	3.05E-08	2.76E-13
Ce-141	1.30E-07	2.76E-08	1.74E-13
Ce-144	5.72E-07	1.19E-07	6.16E-13
Gross Alpha	-----	* 1.00E-07	1.72E-16
*****			

All LLDs listed above meet the minimum requirements listed in Tables 4.11-1 and 4.11-2 of the Technical Specifications.

\* Sample analyses performed by a contractor laboratory.

\*\* These LLD calculations contain a default weekly continuous sample volume of 2.85E+8 cc. Therefore, grab sample LLD values would reflect a different volume (ie; 10 cubic feet or 2.83E+5 cc).

Table 5A

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## ASSESSMENT OF RADIOLOGIC DOSES

UNIT 1		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Year	
LIQUID EFFLUENTS		Dose		Dose		Dose		Dose		Dose	
Batch Releases		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit	
O R G A N (1)	BONE DOSE	9.57E-03	0.1914	2.14E-02	0.4280	N/A	0.0000	N/A	0.0000	3.10E-02	0.3097
	LIVER DOSE	1.62E-02	0.3240	3.73E-02	0.7460	N/A	0.0000	N/A	0.0000	5.35E-02	0.5350
	TOTAL BODY DOSE	1.18E-02	0.7867	2.77E-02	1.8467	N/A	0.0000	N/A	0.0000	3.95E-02	1.3167
	THYROID DOSE	3.02E-03	0.0784	2.33E-03	0.0466	N/A	0.0000	N/A	0.0000	6.25E-03	0.0625
	KIDNEY DOSE	5.93E-03	0.1186	1.34E-02	0.2680	N/A	0.0000	N/A	0.0000	1.93E-02	0.1933
	LUNG DOSE	2.92E-03	0.0584	5.86E-03	0.1172	N/A	0.0000	N/A	0.0000	8.78E-03	0.0878
	GI-LLI DOSE	2.79E-03	0.0558	3.42E-02	0.6840	N/A	0.0000	N/A	0.0000	3.70E-02	0.3699

UNIT 1		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Year	
GASEOUS EFFLUENTS		Dose		Dose		Dose		Dose		Dose	
Batch & Continuous Releases		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit		% of Tech Spec Limit	
(2)	BETA AIR DOSE	2.97E-01	2.9700	2.88E-02	0.2880	N/A	0.0000	N/A	0.0000	3.26E-01	1.6290
(2)	GAMMA AIR DOSE	1.54E-01	3.0800	6.69E-03	0.1338	N/A	0.0000	N/A	0.0000	1.61E-01	1.6069
O R G A N (3)	BONE DOSE	1.07E-05	0.0001	1.52E-02	0.2027	N/A	0.0000	N/A	0.0000	1.52E-02	0.1014
	LIVER DOSE	9.14E-02	1.2187	9.49E-02	1.2653	N/A	0.0000	N/A	0.0000	1.86E-01	1.2420
	TOTAL BODY DOSE	9.14E-02	1.2187	1.67E-01	2.2267	N/A	0.0000	N/A	0.0000	2.58E-01	1.7227
	THYROID DOSE	9.30E-02	1.2520	2.54E-01	3.3867	N/A	0.0000	N/A	0.0000	3.48E-01	2.3193
	KIDNEY DOSE	9.14E-02	1.2187	8.73E-02	1.1640	N/A	0.0000	N/A	0.0000	1.79E-01	1.1913
	LUNG DOSE	9.14E-02	1.2187	9.79E-02	1.3053	N/A	0.0000	N/A	0.0000	1.89E-01	1.2620
	GI-LLI DOSE	9.14E-02	1.2187	8.62E-02	1.1493	N/A	0.0000	N/A	0.0000	1.78E-01	1.1840

(1) These doses are listed in mrem; they are calculated for the maximum individual for all batch liquid effluents

(2) These doses are listed in mrad; they are calculated at the site boundary for batch &amp; continuous gaseous effluents (0.4 m NW)

(3) These doses are listed in mrem; they are calculated for the most likely exposed real individual (child) via all real pathways at 0.89 m NW.

Limits used for calculation of percent (%) are from Section 3/4.11, Article 3.11.1.2, 3.11.2.1, 3.11.2.2 and 3.11.2.3 of the Technical Specifications (considered to be the Design Objectives).



Table 5B

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## ASSESSMENT OF RADIATION DOSES

UNIT 2		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Year	
LIQUID EFFLUENTS											
Batch Releases		Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit
ORGAN	BONE DOSE	9.57E-03	0.1914	2.14E-02	0.4280	N/A	0.0000	N/A	0.0000	3.10E-02	0.3097
	LIVER DOSE	1.62E-02	0.3240	3.73E-02	0.7460	N/A	0.0000	N/A	0.0000	5.35E-02	0.5350
	TOTAL BODY DOSE	1.18E-02	0.7867	2.77E-02	1.8467	N/A	0.0000	N/A	0.0000	3.95E-02	1.3167
	THYROID DOSE	3.92E-03	0.0784	2.33E-03	0.0466	N/A	0.0000	N/A	0.0000	6.25E-03	0.0625
	KIDNEY DOSE	5.93E-03	0.1186	1.34E-02	0.2680	N/A	0.0000	N/A	0.0000	1.93E-02	0.1933
	LUNG DOSE	2.92E-03	0.0584	5.86E-03	0.1172	N/A	0.0000	N/A	0.0000	8.78E-03	0.0878
	GI-LLI DOSE	2.79E-03	0.0558	3.42E-02	0.6840	N/A	0.0000	N/A	0.0000	3.70E-02	0.3699

UNIT 2		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Year	
GASEOUS EFFLUENTS											
Batch & Continuous Releases		Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit	Dose	% of Tech Spec Limit
(2)	BETA AIR DOSE	7.37E-02	0.7370	1.70E-01	1.7000	N/A	0.0000	N/A	0.0000	2.44E-01	1.2185
(2)	GAMMA AIR DOSE	3.31E-02	0.6620	2.08E-02	0.4160	N/A	0.0000	N/A	0.0000	5.39E-02	0.5390
ORGAN	BONE DOSE	1.44E-06	0.0000	1.23E-06	0.0000	N/A	0.0000	N/A	0.0000	2.67E-06	0.0000
	LIVER DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333
	TOTAL BODY DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333
	THYROID DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333
	KIDNEY DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333
	LUNG DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333
(3)	GI-LLI DOSE	1.17E-01	1.5600	1.13E-01	1.5067	N/A	0.0000	N/A	0.0000	2.30E-01	1.5333

(1) These doses are listed in mrem; they are calculated for the maximum individual for all batch liquid effluents

(2) These doses are listed in mrad; they are calculated at the site boundary for batch & continuous gaseous effluents (0.4 mi NW)

(3) These doses are listed in mrem; they are calculated for the most likely exposed real individual (child) via all real pathways at 0.69 mi NW.

Limits used for calculation of percent (%) are from Section 3/4.11, Article 3.11.1.2, 3.11.2.1, 3.11.2.2 and 3.11.2.3 of the Technical Specifications (considered to be the Design Objectives).

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

TECHNICAL SPECIFICATION EFFLUENT MONITORING INSTRUMENTATION CHANNELS NOT RETURNED TO OPERABLE STATUS WITHIN 30 DAYS

This flow-rate monitor was determined to be inoperable on March 29, 1993 due to low flow-rate readings that were observed at the onset of the initial Reactor Containment purge for Unit 1's 9th Refueling Outage. The 30 day criteria was exceeded as a result of a miscommunication on the Maintenance Work Request (MWR No. 18415) that was prepared on March 29, 1993. Specifically, when the MWR was prepared, it did not contain a Technical Specification due date (ie; a due date of April 28, 1993 should have been entered on the MWR). However, even though the due date was not realized, maintenance activities directed toward repair & calibration of this flow-rate monitor began during the initial 30 day period. The flow-rate monitor was returned to operable status on June 9, 1993. Corrective Actions Taken To Prevent Recurrence of the miscommunication are detailed in Beaver Valley Power Station Problem Report No. 1-93-057 and OEG OIR No. 108-93.

As required by LCO 3.3.3.10 (Table 3.3-13, Action Statement No. 28) flow-rates were estimated every four hours during the period of inoperability.

TABLE 7

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

40 CFR 190 ENVIRONMENTAL DOSES

Total Dose from all facility releases for the 6-month period  
January 1, 1993 thru June 30, 1993

```

*****
*          *          *          *
* ORGAN    * DOSE (mrem) * % OF TECH. SPEC. LIMIT *
*          *          *          *
*****
*          *          *          *
* BONE     * 7.72E-02  * 0.31%          *
*          *          *          *
* LIVER    * 5.23E-01  * 2.09%          *
*          *          *          *
* TOTAL BODY * 7.82E-01  * 3.13%          *
*          *          *          *
* THYROID  * 6.32E-01  * 0.84%          *
*          *          *          *
* KIDNEY   * 4.47E-01  * 1.79%          *
*          *          *          *
* LUNG     * 4.37E-01  * 1.75%          *
*          *          *          *
* GI-LLI   * 4.82E-01  * 1.93%          *
*          *          *          *
*****

```

The above cumulative dose contributions from liquid and gaseous effluents were determined in accordance with the applicable Technical Specifications and the ODCM.

Technical Specification 3.11.4.1 states: The dose or dose commitment to MEMBER(S) OF THE PUBLIC from all facility releases is limited to < or = 25 mrem to the total body or any organ (except the thyroid, which is limited to < or = 75 mrem) for a calendar year.

Note that an assessment of radiation doses from radioactive effluents to MEMBER(S) OF THE PUBLIC due to their activities inside the site boundary is not applicable.

TABLE 8

1st Half - 1993

## SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

## TECHNICAL SPECIFICATION SURVEILLANCE DEFICIENCIES

There were no Effluent Technical Specification Surveillance Deficiencies (regarding monitoring, sampling & analysis and dose determination), during this report period. There was, however, an "Unusual Circumstance" that resulted in LLD's higher than those required by Technical Specification Table 4.11-2. A description of this is as follows:

- From the period March 29, 1993 through April 5, 1993, several Unit 1 Gaseous Waste Tanks and some Reactor Coolant System components were sampled for planned discharge permit evolutions. When these samples were counted (using the normal LLD counting geometry of 1000 cc and a 30 minute count time), the counter was unable to properly quantify the activity in the sample because the Percent Dead Time exceeded 10%.
- Samples that have a relatively high noble gas concentration are particularly difficult to quantify because of the large sample volume. Therefore, in some of these cases, a 5 cc sample volume was used, or an extender was used to reduce the Percent Dead Time to at or near 10%.
- Per note g of Technical Specification Table 4.11-2: "... When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the Semi-Annual Radioactive Effluent Release Report." As previously stated, this was considered an "Unusual Circumstance" and exceedance of the normal LLD was allowed by the Technical Specifications.

TABLE 9

1st Half - 1993

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

UNIT 1 OFFSITE DOSE CALCULATION MANUAL CHANGES (DESCRIPTION)

There were no changes made to the  
Unit 1 Offsite Dose Calculation Manual  
during this report period

TABLE 10

1st Half - 1993

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

UNIT 2 OFFSITE DOSE CALCULATION MANUAL CHANGES (DESCRIPTION)

There were no changes made to the  
Unit 2 Offsite Dose Calculation Manual  
during this report period

BEAVER VALLEY - UNITS 1&2

ATTACHMENT 1

1st Half - 1993

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JOINT FREQUENCY DISTRIBUTION TABLES

TABLE 1. BEAVER VALLEY METEOROLOGICAL TOWER DATA RECOVERY  
FIRST QUARTER 1993 (1/1/93 - 3/31/93)

Parameter	Recovery (Percent)
Wind Speed 35 ft	99.9
Wind Speed 150 ft	99.9
Wind Speed 500 ft	99.9
Wind Direction 35 ft	99.9
Wind Direction 150 ft	99.9
Wind Direction 500 ft	99.9
Delta Temperature 1P	99.9
Delta Temperature 500-35 2P	99.9
Temperature 35	99.9
Dew Point Temperature 35	0.0
Precipitation	99.9
<u>Composite</u>	
Wind Speed and Direction 35, Delta Temperature 1P	99.9
Wind Speed and Direction 150, Delta Temperature 1P	99.9
Wind Speed and Direction 500, Delta Temperature 2P	99.9



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND SPEED (MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24 TOTAL
N	0	2	1	0	0	3
NNE	2	2	0	0	0	4
NE	1	11	2	0	0	14
ENE	2	8	0	0	0	10
E	0	2	0	0	0	2
ESE	4	5	0	0	0	9
SE	0	6	0	0	0	6
SSE	1	5	0	0	0	6
S	0	6	0	0	0	6
SSW	0	0	0	0	0	0
SW	0	5	2	0	0	7
WSW	0	2	4	6	0	6
W	0	2	5	0	0	7
WNW	0	1	0	0	0	1
NW	1	2	0	0	0	3
NNW	0	3	0	0	0	3
TOTAL	11	62	14	0	0	87

PERIODS OF CALM(HOURS): 11  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	4	0	0	0			0	4
NNE	0	0	0	0	0			0	0
NE	0	4	0	0	0			0	4
ENE	3	6	0	0	0			0	9
E	0	1	0	0	0			0	1
ESE	0	0	0	0	0			0	0
SE	1	0	0	0	0			0	1
SSE	1	0	0	0	0			0	1
S	0	1	0	0	0			0	1
SSW	0	0	0	0	0			0	0
SW	0	2	2	0	0			0	4
WSW	0	3	4	0	0			0	7
W	1	0	1	0	0			0	2
WNW	0	2	2	0	0			0	4
NW	1	1	0	0	0			0	2
NNW	0	0	0	0	0			0	0
TOTAL	7	24	9	0	0			0	40
PERIODS OF CALM(HOURS): 11									
VARIABLE DIRECTION 0									
HOURS OF MISSING DATA: 1									

PERIODS OF CALM(HOURS): 11  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1

HOURS AT EACHIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

		WIND SPEED(MPH)						
WIND DIRECTION		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1	0	0	0	0	0	1
NNE	1	2	0	0	0	0	0	3
NE	3	1	0	0	0	0	0	4
ENE	1	3	0	0	0	0	0	4
E	0	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	0	1
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0
SW	0	1	1	1	0	0	0	2
WSW	1	3	3	3	0	0	0	7
W	1	7	3	0	0	0	0	11
WNW	2	1	1	0	0	0	0	4
NW	1	2	0	0	0	0	0	3
NNW	0	2	0	0	0	0	0	2
TOTAL	11	23	8	0	0	0	0	42

PERIODS OF CALM(HOURS): 11  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	22	21	3	0	0			0	46
NNE	50	15	1	0	0			0	66
NE	60	33	0	0	0			0	93
ENE	37	27	0	0	0			0	64
E	10	8	0	0	0			0	18
ESE	9	2	0	0	0			0	11
SE	10	0	0	0	0			0	11
SSE	10	3	0	0	0			0	13
S	10	2	2	0	0			0	14
SSW	8	13	6	0	0			0	27
SW	15	51	40	0	0			0	106
WSW	14	74	50	2	0			0	140
W	21	130	48	0	0			0	199
WNW	18	67	15	0	0			0	100
NW	20	59	17	0	0			0	96
NNW	14	28	8	0	0			0	50
TOTAL	328	533	190	2	0			0	1054

PERIODS OF CALM(HOURS): 11

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

		WIND SPEED(MPH)						
WIND DIRECTION								
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N		27	12	3	0	0	0	42
NNE		36	8	4	1	0	0	48
NE		56	13	0	0	0	0	69
ENE		27	21	0	0	0	0	48
E		31	1	0	0	0	0	32
ESE		22	1	0	0	0	0	23
SE		24	0	0	0	0	0	24
SSE		26	2	0	0	0	0	28
S		32	26	0	0	0	0	58
SSW		21	19	7	0	0	0	49
SW		13	17	25	2	0	0	58
WSW		18	27	14	1	0	0	60
W		12	20	5	0	0	0	37
WNW		20	21	0	0	0	0	41
NW		18	23	1	0	0	0	42
NNW		21	8	0	0	0	0	29
TOTAL		404	219	59	3	0	0	688

PERIODS OF CALM(HOURS): 11  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	0	0			0	0
NNE	6	0	0	0	0			0	6
NE	10	1	0	0	0			0	11
ENE	13	0	0	0	0			0	13
E	18	0	0	0	0			0	18
ESE	18	0	0	0	0			0	18
SE	21	0	0	0	0			0	22
SSE	24	0	0	0	0			0	26
S	18	1	0	0	0			0	19
SSW	6	3	0	0	0			0	10
SW	4	0	0	0	0			0	4
WSW	1	0	0	0	0			0	2
W	3	0	0	0	0			0	3
WNW	1	0	0	0	0			0	1
NW	0	0	0	0	0			0	0
NNW	0	0	0	0	0			0	0
TOTAL	143	5	0	0	0			0	153

PERIODS OF CALM(HOURS): 11  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	0	0	1
NE	3	0	0	0	0	0	0	0	3
ENE	7	0	0	0	0	0	0	0	7
E	19	0	0	0	0	0	0	0	19
ESE	16	0	0	0	0	0	0	0	16
SE	21	0	0	0	0	0	0	0	21
SSE	12	0	0	0	0	0	0	0	12
S	9	0	0	0	0	0	0	0	11
SSW	3	0	0	0	0	0	0	0	3
SW	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0
W	1	0	0	0	0	0	0	0	1
WNW	1	0	0	0	0	0	0	0	1
NW	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0
TOTAL	93	0	0	0	0	0	0	0	93

PERIODS OF CALM(HOURS): 11  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	49	40	7	0	0	0	96
NNE	96	27	5	0	0	0	128
NE	133	63	2	0	0	0	198
ENE	90	65	0	0	0	0	155
E	78	12	0	0	0	0	90
ESE	70	8	0	0	0	0	78
SE	77	6	0	0	0	0	85
SSE	74	10	0	0	0	0	86
S	69	36	2	0	0	0	109
SSW	38	35	13	0	0	0	89
SW	32	76	70	2	0	0	181
WSW	34	109	75	3	0	0	222
W	39	159	62	0	0	0	260
WNW	42	92	18	0	0	0	152
NW	41	87	18	0	0	0	146
NNW	35	41	8	0	0	0	84
TOTAL	997	866	280	5	0	0	2159

PERIODS OF CALM(HOURS): 11  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	2	1	1	0	0	4
NNE	0	3	1	0	0	0	4
NE	0	1	2	0	0	0	3
ENE	0	5	5	3	2	0	15
E	0	6	3	0	0	0	9
ESE	0	1	5	0	0	0	6
SE	1	5	2	0	0	0	8
SSE	0	2	3	0	0	0	5
S	0	2	5	0	0	0	7
SSW	0	0	0	0	0	0	0
SW	0	1	0	1	0	0	2
WSW	0	1	3	0	0	0	4
W	0	1	2	7	1	0	11
WNW	0	3	1	1	0	0	5
NW	0	0	1	0	0	0	1
NNW	0	0	3	0	0	0	3
TOTAL	1	33	37	13	3	0	87

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)							
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
WIND DIRECTION									
N	0	1	1	0	0	0	0	2	
NNE	0	1	0	0	0	0	0	1	
NE	0	2	2	0	0	0	0	4	
ENE	0	1	0	1	0	0	0	2	
E	0	2	3	0	0	0	0	5	
ESE	0	2	0	0	0	0	0	2	
SE	0	2	1	0	0	0	0	3	
SSE	0	0	0	0	0	0	0	0	
S	0	1	0	0	0	0	0	1	
SSW	0	0	0	0	0	0	0	0	
SW	0	0	1	1	0	0	0	1	
WSW	0	1	2	1	5	0	0	4	
W	0	1	2	1	1	0	0	8	
WNW	0	0	2	2	0	1	0	4	
NW	0	2	0	0	0	0	0	2	
NNW	0	1	0	0	0	0	0	1	
TOTAL	0	17	14	8	1	0	0	40	

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: C DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	2	1	0	0			0	3
NNE	0	0	0	0	0			0	0
NE	0	2	0	0	0			0	2
ENE	0	4	1	0	0			0	5
E	0	1	2	0	0			0	3
ESE	0	1	0	0	0			0	1
SE	0	0	0	0	0			0	0
SSE	0	0	0	0	0			0	0
S	0	0	0	0	0			0	0
SSW	0	0	0	0	0			0	0
SW	0	0	2	0	0			0	2
WSW	0	0	1	0	0			0	1
W	0	2	7	2	2			0	13
WNW	0	4	4	2	0			0	10
NW	0	0	1	0	0			0	1
NNW	0	1	0	0	0			0	1
TOTAL	0	17	19	4	2			0	42

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED (MPH)							
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
WIND DIRECTION									
N	11	16	5	3	1	0	0	36	
NNE	28	18	3	3	1	0	0	53	
NE	30	25	1	0	0	0	0	57	
ENE	16	40	24	4	0	0	0	84	
E	19	25	8	0	0	0	0	52	
ESE	5	7	1	0	0	0	0	13	
SE	4	3	1	0	0	0	0	8	
SSE	9	8	0	0	0	0	0	17	
S	5	10	3	0	0	0	0	18	
SSW	9	18	19	1	0	0	0	47	
SW	11	20	15	3	0	0	0	49	
WSW	9	17	16	16	1	0	0	59	
W	7	11	40	18	0	0	0	76	
WNW	7	14	32	5	0	0	0	58	
NW	6	23	9	0	0	0	0	38	
NNW	9	11	2	0	0	0	0	23	
TOTAL	185	266	179	53	3	0	0	688	

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	4	0	0	0	0				0	4
NNE	10	5	1	0	0				0	16
NE	14	15	1	0	0				0	30
ENE	7	14	1	0	0				0	22
E	5	2	0	0	0				0	7
ESE	1	0	0	0	0				0	1
SE	2	0	0	0	0				0	2
SSE	2	1	0	0	0				0	3
S	3	3	0	0	0				0	6
SSW	18	0	0	0	0				0	18
SW	8	6	0	0	0				0	14
WSW	10	9	2	0	0				0	21
W	1	3	0	0	0				0	4
WNW	0	0	0	0	0				0	0
NW	2	1	0	0	0				0	3
NNW	2	0	0	0	0				0	2
TOTAL	89	59	5	0	0				0	153

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	0	0			0	0
NNE	12	8	0	0	0			0	20
NE	10	12	0	0	0			0	22
ENE	7	5	1	0	0			0	13
E	0	0	0	0	0			0	0
ESE	0	1	0	0	0			0	1
SE	0	0	0	0	0			0	0
SSE	3	0	0	0	0			0	3
S	0	2	0	0	0			0	2
SSW	6	3	0	0	0			0	9
SW	8	6	0	0	0			0	14
WSW	2	0	0	0	0			0	2
W	3	3	0	0	0			0	6
WNW	0	2	0	0	0			0	2
NW	1	0	0	0	0			0	1
NNW	0	0	0	0	0			0	0
TOTAL	52	42	1	0	0			0	95

PERIODS OF CALM(HOURS): 2  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 150 FT CONTINUOUS RELEASE  
FIRST QUARTER 1993 (1/1/93 - 3/31/93)

8 of 8

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24

STABILITY CLASS: ALL DT/DZ

ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)						TOTAL
	1-3	4-7	8-12	13-18	19-24	>24	
N	25	42	27	8	1	0	103
NNE	65	53	19	4	1	0	142
NE	67	80	12	0	0	0	160
ENE	40	134	79	16	2	0	271
E	30	55	29	0	0	0	114
ESE	9	18	9	0	0	0	36
SE	8	16	6	0	0	0	30
SSE	18	15	4	0	0	0	37
S	10	26	15	0	0	0	51
SSW	36	28	24	4	0	0	92
SW	32	40	37	9	0	0	118
WSW	24	51	64	32	2	0	173
W	16	49	164	101	12	0	342
WNW	16	65	135	69	6	0	291
NW	16	53	45	15	0	0	129
NNW	14	32	17	6	0	0	70
TOTAL	426	757	686	264	24	0	2159

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED(MPH)						
WIND DIRECTION		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
		---	---	---	---	---	---	---
N		0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0
E		0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0
SSE		0	0	0	0	0	0	0
S		0	0	0	0	0	0	0
SSW		0	0	0	0	0	0	0
SW		0	0	0	0	0	0	0
WSW		0	0	0	0	0	0	0
W		0	0	0	0	0	0	0
WNW		0	0	0	0	0	0	0
NW		0	0	0	0	0	0	0
NNW		0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1

PERIOD OF RECORD = 93010101-93033124 HOURS AT EACH WIND SPEED AND DIRECTION  
STABILITY CLASS: B DT/DZ HOUR RANGE = 01 - 24  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	1	0	0	1
PERIODS OF CALM(HOURS): 0							
VARIABLE DIRECTION 0							
HOURS OF MISSING DATA: 1							

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)								>24 TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0
ENE	0	1	1	0	0	0	0	0	2
E	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0
SE	0	1	2	0	0	0	0	0	3
SSE	0	0	1	0	0	0	0	0	1
S	0	0	1	0	0	0	0	0	1
SSW	0	0	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0
NNW	0	0	1	0	0	0	0	0	1
TOTAL	0	2	7	2	0	0	0	0	11

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)								>24 TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	8	2	6	1	0	0	0	0	17
NNE	3	8	5	3	0	0	0	0	19
NE	8	10	13	3	1	0	0	0	35
ENE	11	20	19	6	1	0	0	0	57
E	10	15	16	2	0	0	0	0	43
ESE	9	13	11	1	0	0	0	0	34
SE	6	1	11	5	0	0	0	0	23
SSE	4	5	7	4	0	0	0	0	20
S	3	6	9	13	0	0	0	0	31
SSW	5	1	9	14	7	0	0	0	36
SW	1	1	8	15	11	0	0	0	36
WSW	1	12	15	6	0	0	0	0	34
W	2	11	13	16	2	0	0	0	44
WNW	2	6	3	2	0	0	0	0	13
NW	3	1	1	2	0	0	0	0	7
NNW	2	3	1	0	0	0	0	0	6
TOTAL	78	115	147	93	22	0	0	0	455

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93010101-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: F DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	1	0	0	0			0	1
NNE	1	1	1	0	0			0	3
NE	1	3	2	0	0			0	6
ENE	1	11	5	0	0			0	17
E	1	10	7	0	0			0	18
ESE	1	4	3	0	0			0	8
SE	0	1	1	0	0			0	2
SSE	0	4	0	1	0			0	5
S	0	1	2	0	0			0	3
SSW	0	2	0	0	0			0	2
SW	0	3	3	0	0			0	6
WSW	0	5	6	0	0			0	11
W	0	4	4	7	0			0	15
WNW	1	3	2	1	0			0	7
NW	0	1	0	0	0			0	1
NNW	1	1	0	0	0			0	2
TOTAL	7	55	36	9	0			0	107

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 930101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: 6 DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	2	0	0	4
SSW	0	1	2	0	0	0	3
SW	1	0	2	2	0	0	5
WSW	0	1	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	1	2	6	4	0	0	13

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 930101-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DL2P

WIND DIRECTION	WIND SPEED(MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	18	30	46	19	4	2			2	119
NNE	12	27	25	11	2	1			1	78
NE	18	43	20	14	1	0			0	96
ENE	19	61	55	32	2	2			2	171
E	15	49	64	30	6	0			0	164
ESE	13	41	58	22	0	0			0	134
SE	7	17	35	14	5	0			0	78
SSE	6	9	15	8	0	0			0	38
S	8	16	26	23	0	0			0	73
SSW	5	10	31	33	13	0			0	92
SW	5	10	37	49	14	0			0	115
WSW	3	29	56	58	32	4			4	182
W	4	27	78	137	76	14			14	336
WNW	7	48	76	115	40	12			12	298
NW	8	16	43	24	10	1			1	102
NNW	6	23	38	9	7	0			0	83
TOTAL	154	456	703	598	212	36			36	2159

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 1



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)					
		1-3	4-7	8-12	13-18	19-24	>24 TOTAL
WIND DIRECTION							
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	0	0	0	0	0	0		
NNE	0	0	0	0	0	0		
NE	0	0	0	0	0	0		
ENE	0	0	0	0	0	0		
E	0	0	0	0	0	0		
ESE	0	0	0	0	0	0		
SE	0	0	0	0	0	0		
SSE	0	0	0	0	0	0		
S	0	0	0	0	0	0		
SSW	0	0	0	0	0	0		
SW	0	0	0	0	0	0		
WSW	0	0	0	0	0	0		
W	0	0	0	0	0	0		
WNW	0	0	0	0	0	0		
NW	0	0	0	0	0	0		
NNW	0	0	0	0	0	0		
TOTAL	0	0	0	0	0	0		

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)							
DIRECTION							
1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
0	0	0	0	0	0	0	N
0	0	0	0	0	0	0	NNE
0	0	0	0	0	0	0	NE
0	0	0	0	0	0	0	ENE
0	0	0	0	0	0	0	E
0	0	0	0	0	0	0	ESE
0	0	0	0	0	0	0	SE
0	0	0	0	0	0	0	SSE
0	0	0	0	0	0	0	S
0	0	0	0	0	0	0	SSW
0	0	0	0	0	0	0	SW
0	0	0	0	0	0	0	WSW
0	0	0	0	0	0	0	W
0	0	0	0	0	0	0	WNW
0	0	0	0	0	0	0	NW
0	0	0	0	0	0	0	NNW
0	0	0	0	0	0	0	TOTAL

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)									
DIRECTION									
1-3	4-7	8-12	13-18	19-24	>24 TOTAL				
N	0	0	0	0	0	N	0	0	0
NNE	0	0	0	0	0	NNE	0	0	0
NE	0	0	0	0	0	NE	0	0	0
ENE	0	0	0	0	0	ENE	0	0	0
E	0	0	0	0	0	E	0	0	0
ESE	0	0	0	0	0	ESE	0	0	0
SE	0	0	0	0	0	SE	0	0	0
SSE	0	0	0	0	0	SSE	0	0	0
SSW	0	0	0	0	0	SSW	0	0	0
SW	0	0	0	0	0	SW	0	0	0
WSW	0	0	0	0	0	WSW	0	0	0
W	0	0	0	0	0	W	0	0	0
WNW	0	2	1	0	0	WNW	0	2	1
NW	0	2	0	0	0	NW	0	2	0
NNW	0	0	0	0	0	NNW	0	0	0
TOTAL	0	4	1	0	0	TOTAL	0	4	1

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: E DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	
SSW	2	0	0	0	0	0	2	
SW	2	0	0	0	0	0	2	
WSW	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	
WNW	1	0	1	0	0	0	1	
NW	0	1	2	0	0	0	2	
NNW	0	0	0	0	0	0	3	
TOTAL	5	1	4	0	0	0	10	

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	1	2	0	0	0	0	3
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	4	3	0	0	0	0	7

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED (MPH)							
DIRECTION							
1-3	4-7	8-12	13-18	19-24	>24 TOTAL		
0	0	0	0	0	0	N	
0	0	0	0	0	0	NNE	
0	0	0	0	0	0	NE	
0	0	0	0	0	0	ENE	
0	0	0	0	0	0	E	
0	0	0	0	0	0	ESE	
0	0	0	0	0	0	SE	
0	0	0	0	0	0	SSE	
0	0	0	0	0	0	S	
0	0	0	0	0	0	SSW	
0	0	0	0	0	0	SW	
0	0	0	0	0	0	WSW	
0	0	0	0	0	0	W	
0	0	0	0	0	0	WW	
0	0	0	0	0	0	WNW	
0	0	0	0	0	0	NW	
0	0	0	0	0	0	NNW	
0	0	0	0	0	0	TOTAL	

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93032901-93032924 HOUR RANGE = 01 - 24  
 STABILITY CLASS: ALL DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	0	0	0	0			0	0
NNE	1	0	0	0	0			0	1
NE	0	0	0	0	0			0	0
ENE	1	2	0	0	0			0	3
E	0	1	0	0	0			0	1
ESE	0	0	0	0	0			0	0
SE	0	0	0	0	0			0	0
SSE	0	0	0	0	0			0	0
S	0	0	0	0	0			0	0
SSW	3	0	0	0	0			0	3
SW	2	0	0	0	0			0	2
WSW	1	0	0	0	0			0	1
W	0	0	1	0	0			0	1
WNW	1	2	2	0	0			0	5
NW	0	3	2	0	0			0	5
NNW	0	0	0	0	0			0	0
TOTAL	9	8	5	0	0			0	22

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93011511-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: A DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:D1500P LAPSE:DT2-P

WIND SPEED(MPH)							
WIND DIRECTION							
1-3	4-7	8-12	13-18	19-24	>24 TOTAL		
0	0	0	0	0	0	N	
0	0	0	0	0	0	NNE	
0	0	0	0	0	0	NE	
0	0	0	0	0	0	ENE	
0	0	0	0	0	0	E	
0	0	0	0	0	0	ESE	
0	0	0	0	0	0	SE	
0	0	0	0	0	0	SSE	
0	0	0	0	0	0	S	
0	0	0	0	0	0	SSW	
0	0	0	0	0	0	SW	
0	0	0	0	0	0	WSW	
0	0	0	0	0	0	W	
0	0	0	0	0	0	WNW	
0	0	0	0	0	0	NW	
0	0	0	0	0	0	NNW	
0	0	0	0	0	0	TOTAL	

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93011511-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED(MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION: 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93011511-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DIS00P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93011512-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: D DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED (MPH)							
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
WIND DIRECTION									
N	2	0	0	0	0	0	0	2	
NNE	0	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	
ESE	0	4	0	7	3	0	0	14	
SE	0	0	0	6	3	1	0	10	
SSE	0	0	0	0	1	0	0	1	
S	0	0	0	1	1	0	0	2	
SSW	0	0	0	2	3	0	0	5	
SW	0	1	0	0	0	0	0	1	
WSW	0	0	0	1	0	0	0	1	
W	0	1	0	4	0	1	0	6	
WNW	1	4	10	4	4	2	1	22	
NW	0	0	2	5	1	1	0	8	
NNW	0	2	2	0	0	0	0	4	
TOTAL	3	12	35	20	5	1		76	

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD = 93011512-93033124 HOUR RANGE = 01 - 24

STABILITY CLASS: E DT/DZ

ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED (MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	2	2	0	0	0	0	2
ESE	0	2	2	0	0	0	0	2
SE	0	0	0	0	1	0	0	1
SSE	0	1	1	1	1	0	0	3
S	0	1	1	4	0	0	0	5
SSW	0	0	0	1	2	0	0	3
SW	0	0	0	0	3	0	0	3
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	2	0	0	2
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0
TOTAL	0	6	6	6	9	0	0	21

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93011511-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93011511-93033124 HOUR RANGE = 01 - 24  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND SPEED(MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93011512-93033124 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)						
	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	0	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	2	0	0	0	0	2
ESE	0	6	7	3	0	0	16
SE	0	0	6	4	1	0	11
SSE	0	1	1	2	0	0	4
S	0	1	5	1	0	0	7
SSW	0	0	3	5	0	0	8
SW	0	1	0	3	0	0	4
WSW	0	0	1	0	0	0	1
W	0	1	4	2	1	0	8
WNW	1	4	10	4	2	1	22
NW	0	0	2	5	1	0	8
NNW	0	2	2	0	0	0	4
TOTAL	3	18	41	29	5	1	97

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

		WIND SPEED (MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
N	6	28	3	0	0	0	37	
NNE	4	11	0	0	0	0	15	
NE	5	3	0	0	0	0	8	
ENE	8	8	0	0	0	0	16	
E	3	7	0	0	0	0	10	
ESE	2	12	0	0	0	0	14	
SE	10	1	0	0	0	0	11	
SSE	3	12	0	0	0	0	15	
S	0	15	3	0	0	0	18	
SSW	4	8	3	0	0	0	15	
SW	1	9	5	0	0	0	15	
WSW	1	22	16	0	0	0	39	
W	1	28	1	0	0	0	30	
WNW	2	23	1	0	0	0	26	
NW	4	18	3	0	0	0	25	
NNW	5	13	3	0	0	0	21	
TOTAL	59	218	38	0	0	0	315	

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-9306#0'0HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/OZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

		WIND SPEED(MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	0	5	0	0	0	0	0	5
NNE	2	3	0	0	0	0	0	5
NE	2	0	0	0	0	0	0	2
ENE	0	0	0	0	0	0	0	0
E	0	1	0	0	0	0	0	1
ESE	3	1	0	0	0	0	0	4
SE	1	1	0	0	0	0	0	2
SSE	2	0	0	0	0	0	0	2
S	0	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	0	1
SW	1	5	2	0	0	0	0	8
WSW	2	12	4	0	0	0	0	18
W	1	9	2	0	0	0	0	12
WNW	0	8	0	0	0	0	0	8
NW	0	3	0	0	0	0	0	3
NNW	3	2	2	0	0	0	0	7
TOTAL	17	51	10	0	0	0	0	78

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: C DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	1	4	0	0	0	0	0	5
NNE	0	1	0	0	0	0	0	1
NE	2	0	0	0	0	0	0	2
ENE	2	1	0	0	0	0	0	3
E	1	1	0	0	0	0	0	2
ESE	1	0	0	0	0	0	0	1
SE	2	1	0	0	0	0	0	3
SSE	0	2	0	0	0	0	0	2
S	0	0	1	0	0	0	0	1
SSW	0	3	1	0	0	0	0	4
SW	2	2	0	0	0	0	0	4
WSW	1	11	7	0	0	0	0	19
W	1	6	0	0	0	0	0	7
WNW	4	3	0	0	0	0	0	7
NW	0	5	0	0	0	0	0	5
NNW	3	3	1	0	0	0	0	7
TOTAL	20	43	10	0	0	0	0	73

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 35 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

4 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: D DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	9	14	0	0	0			0	23
NNE	12	7	0	0	0			0	19
NE	13	4	0	0	0			0	18
ENE	13	1	0	0	0			0	14
E	13	3	0	0	0			0	16
ESE	4	0	0	0	0			0	4
SE	13	5	0	0	0			0	18
SSE	8	6	0	0	0			0	14
S	11	7	1	0	0			0	19
SSW	8	5	4	1	0			0	18
SW	19	38	21	1	0			0	79
WSW	14	88	46	1	0			0	149
W	14	51	9	0	0			0	74
WNW	18	23	1	0	0			0	42
NW	15	37	3	0	0			0	55
NNW	13	25	0	0	0			0	38
TOTAL	197	314	85	3	0			0	600

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION: 35 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

5 of 8

PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	17	7	0	0	0			0	24
NNE	14	0	0	0	0			0	14
NNE	19	2	0	0	0			0	21
ENE	36	2	0	0	0			0	39
E	34	2	0	0	0			0	36
ESE	41	2	0	0	0			0	43
SE	28	2	0	0	0			0	30
SSE	43	5	0	0	0			0	49
S	34	2	1	0	0			0	38
SSW	31	25	6	0	0			0	62
SW	17	27	6	0	0			0	51
WSW	13	27	0	0	0			0	40
W	12	2	0	0	0			0	14
WNW	15	2	0	0	0			0	17
NW	15	2	1	0	0			0	18
NNW	24	4	0	0	0			0	28
TOTAL	393	113	14	0	0			0	524

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 35 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

6 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND SPEED(MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	2	0	0	0	0	6
NNE	5	0	0	0	0	0	5
NE	15	0	0	0	0	0	15
ENE	25	0	0	0	0	0	26
E	27	0	0	0	0	0	27
ESE	29	0	0	0	0	0	31
SE	41	0	0	0	0	0	42
SSE	46	0	0	0	0	0	48
S	30	1	0	0	0	0	31
SSW	18	7	0	0	0	0	25
SW	3	2	0	0	0	0	5
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	2	0	0	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	4	0	0	0	0	0	4
TOTAL	249	12	0	0	0	0	267

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: G DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

		WIND SPEED (MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	1	0	0	0	0	0	0	1
NNE	1	0	0	0	0	0	0	1
NE	5	0	0	0	0	0	0	5
ENE	16	0	0	0	0	0	0	16
E	38	0	0	0	0	0	0	38
ESE	64	0	0	0	0	0	0	64
SE	91	0	0	0	0	0	0	91
SSE	71	0	0	0	0	0	0	71
S	18	2	2	0	0	0	0	21
SSW	9	0	0	0	0	0	0	9
SW	1	0	0	0	0	0	0	1
WSW	1	0	0	0	0	0	0	1
W	1	0	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	0	1
TOTAL	318	4	0	0	0	0	0	327

PERIODS OF CALM(HOURS): 16  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT1-P

WIND SPEED (MPH)							
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	38	60	3	0	0	0	101
NNE	38	22	0	0	0	0	60
NE	61	9	0	0	0	0	71
ENE	100	12	0	0	0	0	114
E	116	14	0	0	0	0	130
ESE	144	15	0	0	0	0	164
SE	136	10	0	0	0	0	198
SSE	173	25	0	0	0	0	201
S	93	27	6	0	0	0	128
SSW	70	51	14	1	0	0	136
SW	44	83	34	1	0	0	163
WSW	32	160	73	1	0	0	266
W	30	96	12	0	0	0	138
WNW	41	59	2	0	0	0	102
NW	34	65	7	0	0	0	106
NNW	53	47	6	0	0	0	106
TOTAL	1253	755	157	3	0	0	2184

PERIODS OF CALM(HOURS): 16

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	1	10	17	4	0				0	32
NNE	0	11	5	2	0				0	18
NE	1	7	0	0	0				0	8
ENE	0	9	3	0	0				0	12
E	2	13	5	0	0				0	20
ESE	0	11	6	0	0				0	17
SE	0	5	6	0	0				0	11
SSE	0	9	9	2	0				0	20
S	0	4	8	4	0				0	16
SSW	0	1	4	1	0				0	6
SW	2	3	6	2	0				0	13
WSW	0	4	21	9	0				0	34
W	0	16	22	2	0				0	40
WNW	1	7	20	4	0				0	32
NW	0	10	7	2	0				0	19
NNW	1	6	8	2	0				0	17
TOTAL	8	126	147	34	0				0	315

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
 STABILITY CLASS: B DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	0	4	1	0	0	0	5	
NNE	0	4	2	0	0	0	6	
NE	0	4	0	0	0	0	4	
ENE	0	0	0	0	0	0	0	
E	1	0	1	0	0	0	2	
ESE	0	1	2	0	0	0	3	
SE	0	3	0	0	0	0	3	
SSE	0	1	0	0	0	0	1	
S	0	1	1	0	0	0	2	
SSW	0	1	0	0	0	0	1	
SW	0	1	2	0	0	0	3	
WSW	0	8	7	3	0	0	18	
W	1	4	4	3	0	0	12	
WNW	0	4	9	0	0	0	13	
NW	0	2	1	0	0	0	3	
NNW	0	1	0	1	0	0	2	
TOTAL	2	39	30	7	0	0	78	

PERIODS OF CALM(HOURS): 2  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: C DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	0	4	1	0	0			0	5
NNE	0	1	0	0	0			0	1
NE	1	1	0	0	0			0	2
ENE	0	3	1	0	0			0	4
E	0	0	1	0	0			0	1
ESE	0	1	0	0	0			0	1
SE	1	2	0	0	0			0	3
SSE	0	1	1	1	0			0	3
S	0	2	1	1	0			0	4
SSW	0	1	3	0	0			0	4
SW	1	2	1	0	0			0	4
WSW	0	2	9	1	0			0	12
W	1	5	7	1	0			0	14
WNW	0	1	3	1	0			0	5
NW	0	2	2	0	0			0	4
NNW	1	3	2	0	0			0	6
TOTAL	5	31	32	5	0			0	73

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 150 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

4 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: D DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	3	10	10	0	0	0	23
NNE	5	6	4	0	0	0	15
NE	4	6	0	0	0	0	10
ENE	4	20	4	0	0	0	28
E	2	8	3	0	0	0	13
ESE	1	6	3	0	0	0	10
SE	2	7	3	0	0	0	12
SSE	4	9	7	2	0	0	22
S	1	6	4	2	0	0	13
SSW	2	10	10	3	1	0	26
SW	11	12	28	10	1	0	62
WSW	9	39	58	17	1	0	124
W	12	28	46	23	1	0	110
WNW	8	22	21	5	0	0	56
NW	2	22	22	1	0	0	47
NNW	1	19	9	0	0	0	29
TOTAL	71	230	232	63	4	0	600

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 150 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

5 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)							
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
WIND DIRECTION									
N	12	9	1	0	0	0	0	22	
NNE	13	8	2	0	0	0	0	23	
NE	17	14	0	0	0	0	0	32	
ENE	9	41	6	0	0	0	0	56	
E	8	19	1	0	0	0	0	29	
ESE	7	12	0	0	0	0	0	19	
SE	9	15	6	0	0	0	0	30	
SSE	4	9	4	3	0	0	0	20	
S	9	14	3	1	0	0	0	27	
SSW	20	11	13	5	0	0	0	49	
SW	16	21	26	1	0	0	0	64	
WSW	16	19	15	0	0	0	0	50	
W	8	19	6	0	0	0	0	33	
WNW	4	17	5	0	0	0	0	26	
NW	9	12	2	1	0	0	0	24	
NNW	4	16	0	0	0	0	0	20	
TOTAL	165	256	90	11	0	0	0	524	

PERIODS OF CALM(HOURS): 2

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 150 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

6 of 8

PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	14	3	0	0	0			0	17
NNE	23	5	1	0	0			0	29
NE	18	8	1	0	0			0	27
ENE	6	17	1	0	0			0	24
E	7	8	0	0	0			0	15
ESE	3	7	0	0	0			0	10
SE	3	2	0	0	0			0	5
SSE	3	0	0	0	0			0	3
S	9	3	5	0	0			0	17
SSW	14	12	2	0	0			0	28
SW	17	14	2	0	0			0	33
WSW	15	9	3	0	0			0	27
W	5	4	1	0	0			0	10
WNW	4	2	0	0	0			0	6
NW	6	1	0	0	0			0	7
NNW	6	3	0	0	0			0	9
TOTAL	153	98	16	0	0			0	267

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 150 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

7 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: G DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	20	1	0	0	0	0	0	21
NNE	40	19	0	0	0	0	0	59
NE	26	20	1	0	0	0	0	47
ENE	14	9	1	0	0	0	0	24
E	11	5	0	0	0	0	0	16
ESE	5	1	0	0	0	0	0	6
SE	4	2	0	0	0	0	0	6
SSE	2	1	0	0	0	0	0	3
S	6	7	0	0	0	0	0	13
SSW	17	27	1	0	0	0	0	45
SW	24	11	0	0	0	0	0	35
WSW	7	3	0	0	0	0	0	10
W	10	6	0	0	0	0	0	16
WNW	4	1	1	0	0	0	0	6
NW	3	4	0	0	0	0	0	7
NNW	13	0	0	0	0	0	0	13
TOTAL	206	117	4	0	0	0	0	327

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	50	41	30	4	0	0	0	0	0	125
NNE	81	54	14	2	0	0	0	0	0	151
NE	67	60	2	0	0	0	0	0	0	130
ENE	33	99	16	0	0	0	0	0	0	148
E	31	53	11	0	0	0	0	0	0	96
ESE	16	39	11	0	0	0	0	0	0	66
SE	19	36	15	0	0	0	0	0	0	70
SSE	13	30	21	8	0	0	0	0	0	72
S	25	37	22	8	0	0	0	0	0	92
SSW	53	63	33	9	1	0	0	0	0	159
SW	71	64	65	13	1	0	0	0	0	214
WSW	47	84	113	30	1	0	0	0	0	275
W	37	82	86	29	1	0	0	0	0	235
WNW	21	54	59	10	0	0	0	0	0	144
NW	20	53	34	4	0	0	0	0	0	111
NNW	26	48	19	3	0	0	0	0	0	96
TOTAL	610	897	551	120	4	0	0	0	0	2184

PERIODS OF CALM(HOURS): 2  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)						>24 TOTAL
	1-3	4-7	8-12	13-18	19-24		
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	1	1	0	0	2

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	1	1	0	0	2
NNE	0	0	0	1	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	2	0	0	0	2
SE	0	1	3	0	0	0	4
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0

TOTAL 0 1 7 2 0 0 10

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: C DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DI2-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	2	3	1	0	0	6
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	2	0	0	0	4
E	0	2	0	0	0	0	2
ESE	0	1	3	1	0	0	5
SE	0	1	3	0	0	0	4
SSE	0	0	3	1	0	0	4
S	0	0	1	2	0	0	3
SSW	0	0	0	0	0	0	0
SW	0	0	1	0	0	0	1
WSW	0	0	2	0	0	0	2
W	0	0	0	1	0	0	1
WNW	0	1	5	1	0	0	7
NW	0	0	1	0	0	0	1
NNW	0	0	0	0	0	0	0
TOTAL	0	9	24	7	0	0	40

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 500 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

4 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: D DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	4	12	34	15	0				0	65
NNE	1	10	6	0	0				0	17
NE	6	13	6	0	0				0	25
ENE	6	21	16	1	0				0	44
E	2	21	29	1	0				0	53
ESE	6	14	19	7	0				0	46
SE	2	4	16	14	2				0	38
SSE	3	3	21	24	5				0	56
S	1	8	14	10	5				0	38
SSW	5	9	13	14	15				0	56
SW	4	11	47	73	13				1	149
WSW	3	30	62	60	10				1	166
W	7	28	45	61	13				2	156
WNW	3	21	41	38	4				0	107
NW	5	11	44	26	3				0	89
NNW	2	15	37	16	4				0	74
TOTAL	60	231	450	360	74				4	1179

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DIS00P LAPSE:DT2-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	12	11	7	0	0	36
NNE	3	6	3	6	0	0	18
NE	5	9	5	1	0	0	20
ENE	2	12	15	7	0	0	36
E	4	9	11	1	0	0	25
ESE	3	13	5	6	0	0	27
SE	1	8	10	19	2	0	40
SSE	4	5	8	13	2	0	32
S	8	2	11	11	3	0	35
SSW	13	6	7	18	2	0	46
SW	4	9	14	30	5	0	62
WSW	11	30	25	6	0	0	72
W	8	28	13	5	0	0	54
WNW	5	16	13	8	0	0	42
NW	3	4	6	3	0	0	16
NNW	3	3	9	3	0	0	18
TOTAL	83	172	166	144	14	0	579

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

BEAVER VALLEY JOINT FREQUENCY DISTRIBUTION 500 FT CONTINUOUS RELEASE  
SECOND QUARTER 1993 (APRIL 1, 1993 THROUGH JUNE 30, 1993)

6 of 8

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	2	5	0	0	0				0	7
NNE	0	2	5	0	0				0	16
NE	3	18	2	0	0				0	23
ENE	8	11	12	1	0				0	32
E	6	8	4	0	0				0	18
ESE	0	11	9	2	0				0	22
SE	1	3	9	3	0				0	16
SSE	5	0	5	5	0				0	15
S	5	8	6	5	0				0	24
SSW	4	12	8	1	0				0	25
SW	7	9	8	9	1				0	34
WSW	7	7	5	0	0				0	19
W	6	17	0	1	0				0	24
WNW	8	11	2	0	0				0	21
NW	4	5	4	1	0				0	14
NNW	4	8	5	0	0				0	17
TOTAL	79	135	84	28	1				0	327

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION: 6

HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
 STABILITY CLASS: G DT/DZ  
 ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	0	1	0	0	0				0	1
NNE	0		0	0	0				0	1
NE	0		0	0	0				0	1
ENE	0		0	0	0				0	5
E	0	2	2	0	0				0	4
ESE	1	6	2	0	0				0	9
SE	1	3	1	0	0				0	5
SSE	1	2	0	1	0				0	4
S	1	1	0	0	0				0	2
SSW	3	4	2	0	0				0	9
SW	1	2	0	1	0				0	4
WSW	0	0	0	0	0				0	0
W	0	0	0	0	0				0	0
WNW	0	0	0	0	0				0	0
NW	1	0	0	0	0				0	1
NNW	1	0	0	0	0				0	1
TOTAL	10	28	7	2	0				0	47

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93063024 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)								>24 TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	12	32	49	25	0			0	118
NNE	13	19	14	7	0			0	53
NE	14	41	13	1	0			0	69
ENE	16	51	45	9	0			0	121
E	12	42	47	2	0			0	133
ESE	10	45	41	16	0			0	112
SE	5	20	42	36	4			0	107
SSE	13	10	37	44	7			0	111
S	15	19	32	28	8			0	102
SSW	25	31	30	33	17			0	136
SW	16	31	70	113	19			1	250
WSW	21	67	94	66	10			1	259
W	21	73	58	68	13			2	235
WNW	16	49	61	47	4			0	177
NW	13	20	55	30	3			0	121
NNW	10	26	51	19	4			0	110
TOTAL	232	576	739	544	89			4	2184

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)									
DIRECTION									
1-3	4-7	8-12	13-18	19-24	>24 TOTAL				
N	0	0	0	0	0				
NNE	0	0	0	0	0				
NE	0	0	0	0	0				
ENE	0	0	0	0	0				
E	0	0	0	0	0				
ESE	0	0	0	0	0				
SE	0	0	0	0	0				
SSE	0	0	0	0	0				
S	0	0	0	0	0				
SSW	0	0	0	0	0				
SW	0	0	0	0	0				
WSW	0	0	0	0	0				
W	0	0	0	0	0				
WNW	0	0	0	0	0				
NW	0	1	1	0	0				
NNW	0	1	1	0	0				
TOTAL	0	2	4	0	0	0	0	6	

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	1	1	0	0	0	2
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
TOTAL	0	2	1	0	0	0	3

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
 PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
 STABILITY CLASS: C DT/DZ  
 ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND SPEED(MPH)									
DIRECTION									
1-3	4-7	8-12	13-18	19-24	>24 TOTAL				
N	0	0	0	0	0	NNE	0	0	0
NE	0	0	0	0	0	ENE	0	0	1
E	0	0	0	0	0	ESE	0	0	0
ESE	0	0	0	0	0	SE	0	0	0
SSE	0	0	0	0	0	S	0	0	0
SSW	0	0	0	0	0	SW	0	0	0
WSW	0	0	0	0	0	WSW	0	0	0
W	0	0	0	0	0	WNW	0	0	0
WNW	0	0	0	0	0	NW	0	0	1
NNW	0	0	0	0	0	NNW	0	0	0
TOTAL	0	1	1	0	0				

PERIODS OF CALM(HOURS): 0  
 VARIABLE DIRECTION 0  
 HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: 0 DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)						
WIND DIRECTION		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	2	3	0	0	0	0	5
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	1	2	0	0	0	0	3
ESE	0	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	3	1	0	0	0	0	0	4
WNW	0	0	0	0	0	0	0	0
NW	0	3	3	0	0	0	0	6
NNW	0	3	1	0	0	0	0	4
TOTAL	3	12	9	0	0	0	0	24

PERIODS OF CALM(HOURS): 0  
WIND DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)							TOTAL
	1-3	4-7	8-12	13-18	19-24	>24		
N	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	
ENE	0	1	2	0	0	0	3	
E	0	6	0	0	0	0	6	
ESE	0	3	0	0	0	0	3	
SE	0	1	0	0	0	0	1	
SSE	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	
SW	1	1	0	0	0	0	2	
WSW	0	0	0	0	0	0	0	
W	0	1	0	0	0	0	1	
WNW	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	
NNW	0	1	0	0	0	0	1	
TOTAL	1	14	2	0	0	0	17	

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

		WIND SPEED(MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL	
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	1	1	0	0	0	0	2	2
E	1	1	0	0	0	0	2	2
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0
SW	1	0	0	0	0	0	1	1
WSW	0	2	0	0	0	0	2	2
W	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0
TOTAL	3	4	0	0	0	0	7	7

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: G DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED (MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040515-93061109 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT1-P

WIND DIRECTION	WIND SPEED(MPH)								>24	TOTAL
	1-3	4-7	8-12	13-18	19-24					
N	0	2	3	0	0	0	0	0	0	5
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	1	2	4	0	0	0	0	0	0	7
E	1	8	3	0	0	0	0	0	0	12
ESE	0	3	0	0	0	0	0	0	0	3
SE	0	2	0	0	0	0	0	0	0	2
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	0	0	0	1
SW	2	1	0	0	0	0	0	0	0	3
WSW	0	2	0	0	0	0	0	0	0	2
W	3	2	0	0	0	0	0	0	0	5
WNW	0	1	1	0	0	0	0	0	0	2
NW	0	6	4	0	0	0	0	0	0	10
NNW	0	5	2	0	0	0	0	0	0	7
TOTAL	7	35	17	0	0	0	0	0	0	59

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0



HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: A DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)					
	1-3	4-7	8-12	13-18	19-24	>24 TOTAL
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NE	0	0	0	0	0	0
ENE	0	0	0	0	0	0
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	0	0	0	0	0	0
SSE	0	0	0	0	0	0
S	0	0	0	0	0	0
SSW	0	0	0	0	0	0
SW	0	0	0	0	0	0
WSW	0	0	0	0	2	0
W	0	0	0	0	0	0
WNW	0	0	0	0	0	0
NW	0	0	0	0	0	0
NNW	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: B DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND SPEED (MPH)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: C DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)					
	1-3	4-7	8-12	13-18	19-24	>24 TOTAL
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NE	0	0	0	0	0	0
ENE	0	1	0	0	0	1
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	0	1	0	0	0	1
SSE	0	0	0	1	0	1
S	0	0	0	2	0	2
SSW	0	0	0	0	0	0
SW	0	0	0	0	0	0
WSW	0	0	0	0	0	0
W	0	0	0	0	0	0
WNW	0	0	1	0	0	1
NW	0	0	0	0	0	0
NNW	0	0	0	0	0	0
TOTAL	0	2	1	3	0	6

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: 0 DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED(MPH)							>24 TOTAL
	1-3	4-7	8-12	13-18	19-24			
N	0	4	0	0	0		0	4
NNE	1	2	0	0	0		0	3
NE	1	1	0	0	0		0	2
ENE	2	1	0	0	0		0	3
E	0	5	0	0	0		0	5
ESE	2	2	3	0	0		0	7
SE	0	2	3	4	0		0	9
SSE	0	1	4	5	0		0	10
S	1	2	4	1	0		0	8
SSW	1	2	0	1	2		0	6
SW	0	0	2	5	0		0	7
WSW	0	1	3	3	0		0	7
W	0	1	2	6	0		0	9
WNW	1	1	1	8	1		0	12
NW	0	0	3	5	1		0	9
NNW	0	0	1	1	0		0	2
TOTAL	9	25	26	39	4		0	103

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: E DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DI2-P

WIND DIRECTION	WIND SPEED(MPH)							>24	TOTAL
	1-3	4-7	8-12	13-18	19-24				
N	1	0	2	0	0			0	3
NNE	0	0	0	0	0			0	0
NE	0	1	0	0	0			0	1
ENE	0	0	0	0	3			0	0
E	0	0	0	0	0			0	0
ESE	0	5	1	0	0			0	6
SE	0	2	1	3	1			0	7
SSE	0	0	2	4	1			0	7
S	0	0	0	0	0			0	0
SSW	2	0	0	0	0			0	2
SW	0	1	0	0	0			0	1
WSW	0	1	0	0	0			0	1
W	0	1	1	0	0			0	2
WNW	1	1	0	0	0			0	2
NW	0	0	0	0	0			0	0
NNW	0	0	3	0	0			0	3
TOTAL	4	12	10	7	2			0	35

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: F DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED (MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0
E	0	2	1	0	0	0	0	3
ESE	0	7	4	0	0	0	0	11
SE	0	2	4	0	0	0	0	6
SSE	1	0	0	0	0	0	0	1
S	2	0	0	0	0	0	0	2
SSW	0	3	0	0	0	0	0	3
SW	2	1	0	0	0	0	0	3
WSW	1	0	0	0	0	0	0	1
W	1	0	0	0	0	0	0	1
WNW	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	0	1
TOTAL	8	15	9	0	0	0	0	32

PERIODS OF CALM(HOURS): 0

VARIABLE DIRECTION 0

HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: G DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

WIND DIRECTION	WIND SPEED (MPH)					
	1-3	4-7	8-12	13-18	19-24	>24 TOTAL
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NE	0	0	0	0	0	0
ENE	0	0	0	0	0	0
E	0	0	0	0	0	0
ESE	0	1	0	0	0	1
SE	0	0	0	0	0	0
SSE	0	0	0	0	0	0
S	0	0	0	0	0	0
SSW	0	1	0	0	0	1
SW	0	1	0	0	0	1
WSW	0	0	0	0	0	0
W	0	0	0	0	0	0
WNW	0	0	0	0	0	0
NW	0	0	0	0	0	0
NNW	0	0	0	0	0	0
TOTAL	0	3	0	0	0	3

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0

HOURS AT EACH WIND SPEED AND DIRECTION  
PERIOD OF RECORD = 93040101-93061809 HOUR RANGE = 01 - 24  
STABILITY CLASS: ALL DT/DZ  
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT2-P

		WIND SPEED (MPH)						
		1-3	4-7	8-12	13-18	19-24	>24	TOTAL
WIND DIRECTION								
N	1	4	2	0	0	0	0	7
NNE	1	2	0	0	0	0	0	3
NE	1	2	0	0	0	0	0	3
ENE	2	2	0	0	0	0	0	4
E	0	7	1	0	0	0	0	8
ESE	2	15	3	0	0	0	0	25
SE	0	7	3	7	10	1	0	23
SSE	1	1	6	3	3	0	0	19
S	3	2	4	1	1	2	0	12
SSW	3	3	0	5	3	0	0	12
SW	2	3	2	3	6	0	0	12
WSW	1	2	3	3	3	0	0	9
W	1	2	3	3	3	0	0	12
WNW	2	2	2	3	3	1	0	15
NW	0	0	3	5	1	1	0	9
NNW	1	0	4	1	1	0	0	6
TOTAL	21	57	46	49	6	0	0	179

PERIODS OF CALM(HOURS): 0  
VARIABLE DIRECTION 0  
HOURS OF MISSING DATA: 0